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Solicitation Response(SR)

Dept: 0313

ID: ESR09192400000002129


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Procurement Folder: 1468037

SO Doc Code: CRFQ

Procurement Type: Central Master Agreement

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Vendor ID:  

SO Doc ID: DEP2500000004

Legal Name: STRATEGIC RISK SERVICES LLC


Published Date: 9/4/24

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Close Date: 9/19/24

Total Bid: \$52,500.00


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Solicitation Description:

Responded By User ID:  

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Department of Administration  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Solicitation Response

Proc Folder: 1468037  
Solicitation Description: Environmental Risk Assessor  
Proc Type: Central Master Agreement

Solicitation Closes	Solicitation Response	Version
2024-09-19 13:30	SR 0313 ESR09192400000002129	1

**VENDOR**  
VS0000022883  
STRATEGIC RISK SERVICES LLC

Solicitation Number: CRFQ 0313 DEP2500000004  
Total Bid: 52500      Response Date: 2024-09-19      Response Time: 12:33:15  
Comments:

**FOR INFORMATION CONTACT THE BUYER**  
Joseph E Hager III  
(304) 558-2306  
joseph.e.hageriii@wv.gov

Vendor Signature X	FEIN#	DATE
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All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Risk or hazard assessment	700.00000	HOUR	75.000000	52500.00

Comm Code	Manufacturer	Specification	Model #
77101501			

**Commodity Line Comments:**

**Extended Description:**

Environmental Risk Assessor Open end contract for service, bid sheet represents an estimated number of hours for bidding purposes to establish a contracted set price per hour.



**EDUCATION**

M.S. Health Aspects of Water Quality (1987)-University of Pittsburgh  
B.S. Chemistry (1980)-University of Pittsburgh

**FIELDS OF SPECIALIZATION**

Public Health and Ecological Risk Assessments  
Environmental Impact Assessments  
Evaluation of Remedial Alternatives  
Project Management  
Analytical Chemistry  
Indoor Air Quality and Vapor Intrusion  
Environmental Education  
PCB MegaRule  
Residential Evaluations  
Toxicological Assessments  
Evaluation of Regulatory Criteria  
Development of Alternative Criteria  
Probabilistic Modeling  
Statistical Analysis of Data  
Property Re-Use Scenarios  
Environmental Covenants/Land Use Covenants

**EXPERIENCE SUMMARY**

Mr. Mahfood has over 45 years of combined environmental experience in project management, human health risk assessment, property re-use scenarios and analytical chemistry. He has focused on the technical requirements under Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2) including the latest issues associated with potential vapor intrusion and indoor air quality. Mr. Mahfood has completed over 400 risk assessments throughout his career. Mr. Mahfood has also worked on a variety of state-led voluntary remediation programs across the United States including Ohio, North Carolina, South Carolina, Idaho, Louisiana, Massachusetts, and West Virginia. He has also worked on various federal programs across the country, including Superfund and both Air Force and Navy programs. Mr. Mahfood has also worked as the lead risk assessment specialist/project manager on over 70 former manufactured gas plant (MGP) sites in the United States. Mr. Mahfood has provided environmental health assessments to the natural gas and electric power industry for over 30 years. He was the former technical lead under The Mahfood Group, LLC® and currently serves as the senior technical advisor under Strategic Risk Services, LLC.

Mr. Mahfood has worked on many sites where he has developed a variety of strategic approaches for site closure utilizing unique aspect and tools of quantitative risk assessment. Many of Mr. Mahfood's clients have relied on his site-specific data evaluation methods and procedures that reduce the need for further remediation. More recently, Mr. Mahfood has utilized various quantitative methods for deriving exposure point concentrations for the construction/utility worker scenarios in un-deeded right of ways, including segmentation of the utility corridors. Mr. Mahfood has also utilized refined fate and transport assessments to establish whether potential downgradient exposure to groundwater impacts exist. Most recently, Mr. Mahfood has proposed alternative approaches to limiting exposure within a utility right-of-way in order to reduce the need for costly remediation. Mr. Mahfood has also focused his technical efforts on how deed restrictions and land use covenants can support the redevelopment of properties without placing significant burden on the property owner and how it affects the property value for future sale.

Mr. Mahfood continues to assist the West Virginia Department of Environmental Protection (WVDEP), Division of Land Restoration, in the review of human health and ecological risk assessments associated with the voluntary remediation and redevelopment program. Mr. Mahfood serves as the technical lead for this contract with the associated work focusing on the following:

- Review of public health and ecological risk assessments;
- Assist and coordinate development of technical topics for use in the review of quantitative risk assessments under the program;
- Interact with both WVDEP project managers and risk assessors to assist in project coordination including scope of work development and review for the site assessments;

- Perform site visits in support of the technical review;
- Perform quantitative reviews of all calculations, fate and transport assumptions and modeling;
- Review of conceptual site model (CSM) design;
- Develop technical comments to be addressed by the entity submitting the risk assessment report;
- Coordinate with the consulting firm submitting the risk assessment report to expedite and streamline technical responses;
- Perform toxicological evaluations on emerging chemicals; and,
- Assist in developing soil attainment criteria for the underground and aboveground storage tank program.

Mr. Mahfood has also worked with the WVDEP to update their underground and aboveground storage tank program by integrating a new approach to streamline the soil closure portion of the program and remove sites more efficiently. Mr. Mahfood has also assisted WVDEP with updating technical spreadsheets that were utilized to derive WVDEP regulatory screening values.

Mr. Mahfood has also conducted Phase I Environmental Site Assessments, Interim Remedial Measures, and Phase II Field Investigations at former MGP facilities. These projects included all aspects of agency negotiations to solicit a phased approach outlined in a decision flow diagram. He has coordinated all activities associated with the removal of coal tar material from above ground and below ground gas holders and associated MGP structures. Mr. Mahfood has also been responsible for conducting quantitative risk assessments at many different types of industrial/commercial facilities across the country, including both RCRA and Superfund sites. In addition, Mr. Mahfood has assisted many clients on projects related to either bulk storage facilities or large gas compressor stations.

## **SELECTED PROJECT EXPERIENCE**

- Mr. Mahfood was responsible for oversight and management of a residual risk assessment that evaluated potential impacts to an adjacent right-of-way. Due to increasing plume trends observed in the vicinity of the source area, a post-remedial care plan was necessary to monitor future plume migration to off-site areas. This post-remedial care plan incorporated periodic sampling of select monitoring wells based on a complex hydrogeologic CSM. A site-specific series of groundwater monitoring criterion were developed for both on-site and off-site receptors (both direct contact and vapor intrusion) in order to assess future groundwater results to confirm continued attainment of PADEP risk benchmark criteria.
- Mr. Mahfood developed a complex conceptual site model supported by a statistical analysis to demonstrate attainment of the background standard under Act 2. MTBE was demonstrated to be migrating from an upgradient source onto a site with a separate UST release. The analysis utilized upper tolerance limits to show that the concentrations in the site background reference well were not exceeded in any point of compliance wells at the site. This evaluation required a complex hydrogeologic model to demonstrate the extensive MTBE plume migration within a specific aquifer.
- Mr. Mahfood has recently coordinated and developed a site-specific CSM to address chlorinated compounds within a groundwater matrix. This included development of a portion of the hydrogeologic CSM to explain the attenuative capacity of the site-specific subsurface conditions limiting constituent migration off-site to a residential area.
- Mr. Mahfood has lent his expertise in toxicological evaluations for a variety of site-specific closures under various state regulatory programs.
- Mr. Mahfood has completed the conceptualization and implementation of a post-remedial care plan to address potential intrusive activity exposure within a right-of-way. This included a complete statistical analysis of groundwater analytical data to support the derivation of remedial goals that will be utilized for long-term monitoring.

- Mr. Mahfood has recently managed the installation of a groundwater recovery trench system adjacent to a wetland in order to mitigate oil-impacted groundwater migrating to the wetlands and adjacent surface water features. Also, as part of this project, Mr. Mahfood is assessing various environmental media utilizing C8-C40 semi-quantitative molecular characterization.
- Mr. Mahfood was the lead risk assessor for a project where historical environmental impacts within the subsurface have migrated to adjacent offsite residential properties. The environmental impacts are at least 25 below ground surface and are likely not impacting the current commercial facility. However, the offsite impacts adjacent to the commercial facility are much shallower (3 to 5 feet below ground surface) and were found to be present beneath the residential properties. This could have consequences with respect to future residential use. The project is in the final stages of a comprehensive environmental investigation. In addition, the potential for off-site residential exposure has been mitigated through a series of interim remedial actions. Further supplemental assessment is currently being conducted to address potential direct contact exposures (which include within public right-of-way) and remaining vapor intrusion pathways.
- Mr. Mahfood was the lead risk assessment specialist on a bulk chemical facility in Pennsylvania. The facility has had many historic releases of various types of chemicals over time. The facility is approximately 30 acres in size and presents a unique challenge in how data is manipulated to present potential chemical exposure from these releases. A comprehensive conceptual site model was developed which allowed for the partitioning of data in order to create realistic and cost-effective exposure scenarios. This type of approach limited unnecessary remedial activities but still complied with state regulatory requirements.
- Mr. Mahfood has developed and implemented a post remedial care program to monitor sites that have been closed under various regulatory programs. This post remedial care program consists of information/data collection to ensure that post remedial care obligations are being met. The information is archived into a data base and reports are submitted to the appropriate agency on a regular basis.
- Environmental covenants (EC)/Land Use Covenants (LUC) are a critical part of site closure under many state-led remediation projects. Mr. Mahfood has developed and implemented the necessary institutional controls for site closure and has prepared many EC/LUC as part of post remedial care obligations. These types of projects require a complete understanding of existing local ordinances and how they affect the current and future use of the property.
- Mr. Mahfood has worked on a former manufacturing/plating facility where PCB sediment migration in drainage ditches was a potential issue. A historic review of the plant operations was completed to focus in on the potential sources of PCBs on the facility. With a refined strategic approach for sampling, PCBs were shown to attenuate to near acceptable levels, and biological issues associated with the sediment were of less concern when incorporating a biological assessment of the sediment. Therefore, the only remaining issue was to evaluate potential residual exposures to sediment for a trespasser.
- Mr. Mahfood has worked on a bulk petroleum storage facility outside the United States, which presents a unique set of issues related to applicable guidance and criteria for completion of the quantitative risk assessment. An in-depth analysis of potential exposure scenarios was completed for the local community and a preliminary conceptual site model was developed using numerous alternative guidance documents and methods for obtaining environmental field data to be used in the quantitative risk assessment.
- Mr. Mahfood has worked within the electric power generation industry assisting his clients on the latest issues associated with coal fired power plants, including toxicological evaluations of coal fired power plant by-products and ash material. He has also been involved in a variety of issues associated with electric substations.

- Mr. Mahfood has worked on various aspects associated with the gas industry and related impacts for development of natural gas compressor stations, including the development of site specific clean up criteria when Act 2 criteria are not available.
- A former industrial plant encompassing approximately 16 acres was evaluated by Mr. Mahfood utilizing the site-specific standard under Pennsylvania's Act 2 program which affords a property owner the option to assess site specific risks using various current and potential future use scenarios. The site was divided into three future development parcels. Each parcel was addressed separately with site specific scenarios. One primary issue with the site was the diffuse groundwater discharge to surface water with impacts of chlorinated solvents and an identified preferential pathway also leading to the surface water via an historic catch basin system. Based on the results of the risk assessment a series of remedial action objectives were developed by Mr. Mahfood giving the property owner cost effective alternatives to address the surface water issues.
- Mr. Mahfood was the lead consultant for developing and implementing a PCB monitoring program for a Pennsylvania utility under the federal PCB MegaRule Program Part 761. Responsibilities included developing sampling protocols, establishing a data base management system, working with the utility to update their natural gas pipeline system data base identifying PCB locations and developing system wide protocols for implementing mitigation measures.
- Mr. Mahfood has performed quantitative risk assessments on a variety of sites with mercury impacts. These evaluations focused on manometer repair buildings, compressor stations, and various other types of units where mercury impacts occurred (e.g. Superfund Sites). Of special interest for some of the projects was a complete understanding of how mercury may migrate within the structures (and external to the structures) where repairs took place (especially those facilities with wooden floors). Mercury migration as it is considered in quantitative risk assessments was very important in order to not underestimate the potential for receptors to be exposed outside the primary release area.
- Mr. Mahfood has worked as the lead risk assessor on numerous petroleum/underground storage tank sites located in both Pennsylvania and West Virginia under their respective voluntary programs. These assessments focused the use of risk assessment on addressing environmental impacts in order to place these sites back into use. Preliminary conceptual site modeling was paramount in converging the investigative activities to address those areas of the site that could create the most significant risk and then will help to develop specific remedial action objectives to mitigate any risk benchmark exceedances. Most of the site conceptual models addressed nonresidential use; however, several of the sites needed to address future residential use and recreational use as part of the risk assessment.
- Mr. Mahfood has focused a considerable amount of time on vapor intrusion and indoor air quality. He has worked closely with a nationally recognized air laboratory to develop and refine soil gas sampling procedures and indoor air sampling methodologies utilizing his combined public health and chemistry background with specific focus on residential indoor air.
- Mr. Mahfood conducted a risk assessment on a former MGP located in Wilmington, NC. Investigative activities for this site were conducted under an Administrative Order on Consent (AOC). Current use of the site included a senior housing facility, a public boat ramp, and an abandoned industrial facility. The surrounding area includes residential properties. The site contained the typical MGP residual source areas. Because a portion of the MGP site is currently used and the other portion is being considered for future development, a variety of future use exposure scenarios were developed to focus the risk assessment. By incorporating reasonable future use scenarios at the beginning of the process and working together with the various interested parties, a significant cost savings can be realized for this site.
- One of Mr. Mahfood's latest projects involved the West Virginia Voluntary Remediation Program (VRP). The site is located in Kenova, West Virginia along the Ohio River. The site was a former industrial facility that housed a variety of industrial activities over the years. Mr. Mahfood was acting as both Sr. Project

Manager and Sr. Risk Assessment Specialist on the project. The site has many unique characteristics including the involvement of multiple VRP's due to environmental impacts on adjacent properties, some of which have migrated and consequently impacted the site. Activities involving Mr. Mahfood's experience at the site included multiple years of assessment and remediation. Beginning with a strategy meeting with the WVDEP, a unique approach was developed to address impacts at the site. This approach included addressing the soil and groundwater impacts (vapor intrusion from shallow perched zones) first. This approach enabled progression of the site investigation activities related to the soil independent of the deep groundwater issues which were a result of other entities and are being addressed under separate VRP's.

A risk-based approach was utilized at the beginning of the project to develop a CSM which focused the program on soil and the perched groundwater (vapor intrusion only). This process was helpful in centering the remedial investigation efforts on the end use and producing analytical data necessary for the site-specific risk assessment. As part of the baseline risk assessment (BRA) for the site, Mr. Mahfood developed reasonable scenarios which addressed both current site situations and the future use based on knowledge of the surrounding area and the interest of adjacent property owners in the site. The BRA used both default and site-specific inputs and assumptions which resulted in a conservative approach in order to develop potential remedial action objectives (RAOs). The BRA results indicated the need to address surface soil due to excess lead in two small areas of the site.

Therefore, Mr. Mahfood oversaw the preparation of a Remedial Action Plan (RAP) that was prepared and implemented to reduce the surface soil lead concentration to an acceptable level as demonstrated by the conduct of a residual risk assessment (RRA). Mr. Mahfood worked closely with the WVDEP project manager in order to delineate the remediation area and to collect post excavation samples necessary for use in the RRA.

In the conduct of this risk assessment process along with other risk assessments performed by Mr. Mahfood, he has utilized the most recent accepted methodologies in developing CSMs, fate and transport evaluation, receptor analysis, statistical analysis, quantitative assessment and uncertainty analysis. This project recently received a No Further Action Letter from the WVDEP.

- Mr. Mahfood was a program manager for a multi-site MGP program being conducted under a Consent Order and Agreement (COA) in accordance with Pennsylvania's Land Recycling and Environmental Remediation Standards Act (commonly known as Act 2). Mr. Mahfood's responsibility included managing 8-10 MGP sites on an annual basis under this program. Project activities have included Phase I activities, Remedial Investigations, Risk Assessments, Interim Remedial Activities, Cleanup Plans and Final Report documentation.

As part of this program, generic documents (e.g., Generic Work Plan, Generic QAPP and Generic HASP) have been developed. These generic plans facilitate the use of generic procedures on a site-specific basis. The client realizes a significant cost savings by utilizing these types of generic documents.

As an important element of the multi-site program, Mr. Mahfood participated in program meetings with the Pennsylvania Department of Environmental Protection (PADEP) once a year to discuss program and technical issues. These meetings included five of the six PADEP regions and PADEP's central office. These meetings acted as the forum to discuss technical issues before they become problematic on a particular project (or program wide).

Under this program, Mr. Mahfood completed management of a site investigation and cleanup where a detailed delineation of a basal confining unit was performed in order to determine the potential for coal tar migration. This activity enabled the placement of a product recovery system in an area where coal tar accumulation was most prominent. In addition, delineation of this unit also was useful for the placement of piezometers to monitor potential migration during recovery efforts and show that the coal tar was not migrating to the point of compliance (i.e., property boundary).



The site activities have also included project objectives which have focused on reuse, including benefits for the site owner, local municipality and the local community. Mr. Mahfood has conducted a site-specific risk assessment for this property which incorporated very specific end use activities including a little league baseball field and supporting facilities (e.g. parking lot). Based on the risk assessment findings, it was determined that an engineered control along with deed restrictions on intrusive activities and an incomplete pathway for groundwater use would satisfy Act 2 requirements for closure and offer this site for reuse to the local community. This site has recently been closed under Act 2 and a relief of liability has been granted. The site was also designated as one of PADEP's "Showcase Sites" under the Land Recycling Program.

- Mr. Mahfood was project manager for the investigation and interim remedial action (IRA) phases and senior risk assessment specialist for a former manufactured gas plant site located in Pennsylvania. This site was also evaluated under the multi-site program. The site is adjacent to a recreational surface water body and a boat ramp to access the river. Based on the results of the IRA (which included the removal of approximately 700 tons of coal tar from a below grade gas holder) and the risk assessment, the final remedy for the site included an engineered cover and natural attenuation. The natural attenuation portion was supported by groundwater modeling activities to demonstrate that there was no direct impact to the adjacent surface water body. The results of these activities invited the local municipality to purchase the property and designate the site as "green space" to help encourage additional recreational use of the river. This site received a relief of liability under Act 2.
- Mr. Mahfood was project manager and lead risk assessor for an MGP site where purifier waste was identified as the primary MGP waste. This material was distributed along the surface of the site. He led the initial investigation activities to determine the vertical and horizontal extent of the purifier waste. Based on the site investigation, Mr. Mahfood coordinated hot spot removal of certain areas exceeding applicable Act 2 medium-specific standards and performed a residual risk assessment demonstrating acceptable site-specific risks. Subsequent to the removal and risk assessment activities, the area was returned to beneficial use as a parking lot for the local gas company. A relief of liability was granted for this site under Act 2.
- Mr. Mahfood was the lead risk assessment specialist for two site-specific risk assessments utilizing both U.S. EPA Region 4 and State of North Carolina Guidance for a manufactured gas plant site located in North Carolina. The site consisted of two separate parcels where very different conceptual site models were developed to account for the distinct differences in current and potential future site use. The results of the risk assessment showed that for the one parcel only surgical soil removal would be necessary to meet site use and acceptable risk levels. While the other parcel met acceptable risk levels and no remedial alternative was necessary. A key element of both risk assessments was the development of a risk-based approach with consideration of potential current and future use and the use of reasonable exposure scenarios.
- Mr. Mahfood has completed the risk assessment on a former MGP site in North Carolina where the future development will be for recreational boating activities. Based on the planned future use, Mr. Mahfood was able to develop site-specific exposure scenarios which will limit removal of historic MGP materials to those contained in below grade structures (e.g., below grade holder and tar wells).
- Mr. Mahfood worked on a site-specific risk assessment in North Carolina where historic manufactured gas plant operations were conducted and more recently the site was used as a dry cleaner. The complicating factor with this site was the combined constituent list of manufactured gas plant residuals and dry cleaner chemicals. An office currently occupies a small portion of the site; however, the remainder of the site is unoccupied (with some vacant structures). The risk-based approach plays a very important role for redevelopment of the property. Redevelopment plans are incorporated into the risk-based approach therefore, enabling the refinement of a conceptual site model and the development of realistic potential exposure input parameters based on the future use, especially when considering potential exposure pathways such as vapor intrusion.

- As a Senior Environmental Risk Analyst, Mr. Mahfood has performed public health environmental assessments for industrial clients as part of remedial investigations and the development of various risk-based approaches. The types of sites include: coke plants, manufactured gas plants, wood treating plants, and coal tar refineries. He has provided expertise in the development of potential human exposure and environmental pathways and fate and transport analysis of site related chemicals in the environment.
- Mr. Mahfood has been involved in probabilistic cost modeling for various confidential clients. He has worked on and developed input parameters and methods for describing various probability distributions for use in the modeling.
- Mr. Mahfood was lead risk assessor for an industrial site where he compared the benefits of performing a deterministic risk assessment versus a probabilistic risk assessment and weighed the cost of each against a favorable outcome in order to show that implementation of a remedy was not necessary. This assessment was conducted under the Ohio VAP and saved the client approximately \$500,000 dollars in remediation costs.
- Mr. Mahfood historically focused his efforts on evaluating the potential for reuse of “waste” material as a product for retail sale. He performed a risk assessment under Pennsylvania’s Residual Waste Regulations to establish wood ash as a coproduct for various commercial uses (e.g., as a soil amendment, road base material). The activities associated with this risk assessment required a complete understanding of the manufacturing process which generated the wood ash, potential reuse markets, chemical breakdown of the material, potential use scenarios and a unique understanding of use specific exposure parameters.
- The following technical specialties support Mr. Mahfood’s efforts acting as both project manager and risk assessment specialist for many of his projects. They include public health risk and environmental impact assessments, utilizing deterministic assessments and probabilistic analysis, chemical/analytical program development, contaminant fate and transport and statistical analysis. Mr. Mahfood performed qualitative and quantitative health risk and environmental assessments for superfund remedial investigations and feasibility studies. One of his Superfund projects included a risk assessment for a car battery reclamation site where lead was the major environmental concern. This assessment not only included an evaluation of potential exposure to lead, but an assessment of how the lead would migrate in the environment based on the acidic conditions as a result of the battery acid.
- Mr. Mahfood has been responsible for the preparation of sampling and analysis plans, including budgeting and scheduling of associated analytical activities. Mr. Mahfood’s background in analytical chemistry has assisted him in selecting the appropriate analytical methods necessary to accomplish project quality objectives and to assure attainment of chemical criteria.
- Mr. Mahfood has also completed public health and environmental assessments for uncontrolled waste sites and developed comprehensive validation procedures for the evaluation of analytical data on several remedial investigations for the U.S. Department of Defense. These sites included Air Force bases, with a focus on the risk associated with exposure to the various areas where training activities were completed (e.g., burn pits).
- As a Chemist, Mr. Mahfood coordinated the analysis and data review of water and soil samples under Superfund protocol for the analysis of pesticides, herbicides and PCBs. Mr. Mahfood has a complete analytical background in the analysis of industrial wastes by gas chromatography, including volatile compounds, PCBs, herbicides, base/neutral, and acids. He has also analyzed water samples for inorganic ions by ion chromatography and performed a variety of wet chemical analyses for inorganic constituents.

- Mr. Mahfood has developed quality control procedures, including routine quality control charts along with a complete statistical analysis to monitor and review test results on a daily basis. He has also performed analysis on other media such as acid mine drainage, industrial effluents, home drinking water and coal samples.

## PARTIAL LIST OF SELECTED PUBLICATIONS/PRESENTATIONS

Hale, J.R., J.J. Mahfood, and R.J. Hickman, 1999. *Evaluating Natural Attenuation of Dissolved Coal Gasification Derivatives in Shallow Unconfined Aquifers*. Presented at the IGT Twelfth International Symposium on Environmental Biotechnologies and Site Remediation Technologies & Utility Industry Environmental Issues, Challenges, and Solutions. December 1999.

Hasel, Michael, J.J. Mahfood, Anthony Mazzoni. A Case Study for Cost Effective Control of MGP Site Remediation Risks with a Fabric Structure in a Residential Setting. Presented at the Gas Technology Conference & Exhibition, Orlando, Florida. January 30-February 2, 2005.

Hayes, Heidi, J.J. Mahfood, B. Shamory. Comparison of EPA Compendium Methods TO-15 and TO-17 for the Measurement of Naphthalene in Soil Gas. Presented at Business of Brownfields Conference, April 17-18, 2008.

Hoff, Richard F., John J. Mahfood, Amanda L. McGuinness. Sustainable Benefits of Urban Farming as a Potential Brownfields Remedy. Business of Brownfields Conference, Pittsburgh, PA. April 2010.

Hoff, Richard F., Tammi Halapin, John J. Mahfood. Effects of Changing Regulatory Paradigms on Brownfield Viability and Sustainability. Business of Brownfields Conference, Pittsburgh, PA. April 2009.

Hoff, Richard F., Tammi Halapin, John J. Mahfood. Practical Considerations in Sustainability. Business of Brownfields Conference, Pittsburgh, PA. April 2009.

Kotun, R.J., and J.J. Mahfood, 1994. Deriving a Practical and Cost-Effective Soil Remedial Goal for Carcinogenic PAHs. Presented at Superfund 1994, December 1994.

Kupchella, L., A. Syty, and J.J. Mahfood, 1983. Improved Apparatus for Rapid Mercury Determination by Cold Vapor Atomic Absorption Spectroscopy. Journal of the Association of Official Analytical Chemists, September 1983, Volume 66, pp. 1117-1120.

Mahfood, J.J., Andrew Swales, 2011. Karst Geology, Vapor Intrusion and Human Health Risk Assessment – Fundamental Issues to Consider. Growing Communities on Karst 2011 and the Great Valley Water Resources Science Forum, September 2011.

Mahfood, J.J., Mary Washko, 2010. Risk Assessment and a Multi-Phased Approach to Investigating TCE Plume in Karst. Growing Communities on Karst 2010 and the Great Valley Water Resources Science Forum, September 2010.

Mahfood, J.J., B.D. Shamory, H. Hayes, 2007. Vapor Intrusion Pathways, Evaluating Naphthalene. Presented at the Business of Brownfields Conference, April, 2007.

Mahfood, J.J., M. Ferlin, R. Contrael, Dougherty, A. Lopez, D. Shier, 2006. Stratified Soil Gas Sampling at an MGP Site for Use in a Quantitative Risk Assessment, A Case Study. Presented at Gas Technology Conference and Exhibition, Orlando, Florida, October 2006.



Mahfood, J.J., Richard E. Baker, Jr., Jennifer M. Malle. Utilizing a Risk-Based Approach to Reduce Soil Excavation Costs. Presented at the Gas Technology Conference & Exhibition, Orlando, Florida. January 30-February 2, 2005.

Mahfood, J.J., D.J. Wingerd, and R.J. Kotun, 1994. A Decision Flow Chart for Cleanup of Multiple Manufactured Gas Plant Sites. Presented at HMCRI Federal Environmental Restoration III and Waste Minimization II Conference and Exhibition, New Orleans, LA, April 1994.

Malle, J.M., J.J. Mahfood, and A.C. Swales, 2001. Co-Product Determination-Applying State Residual Waste Regulations for Re-Use of Fly-Bottom Ash Material as a Retail Product. Presented at the Gas Technology Institute 14th Annual International Conference. December 2-6, 2001.

Shamory, Craig S., J.J. Mahfood, Andrew C. Swales. An Innovative Method for Presenting and Evaluating the Hydrogeologic and Exposure Aspects of a Risk-Based Site Closure. Presented at the Gas Technology Conference & Exhibition, Orlando, Florida. January 30-February 2, 2005.

Shamory, Brett, Smith, Lisa, 2015. Evaluation of Virginia DEQ Trench Model for Construction/Utility Worker Exposure Pathway Risk Assessment. Presented at the Pennsylvania Brownfields Conference. 2015. Co-contributor – John J. Mahfood.

Shosky Jr., D.J., J.J. Mahfood, R.A. Brown, and M. Jackson, Jr., 1995. Emerging Technologies for Recycling MGP Sites. Pollution Engineering, June 1995, Volume 27, Number 6, pp. 62-66.

Swales, A.C., J.J. Mahfood, J.R. Hale, E. Meyer, and M.J. Hasel, 2000. Remediation, Restoration, Re-Use: Accomplishing the Three R's of MGP Site Revitalization. Presented at the Gas Technology Institute Thirteenth International Symposium on Site Remediation Technologies & Environmental Management Practices in the Utility Industry. December 4-7, 2000.

Shaw, Bruce, L. Smith, and J. J. Mahfood, 2014. Risk Assessment to Support Multi-Phase Brownfields Redevelopment. Presented at the 2014 West Virginia Brownfields Conference. September 11 and 12, 2014.

Urbassik, Mark, Smith, Lisa, 2012. A Different Paradigm for Brownfield Assessments/Remediation. Presented at the Pennsylvania Brownfields Conference. 2012. Co-authored by John J. Mahfood.



**Andrew C. Swales, P.G., C.P.G.**  
**Principal Geologist / Sr. Technical Advisor / President**

**EDUCATION:**

BS, Geology, Bucknell University, 1988

**CONTINUING EDUCATION:**

Environmental Risk Assessment & Remediation Strategies for Hazardous Waste Sites, Chartered Institute of Professional Certifications, Jan. 2024

ASTM E1527-21 Phase I Environmental Site Assessments-Industry Update, Association of Engineering Geologists, Jan. 2022

Optimizing Injection Strategies and In situ Remediation Performance, ITRC Dec. 2021

The Invisible Gorilla in the Courtroom: Managing Hydrogeologic Risks in the Wake of the SCOTUS Functional Equivalent, Pennsylvania Council of Professional Geologists, Jul. 2021

Optimizing Injection Strategies and In situ Remediation Performance, ITRC Dec. 2021.

TPH Risk Evaluation at Petroleum-Contaminated Sites, ITRC Dec. 2020

Nuts and Bolts of a Remediation Site, Innovative and Budget-Saving Site Remediation of a Very Messy Manufacturing Site, Association of Engineering Geologists, Aug. 2020

Naturally Occurring Asbestos in the United States: Occurrences, Regulations, Mitigation Methods, and Emerging Issues, Association of Environmental & Engineering Geologists, Jun. 2020

Borehole Geophysics Applied to Bedrock Hydrogeologic Evaluations, USEPA Office of Superfund Remediation Monitoring, Oct. 2018

Environmental Geophysics Applied to Site Characterization, Plume Mapping, and Remediation Monitoring, USEPA Office of Superfund Remediation Monitoring, Oct. 2018

Vapor Intrusion (VI) Guidance Training, Pennsylvania Council of Professional Geologists, Dec. 2016

Fracture Trace Analysis in a Digital Age, Pennsylvania Council of Professional Geologists, Jun. 2015

Legal Issues for Pennsylvania Geologists, Halfmoon Education, Inc., Jan. 2014

Land Application of Biosolids (PADEP Course #155), PADEP, Mar. 2014

Hydrogeology and Management of Karst Groundwater Resources, GEO-CEU 2010

Principles of Soil and Groundwater Geochemistry, Pennsylvania Council of Professional Geologists, Nov. 2008

Understanding and Addressing Well Performance Issues, Kleinfelder, April 2008

Phase I & II Environmental Site Assessments for Commercial Real Estate, ASTM International, 2005

Act 2 Workshop, the Pennsylvania Land Recycling Program, PADEP, 2007 and 2011

Vapor Intrusion Workshop, the Pennsylvania Land Recycling Program, PADEP, 2004

AutoCAD and its Applications, Beaver County Area Vocational Technical School Adult Education Program, 1997

Analysis and Design of Aquifer Tests, Including Slug and Fracture Flow, National Groundwater Association, 1995

Bioremediation of Hazardous Waste Sites: Practical Approaches to Implementation, Environmental Protection Agency, 1993

Control, Containment and Remediation of Groundwater Contaminants, Environmental Education Enterprises, 1993

Practical Karst Hydrogeology with Emphasis on Groundwater Monitoring, National Groundwater Association, 1991

Technical Writing Workshop, National Groundwater Association, 1991

Fifth National Outdoor Action Conference, National Groundwater Association, 1991

Applied Drilling Engineering for Rotary and Auger Methods, National Groundwater Association, 1990

Groundwater Pollution and Hydrology, Groundwater Associates of Princeton, 1989



## **PROFESSIONAL REGISTRATIONS:**

Professional Geologist, PG000324G, Commonwealth of Pennsylvania  
American Institute of Professional Geologists Certified Professional Geologist CPG-09786

## **CERTIFICATIONS AND AFFILIATIONS:**

Forty-Hour OSHA Health & Safety Training for Hazardous Waste Site Operations (with annual refreshers)

Eight-Hour OSHA Health & Safety Training for Hazardous Waste Site Supervisors

Member of Association of Engineering Geologists

## **EXPERIENCE:**

Over 36 years of experience ranging from project to principal geologist/hydrogeologist in conducting environmental investigations and remediation programs pursuant to RCRA, CERCLA, various brownfields initiatives, and other state voluntary and consent programs. Project responsibilities include field investigation planning; evaluation of geologic, hydrogeologic, and environmental data; data management; report writing; LNAPL and DNAPL recovery well and system design; supervision of field activities including drilling, borehole testing, simple and complex well installations, aquifer testing, and sampling; and management of remedial construction projects. Experience includes field investigation planning; evaluation of geologic, hydrogeologic, and environmental data; data management; report writing; LNAPL and DNAPL recovery well and system design; supervision of field activities including drilling, borehole testing, simple and complex well installations, aquifer testing, and sampling; and management of remedial construction projects. Experienced in the evaluation of subsurface geologic and hydrogeologic conditions as they pertain to the migration and attenuation of contamination, and general movement of groundwater.

## **PRIMARY RESPONSIBILITIES:**

Mr. Swales' expertise lies in the areas of risk-based management and coordination of geologic/hydrogeologic investigations, remedial actions, and monitoring activities; collection and analysis of geologic and hydrogeologic data; supervision of staff-level geologists and scientists; and technical geologic/hydrogeologic project support. Areas of active investigation include leaking underground storage tanks, former industrial waste disposal sites, and application of Pennsylvania's Act 2 program for the redevelopment of former industrial facilities and brownfields.

Mr. Swales' has extensive expertise in the geologic and hydrogeologic characterization of Sites with many sites ultimately requiring environmental risk assessments in order to achieve regulatory closure. Principal Geologic support includes evaluation of hydrogeologic and geologic data in support of environmental risk assessment projects, including evaluation of groundwater fate and transport modeling. Significant expertise in the development of Conceptual Site Models in support of environmental and human health risk assessments, including the evaluation of subsurface data, hydrogeologic conditions, and groundwater fate and transport considerations to define potential exposure pathways and receptors.

In addition to the MGP investigations, Mr. Swales provides senior geologic and hydrogeologic guidance and technical oversight of multiple environmental investigations, including leaking underground storage tanks, truck rollover / spills, former industrial waste disposal sites, and brownfields re-development of former industrial facilities. His extensive experience and understanding of geologic and hydrogeologic settings provide for the development of complete risk-based environmental exposure scenarios for complex sites.

## **PROFESSIONAL EXPERTISE:**

- ❖ Conceptual Site Model Development
- ❖ Geologic and Hydrogeologic Applications  
Relative to Pennsylvania Act 2 Program
- ❖ Groundwater supply investigations
- ❖ Fracture-trace and land-use analyses
- ❖ Siting, design and installation of groundwater  
supply test wells, production, and recovery wells
- ❖ Site-suitability and hydrogeologic impact  
assessments for in-ground and spray-irrigation  
sewage disposal systems
- ❖ RCRA Facility Investigations (RFIs)
- ❖ Remedial Investigation/Feasibility Studies  
(RI/FS)
- ❖ Fate and Transport Analyses
- ❖ Geologic investigations and analyses
- ❖ Hydrogeologic investigations and analyses
- ❖ Sampling and Analysis Plans
- ❖ Underground Storage Tank (UST) investigations
- ❖ Site assessments
- ❖ Siting, design and installation of product  
recovery, vapor-extraction/bioventing, and  
monitoring wells
- ❖ Down-hole video surveying and interpretation
- ❖ Soil, groundwater, surface water, and waste  
material field screening and sampling
- ❖ Soil and rock logging

## **PUBLICATIONS and PRESENTATIONS:**

Mahfood, John and Swales, Andrew C. (Presenters): *Karst Geology, Vapor Intrusion and Human Health Risk Assessment – Fundamental Issues to Consider*. Presented at the Growing Communities on Karst 2011 and Great Valley Water Resources Science Forum. September 2011.

Swales, A.C. (Presenter): *An Innovative Method for Presenting and Evaluating the Hydrogeologic and Exposure Aspects of a Risk-Based Site Closure*. Presented at the Gas Technology Institute 17<sup>th</sup> Annual International Conference. February 2005.

Malle, J.J., J.J. Mahfood, and A.C. Swales, 2001. *Co-Product Determination-Appling State Residual Waste Regulations for Re-Use of Fly-Bottom Ash Material as a Retail Product*. Presented at the Gas Technology Institute 14<sup>th</sup> Annual International Conference. December 2-6, 2001

Swales, Andrew C., et al, *Remediation, Restoration, Re-Use: Accomplishing the Three R's of MGP Site Revitalization*. Presented at the 2000 Gas Technology Institute Management of MGPs and Innovative Site Remediation Techniques Conference. December 2000.

Hullinger, Jeffrey P., Skubak, James, Hawthorne, Daniel S., and, Swales, Andrew C., 1996. *Innovative Environmental Investigation Techniques for Iron and Steel Facilities*. Proceedings of the 1996 American Iron & Steel Society Spring Conference. Cincinnati, Ohio.

Swales, Andrew C., 1988. *A Stormy Past: Cyclic Tempestite Sequences of the Middle Ordovician Salona Formation in Central Pennsylvania*. Unpublished Senior Thesis, Bucknell University. Lewisburg, Pennsylvania.

NOTE: Also primary data collector, evaluator, and author of publication completed for Electrical Power Research Institute (EPRI) regarding innovative investigation and site characterization methods at MGP sites. The report was prepared while under previous employment and the report was not finalized until after my departure. Many of the results have been presented at the Gas Technology Institute's annual conferences and exhibitions in 2002 and 2003.



**Sarah Leininger**  
**Sr. Risk Assessment Specialist / Environmental Scientist**

#### **SUMMARY OF QUALIFICATIONS:**

- Calculated site-specific cleanup values in West Virginia, Pennsylvania, & Ohio
- Calculated generic screening standards for Louisiana sites
- Worked on complex risk assessments involving surface water & sediment
- Familiar with derivation of uniform standards for compounds with minimal toxicity information for a West Virginia site

#### **EDUCATION:**

Ph.D. Chemistry (2021), The Pennsylvania State University

B.S. Biology-Chemistry, Mathematics (2014) – Summa Cum Laude, Manchester University

#### **EXPERIENCE:**

Dr. Leininger has environmental experience in areas including statistical evaluation of analytical data, conceptual site model development, vapor intrusion assessments, quantitative human health risk assessments, and ecological assessments. She has focused on the technical requirements under Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2) but is also familiar with the West Virginia Voluntary Remediation and Redevelopment Act (VRRRA), Ohio Voluntary Action Program (VAP), and the Louisiana Risk Evaluation/Corrective Action Program (RECAP) programs. Dr. Leininger has completed several risk assessments ranging from small UST or single constituent sites to larger sites with extensive off-site effects and chlorinated compounds.

#### **PROFESSIONAL EXPERTISE:**

Dr. Leininger has experience in statistical evaluation of analytical data, screening of data against appropriate media specific criteria, toxicity assessments, quantitative risk assessments, and development of complex conceptual site models in order to efficiently and effectively close sites under various state standards. She has assisted in the development of Baseline and Residual Risk Assessments, Remedial Investigation Reports, and Site Assessment Reports. Dr. Leininger is proficient in Microsoft Word, Excel, PowerPoint, Access, and Python, and has experience automating processes for accuracy and efficiency.

Dr. Leininger did her first year of experience as a risk assessor working for Strategic Risk Services, LLC under the direction of Lisa Poppelreiter and Adrienne Remo. She has a solid understanding of the equations, parameters and calculations necessary to complete a risk assessment using models from USEPA and ASTM as well as other states such as Pennsylvania, Virginia, Louisiana, and Massachusetts. She is also comfortable with the calculations employed by the USEPA for the calculation of screening values and can use these to calculate cleanup numbers in various states. She is familiar with the most recent chemical properties and toxicity criteria available through a hierarchy of resources and is comfortable evaluating potential risks of various types of constituents (e.g., mutagens, metals, chlorinated solvents, etc.). Dr. Leininger has utilized statistical methods to determine whether constituents are detected in higher concentrations on a site of interest as compared to surrounding background properties. She has experience evaluating lead exposure using the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK).

Dr. Leininger is also competent in utilizing various online research tools such as the PA Groundwater Information System (PaGWIS) online database to obtain information on potable wells within the vicinity of a site and the Pennsylvania Natural Diversity Inventory (PNDI) environmental review tool as part of the ecological assessment of a risk assessment. She is competent in utilizing USEPA's ProUCL, a comprehensive statistical software package, in order to perform statistical analyses of analytical data to develop exposure point concentrations. She has performed numerous risk calculations and has written supporting documentation for several risk assessments in various state programs. Dr. Leininger has utilized a number of various fate and transport models to estimate exposure point concentrations. These include the Johnson and Ettinger (J&E) model (to estimate indoor air concentrations) and the Virginia Department of Environmental Quality (VA DEQ) trench model (to estimate trench air concentrations from groundwater).

#### **SELECTED WORK/PROJECT EXPERIENCE:**

##### ***Determination whether Screening Standards were Protective of the Potential Exposure Scenario***

Dr. Leininger has evaluated whether the Ohio EPA's VAP commercial/industrial generic direct contact soil standards were protective of a future recreation use scenario involving children. Site-specific cleanup values were calculated for constituents exceeding the residential generic direct contact soil standards in accordance with the Ohio EPA VAP guidance. The calculated site-specific cleanup values showed that the commercial/industrial direct contact soil standards were not protective of child recreational use, and site-specific cleanup numbers protective of child recreational use were provided to the client.

##### ***Development of Soil and Groundwater Screening Standards***

Dr. Leininger has derived soil and groundwater screening standards (e.g. MO-2 remediation standards) following technical guidance from the Louisiana Department of Environmental Quality Risk Evaluation/Corrective Action Program regulations. The derivation of these standards included researching and updating toxicity values and relevant chemical properties, as well as modifying the baseline LDEQ methodology to include inhalation toxicity criteria in the applicable equations.

##### ***Surface Water Risk Assessments***

Dr. Leininger has worked on a complex risk assessment for a site with contamination from multiple classes of chemicals directly along a large creek where the development goals were to create a boat launch and other recreational amenities into the creek while allowing residential use of the property. To be protective of a residential recreator in the creek, the resident was strategically evaluated in two parts—the exposure to soil, groundwater, and vapor intrusion on the property itself in one portion, and exposure to surface water, sediment, and fish ingestion in the other.

##### ***Derivation of Uniform Standards for bis(1-methylethyl)-1,1'-biphenyl***

Dr. Leininger has worked with the uniform standards for bis(1-methylethyl)-1,1'-biphenyl that were derived for soil, groundwater, air, sediment, and surface water in accordance with the WVDEP VRP guidance and USEPA default exposure parameters following its release at an industrial facility. The release saturated the surrounding soil, and flowed into a stormwater system, which ultimately discharged into surface water. The derivation included extensive toxicological research for bis(1-methylethyl)-1,1'-biphenyl itself and compounds with similar chemical structures as there were no peer-reviewed toxicological studies of the compound. These uniform standards were approved by the WVDEP.





# Human Health and Ecological Risk Assessment

[REDACTED]  
[REDACTED]  
[REDACTED] West Virginia

VRP Project # [REDACTED]

December 2022

SRS Project Number [REDACTED]

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## LIST OF ATTACHMENTS

Attachment 1 USEPA Vapor Intrusion Screening Level (VISL) Calculator

Attachment 2 Data Validation Reports

Attachment 3 Human Health and Ecological Checklists

## Executive Summary

This document presents the human health and ecological risk assessment (HHERA) for the [REDACTED] (site) in [REDACTED] West Virginia. The risk assessment was completed following the West Virginia Department of Environmental Protection (WVDEP) rules, regulations, and guidelines outlined in the Title 60 Code of State Regulations, Series 3 Voluntary Remediation and Redevelopment Rule (referred to as the “Rule” in this report) [WVDEP 2021a], the West Virginia Voluntary Remediation Program (WV VRP) Guidance Manual [WVDEP 2020], and the User Guide for Risk Assessment of Petroleum Releases [WVDEP 1999].

As specified in Section 8.2.d of the Rule [WVDEP 2021a] and Section 3.5.1 in the VRP Guidance Manual [WVDEP 2020], at least ten percent of the analytical data utilized in the risk assessment has been validated in accordance with standard EPA protocols. The most recent de minimis values (effective December 2, 2021) [WVDEP 2021b] were utilized to screen the analytical data. Although the site and surrounding area is currently utilized for commercial/industrial purposes and is likely to remain nonresidential use in the future, residential receptors were evaluated based on the potential for land use to change in the future. Therefore, soil analytical data were screened against both the WVDEP residential and industrial soil de minimis screening values. Groundwater analytical data were screened against the WVDEP groundwater de minimis screening values as well as the United States Environmental Protection Agency (USEPA) residential and commercial vapor intrusion screening level (VISL) target groundwater concentrations. Residential VISLs were based on a target risk of  $1 \times 10^{-6}$ , a hazard quotient [HQ] of 1, and a groundwater temperature of 13°C and commercial VISLs were based on a target risk of  $1 \times 10^{-5}$ , an HQ of 1, and a groundwater temperature of 13°C. Sediment analytical data were screened against applicable ecological criteria (USEPA Region 3 BTAGs for freshwater sediment), and surface water analytical data were screened against applicable West Virginia water quality criteria for the protection of human health and ecological receptors. Based on the screened analytical data, hexavalent chromium and arsenic were retained as constituents of concern (COC) in soil. Hexavalent chromium, arsenic, and lead were retained as COC in groundwater. There were no COC retained in surface water or sediment.

Migration routes were retained based on the detection of constituents in a media and the potential for those constituents to migrate within the media or to other media. The retained migration routes included:

- On-Site Surface and Subsurface Soil: volatilization of constituents to outdoor air and indoor air, particulate emission to outdoor air, and leaching from surface/subsurface soil to

groundwater;

- On-Site Groundwater: volatilization of constituents to outdoor air and indoor air, migration from on-site groundwater to off-site groundwater, and migration of constituents in off-site groundwater to off-site surface water;
- Off-Site Surface Water: adsorption of constituents from off-site surface water to off-site sediment, and migration of constituents from off-site surface water to off-site groundwater; and,
- Off-Site Sediment: Desorption of constituents from off-site sediment to off-site surface water.

Based on the current use and anticipated future use of the site, the most likely receptors were evaluated. Potential exposure pathways were evaluated for each receptor. Those exposure pathways that were determined to be complete were retained for the quantitative risk assessment. Future on-site residents were not quantitatively evaluated because future use of the site will be restricted to nonresidential use. Additionally, direct contact exposure pathways resulting from potable use of groundwater were not quantitatively evaluated since the installation of a potable well on-site will be prohibited through a land use covenant. The receptors and exposure pathways retained for the quantitative risk assessment were:

- On-Site Maintenance Worker – incidental ingestion, dermal contact, and inhalation of particulates from surface soil;
- On-Site Construction Worker and On-Site Utility Worker – incidental ingestion, dermal contact, and inhalation of particulates from surface and subsurface soil; and,
- On-Site Trespasser – incidental ingestion, dermal contact, and inhalation of particulates from surface soil.

An ecological screening was completed for the site. The “Checklist to Determine the Applicable Remediation Standards (Part 1: Ecological Standards)”, provided in Attachment 5 of the WV VRP Guidance Manual [WVDEP 2020a], was used in the ecological screening process. The checklist follows the ecological de minimis screening evaluation outlined in Section 9.5 of the Rule [WVDEP 2021a]. The ecological checklist indicated “no further ecological evaluation is required” for the site. Further, an evaluation of site conditions supported that it is unlikely that the site would serve as a habitat for terrestrial species and the constituent concentrations observed in surface water and sediment samples collected from the nearest downgradient surface water body (i.e.,

[REDACTED] are not believed to be attributed to on-site facility operations based on background samples.

Exposure point concentrations (EPCs) were derived for soil for several on-site receptors. Due to a limited number of detections of hexavalent chromium in the surface and subsurface soil datasets, the maximum concentration from SB-2 (2') was utilized as the source concentration for all on-site receptors. Note that the historic soil samples collected in 2018 were analyzed for total chromium only. There are no screening criteria available for total chromium. However, some of the concentrations of total chromium in the historic 2018 soil samples exceeded the total chromium concentrations in the more recent 2020 samples. As a result, it is possible that the hexavalent chromium concentration in the historic 2018 samples may exceed the EPC utilized in the risk calculations. To ensure that the risks to site receptors are not underestimated, an alternative risk analysis was performed as part of the uncertainty analysis, which conservatively assumes that the entire total chromium concentration in 2018 samples consists of hexavalent chromium only.

In accordance with WVDEP guidance [WVDEP 2020a], the Risk Assessment Information System (RAIS) website (<http://rais.ornl.gov>) was utilized to obtain the majority of chemical properties for the risk calculations. If a value is not available through the RAIS database, the USEPA RSL Chemical Specific Parameters table (dated November 2022) was utilized to obtain the chemical-specific property. Toxicity criteria were selected following the hierarchy presented in Section 8.1.c.1 of the Rule [WVDEP 2021a]. Receptor-specific exposure assumptions were selected using WVDEP default values, when available. Otherwise, alternative sources were used, such as recommended values from other state program guidance or USEPA guidance, or professional judgment (based on site-specific information).

The estimated total cancer risks and hazard indices for on-site commercial/industrial receptors utilizing the maximum hexavalent chromium from the most recent 2020 soil samples are below the WVDEP commercial/industrial benchmark value of  $1 \times 10^{-5}$  and 1, respectively. However, the estimated risk for the on-site trespasser exceeds the WVDEP risk benchmark for residential receptors of  $1 \times 10^{-6}$ . To address this exceedance, a public notice will be completed.

The total cancer risk for the on-site maintenance worker and on-site trespasser exceeds the respective WVDEP benchmark in the alternative risk analysis assuming the total chromium results from the historic 2018 soil samples are comprised entirely of hexavalent chromium. The calculated risk for the on-site trespasser in the alternative analysis was  $6 \times 10^{-6}$ , which exceeds the WVDEP residential risk benchmark of  $1 \times 10^{-6}$ . The calculated risk for the on-site maintenance worker in the alternative analysis was  $2 \times 10^{-5}$ , which slightly exceeds the WVDEP industrial risk

benchmark of  $1 \times 10^{-5}$ . However, based on the multitude of conservative assumptions utilized in the risk calculation (i.e., the use of maximum concentration as the EPC and assuming the total chromium concentration consists entirely of hexavalent chromium), the estimated risk of the on-site maintenance worker is likely highly overestimated.

During the risk assessment process, uncertainty and variability are inherent in the estimation of risks based on specific variables, such as screening of analytical data, selection of COC, receptors and exposure pathways analysis, selection of exposure parameters, derivation of EPCs, and selection of toxicological values. This risk assessment employed multiple conservative assumptions, which, when combined, produce an additive conservative effect throughout the process, resulting in an overestimation of the potential risk.

*Note that if any of the exposure assumptions and/or assessment change in the future for this site, the results of this risk assessment analysis do not apply. Strategic Risk Services, LLC is not responsible for the misinterpretation or misuse of this risk assessment executive summary. It is recommended that the user of this risk assessment read through the entire risk assessment report.*

# 1 Introduction

This document presents the human health and ecological risk assessment for the [REDACTED] site in [REDACTED]. The site is currently under the West Virginia Voluntary Remediation and Redevelopment Program (VRP # [REDACTED]) to address environmental conditions resulting from the previous operations at the site. The risk assessment was completed following the WVDEP rules, regulations, and guidelines outlined in the Title 60 Code of State Regulations, Series 3 Voluntary Remediation and Redevelopment Rule (i.e., the Rule) [WVDEP 2021a]; the West Virginia Voluntary Remediation Program (VRP) Guidance Manual [WVDEP 2020]; and the User Guide for Risk Assessment of Petroleum Releases [WVDEP 1999].

The purpose of the HHERA is to evaluate the potential risks to human health and the environment from exposure to site-related constituents. The HHERA was prepared based on the characterization results presented in the August 2021 Site Assessment Report (SAR) [REDACTED 2021] and subsequent samples collected since the submittal of the August 2021 SAR.

## 1.1 Current Site Conditions and Brief Site History

The following information is summarized from the SAR [REDACTED], the March 2009 Phase I Environmental Site Assessment (ESA) [REDACTED], and the May 2009 Phase II Environmental Site Assessment Report [REDACTED 2009b].

The [REDACTED] site is located at [REDACTED] in [REDACTED] County, West Virginia. The site has been operated by [REDACTED] since 1978 for manufacturing and repairing of industrial hydraulic equipment, which included metal-plating activities. The site encompasses one tax parcel of approximately 174,000 square feet (approximately 4 acres) in area. The site maintains an approximately 25,000 square foot manufacturing facility with adjoining office space for support staff. The current on-site building is slab-on-grade. The exterior areas of the site are covered in gravel, asphalt, and grass surfaces. The gravel, asphalt, and grass covered areas are used for parking, shipping/receiving, and outdoor storage. A site map is presented as **Figure 1**.

A Phase I ESA was completed in March 2009 [REDACTED]. The Phase I ESA identified several recognized environmental conditions including the potential for



[REDACTED] residual contamination from scrap materials (e.g., engines, motors, drums, etc.) present throughout the property, the presence of staining near the diesel aboveground storage tank (AST) and in an exterior storage shed, and the presence of used sand blasting material spread around a drum and used oil storage container. Site photographs from the Phase I ESA identified hazardous waste drums used for reaming machine waste storage and for the paint booth, a used oil AST, and a diesel AST present at the site. In addition, there were piles of used sand blasting materials and scrap metals located at the northwestern corner of the site. In May 2008, there was a known release of rinse water from chromium plating operations. [REDACTED] reported several small diesel fuel surface spills over the years from generators, air compressors, and/or equipment stores on-site. However, all surface oil spills were cleaned up immediately and no known impact to surface and/or groundwater was noted.

In August 2011, a release was identified in the dip tank room at the facility. Facility personnel removed a portion of the concrete floor and dug a hole approximately two feet deep to assess the extent of the release. [REDACTED] collected a soil sample (SB-01) from the excavation to determine if additional cleanup was necessary. Analytical results indicated that the concentration of hexavalent chromium exceeded the industrial soil de minimis value. Facility personnel excavated additional soil around the base of a support beam foundation following the path of soil which had been visually stained. The excavation extended to a depth of approximately two feet, reaching the base of the foundation. [REDACTED] collected six grab samples (HA-01 through HA-06) for contaminant delineation and one composite sample for waste characterization. Analytical results indicated concentrations of hexavalent chromium that exceeded the industrial soil de minimis value in three sample locations. Facility personnel then excavated additional soil from locations where hexavalent chromium concentrations exceeded the industrial soil de minimis value. At one of these sample locations, a concrete foundation wall was encountered. Soil was removed from this location until the surface of the concrete was exposed. [REDACTED] collected confirmation samples from the two remaining excavation locations (HA-07 and HA-08). Analytical results indicated that hexavalent chromium concentrations were below the industrial soil de minimis value.

In November 2011, another release was identified at the rear of the facility. Facility personnel excavated an approximately six-inch deep, 10-foot by 15-foot wide hole to remove suspected hexavalent chromium affected soil. [REDACTED] collected three surface soil confirmation samples (SS-01 through SS-03) from the excavation to determine if additional

cleanup was necessary. The analytical results indicated that concentrations of hexavalent chromium were below the industrial soil de minimis value.

The company previously operated a hard chrome plating facility in the northwest corner of the building until 2012. All hexavalent decorative plating and chromium anodizing operations have been discontinued. At the time plating ceased, the tanks, secondary containment pit liners and chemicals were removed from the site. The pits were filled with concrete. According to [REDACTED] [Personal correspondence 2022a], the dipping tanks were below grade at a depth of approximately 9 feet below ground surface (ft-bgs) and extended to approximately 3 feet above grade. The locations of the metal-plating dipping tanks are depicted by the dashed lines in **Figure 2**.

Site assessment activities in July/August 2018 directed by the WVDEP project manager under the Hazardous Waste Program documented subsurface contamination of chromium under the northwest portion of the on-site building where the dipping tanks were located. At the request of the WVDEP project manager, soil samples were collected in 5-ft or 10-ft intervals. [REDACTED] mobilized to the site several times between December 2018 and April 2019 to excavate several tons of hazard waste chromium-contaminated soil and concrete from two areas within the former plating room in the northwest portion of the on-site building. Approximately 27 tons of chromium-impacted soil and concrete were excavated and hauled off-site for disposal. The excavated areas are presented in **Figure 2**. The area around soil boring SB-19 was excavated to approximately 9 feet below ground surface where competent bedrock was encountered. The excavation around the structural footer (SB-10 through SB-13 area) was limited to 4-5 ft-bgs due to structural concerns.

Following the initial excavation activities, CarBstrate™ was applied to the excavation areas in February 2019 and February 2021 in an attempt to reduce the chromium concentrations that exceeded the toxic characteristic leaching procedure (TCLP) limit of 5.0 µg/L. After failing to reduce chromium TCLP levels to below 5.0 µg/L, the site was entered into the Voluntary Remediation Program.

## 1.2 Surrounding Land Use and Utilities

The site is located in a commercial area of [REDACTED] West Virginia. The site is bordered by [REDACTED] to the east, beyond which is industrial activity. [REDACTED] borders the facility to the north. Grassy/field areas that receive stormwater runoff from numerous neighboring facilities border the site to the west.

an approximate 500,000 sq. ft. man-made water body is located approximately 150 feet south of the site. The lake is fed from the northeast by

An aerial of the site showing site features and surrounding properties is presented in **Figure 1**.

Underground utilities at the site include sanitary sewer lines, gas line, and water lines. Electric lines are overhead. The sanitary sewer line connects to the slab on the western edge of the current on-site building at a depth of one ft-bgs and deepens to a depth of 5.5 ft-bgs where it connects to the main sewer line west of the site. The gas line connects to the northwestern corner of the current on-site building and the water line connects to the eastern side of the current on-site building. The depths of the gas line and water line are assumed to be approximately 2 to 3 ft-bgs [Personal correspondence 2021]. No floor drains were noted in the main manufacturing areas of the current on-site building. Further, there are no storm drains that discharge to Lake from the site [Personal correspondence 2022a]. The locations of on-site utilities are provided on **Figure 3**.

A former process water well is located in the northeast corner of the site as shown on **Figure 1**. According to site representatives, the well has not been used for some time and will be formally abandoned as part of the VRP closure activities.

## 2 Analytical Results and Screening

This section presents the analytical results for soil (**Tables 2-1a and 2-1b**), groundwater (**Tables 2-2 and 2-3**), sediment (**Table 2-4**), and surface water (**Table 2-5**). The screening criteria used in the analytical data comparisons were selected in accordance with procedures outlined in the WV VRP Guidance Manual [WVDEP 2020] and instructions provided in the De Minimis and Relevant Benchmark table [WVDEP 2022] available on the WVDEP website (<https://dep.wv.gov/dlr/oer/technicalguidanceandtemplates/Pages/default.aspx>).

A summary of the analytical sample locations, sampling dates, and analytical parameters analyzed for in each sample location is included in **Table 2-6** and are described in more detail below. This table also indicates which samples are retained for use in the risk evaluation and the rationale for retaining or not retaining these samples.

Based on the samples retained for evaluation from **Table 2-6**, a statistical summary of the minimum and maximum detection limits, minimum and maximum concentrations, location of maximum concentrations, and frequency of detection for each constituent analyzed for in surface soil (**Table 2-7**), subsurface soil (**Table 2-8**), groundwater (**Table 2-9**), sediment (**Table 2-10**), and surface water (**Table 2-11**) was completed and is also presented in this section.

### 2.1 Analytical Data

The screening of the analytical data is discussed in the subsections below. These subsections are divided into two categories: direct contact screening and vapor intrusion screening. The applicable media are discussed under each category.

#### 2.1.1 Direct Contact Screening

##### *Soil*

Surface soil is defined as soil from ground surface to 2 ft-bgs. Subsurface soil is defined as soil greater than 2 ft-bgs. Soil samples were collected from the site in September 2011, December 2011, July/August 2018, and in February 2020 to provide additional delineation under the VRP requirements.

As discussed in Section 1.1, confirmatory soil samples were collected subsequent to the remedial excavation activities conducted in September and December 2011. However, after these soil samples were collected, [REDACTED] mobilized to the site several times between

December 2018 and April 2019 to excavate several tons of hazard waste chromium-contaminated soil and concrete from two areas within the former plating room in the northwest portion of the on-site building. According to [REDACTED] [Personal correspondence 2022b], the soil samples collected in 2011 were removed from the site. Therefore, the soil samples collected in 2011 do not represent current site conditions and were not presented in this risk assessment.

In July/August 2018, soil samples were collected from beneath the concrete within the footprint of the current on-site building and from around the building perimeter. One sample (i.e., SB-1-2-3 [Composite]) was a composite sample collected from three separate boring locations at a depth interval of 0-10 ft. All of these 2018 soil samples were collected at depth intervals greater than 2 ft (e.g., 0-5 ft, 0-10 ft, etc.) with the exception of SB-19 (8-10') and SB-21 (4-5'). These soil samples were analyzed for cadmium, total chromium, and lead. The analytical results for the 2018 soil samples are presented in **Table 2-1a**. The locations of these soil samples are presented on **Figure 2**. Note, however, SB-22 (0-7') and SB-23 (0-5') were "background" samples collected away from the on-site building. The approximate location of these "background" samples are shown on **Figure 4**.

In accordance with the VRP Guidance Manual, "Composite sampling is not an acceptable protocol to determine EPCs [exposure point concentrations] for a risk assessment" [WVDEP 2020]. As a result, composite soil sample SB-1-2-3 (Composite) collected in July 2018 was not utilized in the risk assessment (see Section 9 for further discussion of the exclusion of this sample). In addition, several samples were excavated or treated with CarBstrate™ after collection. The samples that were excavated include SB-10 through SB-13 and SB-19 (collected in July/August 2018) as noted in **Table 2-1a**. The excavated or treated soil samples do not accurately represent current site conditions and were therefore not included in the risk assessment.

The July/August 2018 soil samples that remained after excavation activities were considered for use in the risk assessment. All of these soil samples had sampling depths that were greater than a 2-ft interval with the exception of SB-21 (4-5'). The majority of these samples were collected from a sampling interval that overlapped both the surface soil zone and subsurface soil zone. Because of this overlap, it is unknown whether the measured concentrations from these samples are attributed primarily to the surface soil zone or the subsurface soil zone or a combination of both. This brings a level of uncertainty to the evaluation of exposure to these samples as some receptors are exposed only to

surface soil while others are exposed to both surface and subsurface soil. In addition, it is unknown what percentage of the total chromium concentrations measured in these samples is comprised of hexavalent chromium versus trivalent chromium. For purposes of the quantitative risk assessment, the more recent soil samples collected in February 2020 were utilized to evaluate soil exposures because these samples were collected from discrete separate soil intervals (i.e., one collected from the surface soil zone and one collected from the subsurface soil zone) and also because chromium analytical results were speciated (i.e., analyzed for total chromium and hexavalent chromium). However, a separate analysis was completed for the July/August 2018 soil samples, which is presented in the Uncertainty Analysis (Section 9) of this HHERA.

In February 2020, soil samples were collected at the site from surface soil (ranging from 1-2 ft-bgs), unsaturated subsurface soil (ranging from 5-7 ft-bgs), and saturated subsurface soil (ranging from 8-15 ft-bgs). Locations of these soil borings (SB-1 through SB-7) are presented on **Figure 4**. Soil borings SB-1 through SB-5 are co-located with monitoring wells MW-1 through MW-5. Soil borings SB-6 and SB-7 are located adjacent to the eastern wall of the current on-site building. In addition, a field duplicate was collected from surface soil sample SB-5 (2') and subsurface soil sample SB-5 (7'). **Table 2-1b** presents the February 2020 soil analytical results for select metals, volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAHs). In addition, each soil sample was speciated for hexavalent chromium.

**Table 2-6** presents a summary of the soil samples collected from the site and indicates if the sample is retained or not retained for use in the risk assessment. As indicated on **Table 2-6**, the only July/August 2018 soil samples not used in the risk assessment were the composite soil sample (i.e., SB-1-2-3 [Composite]) and the soil samples that were excavated (i.e., soil samples from SB-10 through SB-13, and SB-19). All surface soil and subsurface soil samples (including duplicate samples) collected in February 2020 were retained for use in this risk assessment.

Historically the on-site property was used for commercial/industrial purposes. Current on-site use is commercial/industrial and future land use is expected to be commercial/industrial. Therefore, soil analytical data were compared to the most recent West Virginia industrial de minimis standards for soil, effective December 2, 2021 [WVDEP 2021b]. However, there is potential for the site to be used for residential purposes in the future. Therefore, to evaluate the need for a land use covenant at the site,

soil analytical data were also compared to the West Virginia residential de minimis standards for soil [WVDEP 2021b]. The soil analytical data presented in **Tables 2-1a and 2-1b** include a comparison to West Virginia industrial and residential soil de minimis standards.

Note that there are laboratory-reported results for hexavalent chromium and total chromium for the February 2020 soil samples as shown in **Table 2-1b**. However, there are no soil de minimis standards available for total chromium. For screening purposes, trivalent chromium concentrations were calculated by subtracting the hexavalent chromium concentration from the total chromium analytical result. Trivalent chromium concentrations and hexavalent chromium concentrations were then compared to their respective soil de minimis standards. Only total chromium was analyzed in the July/August 2018 soil samples as shown in **Table 2-1a**.

In accordance with the VRP Guidance Manual, a comparison to West Virginia migration to groundwater standards was not presented since all soil constituents of potential concern (COPC) were analyzed in groundwater. Therefore, groundwater analytical results will be utilized to assess potential groundwater exposure pathways.

### *Groundwater*

The groundwater analytical data were screened against the West Virginia groundwater de minimis standards to evaluate direct contact exposure for on-site nonresidential receptors. The most recent de minimis standards were utilized (effective December 2, 2021) [WVDEP 2021b] to screen the analytical data. **Table 2-2** presents the groundwater analytical data compared to applicable direct contact screening criteria. Note that there are laboratory-reported results for hexavalent chromium and total chromium as shown in **Table 2-2**. However, there is no groundwater de minimis standard available for total chromium. For screening purposes, trivalent chromium concentrations were calculated by subtracting the hexavalent chromium concentration from the total chromium analytical result. Trivalent chromium concentrations and hexavalent chromium concentrations were then compared to their respective groundwater de minimis standards.

There are five monitoring wells installed at the site (MW-1 through MW-5). Locations of site monitoring wells are presented on **Figure 4**. Monitoring well MW-1 is screened within the unconsolidated clay material and weathered sandstone, which monitors the presence and quality of groundwater above competent bedrock. The screens of monitoring wells



MW-2 and MW-3 overlap the unconsolidated clay material, weathered sandstone, and competent limestone bedrock. Monitoring wells MW-4 and MW-5 are screened exclusively within competent limestone bedrock.

Groundwater samples collected from MW-1 through MW-5 from 6 recent sampling events (i.e., collected in March 2020, September 2020, December 2020, April 2021, September 2021, and December 2021) were used in this risk assessment. In addition, WVDEP collected split samples from monitoring wells MW-1 through MW-4 during the March 2020, March 2021, April 2021, September 2021, and December 2021 sampling events. The WVDEP split samples were treated as field duplicates in this risk assessment.

There were quality control issues noted during several quarterly sampling events. During the March 2020 sampling event, hexavalent chromium was analyzed out of holding time in all samples except MW-5 collected by [REDACTED]. Therefore, hexavalent chromium was resampled from monitoring well MW-2 in April 2020 since total chromium was only detected above the method detection limit in MW-2. The analytical result from the confirmatory sample was consistent with the original sample (i.e., non-detect) as shown in **Table 2-2**. As a result, the hexavalent chromium analytical data collected from all monitoring wells in the March 2020 sampling event were deemed appropriate for use in this risk assessment. The April 2020 sampling event from MW-2 was used for QA/QC purposes only and was not utilized in the risk assessment.

There were also quality control issues with the March 2021 sampling event by [REDACTED]. As discussed in more detail in the Site Assessment Report, quality control issues included laboratory equipment malfunction and analysis of samples by a non-certified laboratory [REDACTED 2021]. Due to these quality control issues, groundwater samples were recollected in April 2021. Therefore, the March 2021 samples were not included in **Table 2-2** of the risk assessment; the groundwater analytical results from the April 2021 sampling event will be utilized to represent the first quarter of 2021.

In the most recent December 2021 sampling event, WVDEP noted issues with sampling equipment, which resulted in discoloration of the samples collected [Personal correspondence 2022c]. WVDEP recommended not utilizing the split sample collected by WVDEP in December 2021. However, the analytical results collected by [REDACTED] from the December 2021 sampling event were consistent with previous samples collected. Therefore, the parent samples from the December 2021 were cautiously utilized in the risk assessment, but the analytical results from the WVDEP split samples were not utilized due



to a significant discrepancy between the original and split sample. See Section 9 (Uncertainty Analysis) for a discussion on the implications of the analytical results from this sampling event on the estimated risks/hazards for site receptors.

**Table 2-6** presents a summary of the groundwater sample locations and indicates if the samples are retained or not retained for the risk evaluation. As indicated on **Table 2-6**, the 6 recent groundwater samples collected between March 2020 and December 2021 from all site monitoring wells were retained for use in this risk assessment. In addition, WVDEP split samples were also included, with the exception of the December 2021 split sample due to quality control issues noted above.

### *Groundwater to Surface Water Evaluation*

A separate screening was completed for evaluating the potential for groundwater to migrate to off-site surface water. The nearest water body is the [REDACTED] located approximately 150 feet south of the site. As discussed in Section 4.2 (Geologic and Hydrogeologic Conceptual Site Model), groundwater at the site generally flows in a westerly direction. Groundwater levels in the vicinity of [REDACTED] are likely influenced by the lake elevation (gaining or losing) depending on the precipitation levels and surface water runoff amounts into the lake. There is the potential for site-related constituents to migrate to this surface water feature via both surface runoff and, at times, diffuse flow.

In order to assess the potential for site-related constituents to migrate to [REDACTED] a screening analysis was completed using the maximum concentrations from groundwater monitoring wells located furthest downgradient and closest to the lake (i.e., MW-1) and comparing those concentrations to WVDEP Title 47, Series 2 surface water quality criteria. **Table 2-3** shows the maximum groundwater concentrations for detected constituents from monitoring well MW-1 along with a comparison to WVDEP ecological and human health water quality criteria. Note that if WVDEP ecological water quality criteria were not available, the EPA Region III BTAGs for freshwater were utilized as alternative screen criteria. The maximum groundwater concentration was compared to the lower of the WVDEP acute and chronic surface water quality criteria for aquatic life (warm water fishery stream/wetland and trout waters) to evaluate ecological receptors and the lower of the acute and chronic human health criteria to evaluate human receptors.

Note that the human health and ecological water quality criteria for silver and the ecological water quality criterion for trivalent chromium were calculated based on a water hardness. A site-specific hardness of 281.1 ppm was used to determine water quality criteria for these constituents using results for the [REDACTED] (Site ID 211WVOWR-KNB-012-0010) reported in the USGS Water Quality Portal (<https://www.waterqualitydata.us/provider/STORET/211WVOWR/211WVOWR-KNB-012-0010/>). [REDACTED] is downgradient of [REDACTED] however, water hardness values are not available for [REDACTED]. Although a measured hardness value was not available for [REDACTED] from the USGS Water Quality Portal, a site-specific hardness was able to be calculated using the equation  $Hardness = 2.497(Ca) + 4.118(Mg)$ . The analytical results for calcium and magnesium sampled from the [REDACTED] (Site ID 211WVOWR-KNB-012-0010) were 82.4 mg/L and 18.3 mg/L, respectively.

As shown in **Table 2-3**, arsenic exceeds the applicable human health and ecological water quality criteria and barium exceeds the applicable ecological water quality criterion. To further evaluate the potential migration of groundwater to surface water, sediment and surface water samples were collected as described below.

### *Sediment and Surface Water*

On February 7, 2019, WVDEP collected a sediment and surface water sample from the northernmost edge of [REDACTED] adjacent to the site to evaluate potential chromium impacts to the lake. Historic samples (collected in 2008 by [REDACTED]) detected 2.0 µg/L of total chromium in the surface water of the lake. Therefore, additional samples were collected by WVDEP under the Hazardous Waste program (prior to entering into the VRP Program) and analyzed for chromium in order to update the 2008 sediment and surface water analytical results. The locations of the 2019 sediment and surface water samples are presented on **Figure 5**. The sediment sample was collected from the lake bottom below the water line.

In April 2022, additional surface water and sediment samples were collected to further evaluate the potential discharge of groundwater and surface runoff into [REDACTED]. The surface water and sediment samples collected in April 2022 were collected at a similar location as the February 2019 samples. The samples were analyzed for several metals including total chromium and hexavalent chromium. The April 2022 sediment sample was collected from a depth of approximately 6-8 inches below the water line.

Barium exceeded the applicable ecological screening criterion in the April 2022 surface water and sediment sample. Therefore, additional surface water and sediment samples were collected from an upstream location to characterize background conditions. In June 2022, two surface water samples (Surface Water – 1 and Surface Water – 2) and two sediment samples (Sediment – 1 and Sediment – 2) were collected from the inlet stream that feeds [REDACTED]. The locations of these samples are also presented on **Figure 5**.

In accordance with the VRP Guidance Manual, sediment analytical data were screened against USEPA Region III BTAG Screening Benchmarks for freshwater sediment to evaluate ecological receptors. In absence of Region III BTAG values, USEPA Region IV Ecological Risk Assessment Supplemental Guidance (ERASG) for freshwater sediment were utilized. The more conservative Region IV ERASG ecological screening values (ESVs) were utilized for preliminary screening purposes. Note that a screening of sediment analytical data to the WV residential and industrial soil De Minimis standards was not completed, even though there is potential for human receptors to be in direct contact with the sediment samples collected from the edge of the lake below the water line. In accordance with RAGS-E, exposure to sediment below the water line is de minimis since the soil particles will be washed from the skin prior to any potential occurrence of dermal absorption [USEPA 2004]. Therefore, a comparison of sediment analytical results to WV soil de minimis standards was not completed since exposure to sediment would be de minimis for human receptors. The analytical results for sediment compared to applicable criteria are presented in **Table 2-4**.

There is potential for both ecological and human health receptors to be exposed to surface water at the site. In accordance with the VRP Guidance Manual, to evaluate human receptors, surface water analytical data were screened against West Virginia Water Quality Standards (WQS) (W. Va. Legislative Rule 47CSR2) for the “Protection of Human Health” for drinking water and fish ingestion. To evaluate ecological receptors, surface water analytical data were screened against the West Virginia WQS for chronic exposure in trout waters (category B-2), which is the most conservative ecological criteria provided by West Virginia. Where West Virginia WQS were not available, the following criteria were selected as alternative ecological screening values: USEPA Region III BTAG Screening Benchmarks for freshwater, USEPA Region IV Ecological Risk Assessment Supplemental Guidance (ERASG) for freshwater, or NOAA Screening Quick Reference Table (SquiRT) values for freshwater surface water (chronic).

Note that the human health and ecological water quality criteria for cadmium and silver and the ecological water quality criterion for lead were calculated based on a water hardness. A site-specific hardness of 281.1 ppm was calculated based on calcium and magnesium results for the [REDACTED] (Site ID 211WVOWR-KNB-012-0010) reported in the USGS Water Quality Portal (<https://www.waterqualitydata.us/provider/STORET/211WVOWR/211WVOWR-KNB-012-0010/>). The calculation is described in more detail in the above section (*Groundwater to Surface Water Evaluation*). The analytical results for surface water compared to applicable criteria are presented in **Table 2-5**.

### 2.1.2 Vapor Intrusion Screening

#### *Groundwater*

In accordance with the West Virginia VRP Guidance Manual, the groundwater analytical data presented in **Table 2-2** were compared to the United States Environmental Protection Agency (USEPA) Office of Solid Waste and Emergency Response (OSWER) Commercial and Residential Vapor Intrusion Screening Level (VISL) target groundwater concentrations [USEPA 2022a] (based on November 2022 USEPA Regional Screening Levels [RSLs]) to evaluate vapor intrusion. Both residential and commercial VISLs were utilized to evaluate on-site receptors to account for current property use (nonresidential) and potential future use of the property (residential). The commercial VISL target groundwater concentrations were based on a target risk of  $1 \times 10^{-5}$ , a target hazard quotient (HQ) of 1, and a default groundwater temperature of 13°C per WVDEP guidance [WVDEP 2020]. The residential VISL target groundwater concentrations were based on a target risk of  $1 \times 10^{-6}$ , a target HQ of 1, and a default groundwater temperature of 13°C. **Attachment 1** presents the USEPA VISL Calculator spreadsheet used to select commercial and residential VISL target groundwater screening values.

## 2.2 Data Validation

As specified in Section 8.2.d of the Rule [WVDEP 2021a] and Section 3.5.1 in the VRP Guidance Manual [WVDEP 2020], 10% of the analytical data used to develop exposure point concentrations (EPCs) for risk assessment at VRP sites must be validated to Stage 4. Data validation was performed by [REDACTED] a project chemist at [REDACTED]. The Stage 4 data validation was performed on a minimum of 10% of the soil samples collected in February 2020 (2 out of 13 samples), 10% of the groundwater samples collected between March 2020 through December 2021 (3 out of a total of 30 samples), 10% of all surface

water samples (1 out of 4 samples), and 10% of all sediment samples (1 out of 4 samples). The data validation reports are presented in **Attachment 2**.

Soil samples SB-2 (2') and SB-4 (1'), groundwater samples from MW-1, MW-2, and MW-3 collected on March 4, 2020, surface water sample LAKE-1, and sediment sample SED-1 were validated by [REDACTED]'s project chemist, [REDACTED]. The analytical results were provided by Pace Analytical Services, Inc. Stage 4 laboratory data were evaluated using the EPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Validation and EPA analytical methods. Based on the Stage 4 review, data were determined to be of appropriate quality for use. Although there were several qualifiers added to the validated samples, according to the December 2021 data validation report, "All qualifications are considered minor and do not affect the overall quality of the data set". The data validation qualifiers are included in the analytical data tables for soil, groundwater, sediment, and surface water (**Tables 2-1b, 2-2, 2-4, and 2-5**, respectively).

### 3 Selection of Constituents of Concern

The selection of constituents of concern was conducted in accordance with Section 3.9 of the WV VRP Guidance Manual [WVDEP 2020] and Section 2 in the User Guide for Risk Assessment of Petroleum Releases [WVDEP 1999]. As stated in Section 3.9 of the WV VRP Guidance Manual [WVDEP 2020], “Chemicals detected in at least one sample – including at levels below Practical Quantitation Limits (PQLs) – in a given medium at the site should be considered COPCs and should be carried through the screening assessment or risk assessment unless there is a specific, justifiable rationale for excluding the contaminant.” The final list of contaminants that will be carried through the risk assessment is referred to as the constituents of concern (COC). Constituents of concern were selected for the direct contact (“direct contact COC”) exposure pathways and vapor intrusion (“vapor intrusion COC”) exposure pathway for the on-site receptors. The selection process was done using the analytical data and comparisons presented above in Section 2.1.

#### 3.1 Direct Contact COC

##### 3.1.1 Soil

**Tables 2-7** and **2-8** present a statistical summary of the surface soil analytical data and subsurface soil analytical data, respectively. These tables include the minimum and maximum detection limits, minimum and maximum concentrations, location of maximum concentrations, and frequency of detection for each constituent analyzed for in soil. In addition, the maximum concentrations are compared to the WVDEP industrial and residential soil de minimis standards. Note that the historic soil samples collected in July/August 2018 at a depth of 0-10 ft-bgs were included in both the surface soil and subsurface soil COC selection tables because these samples overlap both surface and subsurface depth intervals.

As shown in **Table 2-7**, hexavalent chromium exceeded the WVDEP industrial and residential de minimis standard in surface soil sample SB-2 (2'). In subsurface soil (**Table 2-8**), hexavalent chromium was not detected, but was conservatively retained as a residential COC based on a reporting limit exceedance of the West Virginia residential soil de minimis standard. In addition, arsenic was retained as a residential COC due to detections that exceeded the West Virginia residential soil de minimis standard. Arsenic also exceeded the WV residential soil de minimis standard in surface soil; however, the concentrations did not exceed West Virginia background concentrations.

The soil samples were all collected within proximity of the current on-site building, and thus were used to evaluate on-site receptors only. Because previous site activities were contained within the site boundaries, off-site soils are not expected to be impacted by site-related COC as a result of historic site operations.

**Table 3-1** presents a summary of direct contact COC retained in soil for on-site receptors.

### 3.1.2 Groundwater

As discussed in Section 4.2 (Geologic and Hydrogeologic Conceptual Site Model), groundwater flow at the site generally occurs to the west. The properties to the west of the site are undeveloped (grassy fields). [REDACTED] is directly adjacent to the site. As a result, only on-site receptors were evaluated for exposure to site-related constituents in groundwater.

**Table 2-9** presents a statistical summary of the groundwater analytical data which includes the minimum and maximum detection limits, minimum and maximum concentrations, location of maximum concentrations, and frequency of detection for each constituent analyzed for in groundwater. In addition, the maximum concentrations are compared to the West Virginia groundwater de minimis levels and USEPA commercial and residential VISL target groundwater concentrations.

**Table 3-1** presents a summary of the direct contact COC retained in groundwater for on-site receptors. There were 3 constituents that were retained as direct contact COC in groundwater based on detections which exceeded the West Virginia groundwater de minimis standards. These were hexavalent chromium, arsenic, and lead. In addition, based on the comparison of groundwater analytical results from MW-1 to West Virginia water quality criteria presented in **Table 2-3**, there were 2 constituents retained for the evaluation of groundwater migration to surface water. These were arsenic and barium.

### 3.1.3 Sediment

In accordance with the VRP Guidance Manual, sediment analytical data were screened against ecological screening criteria (i.e., USEPA Region III BTAG Screening Benchmarks for freshwater sediment or other applicable criteria discussed in Section 2.1). For constituents that exceeded ecological criteria, a comparison to concentrations in upgradient sediment samples was made to determine if the detected constituent concentration in site samples was a result of a release from site operations or attributed to



geologic and/or anthropogenic background sources.

**Table 2-10** presents a statistical summary of the sediment analytical data which includes the minimum and maximum detection limits, minimum and maximum concentrations, location of maximum concentrations, and frequency of detection for each constituent analyzed for in sediment. In addition, the maximum concentrations are compared to the USEPA Region III BTAG Screening Benchmarks for freshwater sediment or other applicable criteria discussed in Section 2.1. **Table 2-10** shows a separate statistical summary of the analytical sediment results for site samples versus background samples and indicates whether or not the maximum site sample concentration exceeds the background sample concentration.

As shown in **Table 2-10**, barium and selenium exceeded applicable ecological criteria in site samples. However, the concentrations of barium detected in background samples Sediment-2 and Sediment-3 collected at the inlet to [REDACTED] (maximum concentration of 55.8 mg/kg) were similar to the concentrations of barium directly downgradient of the site (concentration of 55.9 mg/kg). Therefore, barium was not retained as an ecological COC in sediment as the detection is believed to be representative of background conditions.

Selenium was detected at a concentration of 2.8 J mg/kg in SED-1 located downgradient of the site, which slightly exceeded the applicable ecological criterion of 2 mg/kg. The laboratory report qualified the selenium result with a “J” indicating the result is an estimated concentration above the method detection limit but below the reporting limit. In the background samples Sediment-2 and Sediment-3, selenium was not detected; the reporting limits were 6.3 mg/kg and 5.6 mg/kg, respectively, which exceed the estimated concentration from SED-1. Selenium was not detected in groundwater with the exception of one estimated value of 0.58 J µg/L in the April 2021 split sample collected by WVDEP at monitoring well MW-3. Selenium was never detected in downgradient well MW-1 located closest to [REDACTED]. There was one detection of selenium in soil (2.14 mg/kg from SB-1 [2’]). However, this concentration is less than the off-site sediment sample SED-1 (2.8 J mg/kg). The lack of detections in on-site soil and groundwater samples do not suggest that there is a source of selenium on-site that may have resulted in the migration of selenium to [REDACTED]. As a result, the selenium detected in sediment is believed to be representative of background conditions and was not retained as an ecological COC in sediment.

A summary of the constituents retained as ecological COC in sediment are presented in **Table 3-1**. As shown in this table, there were no ecological COC retained in sediment.

### 3.1.4 Surface Water

In accordance with the VRP Guidance Manual, surface water analytical data were screened against human health and ecological criteria. For constituents that exceeded applicable human health or ecological water quality criteria, a comparison to concentrations in upgradient surface water samples was made to determine if the detected constituent concentration in site samples was a result of a release from site operations or attributed to geologic and/or anthropogenic background sources.

**Table 2-11** presents a statistical summary of the surface water analytical data which includes the minimum and maximum detection limits, minimum and maximum concentrations, location of maximum concentrations, and frequency of detection for each constituent analyzed for in surface water. In addition, the maximum concentrations are compared to applicable human health or ecological water quality criteria. **Table 2-11** shows a separate statistical summary of the analytical surface water results for site samples versus background samples and indicates whether or not the maximum site sample concentration exceeds the background sample concentration.

As shown in **Table 2-11**, barium exceeded applicable ecological criterion in the LAKE-1 sample collected directly downgradient of the site. However, the detected concentrations in background samples Surface Water-1 and Surface Water-2 exceed the concentration detected in the site sample. Barium was detected in the background samples at a concentration of 0.047 mg/L and 0.049 mg/L, which are greater than the concentration in LAKE-1 of 0.042 mg/L. Therefore, barium was not retained as an ecological COC in surface water as the detection is believed to be representative of background conditions.

A summary of the human health and ecological COC in surface water are presented in **Table 3-1**. As shown in this table, there were no human health or ecological COC retained in surface water.

## 3.2 Vapor Intrusion COC

Vapor intrusion COC were selected based on groundwater data comparisons described above in Section 2.1. **Table 2-9** presents a statistical summary of the groundwater analytical data for each constituent analyzed for in groundwater. Maximum concentrations

[REDACTED]

[REDACTED]

are compared to the USEPA commercial and residential VISL target groundwater concentrations. As shown in **Table 2-9**, there were no constituents in any groundwater samples utilized in this risk assessment that exceeded applicable commercial or residential vapor intrusion criteria. Therefore, there were no constituents in groundwater retained as vapor intrusion COC.

## 4 Conceptual Site Model

This section presents the conceptual site model (CSM) developed for the site and includes a discussion on groundwater use, a hydrogeologic CSM, human health CSM, and an ecological screening assessment.

### 4.1 Groundwater Use

According to the August 2021 SAR and the 2009 Phase II ESA [REDACTED] 2009b], groundwater is not utilized for potable purposes on the site or within the vicinity of the site. The [REDACTED] facility is currently connected to a public water supply provided by West Virginia America Water.

Drinking water from the West Virginia American Water System's [REDACTED] supplies drinking water from the [REDACTED] which is a surface water source. [REDACTED] is formed by the [REDACTED] on the [REDACTED] which is located several miles northeast of the site.

There are currently no potable wells on the on-site property; however, there is a former process water supply well located in the northeast corner of the site. This well is no longer utilized and will be formally abandoned as part of the VRP closure activities. The installation of a groundwater well for potable and non-potable purposes on-site will be restricted through a land use covenant (LUC).

An updated potable well search was conducted to validate historic information regarding potable wells off-site in the immediate surrounding area. The West Virginia Water Resource Management Plan tool (<http://tagis.dep.wv.gov/WVWaterPlan/>) was utilized to complete a search of the immediate area. The findings indicate there are no documented potable water wells, groundwater intakes, or surface water intakes within a 2,500-foot radius of the site. Therefore, there are currently no complete groundwater use exposure pathways for on-site or off-site receptors in the immediate vicinity of the on-site property.

There is no known local ordinance that prohibits the use of groundwater for potable purposes. However, based on the availability of municipal water in the vicinity of the site, the installation of a private well for potable use purposes is unlikely. In addition, because all adjacent commercial/industrial properties are located upgradient or sidegradient of groundwater flow (i.e., groundwater flow is to the west towards the [REDACTED] valley), constituents in groundwater are not expected to migrate to the off-site

commercial/industrial properties.

## 4.2 Geologic and Hydrogeologic Conceptual Site Model

The following presents the site's geologic and hydrogeologic conceptual site model. The geologic and hydrogeologic information presented in the subsections below is based on information provided in the August 2021 SAR [REDACTED 2021] and was provided by [REDACTED] [Personal correspondence 2022d].

The site is located adjacent to the north side of [REDACTED] [REDACTED] is an approximate 500,000 sq. ft. water body located approximately 150 feet south of the site. The lake was created when [REDACTED] was dammed at some time after the construction of the West Virginia Turnpike (currently Interstate 77) west of the site in the 1950s. The lake contains water throughout the entire year, however, construction as-builts are unavailable for review.

There are currently three surface water inlets to the lake. Two inlets enter the eastern end of the lake from the northeast and southeast beneath [REDACTED] and the third enters the northwestern corner of lake from the north near the earthen dam. There is currently one outfall location (to the west from the base of the earthen dam).

Currently, site topography is gently sloping to the west-southwest towards the third inlet drainage feature. Prior to construction of the [REDACTED] Dam, topography at and near the site was likely more steeply sloped towards [REDACTED]

The lithology of the site consists of unconsolidated deposits (fine-grained brown clay with gravel and rock fragments with some sandy loam in the center of the site) underlain by weathered sandstone and competent limestone bedrock. There is evidence of use of gravel fill material at the site during various phases of construction and building additions at the site. The gravel fill is generally at the ground surface and is less than one foot deep. Bedrock was encountered as shallow as 3.5 to 4 feet below ground surface (ft-bgs) in the northern portion of the site and increased in depth to approximately 15 ft-bgs near the southern property boundary. Weathered sandstone was not present in the northern portion of the site but occurred in increasing thickness above the limestone bedrock to the southern property boundary. A transect and cross-section depicting the site lithology is presented in **Figure 6**.

The depth to groundwater was determined via a network of five monitoring wells at the

site. Groundwater was primarily located within the unconsolidated deposits and weathered sandstone, ranging from approximately 3.5 ft-bgs in MW-4 (near the northern property boundary) to approximately 12 ft-bgs in MW-1 (near the southern property boundary). Groundwater elevation data is provided in **Table 4-1**.

Based on site topography, lithology and hydrogeology, subsurface impacts resulting from historic operations at the site likely migrated vertically through the historical fill and natural unconsolidated deposits/weathered sandstone until the groundwater table is encountered at the top of the limestone bedrock. The groundwater then flows through the weathered sandstone along the top of the limestone bedrock. The limestone bedrock slopes to the west-southwest in the direction of the [REDACTED] stream valley. However, the construction of the dam and the formation of [REDACTED] is believed to affect shallow groundwater flow directly adjacent to the water body. Groundwater levels in the vicinity of [REDACTED] are likely influenced by the lake elevation (gaining or losing) depending on the precipitation levels and surface water runoff amounts into the lake.

**Figures 7 and 8** present the groundwater contour maps for the September 2021 and December 2021 groundwater gauging events. Note that these groundwater contour maps were prepared using groundwater elevation data from MW-1, MW-2, and MW-3 only as the screens of these wells overlap the unconsolidated deposits and weathered sandstone, whereas MW-4 and MW-5 are screened entirely or almost entirely in the competent bedrock. The provided groundwater contour maps depict the groundwater flow direction to the west-northwest. Although the groundwater contour maps indicate a west-northwest flow direction, due to the limited number of wells utilized to prepare the groundwater contour maps and based on the slope of bedrock combined with the influence of [REDACTED] the overall groundwater flow direction is believed to be to the west.

### 4.3 Human Health Conceptual Site Model

The CSM is a comprehensive view of the site that integrates the various components of the overall environmental setting including: site geology, hydrogeology, and hydrology; the current distribution and migration of site-related constituents; and potential receptors (both current and future) that may contact site-related constituents through potential exposure pathways associated with various site activities.

The CSM process was completed in accordance with Section 3.3.5 of the WV VRP

Guidance Manual [WVDEP 2020], Section 60-3-8.4.b.1 of the Rule [WVDEP 2021a], and Section 5 of the User Guide for Risk Assessment of Petroleum Releases [WVDEP 1999]. The overall CSM can be broken down into a hydrogeologic component (e.g., evaluation of transport pathways) and a human health and ecological risk component (e.g., evaluation of exposure pathways). The CSM identifies those potentially complete transport and exposure pathways which must be either eliminated by the implementation of engineering controls and/or institutional controls (e.g., land use covenants) or further evaluated in a site-specific risk assessment to determine whether site-specific standard benchmarks are met in accordance with Section 4.6.2 in the WV VRP Guidance Manual [WVDEP 2020] and Sections 60-3-9.4.a and 60-3-9.4.b in the Rule [WVDEP 2021a]. The CSM presented in this report follows in general the key elements presented in the example CSM provided as Figure 3-3 in the WV VRP Guidance Manual [WVDEP 2020]. The “Checklist to Determine the Applicable Remediation Standards (Part 2: Human Health Standards)”, provided in Attachment 5 of the WV VRP Guidance Manual [WVDEP 2020], is included in this report in **Attachment 3**.

Potential constituent migration routes and potential receptors are assessed in this section in order to determine whether potentially complete exposure pathways exist at the site. As stated in Section 4.1 in the WV VRP Guidance Manual [WVDEP 2020], an exposure pathway is considered complete if all four of the following elements exist: 1) a source and mechanism of a chemical release to the environment; 2) an environmental receiving or transport mechanism (i.e., soil or groundwater) or pathway (i.e., air vapor and/or particulates, surface water, and sediment) for the released chemical; 3) a point of potential contact with the environmental medium/pathway of concern; and, 4) an exposure route (i.e., ingestion, dermal contact, inhalation) at the receptor contact point.

#### **4.3.1 Potential Constituent Migration Routes**

The most likely constituent migration routes were evaluated for soil, groundwater, sediment, and surface water based on the detection of constituents in the media and the potential for those detected constituents to migrate within the media or to other media. The evaluation of migration routes is based on the detection of constituents and is independent of whether those constituents exceed applicable screening criteria or not. The migration routes are presented in a flow chart in **Table 4-2**.

The potential constituent migration routes retained for receptor-specific evaluation include:



***On-Site Surface and Subsurface Soil***

- Volatilization of constituents from on-site surface and subsurface soil to soil gas and subsequently seepage of soil gas into a building (indoor air);
- Volatilization of constituents from on-site surface and subsurface soil to outdoor air;
- Particulate emission of entrained constituents from on-site surface and subsurface soil to outdoor air; and,
- Leaching of constituents from on-site surface soil to subsurface soil and then to groundwater.

***On-Site Groundwater***

- Volatilization of constituents from on-site groundwater to outdoor air;
- Volatilization of constituents from on-site groundwater to soil gas and subsequent seepage of soil gas into a building (indoor air);
- Migration of constituents in on-site groundwater to off-site groundwater; and,
- Migration of constituents in off-site groundwater to off-site surface water.

***Off-Site Surface Water***

- Adsorption of constituents from off-site surface water to off-site sediment; and,
- Migration of constituents from off-site surface water to off-site groundwater.

***Off-Site Sediment***

- Desorption of constituents from off-site sediment to off-site surface water.

**4.3.2 Potential Receptors and Exposure Pathways**

This section identifies potential receptors and their associated exposure pathways. Potential receptors were selected to represent individuals who are most likely now or in the future to come into contact with COC in soil, groundwater, surface water, or sediment at the site. As part of the exposure pathway analysis, all reasonable potential exposure pathways have been assessed.

Based on the retained potential constituent migration routes, the following most likely receptors were evaluated:

***On-Site***

- Future On-Site Resident

- On-Site Maintenance Worker
- On-Site Indoor Worker
- On-Site Trespasser
- On-Site Construction/Utility Worker

***Off-Site***

- Human and Ecological Receptors of [REDACTED]

Based on the potential receptors listed above, descriptions of the retained receptors are provided below. Exposure pathways were retained based on the potential sources of COC, migration potential of COC, and the activities of the receptor. **Table 4-2** presents the human health receptor CSM which presents a summary of the exposure pathways considered for each receptor and whether or not those pathways were retained.

As discussed in Section 4.1 (Groundwater Use), groundwater is not currently used for potable or non-potable purposes on-site or in the vicinity of the site. The former process water supply well located in the northeast corner of the site is no longer utilized and will be formally abandoned as part of the VRP closure activities. As a result, current groundwater use exposure pathways are incomplete. Future installation of a potable or non-potable well on the on-site property will be prohibited through an LUC restriction. Although there is no known local ordinance that prohibits the use of groundwater for potable purposes, based on the availability of municipal water in the vicinity of the site, the installation of a private well for potable use purposes on adjacent off-site properties is unlikely. In addition, because all adjacent developed properties are located upgradient or sidegradient of groundwater flow, constituents in groundwater are not expected to migrate to off-site developed properties.

***Future On-Site Resident***

The site is currently utilized for nonresidential purposes. Future use of the site is likely to remain nonresidential. However, an evaluation of future residential use of the site was completed to determine the need for LUC restrictions.

There were direct contact COC retained in soil based on exceedances of the WVDEP residential soil de minimis standards. A future on-site resident may be exposed to constituents in soil through incidental ingestion of surface soil, dermal contact with surface

soil, and inhalation of particulates from surface soil. Additionally, there were direct contact COC retained in groundwater, which a resident may be exposed to during potable use of groundwater. Based on exceedances of the residential de minimis standards in soil, future use of the site will be restricted to nonresidential use through the implementation of an LUC. Additionally, based on exceedances of the groundwater de minimis standards, the use of groundwater for potable purposes will be restricted. Therefore, all exposure pathways for a future on-site resident are incomplete.

### ***On-Site Maintenance Worker***

The on-site maintenance worker is an individual who performs work activities outdoors. Activities conducted by this receptor would be general property maintenance, which may include landscaping, cutting grass, or other activities to maintain the property. The site is currently under roof or covered in gravel, asphalt, and grass surfaces. Some soil samples were collected beneath the slab of the building foundation and some soil samples were collected around the exterior of the building. The on-site maintenance worker was evaluated for exposure to those soil samples that are exposed around the exterior of the on-site building.

Based on these activities, the on-site maintenance worker is expected to perform minimal intrusive activities (i.e., maximum excavation depth of 2 ft-bgs). Therefore, it is unlikely this receptor would come into direct contact with subsurface soil (i.e., 2 ft-bgs and greater) or groundwater during minimal intrusive activities. Therefore, incidental ingestion, dermal contact, and inhalation of particulates exposure pathways for subsurface soil are not applicable to this receptor. In addition, incidental ingestion and dermal contact exposure pathways for groundwater (intrusive activities) are not applicable to this receptor. Furthermore, this receptor is expected to spend the majority of their time outdoors. Therefore, the inhalation of volatiles to indoor air (via vapor intrusion) is not applicable for this receptor and was evaluated under the on-site indoor worker scenario.

An on-site maintenance worker is expected to be in direct contact with surface soil (0-2 ft-bgs) during minimal intrusive activities (maximum excavation depth 2 ft-bgs). All on-site surface soil samples were used to select direct contact COC in surface soil. Hexavalent chromium was retained as a direct contact COC in surface soil sample SB-2 (2') located next to the current on-site building. Therefore, the applicable exposure pathways to surface soil (i.e., incidental ingestion, dermal contact, and inhalation of particulates) were retained for quantitative evaluation for the on-site maintenance worker. Note that because

hexavalent chromium is not a volatile constituent, the inhalation of volatiles from surface soil was not retained for quantitative evaluation.

There is also the potential for volatile constituents to volatilize to ambient air from unexposed unsaturated subsurface soil or groundwater. There were no site-related volatile constituents retained as direct contact COC in subsurface soil or groundwater. Therefore, the inhalation of volatiles from unexposed unsaturated subsurface soil and groundwater to outdoor air (without intrusive activities) exposure pathway was not retained for an on-site maintenance worker.

In addition, there is the potential for this receptor to be exposed to groundwater via potable use in the future. However, as discussed in Section 4.1 and beginning of Section 4.3.2, an institutional control will be placed on the on-site property via an LUC to keep the potable use exposure pathways incomplete.

A summary of the exposure pathways considered for the current and future on-site maintenance worker and whether or not those pathways were retained is shown in **Table 4-2**.

### ***On-Site Indoor Worker***

The on-site indoor worker is an individual who performs work activities indoors. The current on-site building is currently utilized as a manufacturing and office space. This current building is slab-on-grade. The primary activity conducted by an on-site indoor worker is manufacturing/office work. There is also potential for a future building to be constructed on-site. Therefore, both a current indoor worker in the current on-site building and a future indoor worker in a future building constructed on-site were evaluated.

Based on the activities of the on-site indoor worker, this receptor is expected to spend the majority of their time indoors. Therefore, the outdoor direct contact surface and subsurface soil exposure pathways (i.e., incidental ingestion, dermal contact, and inhalation of particulates and volatiles to outdoor air from soil) and groundwater exposure pathways (i.e., incidental ingestion, dermal contact, and inhalation of volatiles to outdoor air from groundwater) were not applicable for this receptor. However, there is the potential for this receptor to be exposed to site-related constituents that volatilize to indoor air (via vapor intrusion) from the subsurface. Based on the comparison of groundwater analytical results against USEPA VISL screening values, there were no volatile constituents retained as vapor intrusion COC in on-site groundwater.

In addition, there were no volatile constituents detected in unsaturated soil samples except for SB-4 (1') and SB-2 (2'). Note that the detections of 2-butanone are attributed to laboratory contamination (i.e., detected in blank). Soil sample SB-4 (1') is located over 100 feet from the current on-site building. Therefore, vapor intrusion into the current on-site building is unlikely to occur from this sample. Although a future building could be constructed over SB-4, because the sample was collected at a depth of 1 ft-bgs, it is likely to be disturbed during installation of the building foundation/slab. According to USEPA guidance, "Volatiles [...] are not expected to remain at the surface for an extended period of time" [USEPA 1996] due to their volatile nature. Further, the disturbance of soil has been shown to result in significant volatilization losses that can occur on a time scale measured in minutes [Hewitt & Myers 1999].

Toluene was detected above the reporting limit in SB-2 (2'), located west of the current on-site building. The detected concentration of 0.00771 mg/kg is five orders of magnitude lower than the residential soil de minimis standard of 820 mg/kg, which is based on the soil saturation limit. This indicates that the residential de minimis standard based on risk is even higher than the soil saturation limit, because the de minimis standard is capped at the soil saturation limit. As a result, the potential risk resulting from vapor intrusion from this sample based on a nonresidential exposure scenario is likely de minimis. Therefore, vapor intrusion into the current or a future on-site building is de minimis and was not retained for further evaluation.

In addition, there is the potential for this receptor to be exposed to groundwater via potable use in the future. However, as discussed in Section 4.1 and beginning of Section 4.3.2, an institutional control will be placed on the on-site property via an LUC to keep the potable use exposure pathways incomplete.

A summary of the exposure pathways considered for the on-site indoor worker in a current and future building and whether or not those pathways were retained is shown in **Table 4-2**.

### ***On-Site Construction Worker and Utility Worker***

The on-site construction worker is an individual who would be involved in future construction and/or excavation activities on-site (e.g., installation of utility lines, installation of building footers, etc.). The construction worker may be responsible for any major repairs to existing utility lines or the installation of a new line which may result in

exposure lasting more than one day. The on-site utility worker is an individual who would be involved with repairing and maintaining utility lines on-site. The utility worker is not expected to be involved in the installation of new lines as this is assumed to be performed by a construction worker.

WVDEP Guidance [WVDEP 2020] recommends utilizing a maximum excavation depth of 10 ft-bgs for a construction worker and 4 ft-bgs for a utility worker to evaluate potential exposure to constituents in soil and groundwater during utility installation/repair and construction activities. Underground utility lines on the on-site property in vicinity of where investigative sample locations were collected are estimated to be between 1 and 3 ft-bgs. Therefore, the WVDEP default excavation depth of 4 ft-bgs was utilized for the on-site utility worker. However, the excavation depth of the on-site construction worker may be limited by the depth of bedrock in some areas of the site.

As shown on **Figure 6**, in the northern portion of the site, competent limestone bedrock is present as shallow as 3.5 ft-bgs in the vicinity of MW-4, 8.5 ft-bgs at MW-5, and 9 ft-bgs at MW-3. Due to the competency of this bedrock, the depth of excavation for the on-site construction worker is expected to be limited in the northern area of the site where bedrock is present at depths shallower than 10 ft-bgs. Competent bedrock was encountered in monitoring wells MW-1 and MW-2 at a depth of 19 ft-bgs and 15 ft-bgs, respectively. Therefore, the excavation depth of the on-site construction worker is not expected to be limited in the southern portion of the site in the vicinity of these wells, and the WVDEP default excavation depth of 10 ft-bgs was utilized in this area.

The depth to groundwater is greater than 10 ft-bgs in monitoring wells MW-1 and MW-2. Therefore, the on-site construction worker is not expected to come in direct contact with groundwater in the vicinity of MW-1 and MW-2. In the vicinity of MW-3 through MW-5 (toward the north/northeastern portion of the site), the maximum excavation depth of the construction worker is limited to the depth to bedrock. In MW-4 and MW-5, the depth to bedrock is approximately 3.5 ft-bgs and 8.5 ft-bgs, respectively. On average, groundwater was measured to be below the depth of competent bedrock in these wells. As a result, the on-site construction worker is not expected to be in direct contact with groundwater in the vicinity of monitoring wells MW-4 and MW-5.

The depth to bedrock in MW-3 is approximately 9 ft-bgs and the average depth to groundwater is 6.4 ft-bgs. As a result, there is potential for the on-site construction worker to come into direct contact with groundwater in the vicinity of monitoring well MW-3 (i.e.,

incidental ingestion and dermal contact with exposed groundwater). However, there are no constituents that exceed applicable direct contact screening values in MW-3. Therefore, incidental ingestion and dermal contact were not retained for the on-site construction worker or the on-site utility worker.

The on-site construction and utility worker could also be exposed to volatile constituents that volatilize from unexposed groundwater to trench air. However, there were no volatile constituents that exceeded applicable direct contact screening values in any on-site monitoring wells. Therefore, the inhalation of volatiles from unexposed groundwater to trench air was not retained for the on-site construction worker or on-site utility worker.

Based on the excavation depths for the on-site construction and utility workers, these receptors may come into direct contact with surface and subsurface soil. Hexavalent chromium exceeded the industrial de minimis standard in surface soil sample SB-2 (2') and was retained as a direct contact COC. Therefore, applicable direct contact exposure pathways to non-volatile constituents in soil (i.e., incidental ingestion, dermal contact, and inhalation of particulates soil exposure pathways) were retained for quantitative evaluation for the on-site construction and utility workers.

In addition, arsenic was retained as a direct contact COC based on an exceedance of the residential soil de minimis standard in surface and subsurface soil. Per WVDEP guidance, if the construction or utility worker is expected to be in direct contact with groundwater COC within a trench (e.g., dermal exposure), then soil COC that exceed the residential soil de minimis standards should also be included in the quantitative risk calculations to account for cumulative effects from all exposure pathways from all media. However, as discussed above, the utility worker is not expected to be in direct contact with groundwater. In addition, although the construction worker may be in direct contact with groundwater in the vicinity of MW-3, there were no groundwater COC retained in groundwater samples collected from MW-3. Therefore, arsenic was not retained as a COC for the construction and utility workers because arsenic concentrations did not exceed the industrial soil de minimis standard.

A summary of the exposure pathways considered for the on-site construction worker and on-site utility worker and whether or not those pathways were retained is provided in **Table 4-2**.



***On-Site Trespasser***

The trespasser is a receptor who may infrequently visit the site. The [REDACTED] property is not fenced. There is the potential for a trespasser to access the site and be exposed to soil, groundwater, sediment, or surface water at the site.

The most likely realistic age range for the trespasser is a teenager/young adult (approximately 12-21 years). This receptor is not expected to perform intrusive activities while at the site. As a result, the trespasser could be directly exposed to surface soil, but not subsurface soil or groundwater. However, this receptor could be exposed to volatile constituents in subsurface soil and groundwater that volatilize to ambient air.

Due to the limited exposure of this receptor (e.g., infrequent visits to the site), it was determined that the industrial soil de minimis standards were the most appropriate to evaluate this receptor. Hexavalent chromium exceeded the industrial soil de minimis standard in surface soil sample SB-2 (2'). The on-site trespasser could be exposed to surface soil through incidental ingestion, dermal contact, or the inhalation of particulates. These exposure pathways were retained for quantitative evaluation. Because hexavalent chromium is not a volatile constituent, the inhalation of volatiles in ambient air from soil was not retained for quantitative evaluation. In addition, there were no volatile constituents retained as COC in subsurface soil or groundwater. As a result, the inhalation of volatiles in ambient air from subsurface soil and groundwater were not retained for this receptor.

There is also the potential for a trespasser be exposed to surface water and sediments in [REDACTED] (e.g., wading along the edge of the lake or swimming in the lake). In accordance with RAGS-E, exposure to sediment below the water line is de minimis since the soil particles will be washed from the skin prior to any potential occurrence of dermal absorption [USEPA 2004]. Therefore, the applicable sediment exposure pathways were not retained for the on-site trespasser. In addition, there were no human health COC retained in surface water samples collected from the site. As a result, applicable surface water exposure pathways were also not retained for the on-site trespasser.

A summary of the exposure pathways considered for the on-site trespasser and whether or not those pathways were retained is provided in **Table 4-2**.

An evaluation was completed for the potential for groundwater to migrate to off-site surface water. The nearest water body is [REDACTED] located approximately 150 feet south of the site. Groundwater is expected to flow in a westerly flow direction through the weathered sandstone along the top of the limestone bedrock. It is assumed that groundwater may discharge to [REDACTED] at times when the lake is in a gaining state. There is the potential for site-related constituents to migrate to this surface water feature via both surface runoff and, at times, diffuse flow.

In order to assess the potential for site-related constituents to migrate to the [REDACTED] [REDACTED] a screening analysis was completed using the maximum concentrations from the southernmost groundwater monitoring well MW-1 and comparing those concentrations to WVDEP Title 47, Series 2 human health and ecological surface water quality criteria (or alternative criteria such as USEPA Region 3 BTAG screening values if West Virginia surface water quality criteria is not available). As shown in **Table 2-3**, arsenic exceeded the human health surface water quality criterion. In addition, both arsenic and barium exceeded the USEPA Region III freshwater surface water BTAG screening values, which is the applicable ecological surface water quality criteria.

To further evaluate the potential for site-related constituents to migrate to [REDACTED] [REDACTED] surface water and sediment samples were collected from the edge of the lake at a point closest to the site. These were the February 2019 and April 2022 surface water and sediments samples as shown on **Figure 5**. The results of these surface water and sediment samples show barium and selenium in exceedance of ecological screening criteria in sediment sample SED-1 (collected April 2022) and barium in exceedance of ecological screening criteria in surface water sample LAKE-1 (collected April 2022). Based on these results, background sediment and surface water samples were collected on the eastern side of the lake where a culvert discharges runoff from other surrounding properties (see **Figure 5**). A comparison of the concentrations from background samples to the site samples was made (see **Tables 2-10 and 2-11** and Sections 3.1.3 and 3.1.4, respectively). Based on this comparison, the barium and/or selenium concentrations in site samples are likely attributable to off-site anthropogenic sources upstream of the site or naturally occurring background conditions due to the similar concentrations of constituents detected in background sediment and surface water samples collected at the inlet of [REDACTED] [REDACTED]

Based on the analysis presented above, the constituents present in [REDACTED] are not believed to be related to the on-site facility operations. As a result, no exposure pathways were retained for [REDACTED] as shown in **Table 4-2**.

#### **4.3.3 Summary of Incomplete Pathways via Institutional Controls**

Based on the receptor and exposure pathway analysis above, several exposure pathways will be considered incomplete by means of implementing various institutional controls. The following is a summary of the proposed institutional controls that will be included in the land use covenant for the on-site property:

- Restrict residential land use, which will eliminate the potential for future direct contact and vapor intrusion exposures with soil or groundwater for future residential receptors on the on-site property; and,
- Prohibit the use of groundwater for potable and non-potable purposes, which will eliminate direct contact exposures to groundwater for applicable receptors on the on-site property. Note, there is a former process water supply well located in the northeast corner of the site. This well is no longer utilized and will be formally abandoned as part of the VRP closure activities.

The institutional controls shall be constituted via a land use covenant. Draft language for the proposed institutional controls for the proposed land use covenant for the on-site property will be presented in the forthcoming Remedial Action Work Plan.

#### **4.4 Ecological Assessment Summary**

In order to comply with Section 8.5 of the Rule [WVDEP 2021a], potential impacts to ecological receptors were evaluated. The “Checklist to Determine the Applicable Remediation Standards (Part 1: Ecological Standards)”, provided in Attachment 5 of the WV VRP Guidance Manual [WVDEP 2020], was used in the ecological screening process. The checklist follows the ecological de minimis screening evaluation outlined in Section 9.5 of the Rule [WVDEP 2021a]. In particular, Section 9.5.a of the Rule recommends that the following parameters should be considered when evaluating whether or not to perform an ecological risk assessment:

- A. Evaluate whether a complete exposure pathway exists. If no complete exposure pathways exists because either the contamination is restricted in movement or there

are no ecological receptors of concern, then no ecological risks exist (e.g. if the majority of the site is paved with roads and buildings, no pathway exists);

- B. Some sites may be screened out and not require evaluation given their size, estimated risk to ecological receptors, or lack of valued ecological receptors, including threatened or endangered species;
- C. Local conditions should be considered for assessing whether a site is degrading an aquatic environment. In cases where the site does not present an ecological risk over and above “local conditions” and further release of contaminants into the aquatic environment has been stopped, there will not be a need for further evaluation;
- D. Define what level of ecological resource is considered valued; and,
- E. If for each contaminated media, harm is readily apparent and a condition of significant risk of harm to the site biota and habitats clearly exists, further ecological risk characterization would be redundant and is not required. The applicant can then proceed directly to the remedy evaluation.

The first step in determining whether a complete exposure pathway exists was performed using the “Checklist to Determine the Applicable Remediation Standards (Part 1: Ecological Standards)”, which is presented in **Attachment 3**. As shown in the ecological checklist, “no further ecological evaluation is required” for the site. A description of the local conditions is presented below.

#### **Local conditions:**

- The site has been operated by [REDACTED] since 1978 for manufacturing and repairing of industrial hydraulic equipment. The site encompasses one tax parcel of approximately 174,000 square feet (approximately 4 acres) in area. The site maintains an approximately 25,000 square foot manufacturing facility with adjoining office space for support staff. The exterior areas of the site are covered in gravel, asphalt, and grass surfaces. The gravel, asphalt, and grass covered areas are used for parking, shipping/receiving, and outdoor storage. The site is bordered by [REDACTED] to the east, beyond which is industrial activity. [REDACTED] borders the facility to the

north. Grassy/field areas that receive stormwater runoff from numerous neighboring facilities border the site to the west. Based on this evaluation of active land use, current site conditions would not support viable ecological habitats.

- Groundwater flow on-site is to the west. The nearest surface water body is [REDACTED] which is located approximately 150 feet south of the site. Groundwater samples from on-site monitoring well MW-1 located furthest downgradient of the site along the southern property boundary were used to evaluate the potential for constituents in on-site groundwater to migrate to the surface water of the [REDACTED]. Several constituents exceeded the applicable ecological surface water quality criteria. To further evaluate the potential for site-related constituents to migrate to [REDACTED] sediment and surface water samples were collected from the lake at a location downgradient from MW-1 and analyzed for total metals. In addition, background sediment and surface water samples were collected on the eastern side of the lake where a culvert discharges runoff from other surrounding properties. **Figure 5** shows the locations of all surface water and sediment samples. As discussed in Section 4.3.2 under [REDACTED] a comparison of the concentrations from background samples to the site samples was made, which indicated that constituent concentrations in site samples are likely attributable to off-site anthropogenic sources upstream of the site or naturally occurring background conditions due to the similar concentrations of constituents detected in background sediment and surface water samples collected at the inlet of [REDACTED].

Since it is unlikely that the site would serve as a habitat for terrestrial species and the constituent concentrations observed in the nearest downgradient surface water body (i.e., [REDACTED]) are not believed to be attributed to on-site facility operations, it can be concluded that there is no complete exposure pathway, and the initial screening was adequate to determine that no substantial ecological risk exists.

## 5 Exposure Point Concentrations

This section presents the procedures that were used to develop EPCs for the COC identified at the site as previously presented in **Table 3-1**. The EPCs are relevant to the migration routes and exposure pathways retained for evaluation as presented in **Table 4-2**.

### 5.1 Source Concentrations for the Direct Contact Exposure Pathways

In theory, the concentrations in each medium are expected to decrease with time through biodegradation, volatilization, leaching, and other transformation processes. Therefore, the appropriate concentration for estimating exposure to a particular receptor is an average concentration over the exposure period. However, the change in source concentration with time is difficult to assess. For this analysis, source concentrations are treated as being constant (stable) for the foreseeable future, which is a conservative assumption.

The source concentration is defined as a measured concentration within a specific medium (e.g., groundwater) or modeled from one medium to “a like” medium (e.g., source groundwater to downgradient groundwater, or groundwater to surface water). The exposure point concentration is derived by multiplying the source concentration by a transfer factor. For exposure scenarios where the receptor is directly exposed to the medium where the concentration was measured (e.g., groundwater) or modeled to “a like” medium (e.g., groundwater to surface water), the transfer factor is equal to 1.0. For exposure scenarios where the receptor is exposed to a medium different than where the concentration was measured or modeled to “a like” medium (e.g., concentration is measured in soil and exposure is to air), the transfer factor is estimated through modeling. This modeled transfer factor is chemical-specific and medium-specific.

#### 5.1.1 Methodology for Derivation of Source Concentrations

Source concentrations for soil were derived using analytical data representative of current site conditions. The only remediation activities that occurred at the site was soil excavation and application of CarBstrate® within the current on-site building. However, the more recent soil samples collected in February 2020 are still remaining at the site and are believed to be unaffected by the remedial activities. As discussed in Section 2.1.1 (Direct Contact Screening – Soil), for purposes of the quantitative risk assessment, the more recent soil samples collected in February 2020 were utilized to evaluate soil exposures because these samples were collected from discrete separate soil intervals (i.e., one collected from the surface soil zone and one collected from the subsurface soil zone) and also because

chromium analytical results were speciated (i.e., analyzed for total chromium and hexavalent chromium). Thus, the February 2020 soil samples were determined to be representative of current site conditions and were used to derive source concentrations. Source concentrations were derived either by using the maximum detected concentration or using the following procedure, which is consistent with the USEPA ProUCL 5.1 Users Guide [USEPA 2015]:

- The distribution of each constituent in each dataset was determined by running the goodness-of-fit test in ProUCL. If a constituent could be represented by a normal distribution, it was classified as following a normal distribution. If a constituent could not be represented by a normal distribution, but could be represented by a gamma distribution, it was classified as following a gamma distribution. If a constituent could not be represented by a normal distribution or gamma distribution, but could be represented by a lognormal distribution, it was classified as following a lognormal distribution. If a constituent could not be represented by a normal distribution, gamma distribution or lognormal distribution, it was classified as nonparametric (i.e., not following any particular distribution).
- Depending on the distribution that a constituent was determined to follow, a 95 percent or higher upper confidence level (95%UCL) of the mean concentration was calculated using ProUCL.
- The source concentrations were determined to be the lesser of the recommended UCL or the maximum detected concentration for each COC, unless a maximum concentration was already selected as the source concentration.

In general, the robustness of a dataset (e.g., the number of samples) usually controls the acceptable statistical derivation of a UCL. Typically, datasets containing eight samples or more are used to derive a UCL. For datasets containing less than eight samples, the maximum detected concentrations may be used as the source concentrations depending on a number of factors including the frequency of non-detects and how well the dataset fits to a tested distribution type.

### 5.1.2 Media-Specific Source Concentrations

#### *Surface Soil*

As shown in **Table 2-7**, hexavalent chromium exceeded the applicable industrial direct



contact screening criteria in on-site surface soil sample SB-2 (2') and was retained as a direct contact COC. Hexavalent chromium was detected in only one surface soil sample, SB-2 (2'). The remainder of surface soil samples were non-detect. As a result, due to the limited number of detections in on-site surface soil samples, a UCL was not able to be derived. Therefore, the maximum concentration from on-site surface soil samples was utilized as the source concentration for hexavalent chromium (i.e., 160 mg/kg from SB-2 [2']).

### ***Surface/Subsurface Soil (0-10 ft-bgs)***

In the combined surface/subsurface soil dataset (0-10 ft-bgs), hexavalent chromium was detected in only one surface soil sample, SB-2 (2'). In the remainder of soil samples, hexavalent chromium was non-detect. As a result, due to the limited number of detections in on-site surface and subsurface soil samples, a UCL was not able to be derived. Therefore, the maximum concentration from on-site surface and subsurface soil samples was utilized as the source concentration for hexavalent chromium (i.e., 160 mg/kg from SB-2 [2']).

**Table 5-1** presents a summary of the selected source concentrations for COC retained in on-site surface soil (0-2 ft) and surface/subsurface soil (0-10 ft).

### **5.1.3 Receptor-Specific Source Concentrations**

The selection of source concentrations for each receptor is based on the potentially complete exposure pathways for that receptor. The following describes the selected source concentrations in soil for each receptor based on the retained exposure pathways.

#### ***On-Site Maintenance Worker and On-Site Trespasser***

The on-site maintenance worker and on-site trespasser may be exposed to site-related constituents in surface soil through incidental ingestion, dermal contact, and the inhalation of particulates in ambient air during minimal intrusive activities. There were no volatile constituents in surface soil samples that exceeded applicable direct contact screening criteria. The source concentration used to evaluate these exposure pathways was the maximum concentration for hexavalent chromium from on-site surface soil samples (0-2 ft-bgs).

### ***On-Site Construction Worker***

The on-site construction worker may be exposed to site-related constituents in surface and subsurface soil during excavation activities through incidental ingestion, dermal contact, and the inhalation of particulates in trench air. There were no volatile constituents in surface or subsurface soil samples that exceeded applicable direct contact screening criteria. The on-site construction worker may excavate up to 10 ft-bgs; however, the excavation depth is variable across the site and limited by the depth to competent bedrock in some areas of the site. All soil samples at the site were collected from the unconsolidated lithology, so it was assumed that the construction worker could be in direct contact with any of the soil samples collected from the site up to a depth of 10 ft-bgs. To evaluate the incidental ingestion, dermal contact, and inhalation of particulates in trench air exposure pathways, the source concentration derived for hexavalent chromium in surface/subsurface soil (0-10 ft-bgs) was utilized.

### ***On-Site Utility Worker***

The on-site utility worker may be exposed to site-related constituents in surface and subsurface soil during excavation activities through incidental ingestion, dermal contact, and the inhalation of particulates in trench air. There were no volatile constituents in surface or subsurface soil samples that exceeded applicable direct contact screening criteria. The on-site utility worker may excavate up to 4 ft-bgs; however, there were no subsurface soil samples collected between 2 to 4 ft-bgs. Therefore, the source concentration used to evaluate the incidental ingestion, dermal contact, and inhalation of particulates in trench air is the maximum concentration for hexavalent chromium in surface soil samples (0-2 ft-bgs).

**Table 5-1** presents a summary of the direct contact source concentrations for the on-site maintenance worker, on-site construction worker, on-site utility worker, and on-site trespasser for the COC retained in soil for the direct contact exposure pathways.

## **5.2 Calculation of Exposure Point Concentrations for the Direct Contact Exposure Pathways**

EPCs are calculated for each direct contact COC by multiplying the selected source concentrations by a transfer factor. For the incidental ingestion and dermal contact pathways, which involve actual contact with soil, the transfer factor is 1.0 [USEPA 2004]. For inhalation of particulates emitted from soil to outdoor air, the transfer factor was the

[REDACTED]

[REDACTED]

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USEPA default value of  $7.35 \times 10^{-10} \text{ kg/m}^3$  ( $1 \div 1.36 \times 10^9$ ) [USEPA 2022b].

## 6 Constituent-Specific Parameters

This section presents constituent-specific parameters used in the quantitative risk assessment including chemical properties, toxicological values, and soil absorption adjustment factors.

### 6.1 Chemical Properties

**Table 6-1** presents the chemical properties required to complete the site-specific risk calculations. This table also references the source for each chemical property. In accordance with WVDEP Guidance [WVDEP 2020], the Risk Assessment Information System (RAIS) website (<http://rais.ornl.gov>) was utilized to obtain the majority of chemical properties. If a value is not available through the RAIS database, the USEPA RSL Chemical Specific Parameters table (dated November 2022) was utilized to obtain the chemical-specific property.

### 6.2 Toxicological Values

COC are quantitatively evaluated on the basis of their cancer and/or noncancer potential. Hexavalent chromium may result in both carcinogenic and noncarcinogenic health effects. Cancer slope factors (CSFs) and inhalation unit risks (IURs) are the toxicity values used to evaluate cancer health effects in humans. The reference doses (RfDs) and reference concentrations (RfCs) are the toxicity values used to evaluate noncancer (e.g., systemic) health hazards in humans.

CSFs and IURs are presented in **Table 6-2**. **Table 6-2** also indicates if any of the retained COC have a mutagenic mode of action or not. As shown in **Table 6-2**, hexavalent chromium is a mutagenic compound. RfDs and RfCs for chronic effects associated with long-term exposures are provided in **Table 6-3**.

These values were obtained from the following the hierarchy presented in Section 8.1.c.1 of the Rule [WVDEP 2021a]:

- Tier 1: Integrated Risk Information System (IRIS), available through the USEPA website (<http://www.epa.gov/IRIS/>).
- Tier 2: Provisional Peer Reviewed Toxicity Values (PPRTVs). Information regarding the PPRTVs is available through the PPRTV online library (<http://hhpprtv.ornl.gov/>) and the Risk Assessment Information System (RAIS)

website (<http://rais.ornl.gov>).

- Tier 3: Other scientifically valid documents or information developed from governmental or non-governmental sources and approved by the secretary.

USEPA commonly consults several sources of toxicity values when a relevant toxicity value is not available from either IRIS or the PPRTV database (i.e., Tier 3 sources). Examples of Tier 3 sources used in this risk assessment may include:

- The Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs), available at <http://www.atsdr.cdc.gov/mrls/index.html>.
- The California Environmental Protection Agency toxicity values, available at <http://www.oehha.ca.gov/risk/chemicalDB/index.asp>.
- PPRTV screening values from certain PPRTV assessment appendices. Information regarding the PPRTV Screening Values is available through the PPRTV online library (<http://hhpprtv.ornl.gov/>).
- The EPA Superfund Health Effects Assessment Summary Tables (HEAST).

RfDs and RfCs for subchronic effects associated with short-term exposures are provided in **Table 6-4**. These values were obtained from the PPRTVs (available through the RAIS website), the ATSDR MRLs, or HEAST tables. The PPRTV value is Tier 2 on the USEPA hierarchy; however, there are no toxicity values available for hexavalent chromium from PPRTV. Therefore, the toxicity value from a Tier 3 source, ATSDR, was selected as the subchronic value for hexavalent chromium.

In this risk assessment report, construction workers are evaluated assuming a subchronic exposure. According to RAGS Part A [USEPA 1989], chronic RfDs pertain to lifetime or other long-term exposures and may be overly protective if used to evaluate the potential for adverse health effects resulting from substantially less-than-lifetime exposures (e.g., subchronic exposures). Therefore, subchronic RfDs are recommended for evaluating subchronic exposures.

In accordance with USEPA Risk Assessment Guidance for Superfund (RAGS) Part E [USEPA 2004], oral-to-dermal conversion factors were used to convert oral slope factors and reference doses to dermal slope factors and reference doses. The conversion factor for

hexavalent chromium was 0.025 (obtained from RAGS-E) as presented in **Tables 6-2, 6-3, and 6-4**.

Tumor type/critical effect and target organ information (when available) for the hexavalent chromium are presented in **Table 6-5** (CSFs and IURs), **Table 6-6** (chronic RfDs and RfCs), and **Table 6-7** (subchronic RfDs and RfCs).

### 6.3 Absorption Adjustment Factors

Absorption adjustment factors (*AAFs*) are needed for the various direct contact soil exposure pathways. **Table 6-8** presents the *AAFs* for the various direct contact soil exposure pathways. Oral *AAFs* take into account absorption and bioavailability. The oral *AAF* was set to 1 mg/mg, which is a conservative assumption and implies that 100% of the constituent is absorbed into the blood stream from ingestion.

Dermal *AAFs* reflect desorption of a constituent from soil and subsequent absorption across the skin and into the blood stream [USEPA 1989]. The absorption adjustment factors for dermal contact with soil are constituent dependent. As presented in **Table 6-8**, there is no dermal absorption value available for hexavalent chromium. In accordance with RAGS-E, there are no default dermal absorption values for inorganic compounds because the speciation of the compound is critical to the dermal absorption and there are too little data to extrapolate a reasonable value [USEPA 2004].

## 7 Intake and Exposure Concentration Equations and Assumptions

This section presents the intake or absorbed dose equations and assumptions used to calculate constituent intakes for the ingestion and dermal contact exposure pathways as well as the assumptions used to calculate exposure concentrations for the inhalation exposure pathway for the following receptors and exposure pathways:

- Direct contact (incidental ingestion, dermal contact, and inhalation of particulates) with surface soil for the on-site maintenance worker and on-site trespasser; and,
- Direct contact (incidental ingestion, dermal contact, and inhalation of particulates) with surface and subsurface soil for the on-site construction worker and on-site utility worker.

These exposure pathways are the focus of this section, which is divided into three parts: the first part presents the intake equations for the ingestion and dermal contact exposure pathways; the second part presents the exposure concentration equations for the inhalation exposure pathways (particulates); and the third part presents the receptor-specific assumptions used.

### 7.1 Intake Equations

This section presents the intake or absorbed dose equations for the exposure pathways identified above. General reference is made to RAGS Part A for all intake equations.

#### 7.1.1 Incidental Ingestion of Soil

The intake from incidental ingestion of soil is estimated using the equation:

$$I_{ing-s} = CS_{src} * TF_s * AAF_{ing-s} * IF_{ing-s}$$

where:

$I_{ing-s}$  = intake from incidental ingestion of soil (mg/kg-day)

$CS_{src}$  = constituent source concentration in soil (mg/kg)

$TF_s$  = transfer factor that translates the source concentration in soil to an exposure point concentration in soil (unitless)

$AAF_{ing-s}$  = absorption adjustment factor for ingestion of soil (mg/mg)



$$IF_{ing-s} = \text{intake factor for ingestion of soil (kg/kg-day)}$$

A constituent EPC in soil is calculated by multiplying a constituent source concentration in soil ( $CS_{src}$ ) by a transfer factor ( $TF_s$ ). Determination of the constituent source concentrations was presented in Section 5 of this document for each medium and receptor. The variable  $TF_s$  accounts for processes, such as biodegradation, that can reduce the source concentration over an extended period of time. In this evaluation, the value of  $TF_s$  for each constituent was conservatively set to 1.0, which implies that no biodegradation is occurring. Therefore, the EPC in soil equals the source concentration in soil for each constituent. The absorption adjustment factor ( $AAF_{ing-s}$ ) is constituent-specific and accounts for the fraction of the constituent absorbed from soil relative to its absorption in the studies used to derive oral cancer slope factors or oral reference doses. In this evaluation, the value of  $AAF_{ing-s}$  for each constituent was conservatively set to 1.0, which assumes all of the ingested constituent is absorbed.

#### ***Noncarcinogenic and Carcinogenic (Non-Mutagenic)***

The following equation is utilized for noncarcinogenic effects for all receptors as well as for carcinogenic (non-mutagenic) effects for adult receptors (i.e., on-site maintenance worker, on-site construction worker, and on-site utility worker). Based on Exhibit 6-14 of RAGS Part A [USEPA 1989], the intake factor ( $IF_{ing-s}$ ) accounts for all constituent-independent parameters and is estimated using the equation:

$$IF_{ing-s} = \frac{IR_{ing-s} * CF * FI * EF * ED}{BW * AT}$$

where:

$IF_{ing-s}$  = intake factor for ingestion of soil (kg/kg-day)

$IR_{ing-s}$  = incidental soil ingestion rate (mg-soil/day)

$CF$  = conversion factor ( $1 \times 10^{-6}$  kg/mg)

$FI$  = fraction of daily incidental soil ingestion occurring at the site (unitless)

$EF$  = exposure frequency (days/year)

$ED$  = exposure duration (years)

$BW$  = body weight (kg)

$AT$  = averaging time (days)

The ingestion rate ( $IR_{ing-s}$ ) is the amount of soil incidentally ingested per day or event and is receptor-specific. The fraction ingested ( $FI$ ) is the percent of the daily intake of soil that occurs at the site and is conservatively set to 1.0. The exposure frequency ( $EF$ ), exposure duration ( $ED$ ), and body weight ( $BW$ ) are described in the intake assumptions for specific receptors. The averaging time ( $AT$ ) is exposure-based and is described under the intake assumptions for specific receptors.

### ***Carcinogenic (Mutagenic)***

For receptors aged younger than 16 years (i.e., on-site trespasser) that are exposed to constituents with a mutagenic mode of action, the mutagenic incidental ingestion of soil equation is utilized.

$$IF_{ing-s} = \frac{FI * EF * (C + A) * CF}{AT_c}$$

where:

$IF_{ing-s}$	=	intake factor for ingestion of soil (kg/kg-day)
$FI$	=	fraction of daily incidental soil ingestion occurring on-site (unitless)
$EF$	=	exposure frequency (days/year)
$C$	=	age-adjusted intake for a child (years-mg/day/kg)
$A$	=	age-adjusted intake for an adult (years-mg/day/kg)
$CF$	=	conversion factor ( $1.0 \times 10^{-6}$ kg/mg)
$AT_c$	=	carcinogenic averaging time (days)

Each of the input parameters are discussed in the section above with the exception of the age-adjusted intake for the child ( $C$ ) and adult ( $A$ ) which are described below.

The intake for the mutagenic equation is adjusted based on an age-dependent adjustment factor ( $ADAF$ ). For this HHERA, the age-adjusted intake for the child ( $C$ ) and adult ( $A$ ) were calculated separately. Based on the mutagenic equation presented in the RSL User's Guide [USEPA 2022b], the intakes from incidental ingestion of soil for a child and for an adult are estimated using the following equations:

$$C = [(ADAF_{<2} * ED_{<2}) + (ADAF_{2-6} * ED_{2-6})] * \frac{IR_C}{BW_C}$$

$$A = [(ADAF_{>6-16} * ED_{>6-16}) + (ADAF_{>16} * ED_{>16})] * \frac{IR_A}{BW_A}$$

where:

$C$	=	age-adjusted intake for a child (years-mg/day/kg)
$A$	=	age-adjusted intake for an adult (years-mg/day/kg)
$ED_{<2}$	=	exposure duration for less than 2 years (years)
$ED_{2-6}$	=	exposure duration for 2 to 6 years (years)
$ED_{>6-16}$	=	exposure duration for greater than 6 to 16 years (years)
$ED_{>16}$	=	exposure duration for greater than 16 years (years)
$ADAF_{<2}$	=	age-dependent adjustment factor for less than 2 years (unitless)
$ADAF_{2-6}$	=	age-dependent adjustment factor for 2 to 6 years (unitless)
$ADAF_{>6-16}$	=	age-dependent adjustment factor for greater than 6 to 16 years (unitless)
$ADAF_{>16}$	=	age-dependent adjustment factor for greater than 16 years (unitless)
$IR_C$	=	incidental soil ingestion rate for a child (mg-soil/day)
$IR_A$	=	incidental soil ingestion rate for an adult (mg-soil/day)
$BW_C$	=	body weight of child (kg)
$BW_A$	=	body weight of adult (kg)

The exposure duration ( $ED$ ), soil ingestion rate ( $IR$ ), and body weight ( $BW$ ) are receptor-specific and are presented in Section 7.3.

The age-dependent adjustment factor ( $ADAF$ ) for mutagenic COC is constituent-specific and receptor-specific (based on their age). As stated in the *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens* [USEPA 2005a], if a chemical has been determined to cause cancer by a mutagenic mode of action, it is possible that exposures to that chemical in early-life may result in higher lifetime cancer risks than a comparable duration adult exposure. It is recommended that the following  $ADAF$ s be applied to appropriate receptor(s) depending on their age range in the risk assessment:

- 10-fold adjustment for exposures during the first 2 years of life (<2);

- 3-fold adjustment for exposures from ages 2 to 16 years of age; and
- No adjustment (factor of 1) for exposures after 16 years of age (>16).

If the COC has not been determined to have a mutagenic mode of action, then the *ADAF* is equal to 1.0. The *ADAF* values are defined in the USEPA RSL User's Guide [USEPA 2022b] as follows:

$ADAF_{<2}$	=	10
$ADAF_{2-6}$	=	3
$ADAF_{>6-16}$	=	3
$ADAF_{>16}$	=	1

Based on the age range of the evaluated receptors, the appropriate *ADAFs* were used in the age-adjusted intake equations for the child and adult. The maintenance worker, construction worker, and utility worker evaluated quantitatively in this risk assessment are adult receptors (i.e., greater than 16 years old). Therefore, the *ADAFs* related to COC with a mutagenic mode of action for carcinogenicity would only be a factor of 1 for these receptors. However, the on-site trespasser evaluated quantitatively in this report is assumed to be between the ages of 12 to 21 years old; therefore, the above *ADAFs* that apply to this receptor are an *ADAF* of 3 for exposure during the ages of 12 to 16 years and an *ADAF* of 1 for exposure during the ages of 16 to 21 years.

### 7.1.2 Dermal Contact with Soil

The absorbed dose from dermal contact with soil is estimated using the equation:

$$I_{derm-s} = CS_{src} * TF_s * AAF_{derm-s} * IF_{derm-s}$$

where:

$I_{derm-s}$  = absorbed dose from dermal contact with soil (mg/kg-day)

$CS_{src}$  = constituent source concentration in soil (mg/kg)

$TF_s$  = transfer factor that translates the source concentration in soil to an exposure point concentration in soil (unitless)

$AAF_{derm-s}$  = absorption adjustment factor for dermal contact with soil (mg/mg)

$IF_{derm-s}$  = intake factor for dermal contact with soil (kg/kg-day)

A constituent EPC in soil is calculated as described above under the soil ingestion exposure pathway (Section 7.1.1). In calculating the absorbed dose from dermal contact with soil, the value of  $TF_s$  for each constituent was conservatively set to 1.0. The absorption adjustment factor ( $AAF_{derm-s}$ ) is constituent-specific and accounts for the fraction of the constituent absorbed from soil through the skin. The value of  $AAF_{derm-s}$  is presented in **Table 6-8**. As presented in **Table 6-8**, the  $AAF_{derm-s}$  value is zero for hexavalent chromium because in accordance with RAGS-E, there are no default dermal absorption values for inorganic compounds because the speciation of the compound is critical to the dermal absorption and there are too little data to extrapolate a reasonable value [USEPA 2004].

### *Noncarcinogenic and Carcinogenic (Non-Mutagenic)*

The following equation is utilized for noncarcinogenic effects for all receptors as well as for carcinogenic (non-mutagenic) effects for adult receptors (i.e., on-site maintenance worker, on-site construction worker, and on-site utility worker). Based on Exhibit 6-15 of RAGS Part A [USEPA 1989], the intake factor ( $IF_{derm-s}$ ) accounts for all constituent-independent parameters and is estimated using the equation:

$$IF_{derm-s} = \frac{SA * AF * CF * FC * EF * ED}{BW * AT}$$

where:

$IF_{derm-s}$  = intake factor for dermal contact with soil (kg/kg-day)

$SA$  = exposed skin surface area (cm<sup>2</sup>/event)

$AF$  = soil adherence factor (mg/cm<sup>2</sup>)

$CF$  = conversion factor (1×10<sup>-6</sup> kg/mg)

$FC$  = fraction of the day that contact with soil occurs at the site (unitless)

$EF$  = exposure frequency (events/year)

$ED$  = exposure duration (years)

$BW$  = body weight (kg)

$AT$  = averaging time (days)

The skin surface area ( $SA$ ) exposed to soil is dependent upon activities performed by the receptor. Exposures via dermal contact are generally limited to certain parts of the body

(i.e., hands, forearms, head, etc.). The soil adherence factor ( $AF$ ) is the density of soil adhering to the exposed fraction of the body. This value is correlated to the body parts exposed. The fraction of the day that contact with soil occurs at the site ( $FC$ ) is conservatively set to 1.0. The exposure frequency ( $EF$ ), exposure duration ( $ED$ ), and body weight ( $BW$ ) are receptor-specific as defined in the intake assumptions for each receptor. The averaging time ( $AT$ ) is exposure-based and is described under the intake assumptions for specific receptors.

### ***Carcinogenic (Mutagenic)***

For receptors aged younger than 16 year (i.e., on-site trespasser) that are exposed to constituents with a mutagenic mode of action, the mutagenic dermal contact with soil equation is utilized. Based on a modified equation from Exhibit 6-15 of RAGS Part A [USEPA 1989] combined with age-specific intakes calculated using framework from the RSL User's Guide [USEPA 2022b], the risk for dermal contact with soil for a child and adult are estimated using the following equation:

$$IF_{derm-s} = \frac{FC * EF * (C + A) * CF}{AT_c}$$

where:

$IF_{derm-s}$	=	intake factor for dermal contact with soil (kg/kg-day)
$FC$	=	fraction of the day that contact with soil occurs at the site (unitless)
$EF$	=	exposure frequency (days/year)
$C$	=	age-adjusted intake for a child (years-mg/day/kg)
$A$	=	age-adjusted intake for an adult (years-mg/day/kg)
$CF$	=	conversion factor ( $1.0 \times 10^{-6}$ kg/mg)
$AT_c$	=	carcinogenic averaging time (days)

Each of the input parameters are discussed in the section above with the exception of the age-adjusted intake for the child ( $C$ ) and adult ( $A$ ) which are described below.

The intake for the mutagenic equation is adjusted based on an age-dependent adjustment factor ( $ADAF$ ). In this risk assessment, the age-adjusted intake for the child ( $C$ ) and adult ( $A$ ) were calculated separately. Based on a combination of Exhibit 6-15 of RAGS Part A [USEPA 1989] and the mutagenic equations presented in the RSL User's Guide [USEPA

2022b], the intakes from dermal contact with soil for a child and for an adult are estimated using the following equations:

$$C = [(ADAF_{<2} * ED_{<2}) + (ADAF_{2-6} * ED_{2-6})] * \frac{SA_C * AF_C}{BW_C}$$

$$A = [(ADAF_{>6-16} * ED_{>6-16}) + (ADAF_{>16} * ED_{>16})] * \frac{SA_A * AF_A}{BW_A}$$

where:

$C$	=	age-adjusted intake for a child (years-mg/day/kg)
$A$	=	age-adjusted intake for an adult (years-mg/day/kg)
$ED_{<2}$	=	exposure duration for less than 2 years (years)
$ED_{2-6}$	=	exposure duration for 2 to 6 years (years)
$ED_{>6-16}$	=	exposure duration for greater than 6 to 16 years (years)
$ED_{>16}$	=	exposure duration for greater than 16 years (years)
$ADAF_{<2}$	=	age-dependent adjustment factor for less than 2 years (unitless)
$ADAF_{2-6}$	=	age-dependent adjustment factor for 2 to 6 years (unitless)
$ADAF_{>6-16}$	=	age-dependent adjustment factor for greater than 6 to 16 years (unitless)
$ADAF_{>16}$	=	age-dependent adjustment factor for greater than 16 years (unitless)
$SA_C$	=	exposed skin surface area for a child (cm <sup>2</sup> /day)
$SA_A$	=	exposed skin surface area for an adult (cm <sup>2</sup> /day)
$AF_C$	=	soil adherence factor for a child (mg/cm <sup>2</sup> )
$AF_A$	=	soil adherence factor for an adult (mg/cm <sup>2</sup> )
$BW_C$	=	body weight of child (kg)
$BW_A$	=	body weight of adult (kg)

The exposure duration ( $ED$ ), exposed skin surface area ( $SA$ ), soil adherence factor ( $AF$ ), and body weight ( $BW$ ) are receptor-specific and are presented in Section 7.3. The age-dependent adjustment factors ( $ADAF$ ) are receptor-specific (based on their age), which were discussed above in Section 7.1.1. Based on the age range of the evaluated receptors, the appropriate  $ADAF$ s were used in the age-adjusted intake equations for the child and adult.



## 7.2 Exposure Concentration Equations

When estimating risk via inhalation, it is recommended that the concentration of the constituents in air be used as the exposure metric (e.g.,  $\mu\text{g}/\text{m}^3$ ) rather than the inhalation intake of a constituent in air based on inhalation rate and body weight [USEPA 2009]. This section presents the exposure concentration equations for the inhalation of particulates from soil exposure pathway.

### *Noncarcinogenic and Carcinogenic (Non-Mutagenic)*

The following equation is utilized for noncarcinogenic effects for all receptors as well as for carcinogenic (non-mutagenic) effects for adult receptors (i.e., on-site maintenance worker, on-site construction worker, and on-site utility worker). Based on Equation 6 of RAGS Part F [USEPA 2009], the exposure concentration for estimating inhalation of particulates is estimated using the following equation:

$$EC = \frac{CA_a * ET * EF * ED}{AT}$$

where:

$EC$  = exposure concentration ( $\mu\text{g}/\text{m}^3$ )

$CA_a$  = constituent concentration in air ( $\mu\text{g}/\text{m}^3$ )

$ET$  = exposure time (hours/day)

$EF$  = exposure frequency (days/year)

$ED$  = exposure duration (years)

$AT$  = averaging time (hours)

The exposure time ( $ET$ ), exposure frequency ( $EF$ ), and exposure duration ( $ED$ ) are described in the intake assumptions for specific receptors. The averaging time ( $AT$ ) is exposure based and is described under the intake assumptions for specific receptors.

The constituent concentration in air ( $CA_a$ ) is calculated using the equation:

$$CA_a = C_{src} * TF_a$$

where:

$CA_a$  = constituent concentration in air ( $\mu\text{g}/\text{m}^3$ )

$C_{src}$  = constituent source concentration in soil ( $\mu\text{g}/\text{kg}$ )

$TF_a$  = transfer factor that translates the source concentration in soil to an air concentration ( $\text{kg}/\text{m}^3$ )

Determination of the constituent source concentrations ( $C_{src}$ ) was presented in Section 5 of this report for each medium and receptor. The variable  $TF_a$  accounts for processes, such as volatilization or fugitive dust emission rate and air dispersion, which translate the source concentration into an air concentration. For inhalation of particulates emitted from soil to outdoor air, the transfer factor was the USEPA default value of  $7.35 \times 10^{-10} \text{ kg}/\text{m}^3$  ( $1 \div 1.36 \times 10^9$ ) [USEPA 2022b].

### ***Carcinogenic (Mutagenic)***

For constituents with a mutagenic mode of action, the mutagenic inhalation of particulates from soil equation is utilized. Based on the mutagenic equation presented in the RSL User's Guide [USEPA 2022b], the carcinogenic exposure concentration for estimating inhalation of particulates for a child and for an adult are estimated using the following equation:

$$EC_C = \frac{CA_a * ET * EF * AED}{AT_C}$$

where:

$EC$  = carcinogenic exposure concentration ( $\mu\text{g}/\text{m}^3$ )

$CA_a$  = constituent concentration in air ( $\mu\text{g}/\text{m}^3$ ) ( $C_{src} * TF_a$ )

$ET$  = exposure time (hours/day)

$EF$  = exposure frequency (days/year)

$AED$  = combined age-dependent adjustment factor (years)

$AT_C$  = carcinogenic averaging time (hours)

The exposure time ( $ET$ ) and exposure frequency ( $EF$ ) are described in the intake assumptions for specific receptors in Section 7.3. The constituent concentration in air ( $CA_a$ ) is calculated as above. The averaging time ( $AT$ ) was discussed above. The combined age-dependent adjustment factor ( $AED$ ) is the exposure duration adjusted based on an age-dependent adjustment factor ( $ADAF$ ). The combined age-dependent adjustment factor

(*AED*) is calculated using the following equation:

$$AED = (ADAF_{<2} * ED_{<2}) + (ADAF_{2-6} * ED_{2-6}) + (ADAF_{6-16} * ED_{6-16}) + (ADAF_{>16} * ED_{>16})$$

where:

<i>AED</i>	=	combined age-dependent adjustment factor (years)
<i>ADAF</i> <sub>&lt;2</sub>	=	age-dependent adjustment factor for less than 2 years (unitless)
<i>ADAF</i> <sub>2-6</sub>	=	age-dependent adjustment factor for 2 to 6 years (unitless)
<i>ADAF</i> <sub>6-16</sub>	=	age-dependent adjustment factor for 6 to 16 years (unitless)
<i>ADAF</i> <sub>&gt;16</sub>	=	age-dependent adjustment factor for greater than 16 years (unitless)
<i>ED</i> <sub>&lt;2</sub>	=	exposure duration for less than 2 years (years)
<i>ED</i> <sub>2-6</sub>	=	exposure duration for 2 to 6 years (years)
<i>ED</i> <sub>6-16</sub>	=	exposure duration for 6 to 16 years (years)
<i>ED</i> <sub>&gt;16</sub>	=	exposure duration for greater than 16 years (years)

The exposure duration (*ED*) is receptor-specific and described in the intake assumptions for receptors in Section 7.3. The age-dependent adjustment factors (*ADAF*) are receptor-specific (based on their age), which were discussed above in Section 7.1.1. Based on the age range of the evaluated receptors, the appropriate *ADAF*s were used in the age-adjusted intake equations for the child and adult.

### 7.3 Receptor-Specific Exposure Assumptions

This section presents receptor-specific exposure assumptions for each receptor. The receptor-specific exposure assumptions quantify activity patterns and body characteristics for each of the receptors such as the amount of time a receptor may spend at the site and the frequency the receptor visits the site. The receptor-specific exposure assumptions were selected using WVDEP recommended values, when available. The WVDEP exposure assumptions were selected from Appendix C (Section C.3.1 – Exposure Parameters) of the VRP Guidance Manual [WVDEP 2020]. Otherwise, alternative sources were used, such as recommended values from other state program guidance or USEPA guidance, or professional judgment (based on site-specific information) to select appropriate receptor-specific exposure assumptions.

### 7.3.1 On-Site Maintenance Worker

The exposure scenario for the on-site maintenance worker was discussed in Section 4.3.2. This section presents the applicable exposure parameters that correlate to the retained exposure pathways for the on-site maintenance worker. **Table 7-1** presents the exposure parameters for the on-site maintenance worker.

The exposure duration (*ED*) was set to 25 years for the on-site maintenance worker, which is the WVDEP default assumption for an adult commercial/industrial exposure [WVDEP 2020]. The exposure frequency (*EF*) was selected to be 72 days/year for the maintenance worker based on the professional judgment of 3 days a week for 6 months, which is assuming exposure during warm months of the year (May through October). An exposure time (*ET*) of 4 hours/day was selected for the time spent outdoors for the maintenance worker based on professional judgment.

The default WVDEP soil ingestion rate (*IR*) for an outdoor worker of 100 mg-soil/day was used for the on-site maintenance worker [WVDEP 2020]. The total daily soil ingestion fraction (*FI*) and total daily contact with soil fraction (*FC*) was conservatively set at 1.0 for the on-site maintenance worker, which assumes that 100% of the receptor's daily soil intake occurs at the site.

The exposed surface area (*SA*) for dermal contact with soil was 3,527 cm<sup>2</sup>/day which is the WVDEP default value for a commercial/industrial scenario [WVDEP 2020]. The soil adherence factor (*AF*) for the on-site maintenance worker was 0.12 mg-soil/cm<sup>2</sup> which also is the WVDEP default soil *AF* for a commercial/industrial scenario [WVDEP 2020]. The body weight (*BW*) utilized for the on-site maintenance worker was 80 kg, which is the WVDEP default body weight for an adult [WVDEP 2020].

The averaging time for carcinogenic effects (*AT<sub>c</sub>*) was set at 25,550 days [USEPA 1991] for the ingestion and dermal contact exposure pathways and 613,200 hours [USEPA 2009] for the inhalation exposure pathway. The averaging time for noncarcinogenic effects (*AT<sub>nc</sub>*) was set at 9,125 days for the ingestion and dermal contact exposure pathways (*ED* × 365 days/yr) [USEPA 1989] and 219,000 hours for the inhalation exposure pathway (*ED* × 365 days/yr × 24 hrs/day) [USEPA 2009].

### 7.3.2 On-Site Construction Worker

The exposure scenario for the on-site construction worker was discussed in Section 4.3.2.

This section presents the applicable exposure parameters that correlate to the retained exposure pathways for the on-site construction worker. **Table 7-2** presents the exposure parameters for an on-site construction worker.

The soil ingestion rate (*IR*) was set to 330 mg-soil/day, which is the default assumption for a construction worker provided in Exhibit 1-2 of the Supplemental Soil Screening Guidance [USEPA 2002]. The total daily soil ingestion fraction (*FI*) and total daily contact with soil fraction (*FC*) was conservatively set at 1.0 for the on-site construction worker, which assumes that 100% of the receptor's daily soil intake occurs at the site.

The exposed surface area (*SA*) for dermal contact with soil was 3,527 cm<sup>2</sup>/day which is the WVDEP default value for a commercial/industrial scenario [WVDEP 2020]. The soil adherence factor (*AF*) for the on-site construction worker was 0.3 mg-soil/cm<sup>2</sup> which is the default assumption for a construction worker provided in Exhibit 1-2 of the Supplemental Soil Screening Guidance [USEPA 2002]. The body weight (*BW*) utilized for the on-site construction worker was 80 kg, which is the WVDEP default body weight for an adult [WVDEP 2020].

Although WVDEP provides exposure parameters for a commercial/industrial scenario, site-specific exposure assumptions were used specifically for a construction worker for a few of the exposure parameters. These site-specific exposure assumptions were compared to regulations in other states for guidance. The Illinois Environmental Protection Agency (Illinois EPA) has developed default intake assumptions for a construction worker. The Illinois EPA assumes intensive subsurface excavation activity occurs for about 6 weeks during construction projects and therefore, uses a default exposure frequency (*EF*) of 30 days/year (5 days/week for 6 weeks). Based on the limited area of the site where a construction worker may be exposed to hexavalent chromium during excavation activities (i.e., beneath the building foundation and surrounding the building perimeter), the *EF* of 30 days/year was determined to be a conservative, yet reasonable assumption for the on-site construction worker. The default exposure duration (*ED*) of one year was used to evaluate construction workers [IPCB 2013]. An exposure time (*ET*) of 8 hours/day was selected, which is a WVDEP default value for an industrial scenario [WVDEP 2020].

The averaging time for carcinogenic effects (*AT<sub>c</sub>*) was set at 25,550 days [USEPA 1991] for the ingestion and dermal exposure pathways and 613,200 hours [USEPA 2009] for the inhalation exposure pathway. The averaging time for noncarcinogenic effects (*AT<sub>nc</sub>*) was set at 365 days for the ingestion and dermal exposure pathways (calculated *ED*\*365

days/year) and 8,760 hours for the inhalation exposure pathway (calculated  $ED \times 365$  days/year  $\times 24$  hrs/day) [WVDEP 2020b].

### 7.3.3 On-Site Utility Worker

The exposure scenario for the on-site utility worker was discussed in Section 4.3.2. This section presents the applicable exposure parameters that correlate to the retained exposure pathways for the on-site utility worker. **Table 7-3** presents the exposure parameters for an on-site utility worker.

The soil ingestion rate ( $IR$ ) was set to 330 mg-soil/day, which is the default assumption for a construction worker provided in Exhibit 1-2 of the Supplemental Soil Screening Guidance [USEPA 2002]. The total daily soil ingestion fraction ( $FI$ ) and total daily contact with soil fraction ( $FC$ ) was conservatively set at 1.0 for the on-site utility worker, which assumes that 100% of the receptor's daily soil intake occurs at the site.

The exposed surface area ( $SA$ ) for dermal contact with soil was 3,527 cm<sup>2</sup>/day which is the WVDEP default value for a commercial/industrial scenario [WVDEP 2020]. The soil adherence factor ( $AF$ ) for the on-site utility worker was 0.3 mg-soil/cm<sup>2</sup> which is the default assumption for a construction worker provided in Exhibit 1-2 of the Supplemental Soil Screening Guidance [USEPA 2002]. The body weight ( $BW$ ) utilized for the on-site utility worker was 80 kg, which is the WVDEP default body weight for an adult [WVDEP 2020].

Although WVDEP provides exposure parameters for an industrial scenario, site-specific exposure assumptions were utilized specifically for a utility worker for a few of the exposure parameters. These site-specific exposure assumptions were compared to regulations in other states for guidance. The Massachusetts Department of Environmental Protection (MADEP) has determined that a default exposure frequency ( $EF$ ) of 1 day/year is reasonable for a utility worker where significant subsurface lines exist [MADEP 1995]. This MADEP default exposure parameter correlates well with the site-specific scenario presented in this risk assessment. Therefore, the  $EF$  was set to 1 day/year. The exposure duration ( $ED$ ) was set to 25 years, which is the WVDEP default for an industrial scenario [WVDEP 2020]. An exposure time ( $ET$ ) of 8 hours/day was selected, which is a WVDEP default value for an industrial scenario [WVDEP 2020].

The averaging time for carcinogenic effects ( $AT_c$ ) was set at 25,550 days [USEPA 1991]

for the ingestion and dermal contact exposure pathways and 613,200 hours [USEPA 2009] for the inhalation exposure pathway. The averaging time for noncarcinogenic effects ( $AT_{nc}$ ) was set at 9,125 days for the ingestion and dermal contact exposure pathways ( $ED \times 365 \text{ days/yr}$ ) [USEPA 1989] and 219,000 hours for the inhalation exposure pathway ( $ED \times 365 \text{ days/yr} \times 24 \text{ hrs/day}$ ) [USEPA 2009].

#### 7.3.4 On-Site Trespasser

The exposure scenario for a future on-site trespasser was discussed in Section 4.3.2. This section presents the applicable exposure parameters that correlate to the retained direct contact exposure pathways for an on-site trespasser. **Table 7-4** presents a summary of the exposure parameters used to evaluate direct contact exposures for the on-site trespasser.

For the ingestion and dermal soil exposure pathways, exposure parameters are selected to calculate intakes for a child and adult, which are then combined to calculate risks and hazard indices. The exposure duration ( $ED$ ) was set to 10 years for the on-site trespasser based on the assumed age range of the receptor (i.e., 12-21 years old). For the calculation of intakes and exposure concentration for carcinogenic effects with a mutagenic mode of action, the  $ED$  is segregated to correspond with the appropriate age-dependent adjustment factor ( $ADAF$ ). Therefore, the  $ED$  for carcinogenic mutagenic equations was segregated into 5 years (12-16 years old) and 5 years (>16-21 years old). The corresponding  $ADAF$ s are 3 (for receptors between >6-16 years old) and 1 (for receptors >16 years old). Note that a receptor aged 12-21 years is treated as an adult and utilizes the adult intakes for ingestion, dermal contact, and inhalation exposure per USEPA calculational framework. Therefore, child-specific parameters are not discussed in this section as they do not apply to the on-site trespasser evaluated in this risk assessment. Only the adult-specific parameters are presented as these were utilized to quantitatively evaluate exposure for the on-site trespasser.

The exposure frequency ( $EF$ ) was set to 30 days/year for the on-site trespasser, which assumes exposure to soil occurs one day per week during the warmer months (approximately 30 weeks between April and October). An exposure time ( $ET$ ) of 2 hours/day was selected for the time spent outdoors based on the default assumption for a trespasser provided by Virginia Department of Environmental Protection (VADEQ) [VADEQ 2022].

The default WVDEP body weight ( $BW$ ) of 80 kg for the adult was used for the on-site



trespasser [WVDEP 2020]. An incidental soil ingestion rate ( $IR_{ing-s}$ ) of 100 mg-soil/day was used for the on-site trespasser, which is the default assumption for an adult [WVDEP 2020]. The total daily soil ingestion fraction ( $FI$ ) and total daily contact with soil fraction ( $FC$ ) was conservatively set at 1.0 for the on-site trespasser, which assumes that 100% of the receptor's daily soil intake occurs at the site.

The exposed surface area ( $SA$ ) for dermal contact with soil was 6,032 cm<sup>2</sup>/day, which is the WVDEP default value for an adult [WVDEP 2020]. The soil adherence factor ( $AF$ ) for the on-site trespasser was 0.07 mg-soil/cm<sup>2</sup> for the adult, which is the WVDEP recommended soil  $AF$  for an adult [WVDEP 2020].

The averaging time for carcinogenic effects ( $AT_c$ ) was set at 25,550 days [USEPA 1991] for the ingestion and dermal contact exposure pathways and 613,200 hours [USEPA 2009] for the inhalation exposure pathway. The averaging time for noncarcinogenic effects ( $AT_{nc}$ ) was set at 2,920 days for the ingestion and dermal contact exposure pathways ( $ED \times 365$  days/yr) [USEPA 1989] and 70,080 hours for the inhalation exposure pathway ( $ED \times 365$  days/yr  $\times 24$  hrs/day) [USEPA 2009].

## 8 Risk Characterization

In this section of the risk assessment, the potential human health risks for complete exposure pathways are assessed. Potential risks due to exposures to COC in soil from the site are evaluated by integrating exposure assessments and toxicity data into quantitative expressions of cancer risk and noncancer health hazards. This section presents the risk calculation framework used to quantify risk for the direct contact exposure pathways.

### 8.1 Risk Calculation Framework

Two types of potential direct contact human health effects were calculated in this risk assessment: carcinogenic effects and noncarcinogenic effects. Carcinogenic effects are evaluated by calculating a cancer risk. Cancer risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen (i.e., incremental or excess individual lifetime cancer risk). Carcinogenic risks for the ingestion and dermal contact exposure pathways are estimated using the equation [USEPA 1989]:

$$Risk = Intake * CSF$$

where:

*Intake* = intake or absorbed dose of a constituent (mg/kg-day)

*CSF* = cancer slope factor of a constituent (mg/kg-day)<sup>-1</sup>

Carcinogenic risks for the inhalation of particulates soil exposure pathway are estimated using the equation [USEPA 2009]:

$$Risk = EC * IUR$$

where:

*EC* = exposure concentration (µg/m<sup>3</sup>)

*IUR* = inhalation unit risk factor (µg/m<sup>3</sup>)<sup>-1</sup>

For each exposure pathway, this calculation is performed for each COC considered to be a potential carcinogen, and the risks are summed across all COC and exposure pathways to obtain the total risk for a specific receptor. In this HHERA, hexavalent chromium was the only constituent retained as a COC for quantitative assessment of risks.

Potential noncarcinogenic effects are evaluated by calculating a hazard index (HI). For a single constituent and exposure route, a hazard quotient (HQ) is calculated. For the ingestion and dermal contact exposure pathways, the HQ is calculated using the equation [USEPA 1989]:

$$HQ = \frac{Intake}{RfD}$$

where:

*Intake* = intake or absorbed dose of a constituent (mg/kg-day)

*RfD* = reference dose of a constituent (mg/kg-day)

For the inhalation of particulates soil exposure pathway, the HQ is calculated using the equation [USEPA 2009]:

$$HQ = \frac{EC}{RfC * CF}$$

where:

*EC* = exposure concentration (µg/m<sup>3</sup>)

*RfC* = reference concentration (mg/m<sup>3</sup>)

*CF* = conversion factor (1000 µg/mg)

For each exposure pathway, this calculation is performed for each COC and the hazard quotients are summed across all COC and exposure pathways to obtain the total HI for a specific receptor. In this HHERA, hexavalent chromium was the only constituent retained as a COC for quantitative assessment of HIs.

## 8.2 Risk Results

In accordance with Section 60-3-9.4.a and 60-3-9.4.b in the Rule [WVDEP 2021a] and Section 4.6.2 in the WV VRP Guidance Manual [WVDEP 2020], the risk benchmark value for commercial/industrial receptors is 1x10<sup>-5</sup> and the risk benchmark value for residential receptors is 1x10<sup>-6</sup>. For both commercial/industrial and residential receptors, the WVDEP hazard index benchmark is 1.

Calculations of cancer risks and noncancer HIs for direct contact exposures for the on-site maintenance worker, on-site construction worker, on-site utility worker, and on-site trespasser are presented in **Tables 8-1** through **8-4**, respectively. The total risks and total hazard indices for all site receptors and all exposure pathways are summarized in **Table 8-5**. As presented in **Table 8-5**, the estimated total cancer risks and total noncancer HIs for the on-site maintenance worker, construction worker, and utility worker are below the WVDEP commercial/industrial risk benchmark value of  $1 \times 10^{-5}$  and HI benchmark of 1. However, the total risk for the on-site trespasser ( $2 \times 10^{-6}$ ) exceeds the WVDEP risk benchmark for residential receptors of  $1 \times 10^{-6}$ . To address this exceedance, a public notice will be completed.

As previously indicated in Section 2.1.1 (Direct Contact Screening – Soil), for purposes of the quantitative risk assessment, the more recent soil samples collected in February 2020 were utilized to evaluate soil exposures because these samples were collected from discrete separate soil intervals (i.e., one collected from the surface soil zone and one collected from the subsurface soil zone) and also because chromium analytical results were speciated (i.e., analyzed for total chromium and hexavalent chromium). However, a separate analysis was completed for the July/August 2018 soil samples, which is presented in the Uncertainty Analysis (Section 9) of this HHERA.

*Note that if any of the exposure assumptions and/or assessment change in the future for this site, the results of this analysis do not apply.*

## 9 Uncertainty Analysis

The risk assessment process presented in this document uses a considerable number of conservative assumptions to ensure that potential risks are not underestimated. During the risk assessment process, uncertainty and variability are inherent in the estimation of risks based on specific calculation input variables such as:

- Identification of COC;
- Receptor and exposure routes;
- Exposure parameters;
- Exposure point concentrations;
- Toxicological values; and,
- Risk characterization.

A qualitative review is presented in this section describing some of the variables as applicable to the risk analysis and their potential effect on the final risk estimates, which overall result in a high degree of confidence that potential site-related risks are not underestimated.

### 9.1 Identification of COC

Identification of COC relies, in part, on the information provided by the sampling and analytical program. Uncertainty in this regard is reduced as much as possible by the following appropriate sample collection, handling, and analytical procedures and by intentionally sampling on a bias to ensure worst-case samples are collected and potential site-related risk estimates are not underestimated. Additionally, quality assurance sampling and analysis protocols are followed to obtain characterization data that is as representative, precise, and accurate as possible to be used for risk assessment purposes.

As discussed in Section 2.1.1 (Direct Contact Screening - Groundwater), in the most recent December 2021 groundwater sampling event, WVDEP noted issues with sampling equipment, which resulted in discoloration of the samples collected [Personal correspondence 2022c]. WVDEP recommended not utilizing the split sample collected by WVDEP in December 2021. However, the analytical results collected by [REDACTED] from the December 2021 sampling event were consistent with previous samples collected and were utilized in the risk assessment. In general, the analytical results from the WVDEP split

sample appear to be biased high. The WVDEP split sample concentrations in comparison to the concentrations of the samples collected by range from approximately two times higher to over an order of magnitude higher.

The largest difference between the WVDEP and December 2021 samples was the analytical result for total chromium. The total chromium concentration in the sample collected by WVDEP was 1,600 µg/L and the concentration in the sample collected by during the same sampling event was 56 µg/L. Hexavalent chromium was also speciated in both the WVDEP and samples and was not detected in either sample. Although the total chromium result of 1,600 µg/L from the December 2021 WVDEP sample is the highest total chromium result detected across the site, its exclusion does not affect the conclusions of the risk assessment.

Hexavalent chromium was the only form of chromium retained as a direct contact COC for site receptors as it is the more toxic valence state of chromium. Trivalent chromium was not retained as a direct contact COC because all trivalent concentrations (calculated by subtracting the hexavalent chromium concentration from the total chromium concentration) were below the groundwater de minimis standard. The trivalent chromium concentration calculated in the December 2021 WVDEP sample was 1,600 µg/L, which assumes the entire total chromium concentration consists of trivalent chromium since hexavalent chromium was not detected. This concentration is below the groundwater de minimis standard of 22,000 µg/L. Therefore, the same number of COC would be retained regardless of the inclusion or exclusion of the WVDEP split sample collected December 2021. Note that exposure to retained COC in groundwater was not quantitatively evaluated in the risk assessment based on the depth of groundwater and bedrock at the site.

## 9.2 Exposure Assessment

There are three major areas of uncertainty associated with exposure assessment, including: 1) receptors and exposure pathways; 2) calculation of EPCs; and 3) exposure parameter values used to estimate chemical intake.

### 9.2.1 Receptors and Exposure Pathways

Defining the probable current and future land use of the site carries with it some degree of uncertainty. Evaluating and understanding this uncertainty is important during the selection of potential receptors and exposure pathways. For this evaluation, the potential receptors and exposure pathways were based on current site conditions (i.e., nonresidential)

and the assumption that the site will continue to be used for nonresidential use, limiting the uncertainty associated with these parameters.

### 9.2.2 Exposure Point Concentrations

Using current media concentrations to reflect future concentrations adds another uncertainty to this risk assessment. Soil concentrations of COC are expected to decrease over time because historic sources at the site were removed. Use of current data to assess the risks over chronic time periods is likely to overestimate risks.

Risk assessments typically evaluate mean concentrations over an exposure area, considering all exposures within that area as equally possible. Risks associated with exposures are then assessed by evaluating those mean concentrations with exposure factors and the appropriate exposure/toxicity values. Typically, the EPC for a specific chemical in a particular medium is based on the 95% UCL on the mean concentration.

In this risk assessment, the maximum concentration was used for the various site receptors depending on the dataset available for the retained soil COC. The only constituent retained as a COC in soil for the quantitative risk assessment was hexavalent chromium. The maximum concentration was used as the soil source concentration because there was only one detection of hexavalent chromium in the soil sample dataset utilized in this risk assessment; the remaining soil samples had no detections of hexavalent chromium. Utilizing maximum concentrations is a conservative assumption that may potentially overestimate risks because this assumes that the receptor is exposed to the highest concentration represented by a single sample location for the duration of their exposure. It is more likely the receptor would be exposed to an average concentration represented by several sample locations across the anticipated area of exposure.

As shown in **Table 2-6**, composite soil sample SB 1-2-3 (0-10') was excluded from use in the risk assessment in accordance with the VRP Guidance Manual [WVDEP 2020], which states that composite samples are not an acceptable protocol for determining EPCs in a risk assessment. The total chromium concentration detected in this composite sample was 31.8 mg/kg. The sample was not speciated for hexavalent chromium, so for this analysis it was conservatively assumed that the entire total chromium concentration consists of hexavalent chromium. The source concentration of hexavalent chromium utilized in the risk calculations of this risk assessment was 160 mg/kg for surface soil (0-2 ft-bgs) and combined surface/subsurface soil (0-10 ft-bgs), which is the maximum concentration from



SB-2 (2'). This source concentration is greater than the concentration measured in composite soil sample SB 1-2-3 (0-10').

The composite sample was comprised of three separate soil boring locations from the interior of the building as shown on **Figure 2**. There is potential for one of the three borings that comprises this sample to be a hot spot that was diluted by the other borings. However, based on the fact that the visual indications of contamination (e.g., staining) were observed primarily along the outer edges of the building interior in proximity to the chromium dipping tanks, it is unlikely for any one of the soil borings that comprise the composite sample to have a higher hexavalent chromium concentration than the maximum concentration utilized in the risk assessment. Therefore, the exclusion of this composite sample is unlikely to overestimate or underestimate the risks calculated in this risk assessment.

### 9.2.3 Alternative Risk Calculation

As discussed in Section 2.1.1, the historic soil samples collected in July/August 2018 under the Hazardous Waste Program were not utilized to calculate risk results for hexavalent chromium due to the fact that they were collected from large intervals that are not reflective of a discrete soil interval and because it is unknown what percentage of the total chromium results comprise of hexavalent chromium. However, several of these historic samples have detections of total chromium that exceed the total chromium concentrations in the February 2020 soil samples. The maximum total chromium concentration in the February 2020 soil samples was 360 mg/kg from SB-2 (2.0'). The corresponding hexavalent chromium concentration was 160 mg/kg, which was the concentration utilized in the risk calculations to estimate risks and hazards for site receptors. By comparison, the maximum total chromium concentration in remaining, unexcavated, untreated soil samples collected in July/August 2018 was 716 mg/kg from SB-5 (0-10'). The July/August 2018 soil boring SB-5 is located along the northeastern side of the building beneath the concrete foundation. Although hexavalent chromium was not speciated in the historic July/August 2018 soil samples, based on the greater total chromium concentrations detected in the July/August 2018 soil samples compared to the more recent February 2020 samples, there is a possibility that the hexavalent chromium concentration in historic samples may exceed the hexavalent chromium concentration detected in the more recent samples.

To ensure that the calculated risks and hazards were not underestimated for site receptors, an alternative analysis was performed utilizing the total chromium concentrations detected

in the historic samples. The remaining, untreated soil samples collected in July/August 2018 with total chromium concentrations exceeding the total chromium concentrations in February 2020 samples are SB-5 (0-10') (716 mg/kg), SB-8 (0-10') (216 mg/kg), SB-15 (0-10') (394 mg/kg), SB-18 (0-10') (372 mg/kg), SB-20 (5-10') (351 mg/kg), and SB-21 (4-5') (294 mg/kg). Soil borings SB-5, SB-8, SB-15, SB-20, and SB-21 were located beneath the slab of the current on-site building and beneath the exterior concrete pad. Soil boring SB-18 was located outside of the building in an uncovered gravel area adjacent to the northwestern wall of the building. Because SB-5, SB-8, SB-15, SB-20, and SB-21 were collected beneath the concrete foundation/pad, only a construction worker or utility worker may come in contact with these samples while doing building renovations or utility repairs/installation. However, it was conservatively assumed that the on-site maintenance worker and on-site trespasser could be in contact with SB-18 located on the exterior of the building (assuming the concentrations observed in SB-18 are attributed primarily to the surface soil zone between 0-2 ft-bgs).

The maximum excavation depths of the on-site maintenance worker and on-site trespasser are 2 ft-bgs. The maximum excavation depth of the on-site construction worker and on-site utility worker are 10 ft-bgs and 4 ft-bgs, respectively. As a result, the on-site maintenance worker, on-site trespasser, and on-site utility worker may not be in contact with the entire interval of the historic soil samples collected from 0-10 ft-bgs. Nonetheless, as a conservative analysis, the maximum total chromium concentrations from the historic soil samples were utilized as source concentrations in an alternative risk calculation for all site receptors. Although the total chromium concentration is presumed to comprise of some ratio of hexavalent chromium to trivalent chromium, the total chromium concentration was conservatively assumed to be exclusively hexavalent chromium so as to not underestimate risks to site receptors. A summary of the source concentrations utilized in the alternative risk calculations are below.

Receptor	Source Concentration (mg/kg)	Location of Max. Concentration
On-Site Maintenance Worker	372	SB-18 (0-10')
On-Site Construction Worker	716	SB-5 (0-10')
On-Site Utility Worker	716	SB-5 (0-10')
On-Site Trespasser	372	SB-18 (0-10')

The alternative risk calculations using the above source concentrations are presented in **Tables 9-1 through 9-4**. The same exposure parameters utilized in the original risk calculations (**Tables 7-1 through 7-4**) were also utilized for this alternative analysis.

A summary of the risk and hazard results from this alternative analysis are presented in **Table 9-5**. As shown in **Table 9-5**, the estimated risks and hazards calculated through this conservative analysis are all below the WVDEP risk and hazard benchmarks with the exception of the estimated risk for the on-site trespasser and the on-site maintenance worker. The calculated risk for on-site trespasser ( $6 \times 10^{-6}$ ) exceeds the WVDEP risk benchmark for residential receptors of  $1 \times 10^{-6}$ . Based on the fact that the risk results for the on-site trespasser exceeded the WVDEP residential risk benchmark in the risk calculations in the main body of this report (see Section 8.2) and in this alternative analysis, a public notice will be completed to address this risk benchmark exceedance.

The calculated risk of the on-site maintenance worker is  $2 \times 10^{-5}$ , which slightly exceeds the WVDEP risk benchmark of  $1 \times 10^{-5}$  for nonresidential receptors. As discussed above, total chromium concentrations are comprised of some fraction of hexavalent chromium. The remainder of the total chromium concentration is made up of trivalent chromium, a less toxic valence state of chromium. Not only it is conservative to assume that the total chromium analytical results are comprised entirely of hexavalent chromium, but it is also conservative to use the maximum concentration as the source concentration. Utilizing maximum concentrations is a conservative assumption that may potentially overestimate risks because this assumes that the receptor is exposed to the highest concentration represented by a single sample location for the duration of their exposure when in reality it is more likely the receptor would be exposed to an average concentration across the anticipated area of exposure. Therefore, although the total risk for the on-site maintenance worker slightly exceeds the WVDEP benchmark, based on the multitude of conservative assumptions utilized in the risk calculation the estimated risk of the on-site maintenance worker is likely highly overestimated.

#### 9.2.4 Exposure Parameters

Uncertainty is associated with the exposure parameter values used; however, assumptions are chosen to be conservative so as not to underestimate risk. For example, assumptions are made for the exposure time, frequency, and duration of potential chemical exposures, as well as for the quantity of material ingested, inhaled, or absorbed. In general, assumptions are made based on reasonable maximum exposures and, in most cases, values

are specified by WVDEP, USEPA or other state guidance documents, or site-specific information.

For the on-site trespasser, an exposure frequency of 30 days/year was selected based on professional judgement. The exposure frequency of 30 days/year assumes exposure to soil occurs one day per week during the warmer months (approximately 30 weeks between April through October). However, this exposure parameter may be overly conservative based on the default trespasser exposure frequency published by other state guidance. For example, VADEQ guidance provides a default exposure frequency for a trespasser of 24 days/year. Further, based on the current use of the site (industrial manufacturing), a trespasser is unlikely to access the site on a frequent basis. As a result, the estimated risks and hazards presented in this report may overestimate the actual risks and hazards for an on-site trespasser.

### 9.3 Toxicity Values

A potentially large source of uncertainty is inherent in the derivation of the toxicity values (e.g., CSFs, RfDs, RfCs, and IURs). In many cases, data are extrapolated from animals to sensitive human subpopulations by the application of uncertainty factors to an estimated no-observed-adverse-effect level or lowest-observed-adverse-effect level for noncancer health effects. While designed to be protective, it is likely in many cases that uncertainty factors overestimate the magnitude of differences that may exist between humans and animals, and among humans.

As discussed in the *Guidelines for Carcinogen Risk Assessment* [USEPA 2005b], derivation of CSFs and IURs often involves linear extrapolation of effects at high doses to potential effects at lower doses commonly seen in environmental exposure settings. It is probable that the shape of the dose response curve for carcinogenesis varies with different chemicals and mechanisms of action. It is likely that the assumption of linearity is conservative and yields CSFs and IURs that are unlikely to lead to underestimation of risks for concentrations that are relatively low. For concentrations that are well above the point of departure, the dose response curve should be reviewed to determine the effect on carcinogenic risks. According to the California EPA (the source of the oral CSF for hexavalent chromium utilized in this risk assessment), the point of departure is 0.196 mg/kg-day [California EPA 2011]. By comparison, the calculated intake based on the concentration of hexavalent chromium detected at the site is 1.4E-05 mg/kg-day for the on-

site maintenance worker, which is the receptor with the highest estimated incidental soil ingestion intake. This intake is several orders of magnitude below the point of departure.

#### **9.4 Risk Characterization**

There is also uncertainty in assessing risks associated with a mixture of chemicals. In this assessment, the effects of exposure to each contaminant present have initially been considered separately. However, these substances occur together at the site, and individuals may be exposed to mixtures of the chemicals. Predictions of how these mixtures of chemicals will interact must be based on an understanding of the mechanisms of such interactions. Individual chemicals may interact in the body, yielding a new toxic component or causing different effects at different target organs. Suitable data are not currently available to rigorously characterize the effects of chemical mixtures.

Consequently, as recommended by USEPA, chemicals present at the site are assumed to act additively, and potential health risks are evaluated by summing excess lifetime cancer risks and calculating HIs for noncancer health effects [USEPA 1989]. This approach to assessing risk associated with mixtures of chemicals assumes that there are no synergistic or antagonistic interactions among the chemicals and that all chemicals have the same toxic endpoint and mechanisms of action. To the extent that these assumptions are correct, the actual risks could be underestimated or overestimated.

#### **9.5 Conclusion of Uncertainty Analysis**

The risk assessment employed multiple conservative assumptions, which, when combined, produce an additive conservative effect throughout the process, resulting in an overestimation of the potential risk. As a result of the uncertainties described above, this risk assessment should not be construed as presenting absolute risks or hazards. Rather, it is a conservative analysis intended to indicate the potential for adverse impacts to occur based on reasonable maximum exposure that is well above the average but still within the range of possible exposures.

## Statement of Limitations

This document is prepared solely for the [REDACTED] site is located at [REDACTED] in [REDACTED] West Virginia. This report was prepared based on the information supplied by [REDACTED]. The results of the risk assessment presented in this report apply to the existing and reasonably foreseeable site conditions at the time of this assessment. This risk assessment is based only on the current site conditions from the historic on-site release(s) defined by the analytical data and does not assess potential future releases. Changes in the conditions of the property may occur with time due to natural processes or works of man at the site or on adjacent properties. Changes in applicable standards and toxicity criteria may also occur as a result of legislation or the broadening of knowledge. As a result, if any of the exposure assumptions and/or assessment change in the future for this site, the results of this risk assessment analysis may not apply. Based on the evolving nature of risk assessments, this risk assessment shall be submitted to the appropriate regulatory agency within a reasonable timeframe (e.g., approximately 3 months from the completion date of this document) to ensure that the most recent risk assessment methodologies and guidelines have been used at the time this risk assessment was completed. Strategic Risk Services, LLC is not responsible for the misinterpretation or misuse of this risk assessment analysis.

## 10 References

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## Tables

**Table 2-1a**  
**Historic Soil Analytical Data and Comparison to Direct Contact Screening Values**  
**Human Health and Ecological Risk Assessment**

Boring Location	Sample Depth (ft-bgs)	Sample Date	Total Cadmium <sup>[1]</sup> (mg/kg)	Total Chromium (mg/kg)	Total Lead (mg/kg)
SB-1-2-3 (Composite)	0-10	7/31/2018	<0.5	31.8	8.77
SB-4	0-10	7/31/2018	<0.5	142	16.5
SB-5	0-10	7/31/2018	<0.5	716	6.43
SB-6	0-10	7/31/2018	<0.5	18.4	13.6
SB-7	0-10	7/31/2018	<0.5	38.2	5.69
SB-8	0-10	7/31/2018	<0.5	216	7.09
SB-9	0-10	7/31/2018	<0.5	50.4	16.9
SB-10**	0-10	7/31/2018	<0.5	468	7.94
SB-11**	0-10	7/31/2018	<0.5	840	18.8
SB-12-1**	0-5	7/31/2018	<0.5	2,040	11.6
SB-12-2**	5-10	7/31/2018	<0.5	328	10.4
SB-13-1**	0-5	7/31/2018	<0.5	828	10.3
SB-13-2**	5-10	7/31/2018	<0.5	533	13.5
SB-14	0-10	7/31/2018	<0.5	24.7	5.42
SB-15	0-10	7/31/2018	<0.5	394	7.59
SB-16	0-10	7/31/2018	<0.5	99.6	10.7
SB-17	0-10	7/31/2018	<0.5	52.9	5.55
SB-18	0-10	7/31/2018	<0.5	372	16.1
SB-19**	8-10	8/1/2018	<0.5	35,100	<b>958</b>
SB-20	5-10	8/1/2018	<0.5	351	8.47
SB-21	4-5	8/1/2018	<0.5	294	13.6
SB-22 (Background)	0-7	8/1/2018	<0.5	15.5	11.2
SB-23 (Background)	0-5	8/1/2018	<0.5	20.1	14.3
<b>WVDEP Industrial De Minimis Standard (mg/kg)</b>			<b>530</b>	<b>Nav</b>	<b>800</b>
<b>WVDEP Residential De Minimis Standard (mg/kg)</b>			<b>37</b>	<b>Nav</b>	<b>400</b>

Notes:

mg/kg - milligram per kilogram

ft-bgs - feet below ground surface

Nav - not available

\*\* - indicates sample was excavated and/or treated with CarBstrate

[1] Total cadmium, chromium, and lead analyses by ICP Metals 6010B, reported in parts per million (ppm).

**Bold** indicates analytical results above the residential soil de minimis standard.

Shaded values indicate analytical results above the industrial soil de minimis standard.

Table 2-1b  
Soil Analytical Results and Comparison to Direct Contact Screening Values  
Human Health and Ecological Risk Assessment

[REDACTED]

Parameter	WVDEP Residential Soil De Minimis Standard (mg/kg)	WVDEP Industrial Soil De Minimis Standard (mg/kg)	SB-1	SB-1	SB-2	SB-2	SB-3	SB-3	SB-4	SB-5	SB-8 <sup>1</sup>
			2.0 Feet	15.0 Feet	2.0 Feet	11.0 Feet	2.0 Feet	8.0 Feet	1.0 Foot	2.0 Feet	2.0 Feet
			2/11/2020	2/11/2020	2/11/2020	2/11/2020	2/11/2020	2/11/2020	2/11/2020	2/12/2020	2/12/2020
			Unsaturated	Saturated	Unsaturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Hexavalent Chromium, EPA Method 3060A/7196A											
Hexavalent Chromium	0.3	63	< 2.00	< 2.00	160	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Mercury, EPA Method 7471A											
Mercury	3.1	3.1	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.0372	< 0.03	< 0.03	< 0.03
Metals, EPA Method 6010B											
Arsenic	0.68	30	< 2.00	18.70	10.30	6.05	8.78	15.80	6.50	< 2.00	3.97
Barium	15,000	220,000	864	24.70	112	28.30	37.60	33.90	62.00	71.40	66.70
Cadmium	37	530	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	3.72	< 0.5	< 0.5
Chromium	NA	NA	31.00	30.80	360	17.70	17.80	43.80	60.40	9.06	11.20
Trivalent Chromium**	120,000	1,000,000	31.00	30.80	200	17.70	17.80	43.80	60.40	9.06	11.20
Lead	400	800	38.80	11.60	10.90	5.56	8.43	9.00	44.60	8.14	10.50
Selenium	390	5,800	2.14	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Silver	390	5,800	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
VOCs, EPA Method 8260B											
Benzene	1.2	54	< 0.001	< 0.001	< 0.001	0.00123	< 0.001	< 0.001	0.00241	< 0.001	< 0.001
Toluene	820	820	< 0.005	< 0.005	0.00771	0.0182	< 0.005	< 0.005	0.0265	< 0.005	< 0.005
Ethylbenzene	6.2	270	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.00435	< 0.0025	< 0.0025
Total Xylenes	260	260	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	0.0391	< 0.0065	< 0.0065
Naphthalene	2.4	110	< 0.0125	< 0.0125	< 0.0125	< 0.0125	< 0.0125	< 0.0125	0.0135	< 0.0125	< 0.0125
2-Butanone (MEK)	28,000	28,000	< 0.025	< 0.025	< 0.025	0.0282 B, J+	0.0264 B, J+	< 0.025	0.0271 B, J+	0.0432 B, J+	0.0402 B, J+
1,2,4-Trimethylbenzene	220	220	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0137	< 0.005	< 0.005
1,2,3-Trimethylbenzene	NA	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00776	< 0.005	< 0.005
1,3,5-Trimethylbenzene	180	180	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00633	< 0.005	< 0.005

[REDACTED]

Table 2-1b  
Soil Analytical Results and Comparison to Direct Contact Screening Values  
Human Health and Ecological Risk Assessment

[REDACTED]

Parameter	WVDEP Residential Soil De Minimis Standard (mg/kg)	WVDEP Industrial Soil De Minimis Standard (mg/kg)	SB-1	SB-1	SB-2	SB-2	SB-3	SB-3	SB-4	SB-5	SB-8 <sup>1</sup>
			2.0 Feet	15.0 Feet	2.0 Feet	11.0 Feet	2.0 Feet	8.0 Feet	1.0 Foot	2.0 Feet	2.0 Feet
			2/11/2020	2/11/2020	2/11/2020	2/11/2020	2/11/2020	2/11/2020	2/11/2020	2/12/2020	2/12/2020
			Unsaturated	Saturated	Unsaturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated	Unsaturated
SVOCs, EPA Method 8270C <sup>2</sup>											
Naphthalene	2.4	110	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	0.141	< 0.0333	< 0.0333
Phenanthrene	23,000	350,000	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	0.132	< 0.0333	< 0.0333
Benzo (a) pyrene	0.11	21	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	0.0773
SVOCs, EPA Method 8270C (SIM Analysis)											
Acenaphthene	4,100	47,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.00965 J	< 0.006	< 0.006
Benzo (a) anthracene	1.5	320	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.0109	< 0.006	< 0.006
Benzo (a) pyrene	0.11	21	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.00827	0.00652	< 0.006
Benzo (b) fluoranthene	1.1	210	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.0173	0.0114	< 0.006
Benzo (g,h,i)perylene	1,800	23,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.0142	< 0.006	< 0.006
Chrysene	110	21,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.0282	0.00724	< 0.006
Fluoranthene	2,400	30,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.0221	0.0154 J	0.00705 J
Fluorene	2,900	37,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.0217 J	< 0.006	< 0.006
Naphthalene	2.4	110	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.211	< 0.2	< 0.2
Phenanthrene	23,000	350,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.188	0.00905	< 0.006
Pyrene	2,300	34,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.0306	0.015	< 0.006
1-Methylnaphthalene	24	390	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.29	< 0.02	< 0.2
2-Methylnaphthalene	310	4,700	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.383	< 0.02	< 0.2

<sup>1</sup> SB-8 Samples = Field Duplicates corresponding to SB-5 depths.  
<sup>2</sup> Naphthalene, Phenanthrene, and Benzo(a)Pyrene were analyzed under both the EPA Analytical Method 8270C and 8270C (SIM). Only the analytical results from the SIM analysis were utilized in the risk assessment due to being the more sensitive analytical method.  
J+ = result may be biased high due to potential laboratory contamination  
J = result is estimated  
B = The same analyte is found in the associated blank  
\*\* - Trivalent chromium concentrations were calculated by subtracting the laboratory-reported hexavalent chromium concentration from the total chromium concentration in each sample.

[REDACTED]

Table 2-1b  
Soil Analytical Results and Comparison to Direct Contact Screening Values  
Human Health and Ecological Risk Assessment

[REDACTED]

Parameter	WVDEP Residential Soil De Minimis Standard (mg/kg)	WVDEP Industrial Soil De Minimis Standard (mg/kg)	SB-5	SB-8 <sup>1</sup>	SB-6	SB-6	SB-7	SB-7
			7.0 Feet	7.0 Feet	2.0 Feet	5.0 Feet	2.0 Feet	5.0 Feet
			2/12/2020	2/12/2020	2/12/2020	2/12/2020	2/12/2020	2/12/2020
			Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Hexavalent Chromium, EPA Method 3060A/7196A								
Hexavalent Chromium	0.3	63	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Mercury, EPA Method 7471A								
Mercury	3.1	3.1	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.0315
Metals, EPA Method 6010B								
Arsenic	0.68	30	10.10	13.90	5.30	5.41	9.63	4.81
Barium	15,000	220,000	51.40	44.80	70.20	31.90	42.70	32.50
Cadmium	37	530	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	NA	NA	18.00	22.20	11.40	11.50	15.20	9.92
Trivalent Chromium**	120,000	1,000,000	18.00	22.20	11.40	11.50	15.20	9.92
Lead	400	800	7.39 J	13.10 J	10.50	9.36	10.40	5.26
Selenium	390	5,800	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00
Silver	390	5,800	< 1	< 1	< 1	< 1	< 1	< 1
VOCs, EPA Method 8260B								
Benzene	1.2	54	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	820	820	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	6.2	270	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Total Xylenes	260	260	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.0065
Naphthalene	2.4	110	< 0.0125	< 0.0125	< 0.0125	< 0.0125	< 0.0125	< 0.0125
2-Butanone (MEK)	28,000	28,000	0.0273 B, J+	0.0365 B, J+	< 0.025	0.03 B, J+	< 0.025	0.0293 B, J+
1,2,4-Trimethylbenzene	220	220	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3-Trimethylbenzene	NA	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,3,5-Trimethylbenzene	180	180	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

[REDACTED]

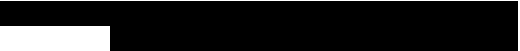


Table 2-1b  
Soil Analytical Results and Comparison to Direct Contact Screening Values  
Human Health and Ecological Risk Assessment



Parameter	WVDEP Residential Soil De Minimis Standard (mg/kg)	WVDEP Industrial Soil De Minimis Standard (mg/kg)	SB-5	SB-8 <sup>1</sup>	SB-6	SB-6	SB-7	SB-7
			7.0 Feet	7.0 Feet	2.0 Feet	5.0 Feet	2.0 Feet	5.0 Feet
			2/12/2020	2/12/2020	2/12/2020	2/12/2020	2/12/2020	2/12/2020
			Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
SVOCs, EPA Method 8270C <sup>2</sup>								
Naphthalene	2.4	110	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333
Phenanthrene	23,000	350,000	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333
Benzo (a) pyrene	0.11	21	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333	< 0.0333
SVOCs, EPA Method 8270C (SIM Analysis)								
Acenaphthene	4,100	47,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Benzo (a) anthracene	1.5	320	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Benzo (a) pyrene	0.11	21	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Benzo (b) fluoranthene	1.1	210	< 0.006	< 0.006	0.00618	< 0.006	< 0.006	< 0.006
Benzo (g,h,i)perylene	1,800	23,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Chrysene	110	21,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Fluoranthene	2,400	30,000	< 0.006	< 0.006	0.00773	< 0.006	< 0.006	< 0.006
Fluorene	2,900	37,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Naphthalene	2.4	110	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Phenanthrene	23,000	350,000	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Pyrene	2,300	34,000	< 0.006	< 0.006	0.0078	< 0.006	< 0.006	< 0.006
1-Methylnaphthalene	24	390	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
2-Methylnaphthalene	310	4,700	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

<sup>1</sup> SB-8 Samples = Field Duplicates corresponding to SB-5 depths.  
<sup>2</sup> Naphthalene, Phenanthrene, and Benzo(a)Pyrene were analyzed under both the EPA Analytical Method 8270C and 8270C (SIM). Only the analytical results from the SIM analysis were utilized in the risk assessment due to being the more sensitive analytical method.  
J+ = result may be biased high due to potential laboratory contamination  
J = result is estimated  
B = The same analyte is found in the associated blank  
\*\* - Trivalent chromium concentrations were calculated by subtracting the laboratory-reported hexavalent chromium concentration from the total chromium concentration in each sample.



**Table 2-2**  
**Groundwater Analytical Data and Comparison to Direct Contact and Vapor Intrusion Screening Values**  
 Human Health and Ecological Risk Assessment

Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP Groundwater De Minimis Standard (µg/L) <sup>1</sup>	USEPA Residential Groundwater VISL (µg/L) <sup>2</sup>	USEPA Commercial Groundwater VISL (µg/L) <sup>3</sup>
Hexavalent Chromium, EPA Method 218.6									
Hexavalent Chromium	3/4/2020 <sup>4</sup>	< 10.0 UJ	< 10.0 UJ	< 10.0 UJ	< 10.0 UJ	< 10.0	0.035	NA	NA
	3/4/20 WVDEP	< 1.00	--	--	--	--			
	04/14/20	--	< 10.0	--	--	--			
	09/09/20	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00			
	12/15/20	< 1.00	8.60	< 1.00	0.80 J	< 1.00			
	3/29/21 WVDEP	--	--	--	0.0866	--			
	4/21/21 WVDEP	--	--	0.0334 J	--	--			
	04/21/21	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00			
	9/14/21 WVDEP	--	< 0.05	--	--	--			
	09/14/21	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00			
12/09/21 WVDEP	--	< 0.05	--	--	--				
12/09/21	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05				
Mercury, EPA Method 245.1									
Mercury	3/4/2020 <sup>5</sup>	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	2	2.52	10.6
	3/4/20 WVDEP	< 0.50	--	--	--	--			
	09/09/20	< 0.5	< 1	< 0.5	< 0.5	< 0.5			
	12/15/20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5			
	3/29/21 WVDEP	--	--	--	< 0.20	--			
	4/21/21 WVDEP	--	--	< 0.20	--	--			
	04/21/21	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5			
	9/14/21 WVDEP	--	< 0.2	--	--	--			
	09/14/21	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5			
	12/09/21 WVDEP	--	< 0.2	--	--	--			
12/09/21	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2				
Dissolved Metals, EPA Method 200.7									
Arsenic	3/4/2020 <sup>6</sup>	< 10	< 10	< 10	< 10	< 10	10	NA	NA
	3/4/20 WVDEP	< 20	--	--	--	--			
	09/09/20	4.8 J	22	< 20	< 20	< 20			
	12/15/20	5.7 J	< 20	< 20	< 20	< 20			
	3/29/21 WVDEP	--	--	--	< 5.0	--			
	4/21/21 WVDEP	--	--	0.58 J	--	--			
	04/21/21	11 J	5.9 J	< 20	4.5 J	< 20			
	9/14/21 WVDEP	--	3.1 J	--	--	--			
	09/14/21	< 20	< 20	< 20	< 20	< 20			
	12/09/21 WVDEP	--	21	--	--	--			
12/09/21	5.3 J	6.5 J	< 20	< 20	< 20				

**Table 2-2**  
**Groundwater Analytical Data and Comparison to Direct Contact and Vapor Intrusion Screening Values**  
**Human Health and Ecological Risk Assessment**

Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP Groundwater De Minimis Standard (µg/L) <sup>1</sup>	USEPA Residential Groundwater VISL (µg/L) <sup>2</sup>	USEPA Commercial Groundwater VISL (µg/L) <sup>3</sup>
Barium	03/04/20	38.4	53.7	48.6	37.7 J+	58.3	2,000	NA	NA
	3/4/20 WVDEP	66.0	--	--	--	--			
	09/09/20	49.0	260.0	60.0	45.0	64.0			
	12/15/20	51.0	67.0	51.0	35.0	51.0			
	4/21/21 WVDEP	--	--	54.0	--	--			
	04/21/21	57.0	55.0	58.0	48.0	63.0			
	9/14/21 WVDEP	--	65.0	--	--	--			
	09/14/21	60.0	69.0	66.0	44.0	60.0			
	12/09/21 WVDEP	--	110.0	--	--	--			
Cadmium	12/09/21	55.0	65.0	56.0	36.0	60.0	5	NA	NA
	03/04/20	< 2	< 2	< 2	< 2	< 2			
	3/4/20 WVDEP	< 1	--	--	--	--			
	09/09/20	< 1	0.51 J	0.2 J	< 1	< 1			
	12/15/20	< 1	< 1	< 1	0.24 J	< 1			
	4/21/21 WVDEP	--	--	< 0.20	--	--			
	04/21/21	< 1	0.22 J	< 1	< 1	< 1			
	9/14/21 WVDEP	--	< 10	--	--	--			
	09/14/21	< 1	< 1	< 1	< 1	< 1			
Chromium	12/09/21 WVDEP	--	< 10	--	--	--	NA	NA	NA
	12/09/21	< 1	< 1	< 1	< 1	< 1			
	03/04/20	< 10.0	16.1	< 10.0	< 10.0	< 10			
	3/4/20 WVDEP	24.0	--	--	--	--			
	09/09/20	7.8	1,100.0	< 5.0	1.8 J	< 5			
	12/15/20	7.7	10.0	0.65 J	0.82 J	< 5.0			
	4/21/21 WVDEP	--	--	1.10 J	--	--			
	04/21/21	11.0	34.0	0.67 J	0.7 J	0.59 J			
	9/14/21 WVDEP	--	140.0	--	--	--			
Trivalent Chromium**	09/14/21	11.0	190.0	< 5.0	< 5.0	< 5.0	22,000	NA	NA
	12/09/21 WVDEP	--	1,600.0	--	--	--			
	12/09/21	10.0	56.0	1.5 J	1.7 J	1.8 J			
	03/04/20	< 10.0	16.1	< 10.0	< 10.0	< 10.0			
	3/4/20 WVDEP	24.0	--	--	--	--			
	09/09/20	7.8	1,100.0	< 5.0	1.8 J	< 5			
	12/15/20	7.7	1.40	0.65 J	0.02	< 5.0			
	4/21/21 WVDEP	--	--	1.07 J	--	--			
	04/21/21	11.0	34.0	0.67 J	0.7 J	0.59 J			

**Table 2-2**  
**Groundwater Analytical Data and Comparison to Direct Contact and Vapor Intrusion Screening Values**  
 Human Health and Ecological Risk Assessment

Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP Groundwater De Minimis Standard (µg/L) <sup>1</sup>	USEPA Residential Groundwater VISL (µg/L) <sup>2</sup>	USEPA Commercial Groundwater VISL (µg/L) <sup>3</sup>
Lead	03/04/20	< 5	< 5	< 5	< 5	< 5	15	NA	NA
	3/4/20 WVDEP	< 10	--	--	--	--			
	09/09/20	< 10	39	< 10	< 10	< 10			
	12/15/20	< 10	< 10	< 10	< 10	< 10			
	3/29/21 WVDEP	--	--	--	< 5.0	--			
	4/21/21 WVDEP	--	--	< 5.0	--	--			
	04/21/21	< 10	< 10	< 10	< 10	< 10			
	9/14/21 WVDEP	--	< 5.0	--	--	--			
	09/14/21	< 10	< 10	< 10	< 10	< 10			
	12/09/21 WVDEP	--	15	--	--	--			
Selenium	12/09/21	< 10	< 10	< 10	< 10	< 10	50	NA	NA
	03/04/20	< 10	< 10	< 10	< 10	< 10			
	3/4/20 WVDEP	< 20	--	--	--	--			
	09/09/20	< 20	< 20	< 20	< 20	< 20			
	12/15/20	< 20	< 20	< 20	< 20	< 20			
	4/21/21 WVDEP	--	--	0.58 J	--	--			
	04/21/21	< 20	< 20	< 20	< 20	< 20			
	9/14/21 WVDEP	--	< 10	--	--	--			
	09/14/21	< 20	< 20	< 20	< 20	< 20			
	12/09/21 WVDEP	--	< 10	--	--	--			
Silver	12/09/21	< 20	< 20	< 20	< 20	< 20	94	NA	NA
	03/04/20	< 5	< 5	< 5	< 5	< 5			
	3/4/20 WVDEP	< 5	--	--	--	--			
	09/09/20	< 5	< 5	< 5	< 5	< 5			
	12/15/20	< 5	< 5	< 5	< 5	< 5			
	4/21/21 WVDEP	--	--	< 5.0	--	--			
	04/21/21	< 5	< 5	< 5	< 5	< 5			
	9/14/21 WVDEP	--	< 5	--	--	--			
	09/14/21	4.8 J	4.8 J	4.9 J	4.9 J	4.9 J			
	12/09/21 WVDEP	--	< 5	--	--	--			
	12/09/21	< 5	< 5	< 5	< 5	< 5			

**Table 2-2**  
**Groundwater Analytical Data and Comparison to Direct Contact and Vapor Intrusion Screening Values**  
 Human Health and Ecological Risk Assessment

Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP Groundwater De Minimis Standard (µg/L) <sup>1</sup>	USEPA Residential Groundwater VISL (µg/L) <sup>2</sup>	USEPA Commercial Groundwater VISL (µg/L) <sup>3</sup>
VOCs, EPA Method 8260B									
Benzene	03/04/20	< 1	< 1	< 1	< 1	< 1	5	2.7	118
	09/09/20	< 1	< 1	< 1	< 1	< 1			
Toluene	03/04/20	< 1	< 1	< 1	< 1	< 1	1,000	35,200	148,000
	09/09/20	< 1	< 1	< 1	< 1	< 1			
Ethylbenzene	03/04/20	< 1	< 1	< 1	< 1	< 1	700	6.85	299
	09/09/20	< 1	< 1	< 1	< 1	< 1			
Total Xylenes	03/04/20	< 3	< 3	< 3	< 3	< 3	10,000	759	3,190
	09/09/20	< 3	< 3	< 3	< 3	< 3			
Acetone	03/04/20	< 50	< 50	< 50	< 50	< 50	14,000	NA	NA
	09/09/20	< 10	32.9	32.3	30.3	37.2			
Naphthalene	03/04/20	< 5	< 5	< 5	< 5	< 5	0.12	10.9	477
	09/09/20	< 2	< 2	< 2	< 2	< 2			
2-Butanone (MEK)	03/04/20	< 10	32.5	< 10	< 10	< 10	5,600	3,890,000	16,400,000
	09/09/20	< 10	< 10	< 10	< 10	< 10			
1,2,4-Trimethylbenzene	03/04/20	< 1	< 1	< 1	< 1	< 1	56	544	2,290
	09/09/20	< 1	< 1	< 1	< 1	< 1			
1,2,3-Trimethylbenzene	03/04/20	< 1	< 1	< 1	< 1	< 1	NA	944	3,960
	09/09/20	--	--	--	--	--			
1,3,5-Trimethylbenzene	03/04/20	< 1	< 1	< 1	< 1	< 1	60	382	1,600
	09/09/20	< 1	< 1	< 1	< 1	< 1			
SVOCs, EPA Method 8270D <sup>7</sup>									
Naphthalene	03/04/20	< 1	< 1	< 1	< 1	< 1	0.12	10.9	477
	09/09/20	< 4.9	< 4.8	< 4.9	< 4.9	< 4.9			
Phenanthrene	03/04/20	< 1	< 1	< 1	< 1	< 1	1,700	NA	NA
	09/09/20	< 4.9	< 4.8	< 4.9	< 4.9	< 4.9			
Benzo (a) pyrene	03/04/20	< 1	< 1	< 1	< 1	< 1	0.2	NA	NA
	09/09/20	< 4.9	< 4.8	< 4.9	< 4.9	< 4.9			
Dimethylphthalate	03/04/20	< 3	< 3	< 3	< 3	< 3	NA	NA	NA
	09/09/20	< 7.6	< 7.6	< 7.6	< 7.6	< 7.7			

**Table 2-2**  
**Groundwater Analytical Data and Comparison to Direct Contact and Vapor Intrusion Screening Values**  
 Human Health and Ecological Risk Assessment

Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP Groundwater De Minimis Standard (µg/L) <sup>1</sup>	USEPA Residential Groundwater VISL (µg/L) <sup>2</sup>	USEPA Commercial Groundwater VISL (µg/L) <sup>3</sup>
<b>SVOCs, EPA Method 8270D (SIM)</b>									
Acenaphthene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	240	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Benzo (a) anthracene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.03	176	4,170 <sup>8</sup>
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Benzo (a) pyrene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.2	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Benzo (b) fluoranthene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.25	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Benzo (g,h,i)perylene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	600	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Chrysene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	25	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Fluoranthene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	800	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Fluorene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	150	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Naphthalene	03/04/20	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	0.12	10.9	477
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Phenanthrene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1,700	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
Pyrene	03/04/20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	79	NA	NA
	09/09/20	< 0.097	< 0.1	< 0.096	< 0.098	< 0.097			
1-Methylnaphthalene	03/04/20	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	1.1	NA	NA
	09/09/20	--	--	--	--	--			
2-Methylnaphthalene	03/04/20	< 0.025	< 0.25	< 0.25	< 0.25	< 0.25	36	NA	NA
	09/09/20	--	--	--	--	--			

<sup>1</sup> West Virginia De Minimis Standards dated December 2021

<sup>2</sup> USEPA Residential Groundwater VISLs are based on a target risk of 1x10<sup>-6</sup>, a target hazard quotient of 1.0, and a groundwater temperature of 13°C, November 2022.

<sup>3</sup> USEPA Commercial Groundwater VISLs are based on a target risk of 1x10<sup>-5</sup>, a target hazard quotient of 1.0, and a groundwater temperature of 13°C, November 2022.

<sup>4</sup> March 2020 Hexavalent Chromium analysis via method 7196A, reported in µg/l.

<sup>5</sup> March 2020 Mercury analysis via method 7470A, reported in µg/l.

<sup>6</sup> March 2020 Metals analysis via method 6010B, reported in µg/l.

<sup>7</sup> Naphthalene, Phenanthrene, and Benzo(a)Pyrene were analyzed under both the EPA Analytical Method 8270D and 8270D (SIM). Only the analytical results from the SIM analysis were utilized in the risk assessment due to being the more sensitive analytical method.

<sup>8</sup> The commercial groundwater VISL for benz[a]anthracene is based on a groundwater temperature of 25°C.

\*\* - Trivalent chromium concentrations were calculated by subtracting the laboratory-reported analytical results for hexavalent chromium from the total chromium concentration.

UJ = The not detected result is estimated at the reporting limit.

J+ = The result is an estimated value that may be biased high.

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

**Bold** and shaded values represents a detection above the WV Groundwater De Minimis standard. There were no exceedances of the USEPA Groundwater VISLs.

NA = No standard available.

-- = Not analyzed

**Table 2-3**  
**Groundwater to Surface Water Evaluation Screening**  
**Human Health and Ecological Risk Assessment**

Chemical	WVDEP Surface Water Quality Standard (WQS) (or Other Applicable Standard)		Maximum Detected Groundwater Concentration <sup>[1]</sup>	Maximum Concentration Monitoring Well Location	Event in which Maximum Concentration was Detected	Is WQS Exceeded? (Yes/No)	
	Human Health	Ecological				Human Health	Ecological
	(ug/L)	(µg/L)	(ug/L)				
Metals (µg/L)							
Arsenic	10	5*	11 J	MW-1	4/21/2021	Yes	Yes
Barium	1000	4*	66.0	MW-1	3/4/2020 <sup>[3]</sup>	No	Yes
Total Chromium	Nav	Nav	24.0	MW-1	3/4/2020 <sup>[3]</sup>	No	No
Trivalent Chromium	Nav	173 <sup>[2]</sup>	24.0	MW-1	3/4/2020 <sup>[3]</sup>	No	No
Silver	24 <sup>[2]</sup>	24 <sup>[2]</sup>	4.8 J	MW-1	9/14/2021	No	No

Notes:

*Table only presents constituents that were detected in groundwater samples from MW-1.*

WVDEP - West Virginia Department of Environmental Protection

\* - With the absence of a WV Water Quality Standard, the EPA Region III BTAG Freshwater Screening Benchmark was utilized.

[1] The maximum concentrations are based on groundwater samples from MW-1 located along the southern property boundary closest to the [REDACTED] collected between March 2020 and December 2021.

[2] A site-specific hardness of 281.1 ppm was used to determine human health and/or ecological criteria for silver and trivalent chromium. The site-specific hardness was calculated for the [REDACTED] (Site ID 211WVOWR-KNB-012-0010) using calcium and magnesium analytical results reported in the USGS Water Quality Portal. (<https://www.waterqualitydata.us/provider/STORET/211WVOWR/211WVOWR-KNB-012-0010/>). See Section 2.1.1 of the text for further discussion.

[3] The maximum concentration came from a WVDEP split sample.



**Table 2-4**  
**Sediment Analytical Data**  
**Human Health and Ecological Risk Assessment**

Parameter	EPA Region III BTAG Freshwater Sediment Screening Benchmarks (mg/kg)	2 LAKE SEDIMENT	SED-1	Sediment - 3 (061022-001-03)	Sediment - 2 (061022-001-04)
		02/07/19	04/26/22	06/10/22	06/10/22
Metals, EPA Method SW6010C					
Arsenic	9.8	NA	8.2 J*	3.6 J	3.0 J
Barium	20**	NA	55.9 J*	25.9	55.8
Cadmium	0.99	NA	< 1.3 UJ	< 1.3	< 1.1
Total Chromium	43.4	7.67	15.0 J*	7.1	7.8
Hexavalent Chromium	Nav	NA	0.92 J, J-	NA	NA
Copper	31.6	NA	4.7 J, J*	NA	NA
Lead	35.8	NA	11.5 J*	3.5 J	6.9
Mercury	0.18	NA	NA	< 0.12	0.015 J
Molybdenum	Nav	NA	< 6.3 UJ	NA	NA
Nickel	22.7	NA	8.0 J*	NA	NA
Selenium	2	NA	2.8 J, J-	< 6.3	< 5.6
Silver	1.0	NA	< 3.2 UJ	< 3.2	< 2.8
Zinc	121	NA	21.4 J*	NA	NA

Notes:

mg/kg - milligram per kilogram

NA - not analyzed

Nav - not available

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

J- (*Hexavalent Chromium*) - Low recovery of the MS and MSD; result is estimated

J- (*Selenium*) - Low recovery of the post-digestion spike; result is estimated

J\* - lab not analyzing the required interferent check standard; result is estimated

UJ - lab not analyzing the required interferent check standard; result is estimated

Shaded value indicates the detected constituent exceeds applicable screening criteria.

*Italicized value indicates the constituent is not detected but the reporting limit exceeds applicable screening criteria.*

\*\* - Indicates the Region 4 Ecological Risk Assessment Supplemental Guidance ESV was utilized as the screening value since a Region 3 BTAG was unavailable.

**Table 2-5**  
**Surface Water Analytical Data**  
**Human Health and Ecological Risk Assessment**

Parameter	WV Water Quality Standards (Protection of Human Health) (mg/L) <sup>[1]</sup>	WV Water Quality Standards or other Applicable Standard (Ecological) (mg/L) <sup>[2]</sup>	1 LAKE WATER	LAKE-1	Surface Water - 2 (061022-001-01)	Surface Water - 1 (061022-001-02)
			02/07/19	04/26/22	06/10/22	06/10/22
Metals, EPA Method SW6010C						
Arsenic	0.010	0.005	NA	< 0.020 UJ	< 0.020	< 0.020
Barium	1	0.004	NA	0.042 J*	0.049	0.047
Cadmium	0.010*	0.000504*	NA	< 0.0020 UJ	< 0.0020	< 0.0020
Total Chromium	Nav	Nav	< 0.100	< 0.0050 UJ	< 0.0050	< 0.0050
Hexavalent Chromium	0.050	0.0072	NA	0.000049	NA	NA
Lead	0.050	0.007595*	NA	< 0.010 UJ	0.0059 J	< 0.010
Mercury	0.00014	0.0024	NA	NA	< 0.00020	< 0.00020
Selenium	0.050	0.005	NA	< 0.020 UJ	< 0.020	< 0.020
Silver	0.024*	0.024*	NA	< 0.0050 UJ	< 0.0050	< 0.0050

Notes:

mg/L - milligram per liter

NA - not analyzed

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

J\* - lab not analyzing the required interferent check standard; result is estimated

UJ - lab not analyzing the required interferent check standard; result is estimated

Shaded value indicates the detected constituent exceeds applicable screening criteria.

*Italicized value indicates the constituent is not detected but the reporting limit exceeds applicable screening criteria.*

\*A site-specific hardness of 281.1 ppm was used to determine human health and/or ecological criteria for cadmium, lead, and silver. The site-specific hardness was calculated for the (Site ID 211WVOWR-KNB-012-0010) using calcium and magnesium analytical results reported in the USGS Water Quality Portal. (<https://www.waterqualitydata.us/provider/STORET/211WVOWR/211WVOWR-KNB-012-0010/>). See Section 2.1.1 of the text for further discussion.

[1] The WV Human Health Surface Water Quality Standards are the lower of the chronic (fish consumption) and acute (drinking water and fish consumption) values.

[2] The WV Ecological Surface Water Quality Standards are the chronic (trout waters) Category B-2 values, which are the most conservative ecological criteria provided by West Virginia.

**Table 2-6**  
**Analytical Sample Summary**  
**Human Health and Ecological Risk Assessment**

Sample Name	Sampling Depth (ft-bgs)	Sample Date(s)	On-Site vs. Off-Site	Analytical Parameters				Sample Retained for Risk Assessment? (Yes or No)	Comments / Rationale
				Hexavalent Chromium	Metals	VOCs	SVOCs		
Surface Soil									
SB-1	2	2/11/2020	On-Site	X	X	X	X	Yes	
SB-2	2	2/11/2020	On-Site	X	X	X	X	Yes	
SB-3	2	2/11/2020	On-Site	X	X	X	X	Yes	
SB-4	1	2/11/2020	On-Site	X	X	X	X	Yes	
SB-5	2	2/12/2020	On-Site	X	X	X	X	Yes	
SB-6	2	2/12/2020	On-Site	X	X	X	X	Yes	
SB-7	2	2/12/2020	On-Site	X	X	X	X	Yes	
SB-8	2	2/12/2020	On-Site	X	X	X	X	Yes	SB-8 (2') is a field duplicate of SB-5 (2').
Unsaturated Subsurface Soil									
SB-1-2-3 (Composite)	0-10	7/31/2018	On-Site		X			No	According to the VRP Guidance Manual, composite sampling is not an acceptable protocol to determine EPCs for a risk assessment. As a result, this sample was not utilized in the risk assessment. Further discussion on the exclusion of this sample is included in Section 9 (Uncertainty Analysis) of the risk assessment report.
SB-4	0-10	7/31/2018	On-Site		X			Yes	
SB-5	0-10	7/31/2018	On-Site		X			Yes	
SB-6	0-10	7/31/2018	On-Site		X			Yes	
SB-7	0-10	7/31/2018	On-Site		X			Yes	
SB-8	0-10	7/31/2018	On-Site		X			Yes	
SB-9	0-10	7/31/2018	On-Site		X			Yes	
SB-10	0-10	7/31/2018	On-Site		X			No	These samples were excavated from the site and the excavation areas were treated with CarBstrate. Therefore, these samples do not represent current site conditions and were not utilized in the risk assessment.
SB-11	0-10	7/31/2018	On-Site		X			No	
SB-12-1	0-5	7/31/2018	On-Site		X			No	
SB-12-2	5-10	7/31/2018	On-Site		X			No	
SB-13-1	0-5	7/31/2018	On-Site		X			No	
SB-13-2	5-10	7/31/2018	On-Site		X			No	
SB-14	0-10	7/31/2018	On-Site		X			Yes	
SB-15	0-10	7/31/2018	On-Site		X			Yes	
SB-16	0-10	7/31/2018	On-Site		X			Yes	
SB-17	0-10	7/31/2018	On-Site		X			Yes	
SB-18	0-10	7/31/2018	On-Site		X			Yes	
SB-19	8-10	8/1/2018	On-Site		X			No	This sample was excavated from the site and the excavation area was treated with CarBstrate. Therefore, this sample does not represent current site conditions and was not utilized in the risk assessment.
SB-20	5-10	8/1/2018	On-Site		X			Yes	
SB-21	4-5	8/1/2018	On-Site		X			Yes	

**Table 2-6**  
**Analytical Sample Summary**  
**Human Health and Ecological Risk Assessment**

Sample Name	Sampling Depth (ft-bgs)	Sample Date(s)	On-Site vs. Off-Site	Analytical Parameters				Sample Retained for Risk Assessment? (Yes or No)	Comments / Rationale
				Hexavalent Chromium	Metals	VOCs	SVOCs		
Unsaturated Subsurface Soil (continued)									
SB-22 (Background)	0-7	8/1/2018	On-Site		X			Yes	
SB-23 (Background)	0-5	8/1/2018	On-Site		X			Yes	
SB-5	7	2/12/2020	On-Site	X	X	X	X	Yes	
SB-6	5	2/12/2020	On-Site	X	X	X	X	Yes	
SB-7	5	2/12/2020	On-Site	X	X	X	X	Yes	
SB-8	7	2/12/2020	On-Site	X	X	X	X	Yes	SB-8 (7') is a field duplicate of SB-5 (7')
Saturated Subsurface Soil									
SB-1	15	2/11/2020	On-Site	X	X	X	X	Yes	
SB-2	11	2/11/2020	On-Site	X	X	X	X	Yes	
SB-3	8	2/11/2020	On-Site	X	X	X	X	Yes	
Groundwater									
MW-1	---	3/4/20; 9/9/20	On-Site	X	X	X	X	Yes	The 3/4/20 sample was outside of holding time for hexavalent chromium results only. A confirmatory sample from MW-2 was collected on 4/14/20 to verify the hexavalent chromium analytical results.
		12/15/20; 4/21/21; 9/14/21; 12/09/21	On-Site	X	X			Yes	
MW-1 (WVDEP Split Sample) <sup>[1]</sup>	---	3/4/20	On-Site	X	X			Yes	
MW-2	---	3/4/20; 9/9/20	On-Site	X	X	X	X	Yes	The 3/4/20 sample was outside of holding time for hexavalent chromium results only. A confirmatory sample from MW-2 was collected on 4/14/20 to verify the hexavalent chromium analytical results.
		4/14/20	On-Site	X				No	Sample used for QA/QC purposes only to confirm the hexavalent chromium results of the 3/4/20 sampling event.
		12/15/20; 4/21/21; 9/14/21; 12/09/21	On-Site	X	X			Yes	
MW-2 (WVDEP Split Samples) <sup>[1]</sup>	---	9/14/21	On-Site	X	X			Yes	
		12/9/21	On-Site	X	X			No	The 12/9/21 WVDEP split sample was not utilized in the risk assessment due to issues with the pump and discoloration in the sample. The parent samples collected by █████ were consistent with historic samples and therefore were included in the risk assessment.
MW-3	---	3/4/20; 9/9/20	On-Site	X	X	X	X	Yes	The 3/4/20 sample was outside of holding time for hexavalent chromium results only. A confirmatory sample from MW-2 was collected on 4/14/20 to verify the hexavalent chromium analytical results.
		12/15/20; 4/21/21; 9/14/21; 12/09/21	On-Site	X	X			Yes	
MW-3 (WVDEP Split Sample) <sup>[1]</sup>	---	4/21/21	On-Site	X	X			Yes	

**Table 2-6**  
**Analytical Sample Summary**  
**Human Health and Ecological Risk Assessment**

Sample Name	Sampling Depth (ft-bgs)	Sample Date(s)	On-Site vs. Off-Site	Analytical Parameters				Sample Retained for Risk Assessment? (Yes or No)	Comments / Rationale
				Hexavalent Chromium	Metals	VOCs	SVOCs		
Groundwater (continued)									
MW-4	---	3/4/20; 9/9/20	On-Site	X	X	X	X	Yes	The 3/4/20 sample was outside of holding time for hexavalent chromium results only. A confirmatory sample from MW-2 was collected on 4/14/20 to verify the hexavalent chromium.
		12/15/20; 4/21/21; 9/14/21; 12/09/21	On-Site	X	X			Yes	
MW-4 (WVDEP Split Sample) <sup>[1]</sup>	---	3/29/21	On-Site	X	X			Yes	The samples collected by [REDACTED] on 3/29/21 were not included in the groundwater data tables due to quality control issues (i.e., lab equipment malfunction; samples sent to non-certified lab). Samples were re-collected on 4/21/21. However, the 3/29/21 WVDEP split sample was included in the risk assessment data table.
MW-5	---	3/4/20; 9/9/20	On-Site	X	X	X	X	Yes	
		12/15/20; 4/21/21; 9/14/21; 12/09/21	On-Site	X	X			Yes	
Surface Water									
1 LAKE WATER	---	2/7/19	Off-Site		X <sup>[2]</sup>			Yes	Sample was collected by WVDEP under the Hazardous Waste Program.
LAKE-1	---	4/26/22	Off-Site	X	X			Yes	
Surface Water - 1	---	6/10/22	Off-Site		X			Yes	
Surface Water - 2	---	6/10/22	Off-Site		X			Yes	
Sediment									
2 LAKE SEDIMENT	Nav <sup>[3]</sup>	2/7/19	Off-Site		X <sup>[2]</sup>			Yes	Sample was collected by WVDEP under the Hazardous Waste Program. Sample was collected below the water line.
SED-1	6-8" <sup>[3]</sup>	4/26/22	Off-Site	X	X			Yes	Sample was collected below the water line.
Sediment - 2	6" <sup>[4]</sup>	6/10/22	Off-Site		X			Yes	Sample was collected below the water line.
Sediment - 3	2' <sup>[4]</sup>	6/10/22	Off-Site		X			Yes	Sample was collected below the water line.

Notes:

ft-bgs - feet below ground surface

VOCs - volatile organic compounds

SVOCs - semivolatile organic compounds

"---" - not applicable

Nav - not available

[1] WVDEP split samples are treated as field duplicate samples.

[2] The surface water and sediment samples collected February 2019 were analyzed for total chromium only.

[3] The depth of sediment sample "2 LAKE SEDIMENT" is unknown; however, the sample was collected below the water line. Sediment sample "SED-1" was collected 6-8 inches below the water line.

[4] Sediment sample "Sediment - 2" was collected 6 inches below the water line, and "Sediment - 3" was collected 2 feet below the water line.

Table 2-7  
Selection of Direct Contact Constituents of Concern for Surface Soil (0-2 ft-bgs)  
Human Health and Ecological Risk Assessment

Constituent of Potential Concern (COPC)	Frequency of Detection (FOD) <sup>[1]</sup>	Minimum Reporting Limit (mg/Kg)	Maximum Reporting Limit (mg/Kg)	Minimum Detected Concentration (mg/Kg)	Maximum Detected Concentration (mg/Kg)	Sample with Maximum Detect	Residential Soil DeMinimis Standard (mg/Kg) <sup>[2]</sup>	Industrial Soil DeMinimis Standard (mg/Kg) <sup>[2]</sup>	WV Natural Background Values	Reporting Limit Exceeds Res. Criteria?	Reporting Limit Exceeds Ind. Criteria?	Direct Contact Residential Contaminant of Concern (COC)	Direct Contact Industrial Contaminant of Concern (COC)	Comment
Metals														
Hexavalent Chromium	1/7	2.00	2.00	160	160	SB-2 (2')	3.0E-01	6.3E+01	Nav	Yes	No	Yes	Yes	
Mercury	0/7	0.03	0.03	ND	ND	---	3.1E+00	3.1E+00	0.09	No	No	No	No	
Arsenic	6/7	2.00	2.00	3.97	10.30	SB-2 (2')	6.8E-01	3.0E+01	13.1	Yes	No	No	No	Detected concentrations exceed residential de minimis standard, but are below the natural background concentration.
Barium	7/7	---	---	37.60	864	SB-1 (2')	1.5E+04	2.2E+05	565	---	---	No	No	
Cadmium	1/20	0.5	0.5	3.72	3.72	SB-4 (1')	3.7E+01	5.3E+02	0.5	No	No	No	No	
Total Chromium	20/20	---	---	9.06	716	SB-5 (0-10')	Nav	Nav	57.4	---	---	No	No	
Trivalent Chromium**	1/7	---	---	9.06	200	SB-2 (2')	1.2E+05	1.0E+06	Nav	---	---	No	No	
Lead	20/20	---	---	5.42	44.60	SB-4 (1')	4.0E+02	8.0E+02	38	---	---	No	No	
Selenium	1/7	2.00	2.00	2.14	2.14	SB-1 (2')	3.9E+02	5.8E+03	0.8	No	No	No	No	
Silver	0/7	1	1	ND	ND	---	3.9E+02	5.8E+03	1	No	No	No	No	
VOCs														
Benzene	1/7	0.001	0.001	0.00241	0.00241	SB-4 (1')	1.2E+00	5.4E+01	Nav	No	No	No	No	
Toluene	2/7	0.005	0.005	0.00771	0.0265	SB-4 (1')	8.2E+02	8.2E+02	Nav	No	No	No	No	
Ethylbenzene	1/7	0.0025	0.0025	0.00435	0.00435	SB-4 (1')	6.2E+00	2.7E+02	Nav	No	No	No	No	
Xylenes, Total	1/7	0.0065	0.0065	0.0391	0.0391	SB-4 (1')	2.6E+02	2.6E+02	Nav	No	No	No	No	
Naphthalene	1/7	0.0125	0.0125	0.0135	0.0135	SB-4 (1')	2.4E+00	1.1E+02	Nav	No	No	No	No	
2-Butanone (MEK)	3/7	0.025	0.025	0.0264 B,J+	0.0432 B,J+	SB-5 (2')	2.8E+04	2.8E+04	Nav	No	No	No	No	
1,2,4-Trimethylbenzene	1/7	0.005	0.005	0.0137	0.0137	SB-4 (1')	2.2E+02	2.2E+02	Nav	No	No	No	No	
1,2,3-Trimethylbenzene	1/7	0.005	0.005	0.00776	0.00776	SB-4 (1')	Nav	Nav	Nav	No	No	No	No	
1,3,5-Trimethylbenzene	1/7	0.005	0.005	0.00633	0.00633	SB-4 (1')	1.8E+02	1.8E+02	Nav	No	No	No	No	
SVOCs														
Acenaphthene	1/7	0.006	0.006	0.00965 J	0.00965 J	SB-4 (1')	4.1E+03	4.7E+04	Nav	No	No	No	No	
Benzo(a)anthracene	1/7	0.006	0.006	0.0109	0.0109	SB-4 (1')	1.5E+00	3.2E+02	Nav	No	No	No	No	
Benzo(a)pyrene	2/7	0.006	0.006	0.00652	0.00827	SB-4 (1')	1.1E-01	2.1E+01	Nav	No	No	No	No	
Benzo(b)fluoranthene	3/7	0.006	0.006	0.00618	0.0173	SB-4 (1')	1.1E+00	2.1E+02	Nav	No	No	No	No	
Benzo(g,h,i)perylene	1/7	0.006	0.006	0.0142	0.0142	SB-4 (1')	1.8E+03	2.3E+04	Nav	No	No	No	No	
Chrysene	2/7	0.006	0.006	0.00724	0.0282	SB-4 (1')	1.1E+02	2.1E+04	Nav	No	No	No	No	
Fluoranthene	3/7	0.006	0.006	0.00705 J	0.0221	SB-4 (1')	2.4E+03	3.0E+04	Nav	No	No	No	No	
Fluorene	1/7	0.006	0.006	0.0217 J	0.0217 J	SB-4 (1')	2.9E+03	3.7E+04	Nav	No	No	No	No	
Naphthalene	1/7	0.02	0.2	0.211	0.211	SB-4 (1')	2.4E+00	1.1E+02	Nav	No	No	No	No	
Phenanthrene	2/7	0.006	0.006	0.00905	0.188	SB-4 (1')	2.3E+04	3.5E+05	Nav	No	No	No	No	
Pyrene	3/7	0.006	0.006	0.0078	0.0306	SB-4 (1')	2.3E+03	3.4E+04	Nav	No	No	No	No	
1-Methylnaphthalene	1/7	0.02	0.2	0.29	0.29	SB-4 (1')	2.4E+01	3.9E+02	Nav	No	No	No	No	
2-Methylnaphthalene	1/7	0.02	0.2	0.383	0.383	SB-4 (1')	3.1E+02	4.7E+03	Nav	No	No	No	No	

Nav - No screening value available

ND - Constituent not detected

J+ - result may be biased high due to potential laboratory contamination

J = result is estimated

B - The same analyte is found in the associated blank

"---" - not applicable

\*\* - Trivalent chromium concentrations were calculated by subtracting the laboratory-reported hexavalent chromium concentration from the total chromium concentration in each sample.

[1] For those soil samples that had a duplicate sample collected, the higher of the two concentrations from the original and duplicate sample were used to select the maximum detected concentration. In addition, the original and duplicate sample detected results were counted as one sample for purposes of frequency of detection.

[2] WVDEP residential and industrial soil de minimis standard (December 2021)

Table 2-8 Selection of Direct Contact Constituents of Concern for Subsurface Soil (>2 ft-bgs) Human Health and Ecological Risk Assessment														
Constituent of Potential Concern (COPC)	Frequency of Detection (FOD) <sup>[1]</sup>	Minimum Reporting Limit (mg/Kg)	Maximum Reporting Limit (mg/Kg)	Minimum Detected Concentration (mg/Kg)	Maximum Detected Concentration (mg/Kg)	Sample with Maximum Detect	Residential Soil DeMinimis Standard (mg/Kg) <sup>[2]</sup>	Industrial Soil DeMinimis Standard (mg/Kg) <sup>[2]</sup>	WV Natural Background Values	Reporting Limit Exceeds Res. Criteria?	Reporting Limit Exceeds Ind. Criteria?	Direct Contact Residential Contaminant of Concern (COC)	Direct Contact Industrial Contaminant of Concern (COC)	Comment
Metals														
Hexavalent Chromium	0/6	2.00	2.00	ND	ND	---	3.0E-01	6.3E+01	Nav	Yes	No	Yes	No	Conservatively retained as a residential COC because the reporting limit exceeds the residential soil de minimis
Mercury	2/6	0.03	0.03	0.0315	0.0372	SB-3 (8')	3.1E+00	3.1E+00	0.09	No	No	No	No	
Arsenic	6/6	---	---	4.81	18.70	SB-1 (15')	6.8E-01	3.0E+01	13.1	---	---	Yes	No	
Barium	6/6	---	---	24.70	51.40	SB-5 (7')	1.5E+04	2.2E+05	565	---	---	No	No	
Cadmium	0/21	0.5	0.5	ND	ND	---	3.7E+01	5.3E+02	0.5	No	No	No	No	
Total Chromium	21/21	---	---	9.92	716	SB-5 (0-10')	Nav	Nav	57.4	---	---	No	No	
Trivalent Chromium**	6/6	---	---	9.92	43.80	SB-3 (8')	1.2E+05	1.0E+06	Nav	---	---	No	No	
Lead	21/21	---	---	5.26	16.9	SB-9 (0-10')	4.0E+02	8.0E+02	38	---	---	No	No	
Selenium	0/6	2.00	2.00	ND	ND	---	3.9E+02	5.8E+03	0.8	No	No	No	No	
Silver	0/6	1	1	ND	ND	---	3.9E+02	5.8E+03	1	No	No	No	No	
VOCs														
Benzene	1/6	0.001	0.001	0.00123	0.00123	SB-2 (11')	1.2E+00	5.4E+01	Nav	No	No	No	No	
Toluene	1/6	0.005	0.005	0.0182	0.0182	SB-2 (11')	8.2E+02	8.2E+02	Nav	No	No	No	No	
Ethylbenzene	0/6	0.0025	0.0025	ND	ND	---	6.2E+00	2.7E+02	Nav	No	No	No	No	
Xylenes, Total	0/6	0.0065	0.0065	ND	ND	---	2.6E+02	2.6E+02	Nav	No	No	No	No	
Naphthalene	0/6	0.0125	0.0125	ND	ND	---	2.4E+00	1.1E+02	Nav	No	No	No	No	
2-Butanone (MEK)	4/6	0.025	0.025	0.0273 B, J+	0.0365 B, J+	SB-8 (7')	2.8E+04	2.8E+04	Nav	No	No	No	No	
1,2,4-Trimethylbenzene	0/6	0.005	0.005	ND	ND	---	2.2E+02	2.2E+02	Nav	No	No	No	No	
1,2,3-Trimethylbenzene	0/6	0.005	0.005	ND	ND	---	Nav	Nav	Nav	No	No	No	No	
1,3,5-Trimethylbenzene	0/6	0.005	0.005	ND	ND	---	1.8E+02	1.8E+02	Nav	No	No	No	No	
SVOCs														
Acenaphthene	0/6	0.006	0.006	ND	ND	---	4.1E+03	4.7E+04	Nav	No	No	No	No	
Benzo(a)anthracene	0/6	0.006	0.006	ND	ND	---	1.5E+00	3.2E+02	Nav	No	No	No	No	
Benzo(a)pyrene	0/6	0.006	0.006	ND	ND	---	1.1E-01	2.1E+01	Nav	No	No	No	No	
Benzo(b)fluoranthene	0/6	0.006	0.006	ND	ND	---	1.1E+00	2.1E+02	Nav	No	No	No	No	
Benzo(g,h,i)perylene	0/6	0.006	0.006	ND	ND	---	1.8E+03	2.3E+04	Nav	No	No	No	No	
Chrysene	0/6	0.006	0.006	ND	ND	---	1.1E+02	2.1E+04	Nav	No	No	No	No	
Fluoranthene	0/6	0.006	0.006	ND	ND	---	2.4E+03	3.0E+04	Nav	No	No	No	No	
Fluorene	0/6	0.006	0.006	ND	ND	---	2.9E+03	3.7E+04	Nav	No	No	No	No	
Naphthalene	0/6	0.02	0.02	ND	ND	---	2.4E+00	1.1E+02	Nav	No	No	No	No	
Phenanthrene	0/6	0.006	0.006	ND	ND	---	2.3E+04	3.5E+05	Nav	No	No	No	No	
Pyrene	0/6	0.006	0.006	ND	ND	---	2.3E+03	3.4E+04	Nav	No	No	No	No	
1-Methylnaphthalene	0/6	0.02	0.02	ND	ND	---	2.4E+01	3.9E+02	Nav	No	No	No	No	
2-Methylnaphthalene	0/6	0.02	0.02	ND	ND	---	3.1E+02	4.7E+03	Nav	No	No	No	No	
Nav - No screening value available ND - Constituent not detected J+ = result may be biased high due to potential laboratory contamination J = result is estimated B = The same analyte is found in the associated blank "---" - not applicable ** - Trivalent chromium concentrations were calculated by subtracting the laboratory-reported hexavalent chromium concentration from the total chromium concentration in each sample. [1] For those soil samples that had a duplicate sample collected, the higher of the two concentrations from the original and duplicate sample were used to select the maximum detected concentration. In addition, the original and duplicate sample detected results were counted as one sample for purposes of [2] WVDEP residential and industrial soil de minimis standard (December 2021)														



Table 2-9  
Selection of Direct Contact and Vapor Intrusion Constituents of Concern for Groundwater  
Human Health and Ecological Risk Assessment

Constituent of Potential Concern (COPC)	Frequency of Detection (FOD) <sup>[1]</sup>	Minimum Reporting Limit (µg/L)	Maximum Reporting Limit (µg/L)	Minimum Detected Concentration (µg/L)	Maximum Detected Concentration (µg/L)	Sample with Maximum Detect	Date Maximum Concentration Detected	WV Groundwater DeMinimis Standard (µg/L) <sup>[2]</sup>	USEPA Residential Groundwater VISL (µg/L) <sup>[3]</sup>	USEPA Commercial Groundwater VISL (µg/L) <sup>[4]</sup>	Reporting Limit Exceeds Direct Contact Criteria?	Direct Contact Contaminant of Concern?	Reporting Limit Exceeds Res. VI Criteria?	Residential Vapor Intrusion Contaminant of Concern?	Reporting Limit Exceeds Comm. VI Criteria?	Commercial Vapor Intrusion Contaminant of Concern?	Comment
Metals																	
Hexavalent Chromium	4/31	0.05	10.0	0.0334 J	8.60	MW-2	12/15/2020	0.035	Nav	Nav	Yes	Yes	No	No	No	No	
Mercury	0/30	0.2	1	ND	ND	---	---	2	2.52	10.6	No	No	No	No	No	No	
Arsenic	10/30	10	20	0.58 J	22	MW-2	9/9/2020	10	Nav	Nav	Yes	Yes	No	No	No	No	
Barium	30/30	---	---	35.0	260.0	MW-2	9/9/2020	2,000	Nav	Nav	---	No	---	No	---	No	
Cadmium	4/30	1	10	0.2 J	0.51 J	MW-2	9/9/2020	5	Nav	Nav	Yes	No	No	No	No	No	Although the maximum reporting limit exceeds the groundwater de minimis standard, there were no estimated J value detections that exceeded criteria. In addition the maximum RL came from a WVDEP split sample and the parent sample had a RL of <1 ug/L, which is below the standard.
Total Chromium	21/30	5.0	10.0	0.59 J	1600.0	MW-2	12/9/2021 WVDEP split	Nav	Nav	Nav	No	No	No	No	No	No	
Trivalent Chromium**	21/30	5.0	10.0	0.59 J	1600.0	MW-2	12/9/2021 WVDEP split	22,000	Nav	Nav	---	No	---	No	---	No	
Lead	2/30	5	10	15	39	MW-2	9/9/2020	15	Nav	Nav	No	Yes	No	No	No	No	
Selenium	1/30	10	20	0.58 J	0.58 J	MW-3	4/21/2021 WVDEP split	50	Nav	Nav	No	No	No	No	No	No	
Silver	5/30	5	5	4.8 J	4.9 J	MW-3/4/5	9/14/2021	94	Nav	Nav	No	No	No	No	No	No	
VOCs																	
Benzene	0/10	1	1	ND	ND	---	---	5	2.7	118	No	No	No	No	No	No	
Toluene	0/10	1	1	ND	ND	---	---	1,000	35,200	148,000	No	No	No	No	No	No	
Ethylbenzene	0/10	1	1	ND	ND	---	---	700	6.85	299	No	No	No	No	No	No	
Xylene (Total)	0/10	3	3	ND	ND	---	---	10,000	759	3,190	No	No	No	No	No	No	
Acetone	4/10	10	50	30.3	37.2	MW-5	9/9/2020	14,000	Nav	Nav	No	No	No	No	No	No	
Naphthalene	0/10	2	5	ND	ND	---	---	0.12	10.9	477	Yes	No	No	No	No	No	The more sensitive analytical method (EPA Method 8270D SIM) was utilized to evaluate this constituent. See naphthalene under the SVOCs category below.
2-Butanone (MEK)	1/10	10	10	32.5	32.5	MW-2	3/4/2020	5,600	3,890,000	16,400,000	No	No	No	No	No	No	
1,2,4-Trimethylbenzene	0/10	1	1	ND	ND	---	---	56	544	2,290	No	No	No	No	No	No	
1,2,3-Trimethylbenzene	0/5	1	1	ND	ND	---	---	Nav	944	3,960	No	No	No	No	No	No	
1,3,5-Trimethylbenzene	0/10	1	1	ND	ND	---	---	60	382	1,600	No	No	No	No	No	No	
SVOCs																	
Dimethylphthalate	0/10	3	7.7	ND	ND	---	---	Nav	Nav	Nav	No	No	No	No	No	No	
Acenaphthene	0/10	0.05	0.1	ND	ND	---	---	240	Nav	Nav	No	No	No	No	No	No	
Benzo(a)anthracene	0/10	0.05	0.1	ND	ND	---	---	0.03	176	4170	Yes	No	No	No	No	No	Although the reporting limit slightly exceeds the groundwater de minimis standard, PAHs were never detected in groundwater and benzo(a)anthracene had only one detection in soil, which is two orders of magnitude below the residential soil de minimis standard. Therefore, this constituent was not retained as a direct contact COC.
Benzo(a)pyrene	0/10	0.05	0.1	ND	ND	---	---	0.2	Nav	Nav	No	No	No	No	No	No	
Benzo(b)fluoranthene	0/10	0.05	0.1	ND	ND	---	---	0.25	Nav	Nav	No	No	No	No	No	No	
Benzo(g,h,i)perylene	0/10	0.05	0.1	ND	ND	---	---	600	Nav	Nav	No	No	No	No	No	No	
Chrysene	0/10	0.05	0.1	ND	ND	---	---	25	Nav	Nav	No	No	No	No	No	No	
Fluoranthene	0/10	0.05	0.1	ND	ND	---	---	800	Nav	Nav	No	No	No	No	No	No	
Fluorene	0/10	0.05	0.1	ND	ND	---	---	150	Nav	Nav	No	No	No	No	No	No	
Naphthalene	0/10	0.096	0.25	ND	ND	---	---	0.12	10.9	477	Yes	No	No	No	No	No	This constituent was never detected. Although the reporting limit from the March 2020 sampling event exceed the groundwater de minimis standard, the subsequent sampling event in September 2020 had lower reporting limits which were below the applicable de minimis standards.
Phenanthrene	0/10	0.05	0.1	ND	ND	---	---	1,700	Nav	Nav	No	No	No	No	No	No	
Pyrene	0/10	0.05	0.1	ND	ND	---	---	79	Nav	Nav	No	No	No	No	No	No	
1-Methylnaphthalene	0/5	0.25	0.25	ND	ND	---	---	1.1	Nav	Nav	No	No	No	No	No	No	
2-Methylnaphthalene	0/5	0.025	0.25	ND	ND	---	---	36	Nav	Nav	No	No	No	No	No	No	

"---" - not applicable

Nav - No screening value available

ND - Not detected

J - Estimated Value

\*\* - Trivalent chromium concentrations were calculated by subtracting the laboratory-reported hexavalent chromium concentration from the total chromium concentration in each sample.

[1] For those groundwater samples that had a WVDEP split sample collected, the higher of the two concentrations from the original and split sample were used to select the maximum detected concentration. In addition, the original and split sample detected results were counted as one sample for purposes of frequency of detection.

[2] WVDEP groundwater de minimis standard (December 2021)

[3] USEPA residential groundwater VISL based on a target risk of 1x10<sup>-6</sup>, a target hazard quotient of 1.0, and a groundwater temperature of 13°C, November 2022

[4] USEPA commercial groundwater VISL based on a target risk of 1x10<sup>-5</sup>, a target hazard quotient of 1.0, and a groundwater temperature of 13°C, November 2022

Table 2-10

Selection of Ecological Constituents of Concern for Sediment

Human Health and Ecological Risk Assessment

Constituent of Potential Concern (COPC)	Frequency of Detection (FOD) <sup>[1]</sup>		Minimum Reporting Limit (mg/kg)		Maximum Reporting Limit (mg/kg)		Minimum Detected Concentration (mg/kg)		Maximum Detected Concentration (mg/kg)		Sample with Maximum Detect		EPA Region III BTAG Freshwater Sediment Screening Benchmarks (mg/kg)	Site Sample Exceeds Background?	Retained as COC?	Comment
	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)				
Metals																
Arsenic	1/1	2/2	---	---	---	---	8.2	3.0 J	8.2	3.6 J	SED-1	Sediment - 3 (061022-001-03)	9.8	Yes	No	Constituent does not exceed applicable screening criteria
Barium	1/1	2/2	---	---	---	---	55.9	25.9	55.9	55.8	SED-1	Sediment - 2 (061022-001-04)	20	Yes	No	Site sample concentration is approximately equivalent to background concentration
Cadmium	0/1	0/2	1.3	1.1	1.3	1.3	ND	ND	ND	ND	---	---	0.99	No	No	Constituent not detected in any sediment samples
Total Chromium	2/2	2/2	---	---	---	---	7.67	7.1	15.0	7.8	SED-1	Sediment - 2 (061022-001-04)	43.4	Yes	No	Constituent does not exceed applicable screening criteria
Hexavalent Chromium	1/1	0/0	---	N/A	---	N/A	0.92 J	N/A	0.92 J	N/A	SED-1	---	Nav	---	No	---
Copper	1/1	0/0	---	N/A	---	N/A	4.7 J	N/A	4.7 J	N/A	SED-1	---	31.6	---	No	Constituent does not exceed applicable screening criteria
Lead	1/1	2/2	---	---	---	---	11.5	3.5 J	11.5	6.9	SED-1	Sediment - 2 (061022-001-04)	35.8	Yes	No	Constituent does not exceed applicable screening criteria
Mercury	0/0	1/2	N/A	0.12	N/A	0.12	N/A	0.015 J	N/A	0.015 J	---	Sediment - 2 (061022-001-04)	0.18	---	No	Constituent only analyzed in background sample.
Molybdenum	0/1	0/0	6.3	N/A	6.3	N/A	ND	N/A	ND	N/A	---	---	Nav	---	No	---
Nickel	1/1	0/0	---	N/A	---	N/A	8.0	N/A	8.0	N/A	SED-1	---	22.7	---	No	Constituent does not exceed applicable screening criteria
Selenium	1/1	0/2	---	5.6	---	6.3	2.8 J	ND	2.8 J	ND	SED-1	---	2	No	No	Detected concentration in site sample is an estimated "J" value that slightly exceeds screening criteria. The constituent was not detected in background samples; however, the estimated concentration in the site sample is below the reporting limits of the background samples. In addition, there are no detections of selenium in on-site soil samples except SB-1 [2], which had a selenium concentration (2.14 mg/kg) lower than SED-1.
Silver	0/1	0/2	3.2	2.8	3.2	3.2	ND	ND	ND	ND	---	---	1.0	No	No	Constituent not detected in any sediment samples
Zinc	1/1	0/0	---	N/A	---	N/A	21.4	N/A	21.4	N/A	SED-1	---	121	---	No	Constituent does not exceed applicable screening criteria

"---" - not applicable  
Nav - No screening value available  
ND - Not detected  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - method detection limit  
RL - reporting limit

Table 2-11  
Selection of Human Health and Ecological Constituents of Concern for Surface Water  
Human Health and Ecological Risk Assessment

[Redacted]

Constituent of Potential Concern (COPC)	Frequency of Detection (FOD) <sup>[1]</sup>		Minimum Reporting Limit (mg/L)		Maximum Reporting Limit (mg/L)		Minimum Detected Concentration (mg/L)		Maximum Detected Concentration (mg/L)		Sample with Maximum Detect		WV Water Quality Standards (Protection of Human Health) (mg/L)	WV Water Quality Standards or other Applicable Standard (Ecological) (mg/L)	Site Sample Exceeds Background?	Retained as COC?	Comment
	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)	Site Sample(s)	Background Sample(s)					
Metals																	
Arsenic	0/1	0/2	0.020	0.020	0.020	0.020	ND	ND	ND	ND	---	---	0.010	0.005	No	No	Constituent not detected in any surface water samples
Barium	1/1	2/2	---	---	---	---	0.042	0.047	0.042	0.049	LAKE-1	Surface Water - 2 (061022-001-01)	1	0.004	No	No	Site sample concentration is below background concentration
Cadmium	0/1	0/2	0.0020	0.0020	0.0020	0.0020	ND	ND	ND	ND	---	---	0.010*	0.000504*	No	No	Constituent not detected in any surface water samples
Total Chromium	0/2	0/2	0.0050	0.0050	0.100	0.0050	ND	ND	ND	ND	---	---	Nav	Nav	No	No	Constituent not detected in any surface water samples
Hexavalent Chromium	1/1	0/0	---	N/A	---	N/A	0.000049	N/A	0.000049	N/A	LAKE-1	---	0.050	0.0072	---	No	Constituent does not exceed applicable screening criteria
Lead	0/1	1/2	0.010	0.010	0.010	0.010	ND	0.0059 J	ND	0.0059 J	---	Surface Water - 2 (061022-001-01)	0.050	0.007595*	No	No	Constituent not detected in site surface water sample
Mercury	0/0	0/2	N/A	0.00020	N/A	0.00020	N/A	ND	N/A	ND	---	---	0.00014	0.0024	---	No	Constituent only analyzed in background sample.
Selenium	0/1	0/2	0.020	0.020	0.020	0.020	ND	ND	ND	ND	---	---	0.050	0.005	No	No	Constituent not detected in any surface water samples
Silver	0/1	0/2	0.0050	0.0050	0.0050	0.0050	ND	ND	ND	ND	---	---	0.024*	0.024*	No	No	Constituent not detected in any surface water samples

"---" - not applicable  
ND - Not detected  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
\*A site-specific hardness of 281.1 ppm was used to determine human health and/or ecological criteria for cadmium, chromium (trivalent chromium), lead, and silver. The site-specific hardness was calculated for the [Redacted] (Site ID 211WVOWR-KNB-012-0010) using calcium and magnesium analytical results reported in the USGS Water Quality Portal. (<https://www.waterqualitydata.us/provider/STORET/211WVOWR/211WVOWR-KNB-012-0010/>).

[Redacted]

**Table 3-1**  
**Summary of Direct Contact Constituents of Concern**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

Constituents of Concern (COC)	On-Site						
	Surface Soil	Unsaturated Subsurface Soil	Saturated Subsurface Soil	Groundwater	Groundwater to Surface Water	Surface Water	Sediment
	0-2 ft-bgs	5-7 ft-bgs	8-15 ft-bgs				
Metals							
Hexavalent Chromium	Sr/Si	Sr*	Sr*	GW	---	---	---
Arsenic	---	Sr	Sr	GW	SW <sub>HH</sub> /SW <sub>Eco</sub>	---	---
Barium	---	---	---	---	SW <sub>Eco</sub>	---	---
Lead	---	---	---	GW	---	---	---

Notes:

ft-bgs - feet below ground surface

"---" - indicates constituent was not retained as a COC for the identified medium

\* - indicates constituent was not detected at concentrations above applicable criteria, but reporting limit exceeds applicable criteria

Sr - indicates an exceedance of the WVDEP residential soil de minimis standard, December 2021

Si - indicates an exceedance of the WVDEP industrial soil de minimis standard, December 2021

GW - indicates an exceedance of the WVDEP groundwater de minimis standard, December 2021

SW<sub>HH</sub> - indicates an exceedance of the applicable human health surface water quality standard

SW<sub>Eco</sub> - indicates an exceedance of the applicable ecological surface water quality standard

[REDACTED]  
[REDACTED]

**Table 4-1**  
**Groundwater Elevation Data**  
**Human Health and Ecological Risk Assessment**

Well Identification	Date	Relative Top of Casing Elevation <sup>1</sup> (feet)	Depth to Product (feet)	Depth to Groundwater (feet)	Product Thickness (feet)	Groundwater Elevation (feet)	Well Screen Interval (feet)
MW-1	3/4/2020	2,459.84	NA <sup>2</sup>	12.77	NA	2,447.07	4-19
	9/9/2020		NA	12.61	NA	2,447.23	
	12/15/2020		NA	11.51	NA	2,448.33	
	4/21/2021		NA	13.58	NA	2,446.26	
	9/14/2021		NA	13.03	NA	2,446.81	
	12/9/2021		NA	13.94	NA	2,445.90	
MW-2	3/4/2020	2,460.59	NA	10.89	NA	2,449.70	5-20
	4/14/2020		NA	11.09	NA	2,449.50	
	9/9/2020		NA	15.65	NA	2,444.94	
	12/15/2020		NA	12.6	NA	2,447.99	
	4/21/2021		NA	13.9	NA	2,446.69	
	9/14/2021		NA	14.7	NA	2,445.89	
MW-3	3/4/2020	2,460.32	NA	4.23	NA	2,456.09	5-20
	9/9/2020		NA	7.22	NA	2,453.10	
	12/15/2020		NA	5.74	NA	2,454.58	
	4/21/2021		NA	4.88	NA	2,455.44	
	9/14/2021		NA	7.27	NA	2,453.05	
	12/9/2021		NA	8.8	NA	2,451.52	
MW-4	3/5/2020	2,459.60	NA	3.65	NA	2,455.95	5-20
	9/9/2020		NA	5.45	NA	2,454.15	
	12/15/2020		NA	2.81	NA	2,456.79	
	4/21/2021		NA	3.35	NA	2,456.25	
	9/14/2021		NA	4.9	NA	2,454.70	
	12/9/2021		NA	5.8	NA	2,453.80	
MW-5	3/5/2020	2,460.60	NA	7.87	NA	2,452.73	5-20
	9/9/2020		NA	8.86	NA	2,451.74	
	12/15/2020		NA	8.31	NA	2,452.29	
	4/21/2021		NA	8.14	NA	2,452.46	
	9/14/2021		NA	8.95	NA	2,451.65	
	12/9/2021		NA	9.94	NA	2,450.66	

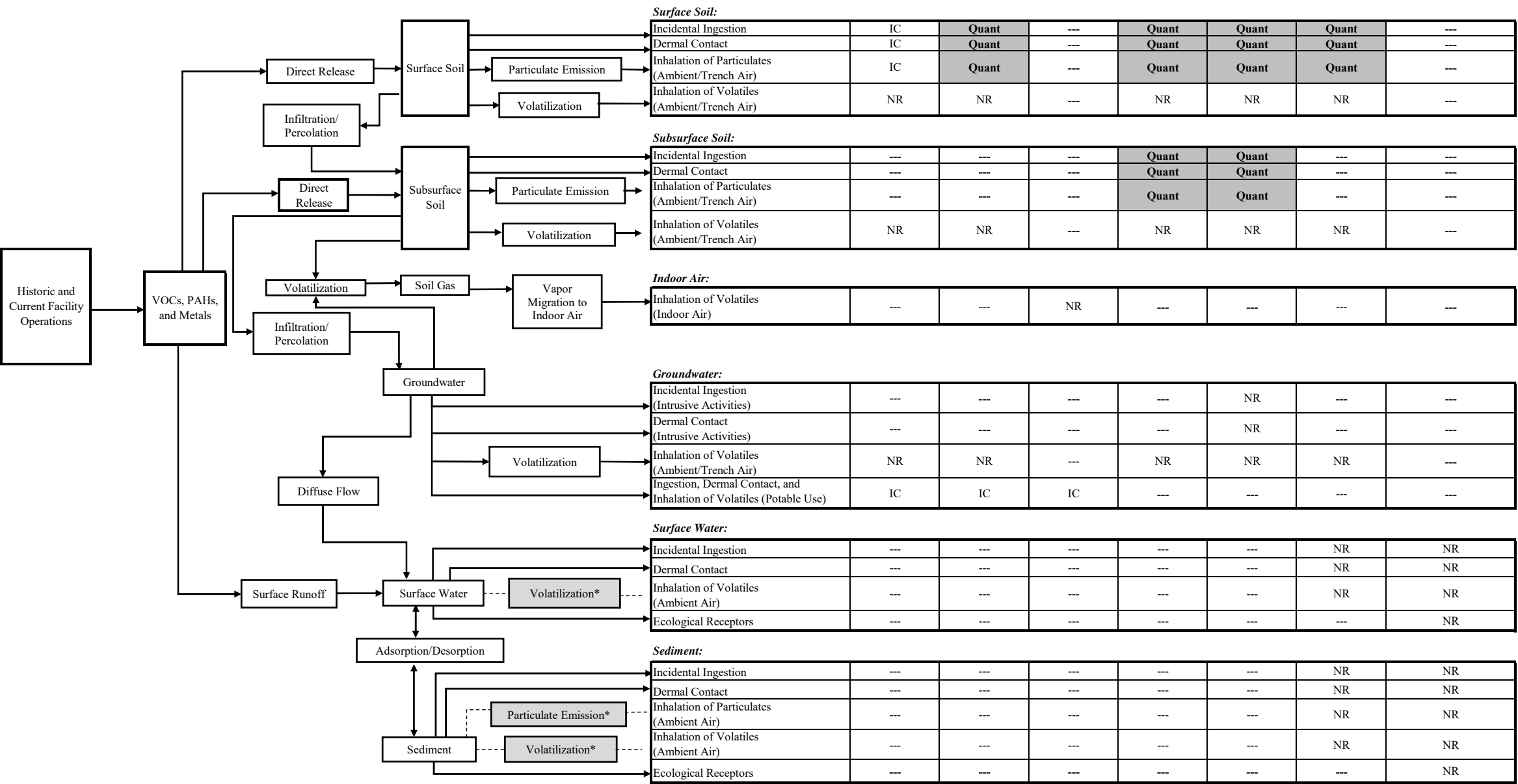
Notes:

<sup>1</sup> Elevations measured by Appalachian Engineering & Surveying, Inc. during Survey Parcel Map preparation.

<sup>2</sup> NA = Not applicable.

Table 4-2  
Potential Constituent Migration Routes and Receptors and Exposure Pathways  
Human Health and Ecological Risk Assessment

Source	Migration Route Analysis				Exposure Pathway	Receptors						
						On-Site						Off-Site
												██████████ Lake
	Constituents	Transport Mechanism to Media	Media	Transport Mechanism to Receptor		Future	Current/ Future	Current/ Future	Future	Future	Current/ Future	Current/ Future
						Resident	Maintenance Worker	Indoor Worker	Utility Worker	Construction Worker	Trespasser	Human and Ecological Receptors
					Maximum Excavation Depth by Scenario	2 ft-bgs	2 ft-bgs	---	4 ft-bgs	10 ft-bgs <sup>[1]</sup>	---	---



Notes:  
\* Sediment and surface water samples were only analyzed for metals, which are not volatile. In addition, sediment samples were collected below the water line and as a result particulate emission of sediment to outdoor air is not a likely migration route.  
**Quant** - exposure pathway is complete and was retained for quantitative risk analysis for that medium for the receptor.  
**IC** - exposure pathway is potentially complete, however the pathway will be made incomplete through the adoption of a land use covenant (i.e., nonresidential use only and the restriction of groundwater use).  
**NR** - indicates that the exposure pathway is not retained for that medium for the receptor.  
**DM** - indicates that the exposure pathway is potentially complete, but is considered de minimis  
"---" - indicates that the exposure pathway is not applicable to the receptor or the migration route was not retained.  
[1] The maximum excavation depth for the on-site construction worker was assumed to be 10 ft-bgs per WVDEP guidance; however, the maximum excavation depth in the northern portion of the site (e.g., MW-3, MW-4, and MW-5) is limited by the shallow depth of competent bedrock. See text for further discussion.

**Table 5-1**  
**Source Concentrations**  
**Human Health and Ecological Risk Assessment**

Constituent of Concern (COC)	Source Concentrations by Media		Source Concentrations by Receptor and Exposure Pathway				
	On-Site		On-Site Maintenance Worker	On-Site Trespasser	On-Site Construction Worker	On-Site Utility Worker	
	Surface Soil <sup>[1]</sup>	Surface and Subsurface Soil <sup>[1]</sup>	Incidental Ingestion, Dermal Contact, and Inhalation of Particulates (Ambient Air) <sup>[2]</sup>	Incidental Ingestion, Dermal Contact, and Inhalation of Particulates (Ambient Air) <sup>[2]</sup>	Incidental Ingestion, Dermal Contact, and Inhalation of Particulates (Trench Air) <sup>[3]</sup>	Incidental Ingestion, Dermal Contact, and Inhalation of Particulates (Trench Air) <sup>[4]</sup>	
	0-2 ft-bgs	0-10 ft-bgs					
	mg/kg	mg/kg					
Metals							
Hexavalent Chromium	160	MAX (SB-2 [2'])	160	MAX (SB-2 [2'])	160	160	160

Notes:

mg/kg - milligram per kilogram

ft-bgs - feet below ground surface

MAX - maximum concentration

[1] The maximum concentration was conservatively utilized as the hexavalent chromium source concentration for surface soil (0-2 ft-bgs) and combined surface/subsurface soil (0-10 ft-bgs) since there was only one detection of hexavalent chromium in the surface and subsurface soil dataset.

[2] Based on the assumed activities of the on-site maintenance worker and trespasser (i.e., exposure to surface soil only), the source concentrations utilized to evaluate the incidental ingestion, dermal contact, and inhalation of particulates exposure pathways for these receptors are the source concentrations derived for surface soil (0-2 ft-bgs).

[3] Based on the assumed excavation depth of the on-site construction worker (i.e., maximum of 10 ft-bgs), the source concentrations utilized to evaluate the incidental ingestion, dermal contact, and inhalation of particulates exposure pathways are the source concentrations derived for combined surface and subsurface soil (0-10 ft-bgs).

[4] Based on the assumed excavation depth of the on-site utility worker (i.e., maximum of 4 ft-bgs), the source concentrations utilized to evaluate the incidental ingestion, dermal contact, and inhalation of particulates exposure pathways are the source concentrations derived for surface soil (0-2 ft-bgs). Note there were no subsurface soil samples collected between 2 and 4 ft-bgs.



**Table 6-1**  
**Chemical Properties**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

Chemical	CAS No.	Molecular Weight		Melting Point		Boiling Point	
		Value (g/mol)	Source	Value (°C)	Source	Value (°C)	Source
<b>Metals</b>							
Hexavalent Chromium	18540-29-9	52	RAIS	1900 <sup>[1]</sup>	RAIS	2642 <sup>[1]</sup>	RAIS

Notes:

g/mol - grams per mole

N/A - not available

°C - degrees Celsius

[1] Melting and boiling point are for total chromium. Parameter is not available for hexavalent chromium.

Sources:

RAIS - Risk Assessment Information System Website (<http://www.rais.ornl.gov>) (Accessed on April 21, 2022)

[REDACTED]

**Table 6-1**  
**Chemical Properties**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

Chemical	CAS No.	Water Solubility	Vapor Pressure	Octanol-Water Part. Coef. (K <sub>ow</sub> )
		Value (mg/L) Source	Value (mm Hg) Source	Value (L/L) Source
<b>Metals</b>				
Hexavalent Chromium	18540-29-9	1.7E+06 RAIS	N/A	N/A

Notes:

mg/L - milligrams per liter

L/L - liters per liter

mm Hg - millimeters of mercury

N/A - not available

Sources:

RAIS - Risk Assessment Information System Website (<http://www.rais.ornl.gov>) (Accessed on April 21, 2022)

[REDACTED]

**Table 6-1**  
**Chemical Properties**  
**Human Health and Ecological Risk Assessment**



Chemical	CAS No.	Organic Carbon Part. Coef. ( $K_{oc}$ )	Henry's Law Constant	Unitless Henry's Law Constant
		Value (mg/Kg / mg/L) Source	Value (atm-m <sup>3</sup> /mol) Source	Value unitless Source
<b>Metals</b>				
Hexavalent Chromium	18540-29-9	N/A	N/A	N/A

Notes:  
 mg/Kg / mg/L - milligrams per kilogram per milligram per liter  
 atm - m<sup>3</sup>/mol - atmosphere cubic meter per mole  
 N/A - not available



**Table 6-1**  
**Chemical Properties**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

Chemical	CAS No.	Vapor Phase Diffusivity	Water Phase Diffusivity	Soil-Water Partition Coefficient ( $K_d$ )	
		Value (cm <sup>2</sup> /s) Source	Value (cm <sup>2</sup> /s) Source	Value (cm <sup>2</sup> /g) Source	Source
<b>Metals</b>					
Hexavalent Chromium	18540-29-9	N/A	N/A	19	RAIS

Notes:

cm<sup>2</sup>/s - centimeters squared per second

cm<sup>2</sup>/g - centimeters squared per gram

N/A - not available

Sources:

RAIS - Risk Assessment Information System Website (<http://www.rais.ornl.gov>) (Accessed on April 21, 2022)

[REDACTED]

**Table 6-2**  
**Cancer Slope Factors and Inhalation Unit Risks**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

			Oral CSF		Dermal CSF		Inhalation IUR	
			CSF <sub>O</sub>		Oral to Dermal Conversion Factor (GIABS)	CSF <sub>D</sub>	IUR	
Chemical	CAS No.	Mutagenic Yes or No?	(mg/kg-day) <sup>-1</sup>	Source	(unitless)	(mg/kg-day) <sup>-1</sup>	(ug/m <sup>3</sup> ) <sup>-1</sup>	Source
<b>Metals</b>								
Hexavalent Chromium	18540-29-9	Yes	5.0E-01	C	0.025 RAGS-E	2.0E+01	8.4E-02	USEPA 2022

Notes:

CSF - Cancer Slope Factor (mg/kg-day)<sup>-1</sup> - per milligram per kilogram per day

IUR - Inhalation Unit Risk (ug/m<sup>3</sup>)<sup>-1</sup> - per microgram per cubic meter

$$CSF_D = \frac{CSF_O}{GIABS}$$

Sources:

C - California EPA Cancer Potency Factor

RAGS-E - Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)

USEPA 2022 - United States Environmental Protection Agency Regional Screening Level (RSL) User's Guide, November 2022

[REDACTED]  
[REDACTED]

**Table 6-3**  
**Chronic Reference Doses and Reference Concentrations**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

		Oral RfD		Dermal RfD		Inhalation RfC	
		RfD <sub>O</sub>		Oral to Dermal Conversion Factor (GIABS)	RfD <sub>D</sub>	RfC	
Chemical	CAS No.	(mg/kg-day)	Source	(unitless)	(mg/kg-day)	(mg/m <sup>3</sup> )	Source
<b>Metals</b>							
Hexavalent Chromium	18540-29-9	3.0E-03	I	0.025 RAGS-E	7.5E-05	1.0E-04	I

Notes:

RfD - Reference Dose

mg/kg-day - milligram per kilogram per day

$$RfD_D = RfD_O * GIABS$$

RfC - Reference Concentration

mg/m<sup>3</sup> - milligram per cubic meter

Sources:

I - Integrated Risk Information System (IRIS)

RAGS-E - Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)

[REDACTED]

**Table 6-4**  
**Subchronic Reference Doses and Reference Concentrations**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

		Oral RfD		Dermal RfD		Inhalation RfC	
		RfD <sub>O</sub>		Oral to Dermal Conversion Factor (GIABS) (unitless)		RfC	
Chemical	CAS No.	(mg/kg-day)	Source	(mg/kg-day)	Source	(mg/m <sup>3</sup> )	Source
<b>Metals</b>							
Hexavalent Chromium	18540-29-9	5.0E-03	ATSDR	0.025	RAGS-E	1.3E-04	3.0E-04 ATSDR

Notes:

RfD - Reference Dose                      mg/kg-day - milligram per kilogram per day

RfC - Reference Concentration            mg/m<sup>3</sup> - milligram per cubic meter

$$RfD_D = RfD_O * GIABS$$

Sources:

ATSDR - Intermediate Minimal Risk Level (MRL) from the Agency for Toxic Substances and Disease Registry

RAGS-E - Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)

[REDACTED]

**Table 6-5**  
**Cancer Slope Factors and Inhalation Unit Risks - Tumor Type or Target Organ**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

<b>Chemical</b>	<b>CAS No.</b>	<b>Oral Tumor Type or Target Organ</b>	<b>Inhalation Tumor Type or Target Organ</b>
<b>Metals</b>			
Hexavalent Chromium	18540-29-9	stomach carcinomas in female mice, benign stomach tumors (papillomas and hyperkeratomas) in male and female mice	lung cancer

Notes:

Sources used include:

California Environmental Protection Agency (<http://www.oehha.ca.gov/risk>)

IRIS - Integrated Risk Information System (<http://www.epa.gov/IRIS/>)

RAIS - Risk Assessment Information System website (<http://www.rais.ornl.gov>) (Accessed on April 21, 2022)

[REDACTED]



**Table 6-6**  
**Chronic Reference Doses and Reference Concentrations - Critical Effect or Target Organ**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

		Oral Critical Effect or Target Organ	Inhalation Critical Effect or Target Organ
Chemical	CAS No.		
<b>Metals</b>			
Hexavalent Chromium	18540-29-9	stomach ulcers, convulsions, kidney and liver damage	lactate dehydrogenase in bronchioalveolar lavage fluid; lungs

Notes:

Sources used include:

California Environmental Protection Agency (<http://www.oehha.ca.gov/risk>)

IRIS - Integrated Risk Information System (<http://www.epa.gov/IRIS/>)

RAIS - Risk Assessment Information System website (<http://www.rais.ornl.gov>) (Accessed on April 21, 2022)

[REDACTED]

**Table 6-7**  
**Subchronic Reference Doses and Inhalation Concentrations - Critical Effect and Target Organ**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

<b>Chemical</b>	<b>CAS No.</b>	<b>Oral Critical Effect or Target Organ</b>	<b>Inhalation Critical Effect or Target Organ</b>
<b>Metals</b>			
Hexavalent Chromium	18540-29-9	microcytic, hypochromic anemia; hematological	increased lung weight, hyperplasia, macrophage infiltration, increased protein, albumin, lactate dehydrogenase in BAL fluid; respiratory system

Notes:

Sources used include:

California Environmental Protection Agency (<http://www.oehha.ca.gov/risk>)

IRIS - Integrated Risk Information System (<http://www.epa.gov/IRIS/>)

RAIS - Risk Assessment Information System website (<http://www.rais.ornl.gov>) (Accessed on April 21, 2022)

[REDACTED]

**Table 6-8**  
**Absorption Adjustment Factors for COC in Soil**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

		Ingestion of Soil		Dermal Contact with Soil	
Chemical	CAS No.	Value	Basis	Value	Basis
Metals					
Hexavalent Chromium	18540-29-9	100%	conservative assumption	0% <sup>[1]</sup>	RAGS-E

Notes:

RAGS-E - Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)

[1] In accordance with RAGS-E, there are no default dermal absorption values for inorganic compounds because the speciation of the compound is critical to the dermal absorption and there are too little data to extrapolate a reasonable default value.

[REDACTED]

Table 7-1  
Summary of Exposure Assumptions for On-Site Maintenance Worker  
Human Health and Ecological Risk Assessment

Parameter			Value	Units	Comments/References	Intake Equation
Averaging Times						
Ingestion/Dermal						
<i>AT</i> ( <i>c</i> )	Carcinogenic Effects	=	25,550	days	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year) (USEPA 1991)	
<i>AT</i> ( <i>nc</i> )	Noncarcinogenic Effects	=	9,125	days	averaging time for a noncarcinogen (ED x 365 days/year) (USEPA 1989)	
Inhalation						
<i>AT</i> ( <i>c</i> )	Carcinogenic Effects	=	613,200	hours	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year x 24 hours/day) (USEPA 2009)	
<i>AT</i> ( <i>nc</i> )	Noncarcinogenic Effects	=	219,000	hours	averaging time for a noncarcinogen (ED in years x 365 days/year x 24 hours/day) (USEPA 2009)	
Exposure Assumptions Associated with Direct Contact with Soil						
Incidental Ingestion of Soil						
<i>IR</i> <sub><i>ing-s</i></sub>	Incidental Soil Ingestion Rate	=	100	mg-soil/day	default soil ingestion rate for an outdoor worker (WVDEP 2020)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	
<i>FI</i>	Fraction of Daily Total	=	1	unitless	assumes 100% of daily soil ingestion occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	72	days/year	based on 3 days a week for 6 months (assumes warm months; May - Oct.) (professional judgment)	$I_{ing-s} = CS_{src} * TF_s * AAF_{ing-s} * IF_{ing-s}$
<i>ED</i>	Exposure Duration	=	25	years	default assumption for an adult commercial/industrial exposure (WVDEP 2020)	
<i>BW</i>	Body Weight	=	80	kg	default assumption for an adult (WVDEP 2020)	
<i>IF</i> <sub><i>ing-s</i></sub> ( <i>c</i> )	Intake Factor (Carcinogenic)	=	8.81E-08	kg/kg-day	calculated	
<i>IF</i> <sub><i>ing-s</i></sub> ( <i>nc</i> )	Intake Factor (Noncarcinogenic)	=	2.47E-07	kg/kg-day	calculated	$IF_{ing-s} = \frac{IR_{ing-s} * CF * FI * EF * ED}{BW * AT}$
<i>CS</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	
<i>TF</i> <sub><i>s</i></sub>	Transfer Factor	=	1	unitless	conservative assumption	
<i>AAF</i> <sub><i>ing-s</i></sub>	Absorption Adjustment Factor	=	1	mg/mg	conservative assumption	
<i>CSF</i> <sub><i>O</i></sub>	Oral Cancer Slope Factor	=	chem-spec.	(mg/kg-day) <sup>-1</sup>	chemical - specific	$Risk = I_{ing-s(c)} * CSF_O$
<i>RfD</i> <sub><i>O</i></sub>	Oral Reference Dose	=	chem-spec.	mg/kg-day	chemical - specific	$HI = \frac{I_{ing-s(nc)}}{RfD_O}$
Dermal Contact with Soil						
<i>SA</i>	Exposed Surface Area	=	3,527	cm²/day	default skin surface area for commercial/industrial receptors (WVDEP 2020)	
<i>AF</i>	Soil Adherence Rate	=	0.12	mg/cm²	default dermal adherence factor for a commercial/industrial scenario (WVDEP 2020)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	
<i>FC</i>	Fraction of day with contact to soil	=	1	unitless	assumes 100% of daily soil contact occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	72	days/year	based on 3 days a week for 6 months (assumes warm months; May - Oct.) (professional judgment)	$I_{derm-s} = CS_{src} * TF_s * AAF_{derm-s} * IF_{derm-s}$
<i>ED</i>	Exposure Duration	=	25	years	default assumption for an adult commercial/industrial exposure (WVDEP 2020)	
<i>BW</i>	Body Weight	=	80	kg	default assumption for an adult (WVDEP 2020)	
<i>IF</i> <sub><i>derm-s</i></sub> ( <i>c</i> )	Absorbed Dose (Carcinogenic)	=	3.73E-07	kg/kg-day	calculated	
<i>IF</i> <sub><i>derm-s</i></sub> ( <i>nc</i> )	Absorbed Dose (Noncarcinogenic)	=	1.04E-06	kg/kg-day	calculated	$IF_{derm-s} = \frac{SA * AF * CF * FC * EF * ED}{BW * AT}$
<i>CS</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	
<i>TF</i> <sub><i>s</i></sub>	Transfer Factor	=	1	unitless	conservative assumption	
<i>AAF</i> <sub><i>derm-s</i></sub>	Absorption Adjustment Factor	=	chem-spec.	mg/mg	chemical - specific	
<i>CSF</i> <sub><i>D</i></sub>	Dermal Cancer Slope Factor	=	chem-spec.	(mg/kg-day) <sup>-1</sup>	chemical - specific	$Risk = I_{derm-s(c)} * CSF_D$
<i>RfD</i> <sub><i>D</i></sub>	Dermal Reference Dose	=	chem-spec.	mg/kg-day	chemical - specific	$HI = \frac{I_{derm-s(nc)}}{RfD_D}$
Inhalation of Constituents Emitted from Soil (Particulates)						
<i>ET</i>	Exposure Time	=	4	hours/day	time spent outdoors (professional judgment)	
<i>EF</i>	Exposure Frequency	=	72	days/year	based on 3 days a week for 6 months (assumes warm months; May - Oct.) (professional judgment)	
<i>ED</i>	Exposure Duration	=	25	years	default assumption for an adult commercial/industrial exposure (WVDEP 2020)	
<i>EC</i> <sub><i>c</i></sub>	Exposure Concentration (Carcinogenic)	=	chem-spec.	µg/m³	calculated	$EC = \frac{CA_a * ET * EF * ED}{AT}$
<i>EC</i> <sub><i>nc</i></sub>	Exposure Concentration (Noncarcinogenic)	=	chem-spec.	µg/m³	calculated	
<i>TF</i> <sub><i>a-part</i></sub>	Transfer Factor (particulates)	=	7.35E-10	kg/m³	default value (1.36E+9 m³/kg) <sup>-1</sup> (USEPA 2022)	$CA_a = C_{src} * TF_{a-part}$
<i>CA</i> <sub><i>a</i></sub>	Concentration in Outdoor Air	=	chem-spec.	µg/m³	calculated value	
<i>CF</i>	Conversion Factor	=	1.0E+03	µg/mg	---	
<i>C</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	µg/kg	measured value	
<i>IUR</i>	Inhalation Unit Risk	=	chem-spec.	(µg/m³) <sup>-1</sup>	chemical - specific	$Risk = EC_c * IUR$
<i>RfC</i>	Reference Concentration	=	chem-spec.	(mg/m³)	chemical - specific	$HI = \frac{EC_{nc}}{RfC * CF}$

Table 7-2  
Summary of Exposure Assumptions for On-Site Construction Worker  
Human Health and Ecological Risk Assessment

Parameter			Value	Units	Comments/References	Intake Equation
Averaging Times						
Ingestion/Dermal						
<i>AT</i> ( <i>c</i> )	Carcinogenic Effects	=	25,550	days	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year) (USEPA 1991)	
<i>AT</i> ( <i>nc</i> )	Noncarcinogenic Effects	=	365	days	ED*365 days/year (WVDEP 2020)	
Inhalation						
<i>AT</i> ( <i>c</i> )	Carcinogenic Effects	=	613,200	hours	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year x 24 hours/day) (USEPA 2009)	
<i>AT</i> ( <i>nc</i> )	Noncarcinogenic Effects	=	8,760	hours	ED*365 days/year*24 hrs/day (WVDEP 2020)	
Exposure Assumptions Associated with Direct Contact with Soil						
Incidental Ingestion of Soil						
<i>IR</i> <sub><i>ing-s</i></sub>	Incidental Soil Ingestion Rate	=	330	mg-soil/day	default assumption for a construction worker (USEPA 2002)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	
<i>FI</i>	Fraction of Daily Total	=	1	unitless	assumes 100% of daily soil ingestion occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	30	days/year	assumes 6 weeks of construction in contact with soil at 5 days/week during the 30 days construction period (IPCB 2013)	
<i>ED</i>	Exposure Duration	=	1	years	construction occurs over a one year period (IPCB 2013)	
<i>BW</i>	Body Weight	=	80	kg	default assumption for an adult (WVDEP 2020)	$I_{ing-s} = CS_{src} * TF_s * AAF_{ing-s} * IF_{ing-s}$
<i>IF</i> <sub><i>ing-s</i></sub> ( <i>c</i> )	Intake Factor (Carcinogenic)	=	4.84E-09	kg/kg-day	calculated	
<i>IF</i> <sub><i>ing-s</i></sub> ( <i>nc</i> )	Intake Factor (Noncarcinogenic)	=	3.39E-07	kg/kg-day	calculated	$IF_{ing-s} = \frac{IR_{ing-s} * CF * FI * EF * ED}{BW * AT}$
<i>CS</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	
<i>TF</i> <sub><i>s</i></sub>	Transfer Factor	=	1	unitless	conservative assumption	
<i>AAF</i> <sub><i>ing-s</i></sub>	Absorption Adjustment Factor	=	1	mg/mg	conservative assumption	$Risk = I_{ing-s(c)} * CSF_O$
<i>I</i> <sub><i>ing-s</i></sub>	Intake for Ingestion of Soil	=	chem-spec.	mg/kg-day	chemical - specific	$HI = \frac{I_{ing-(nc)}}{RfD_O}$
<i>CSF</i> <sub><i>O</i></sub>	Oral Cancer Slope Factor	=	chem-spec.	(mg/kg-day) <sup>-1</sup>	chemical - specific	
<i>RfD</i> <sub><i>O</i></sub>	Oral Reference Dose	=	chem-spec.	mg/kg-day	chemical - specific	
Dermal Contact with Soil						
<i>SA</i>	Exposed Surface Area	=	3,527	cm²/day	default assumption for a commercial/industrial scenario (WVDEP 2020)	
<i>AF</i>	Soil Adherence Rate	=	0.3	mg/cm²	default assumption for a construction worker (USEPA 2002)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	
<i>FC</i>	Fraction of day with contact to soil	=	1	unitless	assumes 100% of daily soil contact occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	30	days/year	assumes 6 weeks of construction in contact with soil at 5 days/week during the 30 days construction period (IPCB 2013)	
<i>ED</i>	Exposure Duration	=	1	years	construction occurs over a one year period (IPCB 2013)	
<i>BW</i>	Body Weight	=	80	kg	default assumption for an adult (WVDEP 2020)	$I_{derm-s} = CS_{src} * TF_s * AAF_{derm-s} * IF_{derm-s}$
<i>IF</i> <sub><i>derm-s</i></sub> ( <i>c</i> )	Absorbed Dose (Carcinogenic)	=	1.55E-08	kg/kg-day	calculated	
<i>IF</i> <sub><i>derm-s</i></sub> ( <i>nc</i> )	Absorbed Dose (Noncarcinogenic)	=	1.09E-06	kg/kg-day	calculated	
<i>CS</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	$IF_{derm-s} = \frac{SA * AF * CF * FC * EF * ED}{BW * AT}$
<i>TF</i> <sub><i>s</i></sub>	Transfer Factor	=	1	unitless	conservative assumption	
<i>I</i> <sub><i>derm-s</i></sub>	Intake for Dermal Contact with Soil	=	chem-spec.	mg/kg-day	chemical - specific	
<i>AAF</i> <sub><i>derm-s</i></sub>	Absorption Adjustment Factor	=	chem-spec.	mg/mg	chemical - specific	$Risk = I_{derm-s(c)} * CSF_D$
<i>CSF</i> <sub><i>D</i></sub>	Dermal Cancer Slope Factor	=	chem-spec.	(mg/kg-day) <sup>-1</sup>	chemical - specific	$HI = \frac{I_{derm-s(nc)}}{RfD_D}$
<i>RfD</i> <sub><i>D</i></sub>	Dermal Reference Dose	=	chem-spec.	mg/kg-day	chemical - specific	
Inhalation of Constituents Emitted from Soil (Particulates)						
<i>ET</i>	Exposure Time	=	8	hours/day	default assumption for a commercial/industrial scenario (WVDEP 2020)	
<i>EF</i>	Exposure Frequency	=	30	days/year	assumes 6 weeks of construction in contact with soil at 5 days/week during the 30 days construction period (IPCB 2013)	
<i>ED</i>	Exposure Duration	=	1	years	construction occurs over a one year period (IPCB 2013)	
<i>EC</i> <sub><i>c</i></sub>	Exposure Concentration (Carcinogenic)	=	chem-spec.	µg/m³	calculated	$EC = \frac{CA_a * ET * EF * ED}{AT}$
<i>EC</i> <sub><i>nc</i></sub>	Exposure Concentration (Noncarcinogenic)	=	chem-spec.	µg/m³	calculated	
<i>TF</i> <sub><i>a-part</i></sub>	Transfer Factor (particulates)	=	7.35E-10	kg/m³	default value (1.36E+9 m³/kg) <sup>-1</sup> (USEPA 2022)	$CA_a = C_{src} * TF_{a-part}$
<i>CA</i> <sub><i>a</i></sub>	Concentration in Outdoor Air	=	chem-spec.	µg/m³	calculated value	
<i>C</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	µg/kg	measured value	
<i>CF</i>	Conversion Factor	=	1.0E+03	µg/mg	---	$Risk = EC_c * IUR$
<i>IUR</i>	Inhalation Unit Risk	=	chem-spec.	(µg/m³) <sup>-1</sup>	chemical - specific	$HI = \frac{EC_{nc}}{RfC * CF}$
<i>RfC</i>	Reference Concentration	=	chem-spec.	(mg/m³)	chemical - specific	

Table 7-3  
Summary of Exposure Assumptions for On-Site Utility Worker  
Human Health and Ecological Risk Assessment  
[Redacted]  
[Redacted]

Parameter			Value	Units	Comments/References	Intake Equation
Averaging Times						
Ingestion/Dermal						
<i>AT</i> ( <i>c</i> )	Carcinogenic Effects	=	25,550	days	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year) (USEPA 1991)	
<i>AT</i> ( <i>nc</i> )	Noncarcinogenic Effects	=	9,125	days	averaging time for a noncarcinogen (ED in years x 365 days/year) (USEPA 1989)	
Inhalation						
<i>AT</i> ( <i>c</i> )	Carcinogenic Effects	=	613,200	hours	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year x 24 hours/day) (USEPA 2009)	
<i>AT</i> ( <i>nc</i> )	Noncarcinogenic Effects	=	219,000	hours	averaging time for a noncarcinogen (ED in years x 365 days/year x 24 hours/day) (USEPA 2009)	
Exposure Assumptions Associated with Direct Contact with Soil						
Incidental Ingestion of Soil						
<i>IR</i> <sub><i>ing-s</i></sub>	Incidental Soil Ingestion Rate	=	330	mg-soil/day	default assumption for a construction worker (USEPA 2002)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	$I_{ing-s} = CS_{src} * TF_s * AAF_{ing-s} * IF_{ing-s}$
<i>FI</i>	Fraction of Daily Total	=	1	unitless	assumes 100% of daily soil ingestion occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	1	days/year	assumes exposure to soil occurs one day per year (MADEP 1995)	
<i>ED</i>	Exposure Duration	=	25	years	default assumption for an adult commercial/industrial exposure (WVDEP 2020)	
<i>BW</i>	Body Weight	=	80	kg	default assumption for an adult (WVDEP 2020)	
<i>IF</i> <sub><i>ing-s</i></sub> ( <i>c</i> )	Intake Factor (Carcinogenic)	=	4.04E-09	kg/kg-day	calculated	$IF_{ing-s} = \frac{IR_{ing-s} * CF * FI * EF * ED}{BW * AT}$
<i>IF</i> <sub><i>ing-s</i></sub> ( <i>nc</i> )	Intake Factor (Noncarcinogenic)	=	1.13E-08	kg/kg-day	calculated	
<i>CS</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	
<i>TF</i> <sub><i>s</i></sub>	Transfer Factor	=	1	unitless	conservative assumption	
<i>AAF</i> <sub><i>ing-s</i></sub>	Absorption Adjustment Factor	=	1	mg/mg	conservative assumption	$Risk = I_{ing-s(c)} * CSF_o$
<i>I</i> <sub><i>ing-s</i></sub>	Intake for Ingestion of Soil	=	chem-spec.	mg/kg-day	chemical - specific	$HI = \frac{I_{ing-s(nc)}}{RfD_o}$
<i>CSF</i> <sub><i>o</i></sub>	Oral Cancer Slope Factor	=	chem-spec.	(mg/kg-day) <sup>-1</sup>	chemical - specific	
<i>RfD</i> <sub><i>o</i></sub>	Oral Reference Dose	=	chem-spec.	mg/kg-day	chemical - specific	
Dermal Contact with Soil						
<i>SA</i>	Exposed Surface Area	=	3,527	cm²/day	default assumption for a commercial/industrial scenario (WVDEP 2020)	
<i>AF</i>	Soil Adherence Rate	=	0.3	mg/cm²	default assumption for a construction worker (USEPA 2002)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	
<i>FC</i>	Fraction of day with contact to soil	=	1	unitless	assumes 100% of daily soil contact occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	1	days/year	assumes exposure to soil occurs one day per year (MADEP 1995)	$I_{derm-s} = CS_{src} * TF_s * AAF_{derm-s} * IF_{derm-s}$
<i>ED</i>	Exposure Duration	=	25	years	default assumption for an adult commercial/industrial exposure (WVDEP 2020)	
<i>BW</i>	Body Weight	=	80	kg	default assumption for an adult (WVDEP 2020)	
<i>IF</i> <sub><i>derm-s</i></sub> ( <i>c</i> )	Absorbed Dose (Carcinogenic)	=	1.29E-08	kg/kg-day	calculated	
<i>IF</i> <sub><i>derm-s</i></sub> ( <i>nc</i> )	Absorbed Dose (Noncarcinogenic)	=	3.62E-08	kg/kg-day	calculated	$IF_{derm-s} = \frac{SA * AF * CF * FC * EF * ED}{BW * AT}$
<i>CS</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	
<i>TF</i> <sub><i>s</i></sub>	Transfer Factor	=	1	unitless	conservative assumption	
<i>AAF</i> <sub><i>derm-s</i></sub>	Absorption Adjustment Factor	=	chem-spec.	mg/mg	chemical - specific	
<i>I</i> <sub><i>derm-s</i></sub>	Intake for Dermal Contact with Soil	=	chem-spec.	mg/kg-day	chemical - specific	$Risk = I_{derm-s} * CSF_D$
<i>CSF</i> <sub><i>D</i></sub>	Dermal Cancer Slope Factor	=	chem-spec.	(mg/kg-day) <sup>-1</sup>	chemical - specific	$HI = \frac{I_{derm-s}}{RfD_D}$
<i>RfD</i> <sub><i>D</i></sub>	Dermal Reference Dose	=	chem-spec.	mg/kg-day	chemical - specific	
Inhalation of Constituents Emitted from Soil (Particulates)						
<i>ET</i>	Exposure Time	=	8	hours/day	default assumption for a commercial/industrial exposure (WVDEP 2020)	
<i>EF</i>	Exposure Frequency	=	1	days/year	assumes exposure to soil occurs one day per year (MADEP 1995)	$EC = \frac{CA_a * ET * EF * ED}{AT}$
<i>ED</i>	Exposure Duration	=	25	years	default assumption for an adult commercial/industrial exposure (WVDEP 2020)	
<i>EC</i> <sub><i>c</i></sub>	Exposure Concentration (Carcinogenic)	=	chem-spec.	µg/m³	calculated	
<i>EC</i> <sub><i>nc</i></sub>	Exposure Concentration (Noncarcinogenic)	=	chem-spec.	µg/m³	calculated	
<i>TF</i> <sub><i>a-part</i></sub>	Transfer Factor (particulates)	=	7.35E-10	kg/m³	default value (1.36E+9 m³/kg) <sup>-1</sup> (USEPA 2022)	$CA_a = C_{src} * TF_{a-part}$
<i>C</i> <sub><i>src</i></sub>	Source Concentration in Soil	=	chem-spec.	µg/kg	measured value	
<i>CA</i> <sub><i>a</i></sub>	Concentration in Trench Air	=	chem-spec.	µg/m³	calculated value	
<i>CF</i>	Conversion Factor	=	1.0E+03	µg/mg	---	$Risk = EC_c * IUR$
<i>IUR</i>	Inhalation Unit Risk	=	chem-spec.	(µg/m³) <sup>-1</sup>	chemical - specific	$HI = \frac{EC_{nc}}{RfC * CF}$
<i>RfC</i>	Reference Concentration	=	chem-spec.	(mg/m³)	chemical - specific	

Table 7-4  
Summary of Exposure Assumptions for On-Site Trespasser  
Human Health and Ecological Risk Assessment

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Parameter			Value	Units	Comments/References	Intake Equation
Averaging Times						
Ingestion/Dermal						
<i>AT (c)</i>	Carcinogenic Effects	=	25,550	days	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year) (USEPA 1991)	
<i>AT (nc)</i>	Noncarcinogenic Effects	=	3,650	days	averaging time for a noncarcinogen (ED x 365 days/year) (USEPA 1989)	
Inhalation						
<i>AT (c)</i>	Carcinogenic Effects	=	613,200	hours	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year x 24 hours/day) (USEPA 2009)	
<i>AT (nc)</i>	Noncarcinogenic Effects	=	87,600	hours	averaging time for a noncarcinogen (ED in years x 365 days/year x 24 hours/day) (USEPA 2009)	
Intake Assumptions Associated with Direct Contact with Soil						
Incidental Ingestion of Soil (Non-Carcinogenic)						
<i>IR<sub>ing-s-a</sub></i>	Incidental Soil Ingestion Rate	=	100	mg-soil/day	default soil ingestion rate for an adult (WVDEP 2020)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	
<i>FI</i>	Fraction of Daily Total	=	1	unitless	assumes 100% of daily soil ingestion occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	30	days/year	professional judgement; assumes exposure to soil occurs one day per week during the warmer months (approximately 30 weeks between April through October)	
<i>ED<sub>a</sub></i>	Exposure Duration	=	10	years	exposure duration for trespasser aged 12-21 years (professional judgement)	
<i>BW<sub>a</sub></i>	Body Weight	=	80	kg	default assumption for an adult (WVDEP 2020)	$IF_{ing-s-a} = \frac{IR_{ing-s-a} * CF * FI * EF * ED_a}{BW_a * AT}$
<i>IF<sub>ing-s-a (nc)</sub></i>	Intake Factor (Noncarcinogenic)	=	1.03E-07	kg/kg-day	calculated	
<i>CS<sub>src</sub></i>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	$I_{ing-s-a} = CS_{src} * TF_s * AAF_{ing-s} * IF_{ing-s-a}$
<i>TF<sub>s</sub></i>	Transfer Factor	=	1	unitless	conservative assumption	
<i>I<sub>ing-s</sub></i>	Intake for Ingestion of Soil	=	chem-spec.	mg/kg-day	chemical - specific	
<i>RfD<sub>O</sub></i>	Oral Reference Dose	=	chem-spec.	mg/kg-day	chemical - specific	$HI_{ing-s} = \frac{(I_{ing-s-c} + I_{ing-s-a})}{RfD_O}$
<i>AAF<sub>ing-s</sub></i>	Absorption Adjustment Factor for Ingestion of Soil	=	chem-spec.	mg/mg	chemical - specific	
Incidental Ingestion of Soil - (Carcinogenic - Mutagenic)						
<i>IR<sub>C</sub></i>	Incidental Soil Ingestion Rate for a Child	=	200	mg-soil/day	default soil ingestion rate for a child (WVDEP 2020), child exposure parameter not utilized	
<i>IR<sub>A</sub></i>	Incidental Soil Ingestion Rate for an Adult	=	100	mg-soil/day	default soil ingestion rate for an adult (WVDEP 2020)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	
<i>FI</i>	Fraction of Daily Total	=	1	unitless	assumes 100% of daily soil ingestion occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	30	days/year	professional judgement; assumes exposure to soil occurs one day per week during the warmer months (approximately 30 weeks between April through October)	
<i>ED<sub>&lt;2</sub></i>	Exposure Duration (<2 years)	=	0	years	trespasser not likely to be aged <2 years (professional judgement)	
<i>ED<sub>2-6</sub></i>	Exposure Duration (2-6 years)	=	0	years	trespasser not likely to be aged 2-6 years (professional judgement)	
<i>ED<sub>&gt;6-16</sub></i>	Exposure Duration (>6-16 years)	=	5	years	based on a trespasser aged 12 to 16 years (5 years) (professional judgement)	$C = [(ADAF_{<2} * ED_{<2}) + (ADAF_{2-6} * ED_{2-6})] * \frac{IR_C}{BW_C}$
<i>ED<sub>&gt;16</sub></i>	Exposure Duration (>16 years)	=	5	years	based on a trespasser aged >16 to 21 years (5 years) (professional judgement)	
<i>ADAF<sub>&lt;2</sub></i>	Age-Dependent Adjustment Factor (<2 years)	=	10	unitless	based on age range of 0 to <2 years (USEPA 2022)	
<i>ADAF<sub>2-6</sub></i>	Age-Dependent Adjustment Factor (2-6 years)	=	3	unitless	based on age range of 2 to 6 years (USEPA 2022)	$A = [(ADAF_{>6-16} * ED_{>6-16}) + (ADAF_{>16} * ED_{>16})] * \frac{IR_A}{BW_A}$
<i>ADAF<sub>&gt;6-16</sub></i>	Age-Dependent Adjustment Factor (>6-16 years)	=	3	unitless	based on age range of >6 to 16 years (USEPA 2022)	
<i>ADAF<sub>&gt;16</sub></i>	Age-Dependent Adjustment Factor (>16 years)	=	1	unitless	based on age range of >16 to 26 years (USEPA 2022)	
<i>BW<sub>C</sub></i>	Body Weight of Child	=	15	kg	default assumption for a child (WVDEP 2020), child exposure parameter not utilized	$IF_{ing-s} = \frac{FI * EF * (C + A) * CF}{AT_C}$
<i>BW<sub>A</sub></i>	Body Weight of Adult	=	80	kg	default assumption for an adult (WVDEP 2020)	
<i>IF<sub>ing-s (c)</sub></i>	Intake Factor (Carcinogenic)	=	2.94E-08	kg/kg-day	calculated	
<i>I<sub>ing-s</sub></i>	Intake for Ingestion of Soil	=	chem-spec.	mg/kg-day	chemical - specific	$I_{ing-s (c)} = CS_{src} * TF_s * AAF_{ing-s} * IF_{ing-s}$
<i>CSF<sub>O</sub></i>	Oral Cancer Slope Factor	=	chem-spec.	(mg/kg-day) <sup>-1</sup>	chemical - specific	
<i>CS<sub>src</sub></i>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	
<i>TF<sub>s</sub></i>	Transfer Factor	=	1	unitless	conservative assumption	
<i>C</i>	Age-Adjusted Intake - Child	=	0.00E+00	mg-year/kg-day	calculated value, child intake not used based on anticipated age range of trespasser	$Risk = I_{ing-s (c)} * CSF_O$
<i>A</i>	Age-Adjusted Intake - Adult	=	2.50E+01	mg-year/kg-day	calculated value	
<i>AAF<sub>ing-s</sub></i>	Absorption Adjustment Factor for Ingestion of Soil	=	chem-spec.	mg/mg	chemical - specific	

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Table 7-4  
Summary of Exposure Assumptions for On-Site Trespasser  
Human Health and Ecological Risk Assessment

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Parameter			Value	Units	Comments/References	Intake Equation
Averaging Times						
Ingestion/Dermal						
<i>AT (c)</i>	Carcinogenic Effects	=	25,550	days	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year) (USEPA 1991)	
<i>AT (nc)</i>	Noncarcinogenic Effects	=	3,650	days	averaging time for a noncarcinogen (ED x 365 days/year) (USEPA 1989)	
Inhalation						
<i>AT (c)</i>	Carcinogenic Effects	=	613,200	hours	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year x 24 hours/day) (USEPA 2009)	
<i>AT (nc)</i>	Noncarcinogenic Effects	=	87,600	hours	averaging time for a noncarcinogen (ED in years x 365 days/year x 24 hours/day) (USEPA 2009)	
Dermal Contact with Soil (Non-Carcinogenic)						
<i>SA<sub>a</sub></i>	Exposed Surface Area	=	6,032	cm²/day	default assumption for an adult (WVDEP 2020)	
<i>AF<sub>a</sub></i>	Soil Adherence Factor	=	0.07	mg/cm²	default assumption for an adult (WVDEP 2020)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	$IF_{derm-s-a} = \frac{SA_a * AF_a * CF * FC * EF * ED}{BW_a * AT}$
<i>FC</i>	Fraction of day with contact to soil	=	1	unitless	assumes 100% of daily soil contact occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	30	days/year	professional judgement; assumes exposure to soil occurs one day per week during the warmer months (approximately 30 weeks between April through October)	
<i>ED<sub>a</sub></i>	Exposure Duration	=	10	years	exposure duration for trespasser aged 12-21 years (professional judgement)	
<i>BW<sub>a</sub></i>	Body Weight	=	80	kg	default assumption for an adult (WVDEP 2020)	$I_{derm-s-a} = CS_{src} * TF * AAF_{derm-s} * IF_{derm-s-a}$
<i>IF<sub>derm-s-a (nc)</sub></i>	Absorbed Dose (Noncarcinogenic)	=	4.34E-07	kg/kg-day	calculated	
<i>CS<sub>src</sub></i>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	
<i>TF<sub>s</sub></i>	Transfer Factor	=	1	unitless	conservative assumption	$HI_{derm-s} = \frac{(I_{derm-s-c} + I_{derm-s-a})}{RfD_D}$
<i>I<sub>derm-s</sub></i>	Intake for Dermal Contact with Soil	=	chem-spec.	mg/kg-day	chemical - specific	
<i>RfD<sub>D</sub></i>	Dermal Reference Dose	=	chem-spec.	mg/kg-day	chemical - specific	
<i>AAF<sub>derm-s</sub></i>	Absorption Adjustment Factor for Dermal Contact with Soil	=	chem-spec.	mg/mg	chemical - specific	
Dermal Contact with Soil - (Carcinogenic - Mutagenic)						
<i>SA<sub>C</sub></i>	Exposed Surface Area for Child	=	2,373	cm²/day	default assumption for a child (WVDEP 2020), child exposure parameter not utilized	
<i>SA<sub>A</sub></i>	Exposed Surface Area for Adult	=	6,032	cm²/day	default assumption for an adult (WVDEP 2020)	
<i>AF<sub>C</sub></i>	Soil Adherence Factor for Child	=	0.2	mg/cm²	default assumption for a child (WVDEP 2020), child exposure parameter not utilized	
<i>AF<sub>A</sub></i>	Soil Adherence Factor for Adult	=	0.07	mg/cm²	default assumption for an adult (WVDEP 2020)	
<i>CF</i>	Conversion Factor	=	1.0E-06	kg/mg	---	
<i>FC</i>	Fraction of day with contact to soil	=	1	unitless	assumes 100% of daily soil contact occurs from soil at the site	
<i>EF</i>	Exposure Frequency	=	30	days/year	professional judgement; assumes exposure to soil occurs one day per week during the warmer months (approximately 30 weeks between April through October)	
<i>ED<sub>&lt;2</sub></i>	Exposure Duration (<2 years)	=	0	years	trespasser not likely to be aged <2 years (professional judgement)	
<i>ED<sub>2-6</sub></i>	Exposure Duration (2-6 years)	=	0	years	trespasser not likely to be aged 2-6 years (professional judgement)	$C = [(ADAF_{<2} * ED_{<2}) + (ADAF_{2-6} * ED_{2-6})] * \frac{SA_C * AF_C}{BW_C}$
<i>ED<sub>&gt;6-16</sub></i>	Exposure Duration (>6-16 years)	=	5	years	based on a trespasser aged 12 to 16 years (5 years) (professional judgement)	
<i>ED<sub>&gt;16</sub></i>	Exposure Duration (>16 years)	=	5	years	based on a trespasser aged >16 to 21 years (5 years) (professional judgement)	
<i>ADAF<sub>&lt;2</sub></i>	Age-Dependent Adjustment Factor (<2 years)	=	10	unitless	based on age range of 0 to <2 years (USEPA 2022)	$A = [(ADAF_{>6-16} * ED_{>6-16}) + (ADAF_{>16} * ED_{>16})] * \frac{SA_A * AF_A}{BW_A}$
<i>ADAF<sub>2-6</sub></i>	Age-Dependent Adjustment Factor (2-6 years)	=	3	unitless	based on age range of 2 to 6 years (USEPA 2022)	
<i>ADAF<sub>&gt;6-16</sub></i>	Age-Dependent Adjustment Factor (>6-16 years)	=	3	unitless	based on age range of >6 to 16 years (USEPA 2022)	
<i>ADAF<sub>&gt;16</sub></i>	Age-Dependent Adjustment Factor (>16 years)	=	1	unitless	based on age range of >16 to 26 years (USEPA 2022)	
<i>BW<sub>C</sub></i>	Body Weight of Child	=	15	kg	default assumption for a child (WVDEP 2020), child exposure parameter not utilized	$IF_{derm-s} = \frac{FC * EF * (C + A) * CF}{AT_C}$
<i>BW<sub>A</sub></i>	Body Weight of Adult	=	80	kg	default assumption for an adult (WVDEP 2020)	
<i>IF<sub>derm-s (c)</sub></i>	Absorbed Dose (Carcinogenic)	=	1.24E-07	kg/kg-day	calculated	$I_{derm-s} = CS_{src} * TF_s * AAF_{derm-s} * IF_{derm-s}$
<i>C</i>	Age-Adjusted Intake - Child	=	0.00E+00	mg-year/kg-day	calculated value, child intake not used based on anticipated age range of trespasser	
<i>A</i>	Age-Adjusted Intake - Adult	=	1.06E+02	mg-year/kg-day	calculated value	
<i>CS<sub>src</sub></i>	Source Concentration in Soil	=	chem-spec.	mg/kg	measured value	$Risk = I_{derm-s (c)} * CSF_D$
<i>TF<sub>s</sub></i>	Transfer Factor	=	1	unitless	conservative assumption	
<i>AAF<sub>derm-s</sub></i>	Absorption Adjustment Factor for Dermal Contact with Soil	=	chem-spec.	mg/mg	chemical - specific	
<i>I<sub>derm-s</sub></i>	Intake for Dermal Contact with Soil	=	chem-spec.	mg/kg-day	chemical - specific	
<i>CSF<sub>D</sub></i>	Dermal Cancer Slope Factor	=	chem-spec.	(mg/kg-day) <sup>-1</sup>	chemical - specific	

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Table 7-4  
Summary of Exposure Assumptions for On-Site Trespasser  
Human Health and Ecological Risk Assessment

[Redacted]  
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Parameter			Value	Units	Comments/References	Intake Equation	
Averaging Times							
Ingestion/Dermal							
<i>AT (c)</i>	Carcinogenic Effects	=	25,550	days	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year) (USEPA 1991)		
<i>AT (nc)</i>	Noncarcinogenic Effects	=	3,650	days	averaging time for a noncarcinogen (ED x 365 days/year) (USEPA 1989)		
Inhalation							
<i>AT (c)</i>	Carcinogenic Effects	=	613,200	hours	averaging time for a carcinogen based on lifetime of 70 years (lifetime in years x 365 days/year x 24 hours/day) (USEPA 2009)		
<i>AT (nc)</i>	Noncarcinogenic Effects	=	87,600	hours	averaging time for a noncarcinogen (ED in years x 365 days/year x 24 hours/day) (USEPA 2009)		
Inhalation of Constituents Emitted from Soil (Particulates) - (Non-Carcinogenic)							
<i>ET</i>	Exposure Time	=	2	hours/day	default assumption for trespasser (VADEQ 2022)		
<i>EF</i>	Exposure Frequency	=	30	days/year	professional judgement; assumes exposure to soil occurs one day per week during the warmer months (approximately 30 weeks between April through October)		
<i>ED</i>	Exposure Duration	=	10	years	exposure duration for trespasser aged 12-21 years (professional judgement)		
<i>EC<sub>nc</sub></i>	Exposure Concentration (Noncarcinogenic)	=	chem-spec.	ug/m <sup>3</sup>	calculated	$CA_a = C_{src} * TF_a$	
<i>TF<sub>a-part</sub></i>	Transfer Factor (particulates)		7.35E-10	kg/m <sup>3</sup>	default value (1.36E+9 m <sup>3</sup> /kg) <sup>-1</sup> (USEPA 2022)		
<i>CA<sub>a</sub></i>	Concentration in Outdoor Air	=	chem-spec.	ug/m <sup>3</sup>	calculated value		
<i>CF</i>	Conversion Factor	=	1.0E+03	ug/mg	---	$EC = \frac{CA_a * ET * EF * ED}{AT}$ $HI = \frac{EC_{nc}}{RfC * CF}$	
<i>RfC</i>	Reference Concentration	=	chem-spec.	(mg/m <sup>3</sup> )	chemical - specific		
<i>C<sub>src</sub></i>	Source Concentration in Soil	=	chem-spec.	ug/kg	measured value		
Inhalation of Constituents Emitted from Soil (Particulates) - (Carcinogenic - Mutagenic)							
<i>ET</i>	Exposure Time	=	2	hours/day	default assumption for trespasser (VADEQ 2022)		
<i>EF</i>	Exposure Frequency	=	30	days/year	professional judgement; assumes exposure to soil occurs one day per week during the warmer months (approximately 30 weeks between April through October)		
<i>ED<sub>&lt;2</sub></i>	Exposure Duration (<2 years)	=	0	years	trespasser not likely to be aged <2 years (professional judgement)		
<i>ED<sub>2-6</sub></i>	Exposure Duration (2-6 years)	=	0	years	trespasser not likely to be aged 2 to 6 years (professional judgement)		
<i>ED<sub>6-16</sub></i>	Exposure Duration (6-16 years)	=	5	years	based on a trespasser aged 12 to 16 years (5 years) (professional judgement)		
<i>ED<sub>&gt;16</sub></i>	Exposure Duration (>16 years)	=	5	years	based on a trespasser aged >16 to 21 years (5 years) (professional judgement)		
<i>ADAF<sub>&lt;2</sub></i>	Age-Dependent Adjustment Factor (<2 years)	=	10	unitless	based on age range of 0 to <2 years (USEPA 2022)		
<i>ADAF<sub>2-6</sub></i>	Age-Dependent Adjustment Factor (2-6 years)	=	3	unitless	based on age range of 2 to 6 years (USEPA 2022)	$AED = (ADAF_{<2} * ED_{<2}) + (ADAF_{2-6} * ED_{2-6}) + (ADAF_{6-16} * ED_{6-16}) + (ADAF_{>16} * ED_{>16})$	
<i>ADAF<sub>6-16</sub></i>	Age-Dependent Adjustment Factor (6-16 years)	=	3	unitless	based on age range of >6 to 16 years (USEPA 2022)		
<i>ADAF<sub>&gt;16</sub></i>	Age-Dependent Adjustment Factor (>16 years)	=	1	unitless	based on age range of >16 to 26 years (USEPA 2022)		
<i>EC<sub>c</sub></i>	Exposure Concentration (Carcinogenic)	=	chem-spec.	ug/m <sup>3</sup>	calculated value	$CA_a = C_{src} * TF_a$	
<i>TF<sub>a-part</sub></i>	Transfer Factor (particulates)	=	7.35E-10	kg/m <sup>3</sup>	default value (1.36E+9 m <sup>3</sup> /kg) <sup>-1</sup> (USEPA 2022)		
<i>AED</i>	Combined Age-Dependent Adjustment Factor	=	2.00E+01	years	calculated value		
<i>IUR</i>	Inhalation Unit Risk	=	chem-spec.	(ug/m <sup>3</sup> ) <sup>-1</sup>	chemical - specific	$EC_C = \frac{CA_a * ET * EF * AED}{AT_C}$ $Risk_{inhal} = IUR * EC_C$	
<i>CA<sub>a</sub></i>	Concentration in Outdoor Air	=	chem-spec.	ug/m <sup>3</sup>	calculated value		
<i>C<sub>src</sub></i>	Source Concentration in Soil	=	chem-spec.	ug/kg	measured value		

[Redacted]

**Table 8-1**  
**Calculation of Risks and Hazard Indices for the On-Site Maintenance Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]  
 [REDACTED]

**Ingestion of Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Ingestion $AAF_{ing-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{ing-s} (c) = 8.81E-08$ kg/kg-day			$IF_{ing-s} (nc) = 2.47E-07$ kg/kg-day		
					Ingestion Intake (Cancer) $I_{ing-s} (c)$ (mg/kg-day)	Oral Cancer Slope Factor for Soil $CSF_o$ (mg/kg-day) <sup>-1</sup>	Risk from Ingestion of Soil $R_{ing-s}$ (unitless)	Ingestion Intake (Noncancer) $I_{ing-s} (nc)$ (mg/kg-day)	Oral Reference Dose for Soil $RfD_o$ (mg/kg-day)	Hazard Index from Ingestion of Soil $HI_{ing-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	160	1	1.6E+02	1	1.4E-05	5.0E-01	7.0E-06	3.9E-05	3.0E-03	1.3E-02

Total Risk for Pathway = **7E-06**

Total HI for Pathway = **1E-02**

[REDACTED]

**Table 8-1**  
**Calculation of Risks and Hazard Indices for the On-Site Maintenance Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]  
 [REDACTED]

**Dermal Contact with Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Dermal Contact $AAF_{derm-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{derm-s} (c) = 3.73E-07$ kg/kg-day			$IF_{derm-s} (nc) = 1.04E-06$ kg/kg-day		
					Dermal Absorbed Dose (Cancer) $I_{derm-s} (c)$ (mg/kg-day)	Dermal Cancer Slope Factor for Soil $CSF_D$ (mg/kg-day) <sup>-1</sup>	Risk from Dermal Contact with Soil $R_{derm-s}$ (unitless)	Dermal Absorbed Dose (Noncancer) $I_{derm-s} (nc)$ (mg/kg-day)	Dermal Reference Dose for Soil $RfD_D$ (mg/kg-day)	Hazard Index from Dermal Contact with Soil $HI_{derm-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	160	1	1.6E+02	0	0.0E+00	2.0E+01	---	0.0E+00	7.5E-05	---

Total Risk for Pathway = **0E+00**

Total HI for Pathway = **0E+00**

[REDACTED]

**Table 8-1**  
**Calculation of Risks and Hazard Indices for the On-Site Maintenance Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]  
 [REDACTED]

**Inhalation of Particulates Emitted to Outdoor Air from Soil**

Constituent of Concern	Source Concentration for Soil $C_{src}$ (ug/kg)	Transfer Factor $TF_{a-part}$ (kg/m <sup>3</sup> )	Outdoor Air Concentration $CA_a$ (ug/m <sup>3</sup> )	Calculation of Risk			Calculation of Hazard Index		
				Exposure Concentration (Cancer) $EC_c$ (ug/m <sup>3</sup> )	Inhalation Unit Risk Factor $IUR$ (ug/m <sup>3</sup> ) <sup>-1</sup>	Risk from Inhal. of Part. Em. from Soil $R_{inhal-p}$ (unitless)	Exposure Concentration (Noncancer) $EC_{nc}$ (ug/m <sup>3</sup> )	Reference Concentration $RfC_1$ (mg/m <sup>3</sup> )	Hazard Index from Inhal. of Part. Em. from Soil $HI_{inhal-p}$ (unitless)
<b>Metals</b>									
Hexavalent Chromium	160,000	7.35E-10	1.2E-04	1.4E-06	8.4E-02	1.2E-07	3.9E-06	1.0E-04	3.9E-05

Total Risk for Pathway = **1E-07**

Total HI for Pathway = **4E-05**

[REDACTED]

**Table 8-2**  
**Calculation of Risks and Hazard Indices for On-Site Construction Worker**  
 Human Health and Ecological Risk Assessment

**Ingestion of Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Ingestion $AAF_{ing-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{ing-s} (c) = 4.84E-09$ kg/kg-day			$IF_{ing-s} (nc) = 3.39E-07$ kg/kg-day		
					Ingestion Intake (Cancer) $I_{ing-s} (c)$ (mg/kg-day)	Oral Cancer Slope Factor for Soil $CSF_O$ (mg/kg-day) <sup>-1</sup>	Risk from Ingestion of Soil $R_{ing-s}$ (unitless)	Ingestion Intake (Noncancer) $I_{ing-s} (nc)$ (mg/kg-day)	Oral Reference Dose for Soil $RfD_O$ (mg/kg-day)	Hazard Index from Ingestion of Soil $HI_{ing-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	160	1	1.6E+02	1	7.7E-07	5.0E-01	3.9E-07	5.4E-05	5.0E-03	1.1E-02

Total Risk for Pathway = **4E-07**

Total HI for Pathway = **1E-02**

**Table 8-2**  
**Calculation of Risks and Hazard Indices for On-Site Construction Worker**  
 Human Health and Ecological Risk Assessment

**Dermal Contact with Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Dermal Contact $AAF_{derm-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{derm-s} (c) = 1.55E-08$ kg/kg-day			$IF_{derm-s} (nc) = 1.09E-06$ kg/kg-day		
					Dermal Absorbed Dose (Cancer) $I_{derm-s} (c)$ (mg/kg-day)	Dermal Cancer Slope Factor for Soil $CSF_D$ (mg/kg-day) <sup>-1</sup>	Risk from Dermal Contact with Soil $R_{derm-s}$ (unitless)	Dermal Absorbed Dose (Noncancer) $I_{derm-s} (nc)$ (mg/kg-day)	Dermal Reference Dose for Soil $RfD_D$ (mg/kg-day)	Hazard Index from Dermal Contact with Soil $HI_{derm-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	160	1	1.6E+02	0	0.0E+00	2.0E+01	---	0.0E+00	1.3E-04	---

Total Risk for Pathway = **0E+00**

Total HI for Pathway = **0E+00**

**Table 8-2**  
**Calculation of Risks and Hazard Indices for On-Site Construction Worker**  
 Human Health and Ecological Risk Assessment

**Inhalation of Particulates Emitted to Outdoor Air from Soil**

Constituent of Concern	Source Concentration for Soil $C_{src}$ (µg/kg)	Transfer Factor $TF_{a-part}$ (kg/m <sup>3</sup> )	Outdoor Air Concentration $CA_a$ (µg/m <sup>3</sup> )	Calculation of Risk			Calculation of Hazard Index		
				Exposure Concentration (Cancer) $EC_c$ (µg/m <sup>3</sup> )	Inhalation Unit Risk Factor $IUR$ (µg/m <sup>3</sup> ) <sup>-1</sup>	Risk from Inhal. of Part. Em. from Soil $R_{inhal-p}$ (unitless)	Exposure Concentration (Noncancer) $EC_{nc}$ (µg/m <sup>3</sup> )	Reference Concentration $RfC_I$ (mg/m <sup>3</sup> )	Hazard Index from Inhal. of Part. Em. from Soil $HI_{inhal-p}$ (unitless)
<b>Metals</b>									
Hexavalent Chromium	160,000	7.35E-10	1.2E-04	4.6E-08	8.4E-02	3.9E-09	3.2E-06	3.0E-04	1.1E-05

Total Risk for Pathway = **4E-09**

Total HI for Pathway = **1E-05**

**Table 8-3**  
**Calculation of Risks and Hazard Indices for the On-Site Utility Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]  
 [REDACTED]

**Ingestion of Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Ingestion $AAF_{ing-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{ing-s} (c) = 4.04E-09$ kg/kg-day			$IF_{ing-s} (nc) = 1.13E-08$ kg/kg-day		
					Ingestion Intake (Cancer) $I_{ing-s} (c)$ (mg/kg-day)	Oral Cancer Slope Factor for Soil $CSF_o$ (mg/kg-day) <sup>-1</sup>	Risk from Ingestion of Soil $R_{ing-s}$ (unitless)	Ingestion Intake (Noncancer) $I_{ing-s} (nc)$ (mg/kg-day)	Oral Reference Dose for Soil $RfD_o$ (mg/kg-day)	Hazard Index from Ingestion of Soil $HI_{ing-s}$ (unitless)
<b>Metals</b> Hexavalent Chromium	160	1	1.6E+02	1	6.5E-07	5.0E-01	3.2E-07	1.8E-06	3.0E-03	6.0E-04

Total Risk for Pathway = **3E-07**

Total HI for Pathway = **6E-04**

[REDACTED]  
 [REDACTED]



**Table 8-3**  
**Calculation of Risks and Hazard Indices for the On-Site Utility Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]  
 [REDACTED]

**Dermal Contact with Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Dermal Contact $AAF_{derm-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{derm-s} (c) = 1.29E-08 \text{ kg/kg-day}$			$IF_{derm-s} (nc) = 3.62E-08 \text{ kg/kg-day}$		
					Dermal Absorbed Dose (Cancer) $I_{derm-s} (c)$ (mg/kg-day)	Dermal Cancer Slope Factor for Soil $CSF_D$ (mg/kg-day) <sup>-1</sup>	Risk from Dermal Contact with Soil $R_{derm-s}$ (unitless)	Dermal Absorbed Dose (Noncancer) $I_{derm-s} (nc)$ (mg/kg-day)	Dermal Reference Dose for Soil $RfD_D$ (mg/kg-day)	Hazard Index from Dermal Contact with Soil $HI_{derm-s}$ (unitless)
<b>Metals</b> Hexavalent Chromium	160	1	1.6E+02	0	0.0E+00	2.0E+01	---	0.0E+00	7.5E-05	---

Total Risk for Pathway = **0E+00**

Total HI for Pathway = **0E+00**

[REDACTED]  
 [REDACTED]

**Table 8-3**  
**Calculation of Risks and Hazard Indices for the On-Site Utility Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]  
 [REDACTED]

**Inhalation of Particulates Emitted to Trench Air from Soil**

Constituent of Concern	Source Concentration for Soil $C_{src}$ (ug/kg)	Transfer Factor $TF_{a-part}$ (kg/m <sup>3</sup> )	Outdoor Air Concentration $CA_a$ (ug/m <sup>3</sup> )	Calculation of Risk			Calculation of Hazard Index		
				Exposure Concentration (Cancer) $EC_c$ (ug/m <sup>3</sup> )	Inhalation Unit Risk Factor $IUR$ (ug/m <sup>3</sup> ) <sup>-1</sup>	Risk from Inhal. of Part. Em. from Soil $R_{inhal-p}$ (unitless)	Exposure Concentration (Noncancer) $EC_{nc}$ (ug/m <sup>3</sup> )	Reference Concentration $RfC_I$ (mg/m <sup>3</sup> )	Hazard Index from Inhal. of Part. Em. from Soil $HI_{inhal-p}$ (unitless)
<b>Metals</b>									
Hexavalent Chromium	160,000	7.35E-10	1.2E-04	3.8E-08	8.4E-02	3.2E-09	1.1E-07	1.0E-04	1.1E-06

Total Risk for Pathway = **3E-09**

Total HI for Pathway = **1E-06**

[REDACTED]  
 [REDACTED]

**Table 8-4**  
**Calculation of Risks and Hazard Indices for On-Site Trespasser**  
**Human Health and Ecological Risk Assessment**

**Ingestion of Soil**

Constituent of Concern	Mutagenic Constituent?*	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Ingestion $AAF_{ing-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
						$IF_{ing-s}(c) = 2.94E-08$ kg/kg-day			$IF_{ing-s}(nc) = 1.03E-07$ kg/kg-day		
						Ingestion Intake (Cancer) $I_{ing-s}(c)$ (mg/kg-day)	Oral Cancer Slope Factor for Soil $CSF_o$ (mg/kg-day) <sup>-1</sup>	Risk from Ingestion of Soil (Mutagenic) $R_{ing-s}$ (unitless)	Ingestion Intake (Noncancer) $I_{ing-s-total}(nc)$ (mg/kg-day)	Oral Reference Dose for Soil $RfD_o$ (mg/kg-day)	Hazard Index from Ingestion of Soil $HI_{ing-s}$ (unitless)
<b>Metals</b> Hexavalent Chromium	Yes	160	1	160	1	4.7E-06	5.0E-01	2.3E-06	1.6E-05	3.0E-03	5.5E-03

\* A "Yes" indicates that the constituent has a mutagenic mode of action and, therefore, uses the appropriate mutagenic equations to calculate risk.

Total Risk for Pathway = **2E-06**

Total HI for Pathway = **5E-03**

**Table 8-4**  
**Calculation of Risks and Hazard Indices for On-Site Trespasser**  
**Human Health and Ecological Risk Assessment**

**Dermal Contact with Soil**

Constituent of Concern	Mutagenic Constituent?*	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Dermal Contact $AAF_{derm-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
						$IF_{derm-s} (c) =$ 1.24E-07 kg/kg-day			$IF_{derm-s} (nc) =$ 4.34E-07 kg/kg-day		
						Dermal Absorbed Dose (Cancer) $I_{derm-s-a} (c)$ (mg/kg-day)	Dermal Cancer Slope Factor for Soil $CSF_D$ (mg/kg-day) <sup>-1</sup>	Risk from Dermal Contact with Soil (Mutagenic) $R_{derm-s}$ (unitless)	Dermal Absorbed Dose (Noncancer) $I_{derm-s-a} (nc)$ (mg/kg-day)	Dermal Reference Dose for Soil $RfD_D$ (mg/kg-day)	Hazard Index from Dermal Contact with Soil $HI_{derm-s}$ (unitless)
<b>Metals</b> Hexavalent Chromium	Yes	160	1	160	0	0.0E+00	2.0E+01	---	0.0E+00	7.5E-5	---

\* A "Yes" indicates that the constituent has a mutagenic mode of action and, therefore, uses the appropriate mutagenic equations to calculate risk.

Total Risk for Pathway = **0E+00**

Total HI for Pathway = **0E+00**

**Table 8-4**  
**Calculation of Risks and Hazard Indices for On-Site Trespasser**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

**Inhalation of Particulates to Outdoor Air from Soil**

Constituent of Concern	Mutagenic Constituent?*	Source Concentration for Soil $C_{src}$ (ug/kg)	Transfer Factor $TF_{a-part}$ (kg/m <sup>3</sup> )	Outdoor Air Concentration $CA_a$ (ug/m <sup>3</sup> )	Calculation of Risk			Calculation of Hazard Index		
					Exposure Concentration (Cancer) $EC_c$ (ug/m <sup>3</sup> )	Inhalation Unit Risk Factor $IUR$ (ug/m <sup>3</sup> ) <sup>-1</sup>	Risk from Inhal. of Chem. from Soil (Mutagenic) $R_{inhal-p}$ (unitless)	Exposure Concentration (Noncancer) $EC_{nc}$ (ug/m <sup>3</sup> )	Reference Concentration $RfC_1$ (mg/m <sup>3</sup> )	Hazard Index from Inhal. of Chem. from Soil $HI_{inhal-p}$ (unitless)
<b>Metals</b> Hexavalent Chromium	Yes	160,000	7.35E-10	1.2E-04	2.3E-07	8.4E-02	1.9E-08	8.1E-07	1.0E-04	8.1E-06

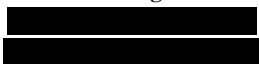
\* A "Yes" indicates that the constituent has a mutagenic mode of action and, therefore, uses the appropriate mutagenic equations to calculate risk.

Total Risk for Pathway = **2E-08**

Total HI for Pathway = **8E-06**

[REDACTED]  
[REDACTED]

**Table 8-5**  
**Summary of Risks and Hazard Indices for All Receptors**  
**Human Health and Ecological Risk Assessment**



**Risks**

Receptor	Direct Contact			Total Risk
	Soil			
	Incidental Ingestion	Dermal Contact	Inhalation of Particulates	
On-Site				
On-Site Maintenance Worker	7E-06	NC <sup>[1]</sup>	1E-07	7E-06
On-Site Construction Worker	4E-07	NC <sup>[1]</sup>	4E-09	4E-07
On-Site Utility Worker	3E-07	NC <sup>[1]</sup>	3E-09	3E-07
On-Site Trespasser	2E-06	NC <sup>[1]</sup>	2E-08	2E-06

**Hazard Indices**

Receptor	Direct Contact			Total Hazard Index
	Soil			
	Incidental Ingestion	Dermal Contact	Inhalation of Particulates	
On-Site				
On-Site Maintenance Worker	1E-02	NC <sup>[1]</sup>	4E-05	1E-02
On-Site Construction Worker	1E-02	NC <sup>[1]</sup>	1E-05	1E-02
On-Site Utility Worker	6E-04	NC <sup>[1]</sup>	1E-06	6E-04
On-Site Trespasser	5E-03	NC <sup>[1]</sup>	8E-06	5E-03

Notes:

NC - not calculated

**Bolded** values indicate an exceedance of the risk benchmark of  $1 \times 10^{-5}$  for commercial/industrial receptors or the hazard index benchmark of 1.0.

For the on-site trespasser, the risk benchmark of  $1 \times 10^{-6}$  for residential receptors was utilized.

"---" - Exposure pathway was not retained for this receptor.

[1] Risks and hazards were not calculated for dermal contact because there is no dermal absorption value available for the inorganic direct contact COC retained for quantitative evaluation (i.e., hexavalent chromium).



**Table 9-1**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for the On-Site Maintenance Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]  
 [REDACTED]

**Ingestion of Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Ingestion $AAF_{ing-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{ing-s} (c) = 8.81E-08$ kg/kg-day			$IF_{ing-s} (nc) = 2.47E-07$ kg/kg-day		
					Ingestion Intake (Cancer) $I_{ing-s} (c)$ (mg/kg-day)	Oral Cancer Slope Factor for Soil $CSF_o$ (mg/kg-day) <sup>-1</sup>	Risk from Ingestion of Soil $R_{ing-s}$ (unitless)	Ingestion Intake (Noncancer) $I_{ing-s} (nc)$ (mg/kg-day)	Oral Reference Dose for Soil $RfD_o$ (mg/kg-day)	Hazard Index from Ingestion of Soil $HI_{ing-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	372	1	3.7E+02	1	3.3E-05	5.0E-01	1.6E-05	9.2E-05	3.0E-03	3.1E-02

Total Risk for Pathway = **2E-05**

Total HI for Pathway = **3E-02**

[REDACTED]

**Table 9-1**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for the On-Site Maintenance Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]  
 [REDACTED]

**Dermal Contact with Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Dermal Contact $AAF_{derm-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{derm-s} (c) = 3.73E-07$ kg/kg-day			$IF_{derm-s} (nc) = 1.04E-06$ kg/kg-day		
					Dermal Absorbed Dose (Cancer) $I_{derm-s} (c)$ (mg/kg-day)	Dermal Cancer Slope Factor for Soil $CSF_D$ (mg/kg-day) <sup>-1</sup>	Risk from Dermal Contact with Soil $R_{derm-s}$ (unitless)	Dermal Absorbed Dose (Noncancer) $I_{derm-s} (nc)$ (mg/kg-day)	Dermal Reference Dose for Soil $RfD_D$ (mg/kg-day)	Hazard Index from Dermal Contact with Soil $HI_{derm-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	372	1	3.7E+02	0	0.0E+00	2.0E+01	---	0.0E+00	7.5E-05	---

Total Risk for Pathway = **0E+00**

Total HI for Pathway = **0E+00**

[REDACTED]



**Table 9-1**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for the On-Site Maintenance Worker**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

**Inhalation of Particulates Emitted to Outdoor Air from Soil**

Constituent of Concern	Source Concentration for Soil $C_{src}$ (ug/kg)	Transfer Factor $TF_{a-part}$ (kg/m <sup>3</sup> )	Outdoor Air Concentration $CA_a$ (ug/m <sup>3</sup> )	Calculation of Risk			Calculation of Hazard Index		
				Exposure Concentration (Cancer) $EC_c$ (ug/m <sup>3</sup> )	Inhalation Unit Risk Factor $IUR$ (ug/m <sup>3</sup> ) <sup>-1</sup>	Risk from Inhal. of Part. Em. from Soil $R_{inhal-p}$ (unitless)	Exposure Concentration (Noncancer) $EC_{nc}$ (ug/m <sup>3</sup> )	Reference Concentration $RfC_I$ (mg/m <sup>3</sup> )	Hazard Index from Inhal. of Part. Em. from Soil $HI_{inhal-p}$ (unitless)
<b>Metals</b>									
Hexavalent Chromium	372,000	7.35E-10	2.7E-04	3.2E-06	8.4E-02	2.7E-07	9.0E-06	1.0E-04	9.0E-05

Total Risk for Pathway = **3E-07**

Total HI for Pathway = **9E-05**

[REDACTED]

**Table 9-2**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for On-Site Construction Worker**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

**Ingestion of Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Ingestion $AAF_{ing-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{ing-s} (c) = 4.84E-09$ kg/kg-day			$IF_{ing-s} (nc) = 3.39E-07$ kg/kg-day		
					Ingestion Intake (Cancer) $I_{ing-s} (c)$ (mg/kg-day)	Oral Cancer Slope Factor for Soil $CSF_O$ (mg/kg-day) <sup>-1</sup>	Risk from Ingestion of Soil $R_{ing-s}$ (unitless)	Ingestion Intake (Noncancer) $I_{ing-s} (nc)$ (mg/kg-day)	Oral Reference Dose for Soil $RfD_O$ (mg/kg-day)	Hazard Index from Ingestion of Soil $HI_{ing-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	716	1	7.2E+02	1	3.5E-06	5.0E-01	1.7E-06	2.4E-04	5.0E-03	4.9E-02

Total Risk for Pathway = **2E-06**

Total HI for Pathway = **5E-02**

[REDACTED]

**Table 9-2**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for On-Site Construction Worker**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

**Dermal Contact with Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Dermal Contact $AAF_{derm-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{derm-s} (c) = 1.55E-08$ kg/kg-day			$IF_{derm-s} (nc) = 1.09E-06$ kg/kg-day		
					Dermal Absorbed Dose (Cancer) $I_{derm-s} (c)$ (mg/kg-day)	Dermal Cancer Slope Factor for Soil $CSF_D$ (mg/kg-day) <sup>-1</sup>	Risk from Dermal Contact with Soil $R_{derm-s}$ (unitless)	Dermal Absorbed Dose (Noncancer) $I_{derm-s} (nc)$ (mg/kg-day)	Dermal Reference Dose for Soil $RfD_D$ (mg/kg-day)	Hazard Index from Dermal Contact with Soil $HI_{derm-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	716	1	7.2E+02	0	0.0E+00	2.0E+01	---	0.0E+00	1.3E-04	---

Total Risk for Pathway = **0E+00**

Total HI for Pathway = **0E+00**

[REDACTED]

**Table 9-2**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for On-Site Construction Worker**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

**Inhalation of Particulates Emitted to Outdoor Air from Soil**

Constituent of Concern	Source Concentration for Soil $C_{src}$ ( $\mu\text{g/kg}$ )	Transfer Factor $TF_{a-part}$ ( $\text{kg/m}^3$ )	Outdoor Air Concentration $CA_a$ ( $\mu\text{g/m}^3$ )	Calculation of Risk			Calculation of Hazard Index		
				Exposure Concentration (Cancer) $EC_c$ ( $\mu\text{g/m}^3$ )	Inhalation Unit Risk Factor $IUR$ ( $\mu\text{g/m}^3$ ) <sup>-1</sup>	Risk from Inhal. of Part. Em. from Soil $R_{inhal-p}$ (unitless)	Exposure Concentration (Noncancer) $EC_{nc}$ ( $\mu\text{g/m}^3$ )	Reference Concentration $RfC_1$ ( $\text{mg/m}^3$ )	Hazard Index from Inhal. of Part. Em. from Soil $HI_{inhal-p}$ (unitless)
<b>Metals</b>									
Hexavalent Chromium	716,000	7.35E-10	5.3E-04	2.1E-07	8.4E-02	1.7E-08	1.4E-05	3.0E-04	4.8E-05

Total Risk for Pathway = **2E-08**

Total HI for Pathway = **5E-05**

[REDACTED]

**Table 9-3**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for the On-Site Utility Worker**  
 Human Health and Ecological Risk Assessment

[REDACTED]

**Ingestion of Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Ingestion $AAF_{ing-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{ing-s} (c) = 4.04E-09$ kg/kg-day			$IF_{ing-s} (nc) = 1.13E-08$ kg/kg-day		
					Ingestion Intake (Cancer) $I_{ing-s} (c)$ (mg/kg-day)	Oral Cancer Slope Factor for Soil $CSF_o$ (mg/kg-day) <sup>-1</sup>	Risk from Ingestion of Soil $R_{ing-s}$ (unitless)	Ingestion Intake (Noncancer) $I_{ing-s} (nc)$ (mg/kg-day)	Oral Reference Dose for Soil $RfD_o$ (mg/kg-day)	Hazard Index from Ingestion of Soil $HI_{ing-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	716	1	7.2E+02	1	2.9E-06	5.0E-01	1.4E-06	8.1E-06	3.0E-03	2.7E-03

Total Risk for Pathway = **1E-06**

Total HI for Pathway = **3E-03**

[REDACTED]

**Table 9-3**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for the On-Site Utility Worker**  
**Human Health and Ecological Risk Assessment**

[REDACTED]

**Dermal Contact with Soil**

Constituent of Concern	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Dermal Contact $AAF_{derm-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
					$IF_{derm-s} (c) = 1.29E-08$ kg/kg-day			$IF_{derm-s} (nc) = 3.62E-08$ kg/kg-day		
					Dermal Absorbed Dose (Cancer) $I_{derm-s} (c)$ (mg/kg-day)	Dermal Cancer Slope Factor for Soil $CSF_D$ (mg/kg-day) <sup>-1</sup>	Risk from Dermal Contact with Soil $R_{derm-s}$ (unitless)	Dermal Absorbed Dose (Noncancer) $I_{derm-s} (nc)$ (mg/kg-day)	Dermal Reference Dose for Soil $RfD_D$ (mg/kg-day)	Hazard Index from Dermal Contact with Soil $HI_{derm-s}$ (unitless)
<b>Metals</b>										
Hexavalent Chromium	716	1	7.2E+02	0	0.0E+00	2.0E+01	---	0.0E+00	7.5E-05	---

Total Risk for Pathway = **0E+00**

Total HI for Pathway = **0E+00**

[REDACTED]

**Table 9-3**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for the On-Site Utility Worker**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

**Inhalation of Particulates Emitted to Trench Air from Soil**

Constituent of Concern	Source Concentration for Soil $C_{src}$ (ug/kg)	Transfer Factor $TF_{a-part}$ (kg/m <sup>3</sup> )	Outdoor Air Concentration $CA_a$ (ug/m <sup>3</sup> )	Calculation of Risk			Calculation of Hazard Index		
				Exposure Concentration (Cancer) $EC_c$ (ug/m <sup>3</sup> )	Inhalation Unit Risk Factor $IUR$ (ug/m <sup>3</sup> ) <sup>-1</sup>	Risk from Inhal. of Part. Em. from Soil $R_{inhal-p}$ (unitless)	Exposure Concentration (Noncancer) $EC_{nc}$ (ug/m <sup>3</sup> )	Reference Concentration $RfC_1$ (mg/m <sup>3</sup> )	Hazard Index from Inhal. of Part. Em. from Soil $HI_{inhal-p}$ (unitless)
<b>Metals</b>									
Hexavalent Chromium	716,000	7.35E-10	5.3E-04	1.7E-07	8.4E-02	1.4E-08	4.8E-07	1.0E-04	4.8E-06

Total Risk for Pathway = **1E-08**

Total HI for Pathway = **5E-06**

[REDACTED]

**Table 9-4**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for On-Site Trespasser**  
**Human Health and Ecological Risk Assessment**

**Ingestion of Soil**

Constituent of Concern	Mutagenic Constituent?*	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Ingestion $AAF_{ing-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
						$IF_{ing-s}(c) = 2.94E-08$ kg/kg-day			$IF_{ing-s}(nc) = 1.03E-07$ kg/kg-day		
						Ingestion Intake (Cancer) $I_{ing-s}(c)$ (mg/kg-day)	Oral Cancer Slope Factor for Soil $CSF_o$ (mg/kg-day) <sup>-1</sup>	Risk from Ingestion of Soil (Mutagenic) $R_{ing-s}$ (unitless)	Ingestion Intake (Noncancer) $I_{ing-s-total}(nc)$ (mg/kg-day)	Oral Reference Dose for Soil $RfD_o$ (mg/kg-day)	Hazard Index from Ingestion of Soil $HI_{ing-s}$ (unitless)
<b>Metals</b> Hexavalent Chromium	Yes	372	1	372	1	1.1E-05	5.0E-01	5.5E-06	3.8E-05	3.0E-03	1.3E-02

\* A "Yes" indicates that the constituent has a mutagenic mode of action and, therefore, uses the appropriate mutagenic equations to calculate risk.

Total Risk for Pathway = **5E-06**

Total HI for Pathway = **1E-02**



**Table 9-4**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for On-Site Trespasser**  
**Human Health and Ecological Risk Assessment**

**Dermal Contact with Soil**

Constituent of Concern	Mutagenic Constituent?*	Source Concentration for Soil $CS_{src}$ (mg/kg)	Transfer Factor $TF_s$ (unitless)	Exposure Point Concentration for Soil $EPC_s$ (mg/kg)	Absorption Adjustment Factor for Dermal Contact $AAF_{derm-s}$ (mg/mg)	Calculation of Risk			Calculation of Hazard Index		
						$IF_{derm-s} (c) =$ 1.24E-07 kg/kg-day			$IF_{derm-s} (nc) =$ 4.34E-07 kg/kg-day		
						Dermal Absorbed Dose (Cancer) $I_{derm-s-a} (c)$ (mg/kg-day)	Dermal Cancer Slope Factor for Soil $CSF_D$ (mg/kg-day) <sup>-1</sup>	Risk from Dermal Contact with Soil (Mutagenic) $R_{derm-s}$ (unitless)	Dermal Absorbed Dose (Noncancer) $I_{derm-s-a} (nc)$ (mg/kg-day)	Dermal Reference Dose for Soil $RfD_D$ (mg/kg-day)	Hazard Index from Dermal Contact with Soil $HI_{derm-s}$ (unitless)
<b>Metals</b> Hexavalent Chromium	Yes	372	1	372	0	0.0E+00	2.0E+01	---	0.0E+00	7.5E-5	---

\* A "Yes" indicates that the constituent has a mutagenic mode of action and, therefore, uses the appropriate mutagenic equations to calculate risk.

Total Risk for Pathway = **0E+00**

Total HI for Pathway = **0E+00**

**Table 9-4**  
**Uncertainty Analysis - Calculation of Risks and Hazard Indices for On-Site Trespasser**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

**Inhalation of Particulates to Outdoor Air from Soil**

Constituent of Concern	Mutagenic Constituent?*	Source Concentration for Soil $C_{src}$ (ug/kg)	Transfer Factor $TF_{a-part}$ (kg/m <sup>3</sup> )	Outdoor Air Concentration $CA_a$ (ug/m <sup>3</sup> )	Calculation of Risk			Calculation of Hazard Index		
					Exposure Concentration (Cancer) $EC_c$ (ug/m <sup>3</sup> )	Inhalation Unit Risk Factor $IUR$ (ug/m <sup>3</sup> ) <sup>-1</sup>	Risk from Inhal. of Chem. from Soil (Mutagenic) $R_{inhal-p}$ (unitless)	Exposure Concentration (Noncancer) $EC_{nc}$ (ug/m <sup>3</sup> )	Reference Concentration $RfC_1$ (mg/m <sup>3</sup> )	Hazard Index from Inhal. of Chem. from Soil $HI_{inhal-p}$ (unitless)
<b>Metals</b> Hexavalent Chromium	Yes	372,000	7.35E-10	2.7E-04	5.4E-07	8.4E-02	4.5E-08	1.9E-06	1.0E-04	1.9E-05

\* A "Yes" indicates that the constituent has a mutagenic mode of action and, therefore, uses the appropriate mutagenic equations to calculate risk.

Total Risk for Pathway = **4E-08**

Total HI for Pathway = **2E-05**

[REDACTED]  
[REDACTED]

**Table 9-5**  
**Summary of Risks and Hazard Indices for All Receptors Using Historic Soil Data**  
**Human Health and Ecological Risk Assessment**

[REDACTED]  
[REDACTED]

**Risks**

Receptor	Direct Contact			Total Risk
	Soil			
	Incidental Ingestion	Dermal Contact	Inhalation of Particulates	
On-Site				
On-Site Maintenance Worker	2E-05	NC <sup>[1]</sup>	3E-07	2E-05
On-Site Construction Worker	2E-06	NC <sup>[1]</sup>	2E-08	2E-06
On-Site Utility Worker	1E-06	NC <sup>[1]</sup>	1E-08	1E-06
On-Site Trespasser	5E-06	NC <sup>[1]</sup>	4E-08	6E-06

**Hazard Indices**

Receptor	Direct Contact			Total Hazard Index
	Soil			
	Incidental Ingestion	Dermal Contact	Inhalation of Particulates	
On-Site				
On-Site Maintenance Worker	3E-02	NC <sup>[1]</sup>	9E-05	3E-02
On-Site Construction Worker	5E-02	NC <sup>[1]</sup>	5E-05	5E-02
On-Site Utility Worker	3E-03	NC <sup>[1]</sup>	5E-06	3E-03
On-Site Trespasser	1E-02	NC <sup>[1]</sup>	2E-05	1E-02

Notes:

NC - not calculated

**Bolded** values indicate an exceedance of the risk benchmark of  $1 \times 10^{-5}$  for commercial/industrial receptors or the hazard index benchmark of 1.0.

For the on-site trespasser, the risk benchmark of  $1 \times 10^{-6}$  for residential receptors was utilized.

"---" - Exposure pathway was not retained for this receptor.

[1] Risks and hazards were not calculated for dermal contact because there is no dermal absorption value available for the inorganic direct contact COC retained for quantitative evaluation (i.e., hexavalent chromium).

[REDACTED]  
[REDACTED]

## Figures



Google Earth

© 2018 Google

				DR.: DRS	Nov. 2019
				CK.: CLC	
				APP'D.: RSW	
				SCALE: NA	
				PROJ. NO.: 768569-001	
REV	BY	DATE			

Site  
Assessment  
Work Plan

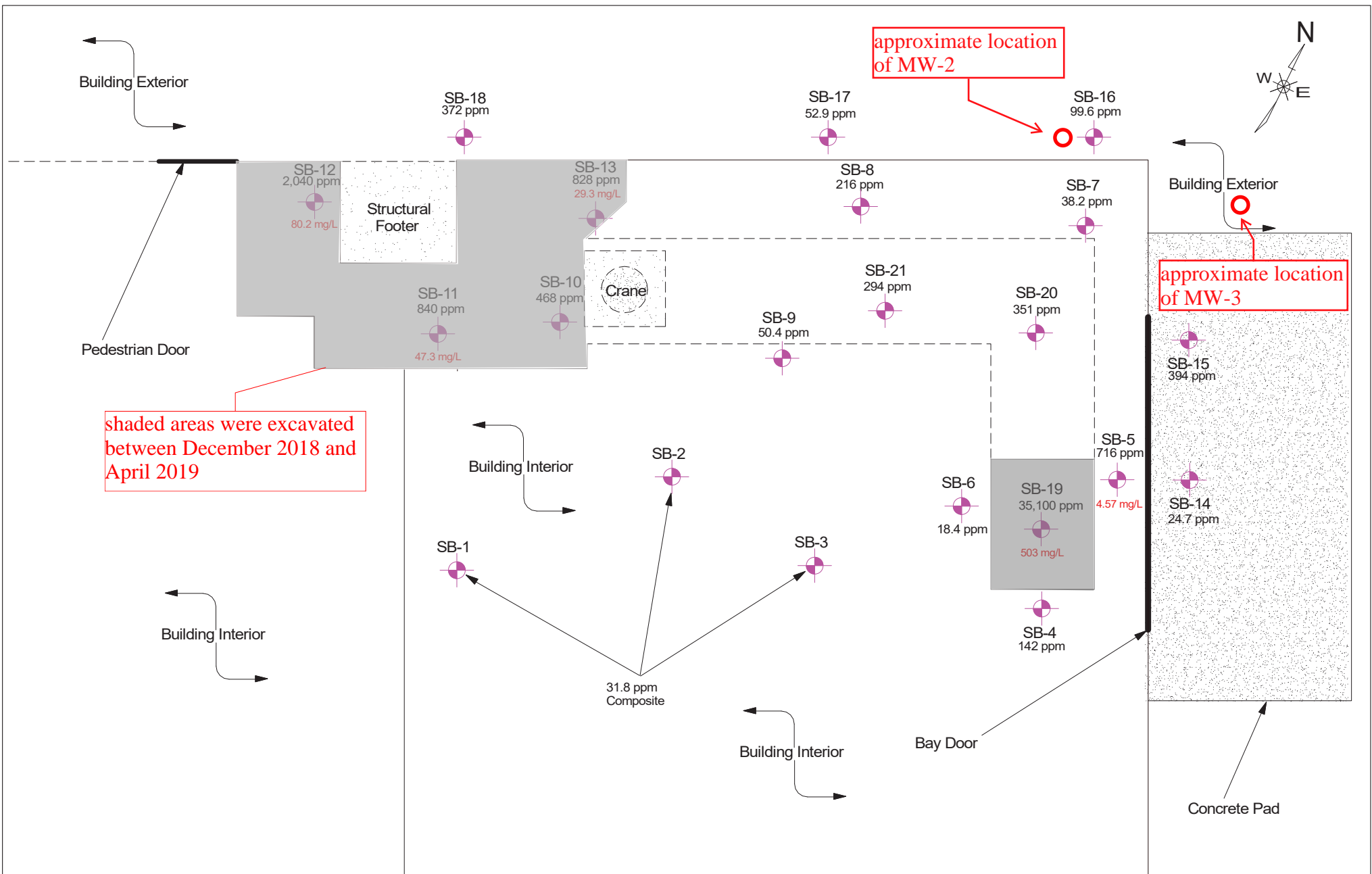
VRP #

DRAWING TITLE

Site Boundary Map

DRAWING NUMBER

FIGURE No. 1



LEGEND	
	Soil Sample Location
840 ppm	Analysis via Metals 6010B
503 mg/L	Analysis via TCLP Chromium

				DR.: DRS	June 2021
				CK.:	
				APP'D.:	
				SCALE: 1" = 5 Feet	
				JOB NO.: 768569-001	
REV	BY	DATE			

Site Assessment Report
VRP

--

Pre-VRP S	centration
DRAWING NUMBER	REV
FIGURE No. 2	0



CURVE TABLE:

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	486.61'	300.97'	296.20'		

LINE TABLE:

LINE	BEARING	DISTANCE
L1		
L2		
L3		
L4		

BENCHMARKS:

BM#1: NAIL IN UTILITY POLE ELEV.= 2461.39

BM#2: CHISELED SQUARE IN CONC. SURFACE ELEV.= 2465.36

REFERENCE MERIDIAN #1

BOLT IN IRON PIPE FOUND

MW#4

MW#3

MW#2

15" UTILITY EASEMENT

IRON PIPE CALLED FOR

BM#2

FINISHED FLOOR ELEV.= 2461.07

WATER BOX PUMP HOUSE

BM#1 BOLT IN IRON PIPE FOUND

REFERENCE:  
1. PLAT FILM RECORD #8545

LEGEND:

- UTILITY POLE
- ⊕ MONITORING WELL
- WATER WELL
- ⊙ PROPERTY CORNER
- PROPERTY LINE
- ⊕ MANHOLE
- DP — OVER HEAD POWER
- W — WATER LINE
- G — GAS LINE
- ⊕ SERVICE POLE
- ⊕ GAS METER
- S — SANITARY SEWER LINE
- X — MEANDERING FENCE LINE
- ◆ CHISELED SQUARE IN CONC.

MONITORING WELL TABLE:  
ELEVATION TAKEN ON TOP OF PVC CASING:

MW #00	ELEV.
MW #1	2459.84
MW #2	2460.59
MW #3	2460.32
MW #4	2459.60
MW #5	2460.60



PARCEL 28.5

AREA = 4.00 ACRES ±

NOTES:

1. NO TITLE REPORT HAS BEEN FURNISHED
2. THIS MAP IS BASED UPON A CURRENT FIELD SURVEY
3. IT IS NOT THE INTENT OF THIS SURVEY TO SHOW EASEMENTS, RIGHT OF WAYS OR UTILITIES UNLESS OTHERWISE SHOWN
4. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

0' 100' 200' 300'



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PHONE 304-325-3481

MAP SHOWING  
MONITORING WELL LOCATIONS

JOB NO. 20056

DATE: 3-30-20

REVISIONS: 4-6-20, 9-7-21

SCALE: 1"= 100'

DRAWN BY: JL

CK'D BY:

FIGURE 3

DR.: DRS June 2021  
CK.:  
APP'D.:  
SCALE: NA  
PROJ. NO.: 768569-001

Site  
Assessment  
Report  
VRP#

DRAWING TITLE

DRAWING NUMBER  
Figure 4

REV

CURVE TABLE:

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
1	486.61'	300.97'	296.20'		

LINE TABLE:

LINE	BEARING	DISTANCE
------	---------	----------

PARCEL 28.6  
FERGUSON ENT. INC.  
DEED BOOK 819  
PAGE 552

BENCHMARKS:

BM#1: NAIL IN UTILITY  
POLE ELEV.= 2461.39

BM#2: CHISELED  
SQUARE IN CONC.  
SURFACE  
ELEV.= 2465.36

REFERENCE  
MERIDIAN #1

BOLT IN  
IRON PIPE  
FOUND

MW#4  
/SB-4

SB-3/  
MW#3

IRON PIPE  
CALLED FOR

BM#2

FINISHED FLOOR  
ELEV.= 2461.07

MW#5  
/SB-5

HUT

BM#1

WATER BOX  
PUMP HOUSE

BOLT IN  
IRON PIPE  
FOUND

DEAD END

MW#1  
/SB-1

SB-6

SB-7

AREA =  
4.00 ACRES ±

NOTES:

1. NO TITLE REPORT  
HAS BEEN FURNISHED

2. THIS MAP IS BASED  
UPON A CURRENT FIELD  
SURVEY

3. IT IS NOT THE INTENT  
OF THIS SURVEY TO  
SHOW EASEMENTS, RIGHT  
OF WAYS OR UTILITIES  
UNLESS OTHERWISE  
SHOWN

approximate  
location of SB-22  
(background) (0-7')



MONITORING WELL TABLE:  
ELEVATION TAKEN ON  
TOP OF PVC CASING:

MW #	ELEV.
MW #00	
MW #1	2459.84
MW #2	2460.59
MW #3	2460.32
MW #4	2459.60
MW #5	2460.60

REFERENCE:

1. PLAT FILM RECORD #8545

LEGEND: ◆ SOIL BORING LOCATION

- UTILITY POLE
- ◆ MONITORING WELL
- ◆ CHISELED SQUARE IN CONC.
- WATER WELL
- x- MEANDERING FENCE LINE
- PROPERTY CORNER
- PROPERTY LINE

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MAP SHOWING  
MONITORING WELL LOCATIONS

JOB NO. 20056 DATE: 3-30-20 REVISIONS: 4-6-20  
SCALE: 1"= 100' DRAWN BY: JL CK'D BY:





Google Earth

DR.: DRS	Sept. 2022
CK.:	
APPD.:	
SCALE: As shown	
JOB NO.: 768569-001	

*Risk  
Assessment*

VRP #

DRAWING TITLE

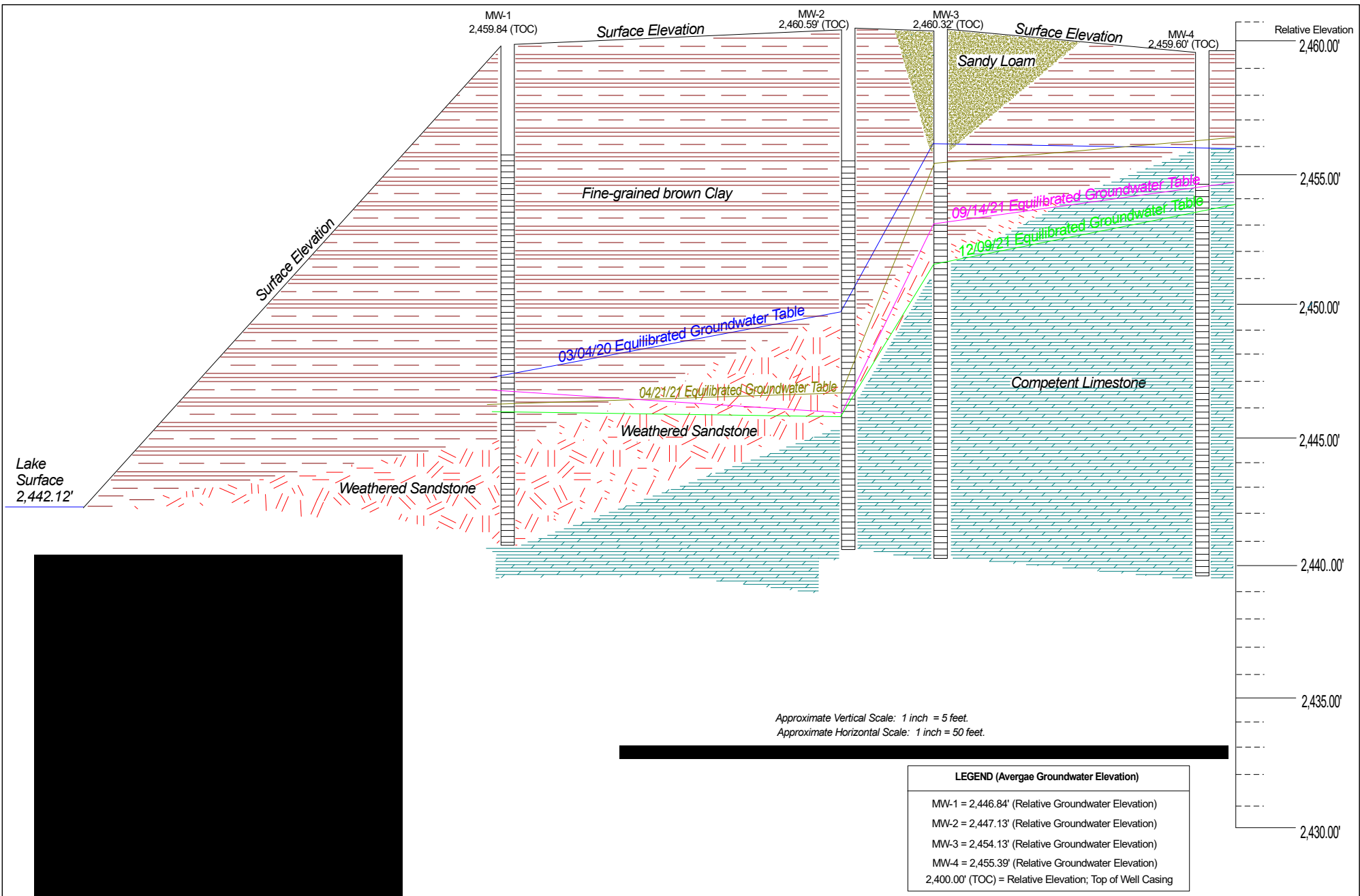
Surface Water/Sediment Sample Location Map

DRAWING NUMBER

FIGURE No. 5

REV

0



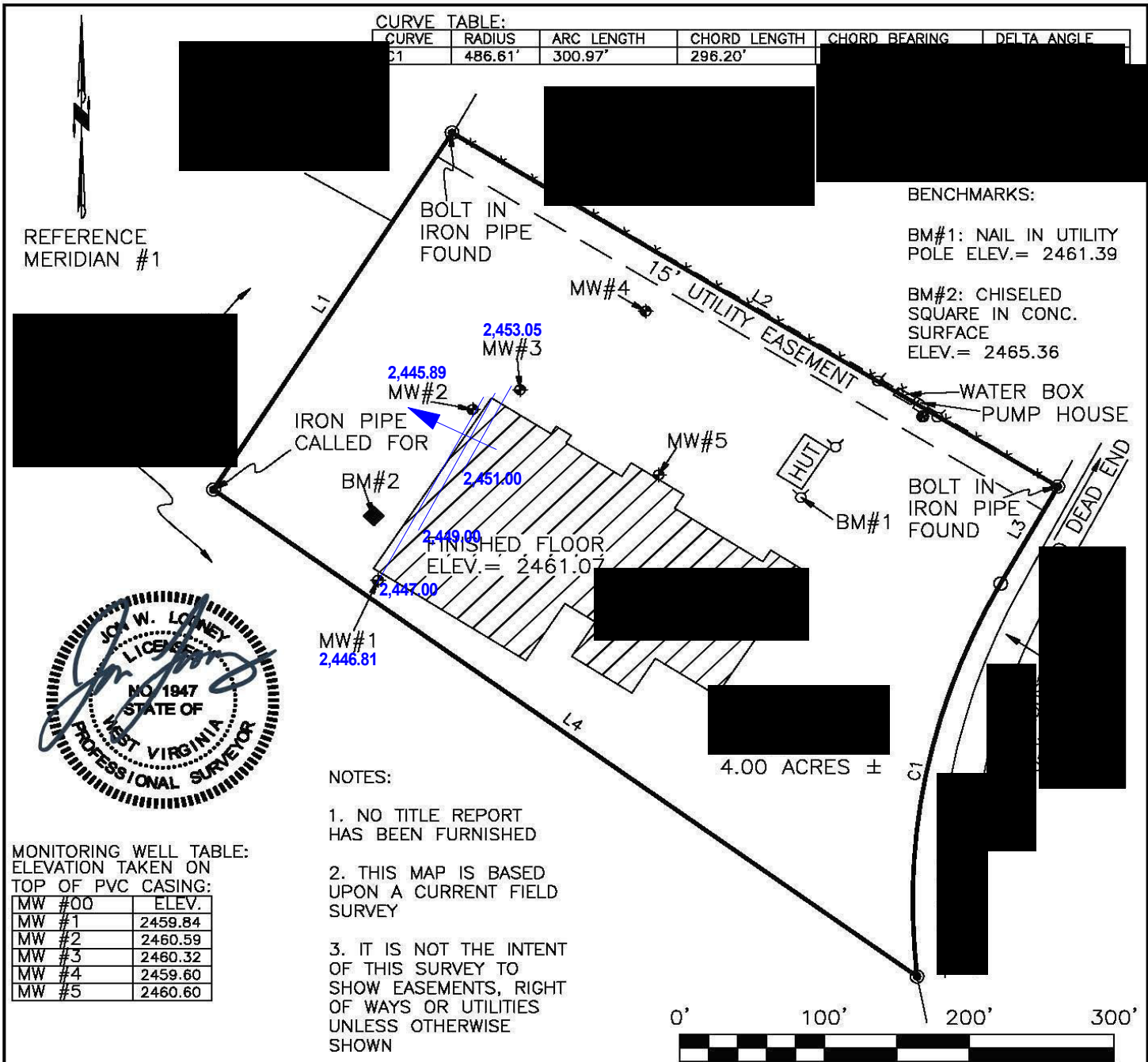
DR.: DRS	April 2022
CK.:	
APP'D.:	
SCALE: As shown	
JOB NO.: 768568-001	

**Risk  
Assessment**

VRP #

DRAWING TITLE	
Hydrogeologic Cross-Section A'-A'	
DRAWING NUMBER	REV
FIGURE No. 6	





MONITORING WELL TABLE:  
ELEVATION TAKEN ON  
TOP OF PVC CASING:

MW #	ELEV.
MW #00	2459.84
MW #1	2460.59
MW #2	2460.32
MW #3	2459.60
MW #4	2460.60
MW #5	

- NOTES:
1. NO TITLE REPORT HAS BEEN FURNISHED
  2. THIS MAP IS BASED UPON A CURRENT FIELD SURVEY
  3. IT IS NOT THE INTENT OF THIS SURVEY TO SHOW EASEMENTS, RIGHT OF WAYS OR UTILITIES UNLESS OTHERWISE SHOWN

REFERENCE:

1. PLAT FILM RECORD #8545

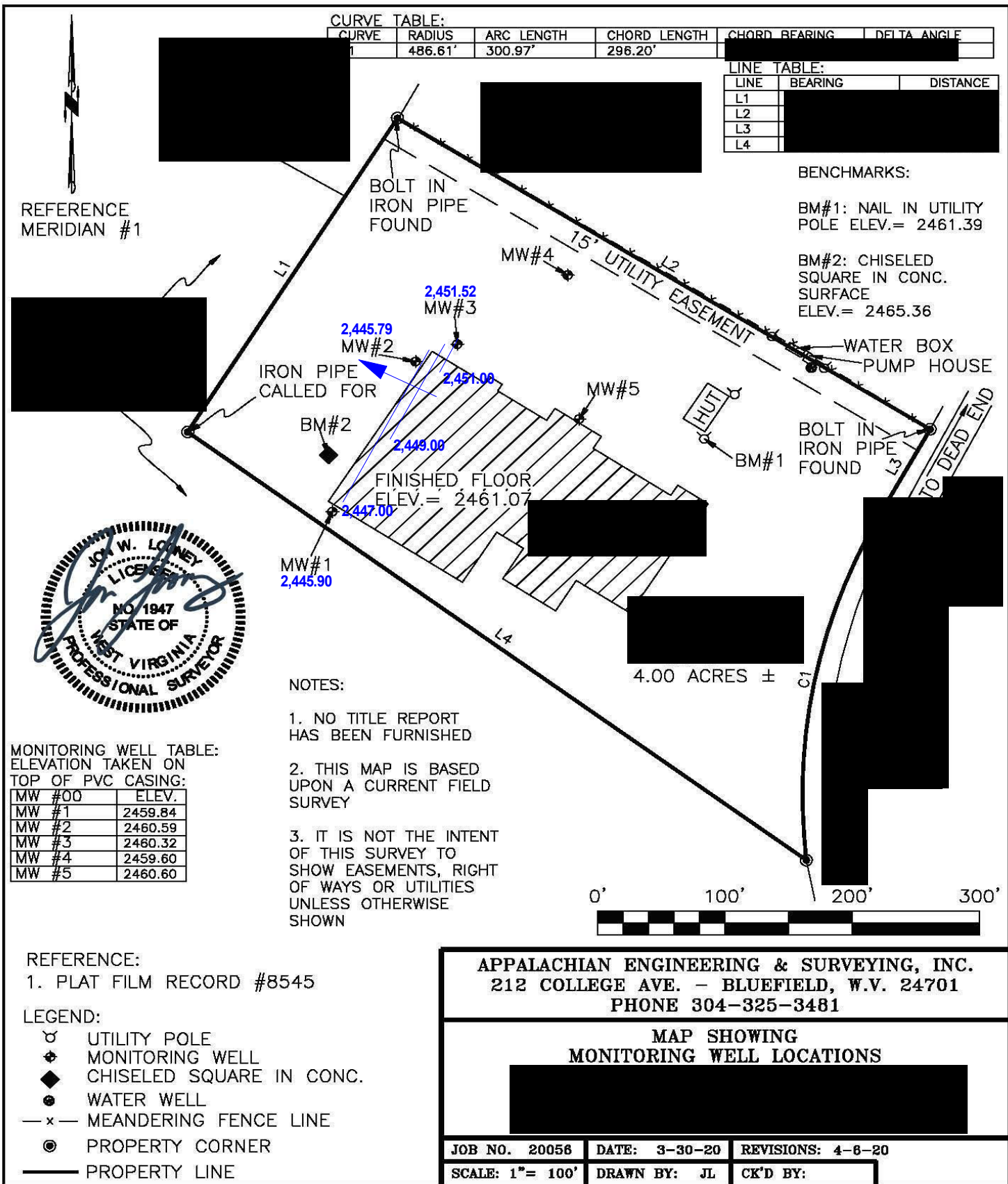
- LEGEND:
- UTILITY POLE
  - ⬢ MONITORING WELL
  - ◆ CHISELED SQUARE IN CONC.
  - WATER WELL
  - x- MEANDERING FENCE LINE
  - ⊙ PROPERTY CORNER
  - PROPERTY LINE

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**MAP SHOWING  
MONITORING WELL LOCATIONS**

[REDACTED]

JOB NO. 20056	DATE: 3-30-20	REVISIONS: 4-6-20
SCALE: 1"= 100'	DRAWN BY: JL	CK'D BY:



## **Attachment 1**

### **USEPA Vapor Intrusion Screening Level (VISL) Calculator**

/HTML"<a href=/tmp/Commercial\_chem\_visl\_29NOV2022\_visl2377339.xlsx>Output to Spreadsheet</a>

2377339.pdf>Output to PDF</a></div>

Variable	Value
Exposure Scenario	Commercial
Temperature for Groundwater Vapor Concentration C	13
THQ (target hazard quotient) unitless	1
TR (target risk) unitless	0.00001
AT <sub>w</sub> (averaging time - composite worker)	365
EF <sub>w</sub> (exposure frequency - composite worker) day/y	250
ED <sub>w</sub> (exposure duration - composite worker) y	25
ET <sub>w</sub> (exposure time - composite worker) h	8
LT (lifetime) yr	70
AF <sub>gw</sub> (Attenuation Factor Groundwater) unitless	0.001
AF <sub>ss</sub> (Attenuation Factor Sub-Slab) unitless:	0.03

Output generated 29NOV2022:22:40:15

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,2</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,2</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>air,ind</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sub</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>air,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,nc</sub> (µg/m <sup>3</sup> )
Acenaphthene	83-32-9	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.78E+04	9.75E+03	1.30E+01	8.00E-01	YAWS	-	-	-	No	-	-	
Acephate	30560-19-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.67E+01	1.68E+01	1.30E+01	-		-	-	-	No	-	-	
Acetaldehyde	75-07-0	Yes	Yes	Yes	Yes	3.94E+01	NC	1.31E+03	2.16E+04	--	2.14E+09	1.83E+09	1.30E+01	4.00E+00	CRC	2.20E-06	I	9.00E-03	I	No	5.57E+01	3.94E+01
Acetochlor	34256-82-1	No	No	No (not volatile)	No (not volatile)	-		-	-		4.06E+02	2.03E+02	1.30E+01	-		-	-	-	No	-	-	
Acetone	67-64-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		7.23E+08	8.75E+08	1.30E+01	2.50E+00	CRC	-	-	-	No	-	-	
Acetone Cyanohydrin	75-86-5	No	Yes	No (not volatile)	No (not volatile)	8.76E+00		-	-		1.56E+06	3.49E+04	1.30E+01	2.20E+00	CRC	-	2.00E-03	X	No	-	8.76E+00	
Acetonitrile	75-05-8	Yes	Yes	Yes	Yes	2.63E+02	NC	8.76E+03	3.14E+05	--	1.96E+08	8.37E+08	1.30E+01	3.00E+00	CRC	-	6.00E-02	I	No	-	2.63E+02	
Acetophenone	98-86-2	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.57E+06	1.07E+06	1.30E+01	1.10E+00	YAWS	-	-	-	No	-	-	
Acetylaminofluorene, 2-Acrolein	53-96-3	No	Yes	No (not volatile)	No (not volatile)	9.43E-02		-	-		1.13E+00	4.34E-02	1.30E+01	-		1.30E-03	C	-	No	9.43E-02	-	
	107-02-8	Yes	Yes	Yes	Yes	8.76E-02	NC	2.92E+00	2.82E+01	--	8.26E+08	6.59E+08	1.30E+01	2.80E+00	CRC	-	2.00E-05	I	No	-	8.76E-02	
Acrylamide	79-06-1	No	Yes	No (not volatile)	No (not volatile)	1.23E+00		-	-		2.68E+04	6.23E+03	1.30E+01	2.70E+00	YAWS	1.00E-04	I	6.00E-03	I	Mut	1.23E+00	2.63E+01
Acrylic Acid	79-10-7	Yes	Yes	Yes	Yes	8.76E-01	NC	2.92E+01	1.42E+05	--	1.54E+07	6.18E+06	1.30E+01	2.40E+00	CRC	-	2.00E-04	P	No	-	8.76E-01	
Acrylonitrile	107-13-1	Yes	Yes	Yes	Yes	1.80E+00	CA	6.01E+01	5.67E+02	--	3.10E+08	2.37E+08	1.30E+01	3.00E+00	CRC	6.80E-05	I	2.00E-03	I	No	1.80E+00	8.76E+00
Adiponitrile	111-69-3	No	Yes	No (not volatile)	No (not volatile)	2.63E+01		-	-		3.95E+03	1.04E+03	1.30E+01	1.00E+00	CRC	-	6.00E-03	P	No	-	2.63E+01	
Alachlor	15972-60-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.19E+02	8.16E+01	1.30E+01	-		-	-	-	No	-	-	
Aldicarb	116-06-3	No	No	No (not volatile)	No (not volatile)	-		-	-		3.55E+02	3.55E+02	1.30E+01	-		-	-	-	No	-	-	
Aldicarb Sulfone	1646-88-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.08E+03	1.38E+03	1.30E+01	-		-	-	-	No	-	-	
Aldrin	309-00-2	Yes	Yes	Yes	Yes	2.50E-02	CA	8.34E-01	3.09E+02	--	2.36E+03	1.38E+00	1.30E+01	-		4.90E-03	I	-	No	2.50E-02	-	
Allyl Alcohol	107-18-6	Yes	Yes	Yes	Yes	4.38E-01	NC	1.46E+01	4.55E+03	--	8.15E+07	9.63E+07	1.30E+01	2.50E+00	CRC	-	1.00E-04	X	No	-	4.38E-01	
Allyl Chloride	107-05-1	Yes	Yes	Yes	Yes	4.38E+00	NC	1.46E+02	1.57E+01	--	1.51E+09	9.42E+08	1.30E+01	2.90E+00	CRC	6.00E-06	C	1.00E-03	I	No	2.04E+01	4.38E+00
Aluminum	7429-90-5	No	Yes	No (not volatile)	No (not volatile)	2.19E+01		-	-		0.00E+00	-	1.30E+01	-		-	5.00E-03	P	No	-	2.19E+01	
Aluminum Phosphide	20859-73-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Ametryn	834-12-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.35E+01	2.08E+01	1.30E+01	-		-	-	-	No	-	-	
Aminobiphenyl, 4-	92-67-1	No	Yes	No (not volatile)	No (not volatile)	2.04E-02		-	-		1.06E+03	4.02E+02	1.30E+01	7.00E-01	YAWS	6.00E-03	C	-	No	2.04E-02	-	
Aminophenol, m-	591-27-5	No	No	No (not volatile)	No (not volatile)	-		-	-		5.61E+04	8.96E+01	1.30E+01	-		-	-	-	No	-	-	
Aminophenol, o-	95-55-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.61E+04	1.62E+02	1.30E+01	-		-	-	-	No	-	-	
Aminophenol, p-	123-30-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.35E+02	9.10E+01	1.30E+01	-		-	-	-	No	-	-	
Amtraz	33089-61-1	No	No	No (not volatile)	No (not volatile)	-		-	-		3.16E+01	4.04E+02	1.30E+01	-		-	-	-	No	-	-	
Ammonia	7664-41-7	Yes	Yes	Yes	Yes	2.19E+03	NC	7.30E+04	4.56E+06	--	6.88E+09	2.32E+08	1.30E+01	1.60E+01	CRC	-	5.00E-01	I	No	-	2.19E+03	
Ammonium Perchlorate	7790-98-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Ammonium Picrate	131-74-8	No	No	No (not volatile)	No (not volatile)	-		-	-		9.24E+00	8.83E+00	1.30E+01	-		-	-	-	No	-	-	
Ammonium Sulfamate	7773-06-0	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-	-	-	No	-	-	
Ammonium perfluoro-2-methyl-3-oxahexanoate	62037-80-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Amyl Alcohol, tert-	75-85-4	Yes	Yes	Yes	Yes	1.31E+01	NC	4.38E+02	4.88E+04	--	7.92E+07	2.96E+07	1.30E+01	1.20E+00	CRC	-	3.00E-03	X	No	-	1.31E+01	
Aniline	62-53-3	No	Yes	No (not volatile)	No (not volatile)	4.38E+00		-	-		3.34E+06	1.30E+06	1.30E+01	1.30E+00	CRC	1.60E-06	C	1.00E-03	I	No	7.67E+01	4.38E+00
Anthracene	120-12-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		6.26E+01	2.83E+01	1.30E+01	6.00E-01	CRC	-	-	-	No	-	-	
Anthraquinone, 9,10-	84-65-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.30E+00	2.96E-01	1.30E+01	-		-	-	-	No	-	-	
Antimony (metallic)	7440-36-0	No	Yes	No (not volatile)	No (not volatile)	1.31E+00		-	-		0.00E+00	-	1.30E+01	-		-	3.00E-04	A	No	-	1.31E+00	
Antimony Pentoxide	1314-60-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Antimony Potassium Tartrate	11071-15-1	No	No	No (not volatile)	No (not volatile)	-		-	-		4.16E-06	-	1.30E+01	-		-	-	-	No	-	-	
Antimony Tetraoxide	1332-81-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>so</sub> > C <sub>ia</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gw</sub> > C <sub>ia</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ground</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Antimony Trichloride	10025-91-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.23E+06	-	1.30E+01	-		-	-	-	No		-	-
Antimony Trioxide	1309-64-4	Indeterminate	Yes	No (not volatile)	No (not volatile)	8.76E-01		-	-		-	-	1.30E+01	-		-	2.00E-04	I	No		-	8.76E-01
Aroclor 1016	12674-11-2	Yes	Yes	Yes	Yes	6.13E+00	CA	2.04E+02	7.50E+02	--	5.54E+03	3.43E+03	1.30E+01	-		2.00E-05	G	-	No	6.13E+00	-	
Aroclor 1221	11104-28-2	Yes	Yes	Yes	Yes	2.15E-01	CA	7.15E+00	2.30E+01	--	6.80E+04	1.40E+05	1.30E+01	-		5.71E-04	G	-	No	2.15E-01	-	
Aroclor 1232	11141-16-5	Yes	Yes	Yes	Yes	2.15E-01	CA	7.15E+00	7.13E+00	--	4.12E+04	4.36E+04	1.30E+01	-		5.71E-04	G	-	No	2.15E-01	-	
Aroclor 1242	53469-21-9	Yes	Yes	Yes	Yes	2.15E-01	CA	7.15E+00	5.48E+01	--	1.36E+03	1.09E+03	1.30E+01	-		5.71E-04	G	-	No	2.15E-01	-	
Aroclor 1248	12672-29-6	Yes	Yes	Yes	Yes	2.15E-01	CA	7.15E+00	1.19E+01	--	7.76E+03	1.80E+03	1.30E+01	-		5.71E-04	G	-	No	2.15E-01	-	
Aroclor 1254	11097-69-1	Yes	Yes	Yes	Yes	2.15E-01	CA	7.15E+00	6.82E+01	--	1.35E+03	1.35E+02	1.30E+01	-		5.71E-04	G	-	No	2.15E-01	-	
Aroclor 1260	11096-82-5	Yes	Yes	Yes	Yes	2.15E-01	CA	7.15E+00	1.56E+01	--	8.61E+02	1.98E+02	1.30E+01	-		5.71E-04	G	-	No	2.15E-01	-	
Aroclor 5460	11126-42-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.46E+02	2.72E+02	1.30E+01	-		-	-	No		-	-	
Arsenic, Inorganic	7440-38-2	Indeterminate	Yes	No (not volatile)	No (not volatile)	2.85E-02		-	-		-	-	1.30E+01	-		4.30E-03	I	1.50E-05	C	No	2.85E-02	6.57E-02
Arsine	7784-42-1	Indeterminate	Yes	No (not volatile)	No (not volatile)	2.19E-01		-	-		-	-	1.30E+01	5.10E+00	YAWS	-	-	5.00E-05	I	No	-	2.19E-01
Asulam	3337-71-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.78E+01	3.50E-01	1.30E+01	-		-	-	No		-	-	
Atrazine	1912-24-9	No	No	No (not volatile)	No (not volatile)	-		-	-		3.35E+00	3.35E+00	1.30E+01	-		-	-	No		-	-	
Auramine	492-80-8	No	Yes	No (not volatile)	No (not volatile)	4.91E-01		-	-		1.86E+01	3.68E+00	1.30E+01	-		2.50E-04	C	-	No	4.91E-01	-	
Avermectin B1	65195-55-3	No	No	No (not volatile)	No (not volatile)	-		-	-		6.87E-23	1.89E-23	1.30E+01	-		-	-	No		-	-	
Azinphos-methyl	86-50-0	No	Yes	No (not volatile)	No (not volatile)	4.38E+01		-	-		2.73E+01	2.04E+01	1.30E+01	-		-	1.00E-02	A	No	-	4.38E+01	
Azobenzene	103-33-3	Yes	Yes	Yes	Yes	3.96E+00	CA	1.32E+02	2.07E+04	--	3.54E+03	1.22E+03	1.30E+01	-		3.10E-05	I	-	No	3.96E+00	-	
Azodicarbonamide	123-77-3	No	Yes	No (not volatile)	No (not volatile)	3.07E-02		-	-		1.17E-03	1.17E-03	1.30E+01	-		-	7.00E-06	P	No	-	3.07E-02	
Barium	7440-39-3	Indeterminate	Yes	No (not volatile)	No (not volatile)	2.19E+00		-	-		-	-	1.30E+01	-		-	5.00E-04	H	No	-	2.19E+00	
Benfluralin	1861-40-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.18E+03	1.19E+03	1.30E+01	-		-	-	No		-	-	
Benomyl	17804-35-2	No	No	No (not volatile)	No (not volatile)	-		-	-		5.78E-02	7.66E-04	1.30E+01	-		-	-	No		-	-	
Bensulfuron-methyl	83055-99-6	No	No	No (not volatile)	No (not volatile)	-		-	-		4.64E-07	1.85E-05	1.30E+01	-		-	-	No		-	-	
Bentazon	25057-89-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.46E+01	4.46E+01	1.30E+01	-		-	-	No		-	-	
Benzo[a]anthracene	56-55-3	Yes	Yes	Yes	No	2.04E+00		6.81E+01	-		2.58E+00	9.03E-01	1.30E+01	-		6.00E-05	E	-	Mut	2.04E+00	-	
Benzaldehyde	100-52-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.25E+06	3.31E+06	1.30E+01	1.40E+00	YAWS	-	-	-	No	-	-	
Benzene	71-43-2	Yes	Yes	Yes	Yes	1.57E+01	CA	5.24E+02	1.18E+02	No (5)	3.98E+08	2.39E+08	1.30E+01	1.20E+00	CRC	7.80E-06	I	3.00E-02	I	No	1.57E+01	1.31E+02
Benzenediamine-2-methyl sulfate, 1,4-	6369-59-1	No	No	No (not volatile)	No (not volatile)	-		-	-		3.44E-07	8.86E-10	1.30E+01	-		-	-	No		-	-	
Benzenethiol	108-98-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.14E+07	5.32E+06	1.30E+01	1.20E+00	YAWS	-	-	-	No	-	-	
Benzidine	92-87-5	No	Yes	No (not volatile)	No (not volatile)	1.83E-03		-	-		8.90E+00	1.58E-01	1.30E+01	1.40E+00	YAWS	6.70E-02	I	-	Mut	1.83E-03	-	
Benzo[e]pyrene	192-97-2	No	Yes	No (not volatile)	No (not volatile)	8.76E-03		-	-		7.74E-02	7.66E-02	1.30E+01	-		-	2.00E-06	X	No	-	8.76E-03	
Benzo[fl]fluoranthene	205-82-3	No	Yes	No (not volatile)	No (not volatile)	1.11E+00		-	-		3.56E-01	2.07E-02	1.30E+01	-		1.10E-04	C	-	No	1.11E+00	-	
Benzo[a]pyrene	50-32-8	No	Yes	No (not volatile)	No (not volatile)	8.76E-03		-	-		7.45E-02	5.85E-03	1.30E+01	-		6.00E-04	I	2.00E-06	I	Mut	2.04E-01	8.76E-03
Benzo[b]fluoranthene	205-99-2	No	Yes	No (not volatile)	No (not volatile)	2.04E+00		-	-		6.79E+00	9.07E-03	1.30E+01	-		6.00E-05	E	-	Mut	2.04E+00	-	
Benzo[k]fluoranthene	207-08-9	No	Yes	No (not volatile)	No (not volatile)	2.04E+01		-	-		1.31E-02	3.43E-03	1.30E+01	-		6.00E-06	E	-	Mut	2.04E+01	-	
Benzoic Acid	65-85-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.60E+03	1.77E+03	1.30E+01	1.40E+00	YAWS	-	-	-	No	-	-	
Benzotrichloride	98-07-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.35E+06	2.44E+05	1.30E+01	1.60E+00	YAWS	-	-	-	No	-	-	
Benzyl Alcohol	100-51-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.47E+05	2.11E+05	1.30E+01	1.30E+00	YAWS	-	-	-	No	-	-	
Benzyl Chloride	100-44-7	Yes	Yes	Yes	Yes	2.50E+00	CA	8.34E+01	3.04E+02	--	8.37E+06	4.32E+06	1.30E+01	1.10E+00	CRC	4.90E-05	C	1.00E-03	P	No	2.50E+00	4.38E+00
Beryllium and compounds	7440-41-7	No	Yes	No (not volatile)	No (not volatile)	5.11E-02		-	-		0.00E+00	-	1.30E+01	-		2.40E-03	I	2.00E-05	I	No	5.11E-02	8.76E-02
Bifenox	42576-02-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.84E+00	1.76E+00	1.30E+01	-		-	-	No		-	-	



Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>air,cl</sub> , C <sub>air,ind</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>air,cl</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,cl</sub> (µg/m <sup>3</sup> )
Biphenrin	82657-04-3	No	No	No (not volatile)	No (not volatile)	-		-	-	--	4.09E+00	4.09E-02	1.30E+01	-		-	-	-	No	-	-	
Biphenyl, 1,1'-	92-52-4	Yes	Yes	Yes	Yes	1.75E+00	NC	5.84E+01	3.67E+02	--	7.41E+04	3.57E+04	1.30E+01	6.00E-01	CRC	-	4.00E-04	X	No	-	1.75E+00	
Bis(2-chloro-1-methylethyl) ether	108-60-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.15E+06	2.30E+06	1.30E+01	-		-	-		No	-	-	
Bis(2-chloroethoxy)methane	111-91-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.23E+06	5.12E+05	1.30E+01	-		-	-		No	-	-	
Bis(2-chloroethyl)ether	111-44-4	Yes	Yes	Yes	Yes	3.72E-01	CA	1.24E+01	1.33E+03	--	1.19E+07	4.80E+06	1.30E+01	2.70E+00	CRC	3.30E-04	I	-	No	3.72E-01	-	
Bis(2-ethylhexyl)phthalate	117-81-7	No	Yes	No (not volatile)	No (not volatile)	5.11E+01		-	-		2.98E+00	6.34E-01	1.30E+01	3.00E-01	YAWS	2.40E-06	C	-	No	5.11E+01	-	
Bis(chloromethyl)ether	542-88-1	Yes	Yes	Yes	Yes	1.98E-03	CA	6.59E-02	2.10E-02	--	1.82E+08	2.07E+09	1.30E+01	6.50E+00	YAWS	6.20E-02	I	-	No	1.98E-03	-	
Bisphenol A	80-05-7	No	No	No (not volatile)	No (not volatile)	-		-	-		4.80E+00	8.27E-03	1.30E+01	6.00E-01	YAWS	-	-	-	No	-	-	
Boron And Borates Only	7440-42-8	Indeterminate	Yes	No (not volatile)	No (not volatile)	8.76E+01		-	-		-	-	1.30E+01	-		-	2.00E-02	H	No	-	8.76E+01	
Boron Trichloride	10294-34-5	Yes	Yes	Yes	Yes	8.76E+01		2.92E+03	-		6.30E+06	-	1.30E+01	-		-	2.00E-02	P	No	-	8.76E+01	
Boron Trifluoride	7637-07-2	Yes	Yes	Yes	Yes	5.69E+01		1.90E+03	-		1.33E+11	-	1.30E+01	-		-	1.30E-02	C	No	-	5.69E+01	
Bromate	15541-45-4	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-		No	-	-	
Bromo-2-chloroethane, 1-	107-04-0	Yes	Yes	Yes	Yes	2.63E-01	NC	8.76E+00	1.44E+01	--	2.55E+08	1.26E+08	1.30E+01	-		-	6.00E-05	X	No	-	2.63E-01	
Bromo-3-fluorobenzene, 1-	1073-06-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.67E+07	1.93E+07	1.30E+01	-		-	-		No	-	-	
Bromo-4-fluorobenzene, 1-	460-00-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.67E+07	6.95E+06	1.30E+01	-		-	-		No	-	-	
Bromobenzene	108-96-1	Yes	Yes	Yes	Yes	2.63E+02	NC	8.76E+03	6.08E+03	--	3.53E+07	1.93E+07	1.30E+01	1.50E+00	YAWS	-	6.00E-02	I	No	-	2.63E+02	
Bromochloromethane	74-97-5	Yes	Yes	Yes	Yes	1.75E+02	NC	5.84E+03	4.87E+03	--	9.92E+08	6.00E+08	1.30E+01	-		-	4.00E-02	X	No	-	1.75E+02	
Bromodichloromethane	75-27-4	Yes	Yes	Yes	Yes	3.31E+00	CA	1.10E+02	6.76E+01	Yes (80)	4.41E+08	1.49E+08	1.30E+01	-		3.70E-05	C	-	No	3.31E+00	-	
Bromoform	75-25-2	Yes	Yes	Yes	Yes	1.11E+02	CA	3.72E+03	1.06E+04	No (80)	7.34E+07	3.25E+07	1.30E+01	-		1.10E-06	I	-	No	1.11E+02	-	
Bromomethane	74-83-9	Yes	Yes	Yes	Yes	2.19E+01	NC	7.30E+02	1.04E+02	--	8.25E+09	3.19E+09	1.30E+01	1.00E+01	CRC	-	5.00E-03	I	No	-	2.19E+01	
Bromophos	2104-96-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.51E+03	2.51E+03	1.30E+01	-		-	-		No	-	-	
Bromopropane, 1-	106-94-5	Yes	Yes	Yes	Yes	4.38E+02	NC	1.46E+04	2.45E+03	--	7.33E+08	4.39E+08	1.30E+01	-		-	1.00E-01	A	No	-	4.38E+02	
Bromoxynil	1689-84-5	No	No	No (not volatile)	No (not volatile)	-		-	-		7.03E-01	7.02E-01	1.30E+01	-		-	-		No	-	-	
Bromoxynil Octanoate	1689-99-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.04E+02	1.04E+02	1.30E+01	-		-	-		No	-	-	
Butadiene, 1,3-	106-99-0	Yes	Yes	Yes	Yes	4.09E+00	CA	1.36E+02	1.88E+00	--	6.13E+09	1.60E+09	1.30E+01	2.00E+00	CRC	3.00E-05	I	2.00E-03	I	No	4.09E+00	8.76E+00
Butanoic acid, 4-(2,4-dichlorophenoxy)-	94-82-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.49E+02	4.31E+00	1.30E+01	-		-	-		No	-	-	
Butanol, N-	71-36-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.67E+07	9.79E+06	1.30E+01	1.40E+00	CRC	-	-	-	No	-	-	
Butyl Alcohol, t-	75-65-0	Yes	Yes	Yes	Yes	2.19E+04	NC	7.30E+05	1.23E+08	--	1.62E+08	1.78E+08	1.30E+01	2.40E+00	CRC	-	5.00E+00	I	No	-	2.19E+04	
Butyl Benzyl Phthalate	85-68-7	No	No	No (not volatile)	No (not volatile)	-		-	-		1.39E+02	3.95E+01	1.30E+01	-		-	-		No	-	-	
Butyl Formate, tert-	762-75-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.75E+08	1.83E+08	1.30E+01	-		-	-		No	-	-	
Butyl alcohol, sec-	78-92-2	Yes	Yes	Yes	Yes	1.31E+05	NC	4.38E+06	7.71E+08	--	7.31E+07	3.08E+07	1.30E+01	1.70E+00	CRC	-	3.00E+01	P	No	-	1.31E+05	
Butylate	2008-41-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.52E+05	1.55E+05	1.30E+01	-		-	-		No	-	-	
Butylated hydroxyanisole	25013-16-5	No	Yes	No (not volatile)	No (not volatile)	2.15E+03		-	-		4.81E+04	3.75E+03	1.30E+01	-		5.70E-08	C	-	No	2.15E+03	-	
Butylated hydroxytoluene	128-37-0	No	No	No (not volatile)	No (not volatile)	-		-	-		6.12E+04	2.96E+01	1.30E+01	5.00E-01	YAWS	-	-	-	No	-	-	
Butylbenzene, n-	104-51-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.68E+06	3.46E+06	1.30E+01	8.00E-01	CRC	-	-	-	No	-	-	
Butylbenzene, sec-	135-98-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.26E+07	4.84E+06	1.30E+01	8.00E-01	YAWS	-	-	-	No	-	-	
Butylbenzene, tert-	98-06-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.59E+07	6.07E+06	1.30E+01	7.00E-01	CRC	-	-	-	No	-	-	
Butylphthalyl Butylglycolate	85-70-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.28E+02	7.41E+00	1.30E+01	-		-	-		No	-	-	
Cacodylic Acid	75-60-5	No	No	No (not volatile)	No (not volatile)	-		-	-		7.42E-01	1.47E+00	1.30E+01	-		-	-		No	-	-	
Cadmium (Diet)	7440-43-9	No	Yes	No (not volatile)	No (not volatile)	4.38E-02		-	-		0.00E+00	-	1.30E+01	-		1.80E-03	I	1.00E-05	A	No	6.81E-02	4.38E-02
Cadmium (Water)	7440-43-9	No	Yes	No (not volatile)	No (not volatile)	4.38E-02		-	-		0.00E+00	-	1.30E+01	-		1.80E-03	I	1.00E-05	A	No	6.81E-02	4.38E-02
Calcium Cyanide	592-01-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Calcium hydroxide phosphate	12167-74-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>1,3</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL ?)	Pure Phase Vapor Concentration C <sub>vp</sub> (18 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Calcium pyrophosphate	7790-76-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Caprolactam	105-60-2	No	Yes	No (not volatile)	No (not volatile)	9.64E+00		-	-		9.74E+03	2.50E+05	1.30E+01	3.00E-01	YAWS	-		2.20E-03	C	No	-	9.64E+00
Captafol	2425-06-1	No	Yes	No (not volatile)	No (not volatile)	2.85E+00		-	-		2.82E-01	2.82E-01	1.30E+01	-		4.30E-05	C	-		No	2.85E+00	-
Captan	133-06-2	No	Yes	No (not volatile)	No (not volatile)	1.86E+02		-	-		1.45E+00	1.46E+00	1.30E+01	-		6.60E-07	C	-		No	1.86E+02	-
Carbaryl	63-25-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.47E+01	1.47E+01	1.30E+01	-		-		-		No	-	-
Carbofuran	1563-66-2	No	No	No (not volatile)	No (not volatile)	-		-	-		5.77E+01	4.04E+01	1.30E+01	-		-		-		No	-	-
Carbon Disulfide	75-15-0	Yes	Yes	Yes	Yes	3.07E+03	NC	1.02E+05	8.01E+03	--	1.47E+09	8.27E+08	1.30E+01	1.30E+00	CRC	-		7.00E-01	I	No	-	3.07E+03
Carbon Tetrachloride	56-23-5	Yes	Yes	Yes	Yes	2.04E+01	CA	6.81E+02	3.03E+01	No (5)	9.51E+08	5.36E+08	1.30E+01	-		6.00E-06	I	1.00E-01	I	No	2.04E+01	4.38E+02
Carbonyl Sulfide	463-58-1	Yes	Yes	Yes	Yes	4.38E+02	NC	1.46E+04	1.69E+01	--	3.04E+10	3.17E+10	1.30E+01	1.20E+01	CRC	-		1.00E-01	P	No	-	4.38E+02
Carbosulfan	55285-14-8	No	No	No (not volatile)	No (not volatile)	-		-	-		6.28E+00	6.28E+00	1.30E+01	-		-		-		No	-	-
Carboxin	5234-68-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.90E+00	1.92E+00	1.30E+01	-		-		-		No	-	-
Ceric oxide	1306-38-3	Indeterminate	Yes	No (not volatile)	No (not volatile)	3.94E+00		-	-		-	-	1.30E+01	-		-		9.00E-04	I	No	-	3.94E+00
Chloral	75-87-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.96E+08	1.92E+03	1.30E+01	-		-		-		No	-	-
Chloral Hydrate	302-17-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.33E+08	1.04E+05	1.30E+01	-		-		-		No	-	-
Chloramben	133-90-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.11E+00	1.11E+00	1.30E+01	-		-		-		No	-	-
Chloranil	118-75-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.02E+01	3.34E+00	1.30E+01	-		-		-		No	-	-
Chlordane (alpha)	5103-71-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.93E+02	1.11E+02	1.30E+01	-		-		-		No	-	-
Chlordane (gamma)	5103-74-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.11E+03	1.11E+02	1.30E+01	-		-		-		No	-	-
Chlordane (technical mixture)	12789-03-6	Yes	Yes	Yes	Yes	1.23E+00	CA	4.09E+01	6.09E+03	No (2)	2.20E+02	1.13E+01	1.30E+01	-		1.00E-04	I	7.00E-04	I	No	1.23E+00	3.07E+00
Chlordecone (Kepone)	143-50-0	No	Yes	No (not volatile)	No (not volatile)	2.67E-02		-	-		5.94E+00	5.94E+00	1.30E+01	-		4.60E-03	C	-		No	2.67E-02	-
Chlorfenvinphos	470-90-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.45E+02	1.47E+02	1.30E+01	-		-		-		No	-	-
Chlorimuron, Ethyl-	90982-32-4	No	No	No (not volatile)	No (not volatile)	-		-	-		8.92E-05	8.93E-05	1.30E+01	-		-		-		No	-	-
Chlorine	7782-50-5	Yes	Yes	Yes	Yes	6.35E-01	NC	2.12E+01	1.74E+00	Yes (4000)	2.23E+10	2.29E+09	1.30E+01	-		-		1.45E-04	A	No	-	6.35E-01
Chlorine Dioxide	10049-04-4	Yes	Yes	Yes	Yes	8.76E-01	NC	2.92E+01	8.50E-01	Yes (800)	2.75E+09	8.24E+09	1.30E+01	-		-		2.00E-04	I	No	-	8.76E-01
Chlorite (Sodium Salt)	7758-19-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Chloro-1,1-difluoroethane, 1-	75-68-3	Yes	Yes	Yes	Yes	2.19E+05	NC	7.30E+06	3.06E+06	--	1.38E+10	1.00E+08	1.30E+01	6.00E+00	CRC	-		5.00E+01	I	No	-	2.19E+05
Chloro-1,3-butadiene, 2-	126-99-8	Yes	Yes	Yes	Yes	4.09E-01	CA	1.36E+01	3.17E-01	--	1.03E+09	1.13E+09	1.30E+01	4.00E+00	CRC	3.00E-04	I	2.00E-02	I	No	4.09E-01	8.76E+01
Chloro-2-methylaniline HCl, 4-	3165-93-3	No	No	No (not volatile)	No (not volatile)	-		-	-		3.91E+05	6.08E+04	1.30E+01	-		-		-		No	-	-
Chloro-2-methylaniline, 4-	95-69-2	No	Yes	No (not volatile)	No (not volatile)	1.59E+00		-	-		3.11E+05	3.03E+04	1.30E+01	-		7.70E-05	C	-		No	1.59E+00	-
Chloroacetaldehyde, 2-	107-20-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.71E+08	5.90E+07	1.30E+01	5.70E+00	YAWS	-		-		No	-	-
Chloroacetophenone, 2-	532-27-4	No	Yes	No (not volatile)	No (not volatile)	1.31E-01		-	-		4.49E+04	6.04E+04	1.30E+01	-		-		3.00E-05	I	No	-	1.31E-01
Chloroaniline, p-	106-47-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.85E+05	6.76E+04	1.30E+01	2.20E+00	YAWS	-		-		No	-	-
Chlorobenzene	108-90-7	Yes	Yes	Yes	Yes	2.19E+02	NC	7.30E+03	3.30E+03	No (100)	7.25E+07	3.30E+07	1.30E+01	1.30E+00	CRC	-		5.00E-02	P	No	-	2.19E+02
Chlorobenzene sulfonic acid, p-	98-66-8	No	No	No (not volatile)	No (not volatile)	-		-	-		4.43E+01	2.33E+04	1.30E+01	-		-		-		No	-	-
Chlorobenzilate	510-15-6	No	Yes	No (not volatile)	No (not volatile)	3.96E+00		-	-		3.85E+01	3.85E+01	1.30E+01	-		3.10E-05	C	-		No	3.96E+00	-
Chlorobenzoic Acid, p-	74-11-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.96E+04	2.36E+02	1.30E+01	-		-		-		No	-	-
Chlorobenzotrifluoride, 3-nitro-4-	121-17-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.43E+06	6.78E+04	1.30E+01	-		-		-		No	-	-
Chlorobenzotrifluoride, 4-	98-56-6	Yes	Yes	Yes	Yes	1.43E+01	CA	4.75E+02	2.06E+01	--	7.41E+07	2.01E+07	1.30E+01	1.80E+00	YAWS	8.60E-06	C	3.00E-01	P	No	1.43E+01	1.31E+03
Chlorobutane, 1-	109-69-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.04E+08	4.41E+08	1.30E+01	1.90E+00	CRC	-		-		No	-	-
Chlorodifluoromethane	75-45-6	Yes	Yes	Yes	Yes	2.19E+05	NC	7.30E+06	1.69E+05	--	3.37E+10	3.59E+09	1.30E+01	-		-		5.00E+01	I	No	-	2.19E+05
Chloroethanol, 2-	107-07-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.11E+07	1.39E+07	1.30E+01	4.90E+00	CRC	-		-		No	-	-
Chloroform	67-66-3	Yes	Yes	Yes	Yes	5.33E+00	CA	1.78E+02	5.81E+01	Yes (80)	1.26E+09	7.30E+08	1.30E+01	-		2.30E-05	I	9.77E-02	A	No	5.33E+00	4.28E+02

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ind,1</sub> ) (µg/m³)	Toxicity Basis	Target Gas Concentration (TCR=1E-05 or THQ=1) C <sub>gs</sub> , Target (µg/m³)	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m³)	Maximum Groundwater Vapor Concentration C <sub>gc</sub> (µg/m³)	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m³) <sup>1</sup>	IUR Ref	RfC (mg/m³)	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind</sub> (µg/m³)	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m³)
Chloromethane	74-87-3	Yes	Yes	Yes	Yes	3.94E+02	NC	1.31E+04	1.46E+03	--	1.17E+10	1.43E+09	1.30E+01	8.10E+00	CRC	-	-	9.00E-02	I	No	-	3.94E+02
Chloromethyl Methyl Ether	107-30-2	Yes	Yes	Yes	Yes	1.78E-01	CA	5.92E+00	2.29E+01	--	1.30E+08	5.38E+08	1.30E+01	-	-	6.90E-04	C	-	-	No	1.78E-01	-
Chloronaphthalene, Beta-	91-58-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.07E+05	5.67E+04	1.30E+01	-	-	-	-	-	No	-	-	
Chloronitrobenzene, o-	88-73-3	No	Yes	No (not volatile)	No (not volatile)	4.38E-02	-	-	-	-	1.54E+05	5.63E+04	1.30E+01	-	-	-	1.00E-05	X	No	-	4.38E-02	
Chloronitrobenzene, p-	100-00-5	No	Yes	No (not volatile)	No (not volatile)	8.76E+00	-	-	-	-	1.86E+05	1.52E+04	1.30E+01	-	-	-	2.00E-03	P	No	-	8.76E+00	
Chlorophenol, 2-	95-57-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.75E+07	2.35E+06	1.30E+01	1.70E+00	YAWS	-	-	-	-	No	-	-
Chlorophenol, 4-	106-48-9	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	6.15E+05	2.35E+05	1.30E+01	1.70E+00	YAWS	-	-	-	-	No	-	-
Chloropicrin	76-06-2	Yes	Yes	Yes	Yes	1.75E+00	NC	5.84E+01	3.86E+01	--	2.12E+08	7.36E+07	1.30E+01	-	-	-	4.00E-04	C	No	-	1.75E+00	
Chlorothaloniil	1897-45-6	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	8.15E+00	1.99E+01	1.30E+01	-	-	-	-	-	No	-	-	
Chlorotoluene, o-	95-49-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	2.34E+07	2.65E+07	1.30E+01	1.30E+00	YAWS	-	-	-	-	No	-	-
Chlorotoluene, p-	106-43-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.83E+07	8.56E+06	1.30E+01	1.30E+00	YAWS	-	-	-	-	No	-	-
Chlorozotocin	54749-90-5	No	Yes	No (not volatile)	No (not volatile)	1.78E-03	-	-	-	-	5.69E-07	2.75E-11	1.30E+01	-	-	6.90E-02	C	-	-	No	1.78E-03	-
Chlorpropham	101-21-3	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	2.07E+03	2.07E+03	1.30E+01	-	-	-	-	-	No	-	-	
Chlorpyrifos	2921-88-2	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	3.82E+02	1.34E+02	1.30E+01	-	-	-	-	-	No	-	-	
Chlorpyrifos Methyl	5598-13-0	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	7.29E+02	7.30E+02	1.30E+01	-	-	-	-	-	No	-	-	
Chlorsulfuron	64902-72-3	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	4.33E-04	4.33E-04	1.30E+01	-	-	-	-	-	No	-	-	
Chlorthal-dimethyl	1861-32-1	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	4.46E+01	1.65E+01	1.30E+01	-	-	-	-	-	No	-	-	
Chlorthiophos	60238-56-4	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	7.71E+06	1.47E+01	1.30E+01	-	-	-	-	-	No	-	-	
Chromium(III), Insoluble Salts	16065-83-1	Indeterminate	No	No (not volatile)	No (not volatile)	-	-	-	-	-	-	-	1.30E+01	-	-	-	-	-	-	No	-	-
Chromium(VI)	18540-29-9	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.46E-03	-	-	-	-	-	-	1.30E+01	-	-	8.40E-02	G	1.00E-04	I	Mut	1.46E-03	4.38E-01
Chrysene	218-01-9	No	Yes	No (not volatile)	No (not volatile)	2.04E+02	-	-	-	-	7.65E-02	7.76E-02	1.30E+01	5.00E-01	YAWS	6.00E-07	E	-	-	Mut	2.04E+02	-
Cicfentezine	74115-24-5	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	1.59E-02	1.59E-02	1.30E+01	-	-	-	-	-	No	-	-	
Cobalt	7440-48-4	No	Yes	No (not volatile)	No (not volatile)	1.36E-02	-	-	-	-	0.00E+00	-	1.30E+01	-	-	9.00E-03	P	6.00E-06	P	No	1.36E-02	2.63E-02
Coke Oven Emissions	NA	Yes	Yes	Yes	Yes	1.98E-01	-	-	-	-	-	-	1.30E+01	-	-	6.20E-04	I	-	-	Mut	1.98E-01	-
Copper	7440-50-8	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	0.00E+00	-	1.30E+01	-	-	-	-	-	-	No	-	-
Copper Cyanide	544-92-3	Indeterminate	No	No (not volatile)	No (not volatile)	-	-	-	-	-	-	-	1.30E+01	-	-	-	-	-	-	No	-	-
Cresol, m-	108-39-4	No	Yes	No (not volatile)	No (not volatile)	2.63E+03	-	-	-	-	6.40E+05	3.02E+05	1.30E+01	1.10E+00	CRC	-	-	6.00E-01	C	No	-	2.63E+03
Cresol, o-	95-48-7	No	Yes	No (not volatile)	No (not volatile)	2.63E+03	-	-	-	-	1.74E+06	5.14E+05	1.30E+01	1.40E+00	CRC	-	-	6.00E-01	C	No	-	2.63E+03
Cresol, p-	106-44-5	No	Yes	No (not volatile)	No (not volatile)	2.63E+03	-	-	-	-	6.40E+05	3.33E+05	1.30E+01	1.10E+00	CRC	-	-	6.00E-01	C	No	-	2.63E+03
Cresol, p-chloro-m-	59-50-7	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	3.83E+05	1.54E+05	1.30E+01	-	-	-	-	-	No	-	-	
Cresols	1319-77-3	No	Yes	No (not volatile)	No (not volatile)	2.63E+03	-	-	-	-	2.97E+06	8.96E+04	1.30E+01	-	-	-	-	6.00E-01	C	No	-	2.63E+03
Crotonaldehyde, trans-Cumene	123-73-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.13E+08	1.24E+08	1.30E+01	2.10E+00	CRC	-	-	-	-	No	-	-
	98-82-8	Yes	Yes	Yes	Yes	1.75E+03	NC	5.84E+04	8.73E+03	--	2.91E+07	1.23E+07	1.30E+01	9.00E-01	CRC	-	-	4.00E-01	I	No	-	1.75E+03
Cupferron	135-20-6	No	Yes	No (not volatile)	No (not volatile)	1.95E+00	-	-	-	-	5.25E+02	9.00E+04	1.30E+01	-	-	6.30E-05	C	-	-	No	1.95E+00	-
Cyanazine	21725-46-2	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	1.79E+00	1.79E-02	1.30E+01	-	-	-	-	-	-	No	-	-
Cyanide (CN-)	57-12-5	Yes	Yes	Yes	Yes	3.50E+00	NC	1.17E+02	8.44E+02	No (200)	4.31E+08	3.96E+08	1.30E+01	-	-	-	-	8.00E-04	G	No	-	3.50E+00
Cyanogen	460-19-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.20E+10	1.29E+09	1.30E+01	6.60E+00	CRC	-	-	-	-	No	-	-
Cyanogen Bromide	506-68-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	6.93E+08	-	1.30E+01	-	-	-	-	-	-	No	-	-
Cyanogen Chloride	506-77-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	4.05E+09	3.16E+09	1.30E+01	6.60E+00	YAWS	-	-	-	-	No	-	-

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>so</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gw</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ground</sub> ) (µg/m³)	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sp</sub> , Target (µg/m³)	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m³)	Maximum Groundwater Vapor Concentration C <sub>ic</sub> (µg/m³)	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m³) <sup>1</sup>	IUR Ref	RfC (mg/m³)	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind</sub> (µg/m³)	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m³)
Cyclohexane	110-82-7	Yes	Yes	Yes	Yes	2.63E+04	NC	8.76E+05	7.22E+03	--	4.38E+08	2.00E+08	1.30E+01	1.30E+00	CRC	-	6.00E+00	I	No	-	2.63E+04	
Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	No	No	No (not volatile)	No (not volatile)	-		-	-		9.55E+01	2.15E+00	1.30E+01	-		-	-		No	-	-	
Cyclohexanone	108-94-1	Yes	Yes	Yes	Yes	3.07E+03	NC	1.02E+05	1.97E+07	--	2.29E+07	3.88E+06	1.30E+01	1.10E+00	CRC	-	7.00E-01	P	No	-	3.07E+03	
Cyclohexene	110-83-8	Yes	Yes	Yes	Yes	4.38E+03	NC	1.46E+05	4.00E+03	--	3.93E+08	2.33E+08	1.30E+01	1.20E+00	CRC	-	1.00E+00	X	No	-	4.38E+03	
Cyclohexylamine	108-91-8	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		5.39E+07	8.65E+07	1.30E+01	1.90E+00	CRC	-	-		No	-	-	
Cyclopentadiene	542-92-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.55E+09	1.02E+09	1.30E+01	1.70E+00	YAWS	-	-		No	-	-	
Cyfluthrin	68359-37-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.50E-03	3.56E-03	1.30E+01	-		-	-		No	-	-	
Cyhalothrin	68085-85-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.63E-02	3.03E-01	1.30E+01	-		-	-		No	-	-	
Cyromazine	66215-27-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.00E-02	3.00E-02	1.30E+01	-		-	-		No	-	-	
DDD, p,p'- (DDD)	72-54-8	No	Yes	No (not volatile)	No (not volatile)	1.78E+00		-	-		2.32E+01	2.43E+01	1.30E+01	-		6.90E-05	C	-	No	1.78E+00	-	
DDE, p,p'-	72-55-9	Yes	Yes	Yes	Yes	1.26E+00	CA	4.21E+01	2.88E+03	--	1.03E+02	1.76E+01	1.30E+01	-		9.70E-05	C	-	No	1.26E+00	-	
DDT	50-29-3	No	Yes	No (not volatile)	No (not volatile)	1.26E+00		-	-		3.05E+00	7.03E-01	1.30E+01	-		9.70E-05	I	-	No	1.26E+00	-	
Dalapon	75-99-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.16E+06	5.23E+05	1.30E+01	-		-	-		No	-	-	
Daminozide	1596-84-5	No	Yes	No (not volatile)	No (not volatile)	2.40E+01		-	-		1.72E+03	1.73E+03	1.30E+01	-		5.10E-06	C	-	No	2.40E+01	-	
Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1163-19-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.41E-04	9.23E-06	1.30E+01	-		-	-		No	-	-	
Decane	124-18-5	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.09E+07	4.74E+06	1.30E+01	8.00E-01	CRC	-	-		No	-	-	
Demeton	8065-48-3	No	No	No (not volatile)	No (not volatile)	-		-	-		9.45E+03	1.04E+05	1.30E+01	-		-	-		No	-	-	
Di(2-ethylhexyl)adipate	103-23-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.69E+01	2.83E+00	1.30E+01	4.00E-01	CRC	-	-		No	-	-	
Diallate	2303-16-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.18E+03	2.17E+03	1.30E+01	-		-	-		No	-	-	
Diammonium phosphate	7783-28-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-		No	-	-	
Diazinon	333-41-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.47E+03	1.85E+02	1.30E+01	-		-	-		No	-	-	
Dibenz[a,h]anthracene	53-70-3	No	Yes	No (not volatile)	No (not volatile)	2.04E-01		-	-		1.43E-02	1.86E-03	1.30E+01	-		6.00E-04	E	-	Mut	2.04E-01	-	
Dibenzo[a,e]pyrene	192-65-4	No	Yes	No (not volatile)	No (not volatile)	1.11E-01		-	-		1.14E-03	4.62E-05	1.30E+01	-		1.10E-03	C	-	No	1.11E-01	-	
Dibenzofuran	132-64-9	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.24E+04	5.76E+01	1.30E+01	8.00E-01	YAWS	-	-		No	-	-	
Dibenzothiophene	132-65-0	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.03E+03	2.60E+02	1.30E+01	-		-	-		No	-	-	
Dibromo-3-chloropropane, 1,2-	96-12-8	Yes	Yes	Yes	Yes	2.04E-02	CA	6.81E-01	7.84E+00	No (0)	7.37E+06	3.21E+06	1.30E+01	-		6.00E-03	P	2.00E-04	I	Mut	2.04E-02	8.76E-01
Dibromobenzene, 1,3-	108-36-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.41E+06	1.43E+06	1.30E+01	-		-	-		No	-	-	
Dibromobenzene, 1,4-	106-37-6	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		7.30E+05	3.02E+05	1.30E+01	-		-	-		No	-	-	
Dibromochloromethane	124-48-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		6.21E+07	5.68E+07	1.30E+01	-		-	-		No	-	-	
Dibromomethane, 1,2-	106-93-4	Yes	Yes	Yes	Yes	2.04E-01	CA	6.81E+00	1.45E+01	No (0)	1.13E+08	5.52E+07	1.30E+01	-		6.00E-04	I	9.00E-03	I	No	2.04E-01	3.94E+01
Dibromomethane (Methylene Bromide)	74-95-3	Yes	Yes	Yes	Yes	1.75E+01	NC	5.84E+02	9.26E+02	--	4.15E+08	2.25E+08	1.30E+01	-		-	4.00E-03	X	No	-	1.75E+01	
Dibutyl Phthalate	84-74-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.01E+02	1.13E+02	1.30E+01	5.00E-01	CRC	-	-		No	-	-	
Dibutyltin Compounds	NA	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-		No	-	-	
Dibutyltin dichloride	683-18-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.29E+06	1.15E+07	1.30E+01	-		-	-		No	-	-	
Dicalcium phosphate	7757-93-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-		No	-	-	
Dicamba	1918-00-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.49E+02	7.41E+02	1.30E+01	-		-	-		No	-	-	
Dichloro-2-butene, 1,4-	764-41-0	Yes	Yes	Yes	Yes	2.92E-02	CA	9.73E-01	1.95E-01	--	2.02E+07	8.68E+07	1.30E+01	-		4.20E-03	P	-	No	2.92E-02	-	
Dichloro-2-butene, cis-1,4-	1476-11-5	Yes	Yes	Yes	Yes	2.92E-02	CA	9.73E-01	2.25E+00	--	2.75E+07	7.52E+06	1.30E+01	2.50E+00	YAWS	4.20E-03	P	-	No	2.92E-02	-	
Dichloro-2-butene, trans-1,4-	110-57-6	Yes	Yes	Yes	Yes	2.92E-02	CA	9.73E-01	2.25E+00	--	2.31E+07	1.10E+07	1.30E+01	1.50E+00	YAWS	4.20E-03	P	-	No	2.92E-02	-	
Dichloroacetic Acid	79-43-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.24E+06	1.24E+05	1.30E+01	-		-	-		No	-	-	
Dichlorobenzene, 1,2-	95-50-1	Yes	Yes	Yes	Yes	8.76E+02	NC	2.92E+04	2.40E+04	No (600)	1.08E+07	5.70E+06	1.30E+01	2.20E+00	CRC	-	2.00E-01	H	No	-	8.76E+02	

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>air</sub> , C <sub>soil</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>air</sub> , (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air</sub> , (µg/m <sup>3</sup> )
Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-	541-73-1 106-46-7	Yes Yes	No Yes	No Inhal. Tox. Info Yes	No Inhal. Tox. Info Yes	- 1.11E+01	- CA	- 3.72E+02	- 2.43E+02	No (75)	1.70E+07 1.38E+07	6.37E+06 3.72E+06	1.30E+01 1.30E+01	1.80E+00 1.80E+00	YAWS YAWS	- 1.10E-05	- C	8.00E-01 1.10E-01	I I	No No	- 1.11E+01	- 3.50E+03
Dichlorobenzidine, 3,3'-	91-94-1	No	Yes	No (not volatile)	No (not volatile)	3.61E-01		-	-		3.49E+00	3.60E-03	1.30E+01	-		3.40E-04	C	-		No	3.61E-01	-
Dichlorobenzophenone, 4,4'-	90-98-2	No	No	No (not volatile)	No (not volatile)	-		-	-		8.63E+01	1.08E+01	1.30E+01	-		-		-		No	-	-
Dichlorobenzotrifluoride, 3,4-Dichlorodifluoromethane	328-84-7 75-71-8	Yes Yes	No Yes	No Inhal. Tox. Info Yes	No Inhal. Tox. Info Yes	- 4.38E+02	- NC	- 1.46E+04	- 4.05E+01	--	2.73E+07 3.15E+10	1.98E+07 3.03E+09	1.30E+01 1.30E+01	- -		- -		1.00E-01	X	No No	- -	- 4.38E+02
Dichlorodisopropyl ether, 2,2'-Dichloroethane, 1,1-Dichloroethane, 1,2-Dichloroethylene, 1,1-Dichloroethylene, cis-1,2-Dichloroethylene, trans-1,2-	39638-32-9 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5	Yes Yes Yes Yes Yes Yes	No Yes Yes Yes Yes Yes	No Inhal. Tox. Info Yes Yes Yes Yes Yes	No Inhal. Tox. Info Yes Yes Yes Yes Yes Yes	- 7.67E+01 4.72E+00 8.76E+02 1.75E+02 1.75E+02	- CA CA NC NC NC	- 2.56E+03 1.57E+02 2.92E+04 5.84E+03 5.84E+03	- 5.41E+02 1.71E+02 1.25E+03 1.75E+03 7.36E+02	--  No (5) No (7) No (70) No (100)	1.16E+08 1.21E+09 4.20E+08 3.13E+09 1.04E+09 1.73E+09	8.45E+06 7.14E+08 2.37E+08 1.70E+09 6.43E+08 1.08E+09	1.30E+01 1.30E+01 1.30E+01 1.30E+01 1.30E+01 1.30E+01	- 5.40E+00 6.20E+00 6.50E+00 3.00E+00 6.00E+00	CRC CRC CRC CRC CRC CRC	- 1.60E-06 2.60E-05 - - - -	- C I - - -	- 7.00E-03 2.00E-01 4.00E-02 4.00E-02	- P I X X X	No No No No No No	- 7.67E+01 4.72E+00 - - - -	- - 3.07E+01 8.76E+02 1.75E+02 1.75E+02
Dichlorophenol, 2,4-	120-83-2	No	No	No (not volatile)	No (not volatile)	-		-	-		7.89E+05	4.14E+05	1.30E+01	-		-		-		No	-	-
Dichlorophenoxy Acetic Acid, 2,4-Dichloropropane, 1,2-	94-75-7 78-87-5	No Yes	No Yes	No (not volatile) Yes	No (not volatile) Yes	- 1.75E+01	- NC	- 5.84E+02	- 2.68E+02	No (5)	9.81E+02 3.24E+08	9.80E+02 1.83E+08	1.30E+01 1.30E+01	- 3.40E+00	- YAWS	- 3.70E-06	- P	- 4.00E-03	- I	No No	- 3.31E+01	- 1.75E+01
Dichloropropane, 1,3-	142-28-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.10E+08	5.76E+07	1.30E+01	3.40E+00	YAWS	-	-	-		No	-	-
Dichloropropanol, 2,3-Dichloropropene, 1,3-	616-23-9 542-75-6	No Yes	No Yes	No (not volatile) Yes	No (not volatile) Yes	- 3.07E+01	- CA	- 1.02E+03	- 3.90E+02	--	1.28E+06 2.03E+08	4.11E+03 2.20E+08	1.30E+01 1.30E+01	- 5.30E+00	- N	4.00E-06	I	2.00E-02	I	No No	- 3.07E+01	- 8.76E+01
Dichlorvos	62-73-7	No	Yes	No (not volatile)	No (not volatile)	1.48E+00		-	-		1.87E+05	1.88E+05	1.30E+01	-		8.30E-05	C	5.00E-04	I	No	1.48E+00	2.19E+00
Dicrotophos	141-66-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.04E+03	2.06E+03	1.30E+01	-		-		-		No	-	-
Dicyclopentadiene	77-73-6	Yes	Yes	Yes	Yes	1.31E+00	NC	4.38E+01	5.98E-01	--	1.63E+07	5.82E+07	1.30E+01	1.00E+00	YAWS	-		3.00E-04	X	No	-	1.31E+00
Dieldrin	60-57-1	No	Yes	No (not volatile)	No (not volatile)	2.67E-02		-	-		1.21E+02	1.71E+01	1.30E+01	-		4.60E-03	I	-		No	2.67E-02	-
Diesel Engine Exhaust	NA	Indeterminate	Yes	No (not volatile)	No (not volatile)	4.09E-01		-	-		-	-	1.30E+01	-		3.00E-04	C	5.00E-03	I	No	4.09E-01	2.19E+01
Diethanolamine	111-42-2	No	Yes	No (not volatile)	No (not volatile)	8.76E-01		-	-		1.58E+03	3.48E+02	1.30E+01	2.00E+00	CRC	-		2.00E-04	P	No	-	8.76E-01
Diethyl Phthalate	84-66-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.51E+04	7.05E+03	1.30E+01	7.00E-01	CRC	-		-		No	-	-
Diethyl-meta-Toluidine, N,N (DEET)	134-62-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.06E+04	0.00E+00	1.30E+01	-		-		-		No	-	-
Diethylene Glycol Monobutyl Ether	112-34-5	No	Yes	No (not volatile)	No (not volatile)	4.38E-01		-	-		1.91E+05	8.75E+04	1.30E+01	9.00E-01	YAWS	-		1.00E-04	P	No	-	4.38E-01
Diethylene Glycol Monoethyl Ether	111-90-0	No	Yes	No (not volatile)	No (not volatile)	1.31E+00		-	-		9.09E+05	3.35E+05	1.30E+01	1.20E+00	YAWS	-		3.00E-04	P	No	-	1.31E+00
Diethylformamide	617-84-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.58E+06	2.04E+06	1.30E+01	-		-		-		No	-	-
Diethylstilbestrol	56-53-1	No	Yes	No (not volatile)	No (not volatile)	1.23E-03		-	-		2.04E-01	2.85E-03	1.30E+01	-		1.00E-01	C	-		No	1.23E-03	-
Difenzoquat	43222-48-6	No	No	No (not volatile)	No (not volatile)	-		-	-		7.93E-05	-	1.30E+01	-		-		-		No	-	-
Diffubenzuron	35367-38-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.50E-02	1.50E-02	1.30E+01	-		-		-		No	-	-
Difluoroethane, 1,1-Difluoropropane, 2,2-Dihydrosafrole	75-37-6 420-45-1 94-58-6	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	1.75E+05 1.31E+05 9.43E+00	NC NC CA	5.84E+06 4.38E+06 3.14E+02	2.80E+05 8.69E+03 4.65E+04	-- -- --	1.62E+10 7.75E+09 4.95E+05	2.00E+09 2.41E+09 1.15E+04	1.30E+01 1.30E+01 1.30E+01	3.70E+00 - -	YAWS - -	- - 1.30E-05	- - C	4.00E+01 3.00E+01 -	I X -	No No No	- - 9.43E+00	- 1.75E+05 -
Diisopropyl Ether	108-20-3	Yes	Yes	Yes	Yes	3.07E+03	NC	1.02E+05	4.89E+04	--	8.19E+08	5.52E+08	1.30E+01	1.40E+00	CRC	-		7.00E-01	P	No	-	3.07E+03
Diisopropyl Methylphosphonate	1445-75-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.21E+06	1.24E+06	1.30E+01	-		-		-		No	-	-
Dimethipin	55290-64-7	No	No	No (not volatile)	No (not volatile)	-		-	-		4.33E+00	4.33E+00	1.30E+01	-		-		-		No	-	-
Dimethoate	60-51-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.31E+02	2.31E+02	1.30E+01	-		-		-		No	-	-
Dimethoxybenzidine, 3,3'-	119-90-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.64E+00	1.15E-01	1.30E+01	-		-		-		No	-	-
Dimethyl methylphosphonate	756-79-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.56E+06	2.54E+06	1.30E+01	-		-		-		No	-	-
Dimethylamino azobenzene [p-]	60-11-7	No	Yes	No (not volatile)	No (not volatile)	9.43E-02		-	-		8.48E-01	3.76E-03	1.30E+01	-		1.30E-03	C	-		No	9.43E-02	-
Dimethylaniline HCl, 2,4-	21436-96-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.16E+06	3.46E+05	1.30E+01	-		-		-		No	-	-

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have Inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1a</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>air</sub> , C <sub>air,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>gs</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>air,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,nc</sub> (µg/m <sup>3</sup> )
Dimethylaniline, 2,4-	95-68-1	No	No	No (not volatile)	No (not volatile)	-		-	-		8.67E+05	2.51E+05	1.30E+01	-		-		-		No	-	-
Dimethylaniline, N,N-	121-69-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.56E+06	1.17E+06	1.30E+01	1.20E+00	YAWS			-		No	-	-
Dimethylbenz(a)anthracene, 7,12-	57-97-6	No	Yes	No (not volatile)	No (not volatile)	1.73E-03		-	-		9.38E+00	9.38E+00	1.30E+01	-		7.10E-02	C	-		Mut	1.73E-03	-
Dimethylbenzidine, 3,3'-	119-93-7	No	No	No (not volatile)	No (not volatile)	-		-	-		7.90E+00	1.39E+00	1.30E+01	-		-		-		No	-	-
Dimethylformamide	68-12-2	Yes	Yes	Yes	Yes	1.31E+02	NC	4.38E+03	1.09E+08	--	1.52E+07	1.20E+06	1.30E+01	2.20E+00	CRC			3.00E-02	I	No	-	1.31E+02
Dimethylhydrazine, 1,1-	57-14-7	Yes	Yes	Yes	Yes	8.76E-03	NC	2.92E-01	2.91E+01	--	5.27E+08	3.01E+08	1.30E+01	2.00E+00	CRC			2.00E-06	X	No	-	8.76E-03
Dimethylhydrazine, 1,2-	540-73-8	Yes	Yes	Yes	Yes	7.67E-04	CA	2.56E-02	4.60E+02	--	2.26E+08	1.67E+06	1.30E+01	-		1.60E-01	C	-		No	7.67E-04	-
Dimethylphenol, 2,4-	105-67-9	No	No	No (not volatile)	No (not volatile)	-		-	-		6.70E+05	1.11E+05	1.30E+01	1.10E+00	YAWS	-		-		No	-	-
Dimethylphenol, 2,6-	576-26-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.12E+06	6.46E+05	1.30E+01	1.40E+00	YAWS	-		-		No	-	-
Dimethylphenol, 3,4-	95-65-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.34E+05	2.67E+04	1.30E+01	1.10E+00	YAWS	-		-		No	-	-
Dimethylphthalate	131-11-3	No	No	No (not volatile)	No (not volatile)	-		-	-		3.22E+04	9.15E+03	1.30E+01	9.00E-01	CRC	-		-		No	-	-
Dimethylterephthalate	120-61-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.04E+05	3.08E+04	1.30E+01	1.00E+00	YAWS			-		No	-	-
Dimethylvinylchloride	513-37-1	Yes	Yes	Yes	Yes	9.43E+00	CA	3.14E+02	3.19E+02	--	1.03E+09	2.96E+07	1.30E+01	-		1.30E-05	C	-		No	9.43E+00	-
Dinitro-o-cresol, 4,6-	534-52-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.28E+03	1.13E+04	1.30E+01	-		-		-		No	-	-
Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5	No	No	No (not volatile)	No (not volatile)	-		-	-		6.00E-01	3.40E+01	1.30E+01	-		-		-		No	-	-
Dinitroaniline, 3,5-	618-87-1	No	Yes	No (not volatile)	No (not volatile)	8.76E+00		-	-		2.64E+02	1.56E+00	1.30E+01	-		-		2.00E-03	X	No	-	8.76E+00
Dinitrobenzene, 1,2-	528-29-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.11E+02	6.66E+01	1.30E+01	1.80E+00	YAWS	-		-		No	-	-
Dinitrobenzene, 1,3-	99-65-0	No	No	No (not volatile)	No (not volatile)	-		-	-		8.14E+03	2.70E+02	1.30E+01	-		-		-		No	-	-
Dinitrobenzene, 1,4-	100-25-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.36E+02	5.82E+01	1.30E+01	1.80E+00	YAWS	-		-		No	-	-
Dinitrophenol, 2,4-	51-28-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.86E+03	9.81E+03	1.30E+01	-		-		-		No	-	-
Dinitrotoluene Mixture, 2,4/2,6-	NA	No	No	No (not volatile)	No (not volatile)	-		-	-		2.11E+04	4.38E+03	1.30E+01	-		-		-		No	-	-
Dinitrotoluene, 2,4-	121-14-2	No	Yes	No (not volatile)	No (not volatile)	1.38E+00		-	-		1.44E+03	9.66E+01	1.30E+01	1.50E+00	YAWS	8.90E-05	C	-		No	1.38E+00	-
Dinitrotoluene, 2,6-	606-20-2	No	No	No (not volatile)	No (not volatile)	-		-	-		5.55E+03	1.32E+03	1.30E+01	1.50E+00	YAWS	-		-		No	-	-
Dinitrotoluene, 2-Amino-4,6-	35572-78-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.13E+02	1.63E+00	1.30E+01	-		-		-		No	-	-
Dinitrotoluene, 4-Amino-2,6-	19406-51-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.13E+02	1.63E+00	1.30E+01	-		-		-		No	-	-
Dinitrotoluene, Technical grade	25321-14-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.17E+04	1.02E+03	1.30E+01	-		-		-		No	-	-
Dinoseb	88-85-7	No	No	No (not volatile)	No (not volatile)	-		-	-		9.69E+02	9.69E+02	1.30E+01	-		-		-		No	-	-
Dioxane, 1,4-	123-91-1	Yes	Yes	Yes	Yes	2.45E+01	CA	8.18E+02	2.31E+05	--	1.80E+08	1.06E+08	1.30E+01	2.00E+00	CRC	5.00E-06	I	3.00E-02	I	No	2.45E+01	1.31E+02
Diphenamid	957-51-7	No	No	No (not volatile)	No (not volatile)	-		-	-		3.86E-01	3.86E-01	1.30E+01	-		-		-		No	-	-
Diphenyl Ether	101-84-8	Yes	Yes	Yes	Yes	1.75E+00	NC	5.84E+01	4.35E+02	--	2.06E+05	7.25E+04	1.30E+01	8.00E-01	CRC	-		4.00E-04	X	No	-	1.75E+00
Diphenyl Sulfone	127-63-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.80E+02	9.24E+02	1.30E+01	-		-		-		No	-	-
Diphenylamine	122-39-4	No	No	No (not volatile)	No (not volatile)	-		-	-		6.10E+03	1.69E+03	1.30E+01	7.00E-01	YAWS	-		-		No	-	-
Diphenylhydrazine, 1,2-	122-66-7	No	Yes	No (not volatile)	No (not volatile)	5.57E-01		-	-		4.32E+03	1.30E+03	1.30E+01	7.00E-01	YAWS	2.20E-04	I	-		No	5.57E-01	-
Diquat	2764-72-9	No	No	No (not volatile)	No (not volatile)	-		-	-		9.91E-02	4.07E+02	1.30E+01	-		-		-		No	-	-
Direct Black 38	1937-37-7	No	Yes	No (not volatile)	No (not volatile)	5.84E-02		-	-		6.42E-29	1.01E-28	1.30E+01	-		2.10E-03	C	-		No	5.84E-02	-
Direct Blue 6	2602-46-2	No	Yes	No (not volatile)	No (not volatile)	5.84E-02		-	-		4.79E-31	5.09E-40	1.30E+01	-		2.10E-03	C	-		No	5.84E-02	-
Direct Brown 95	16071-86-6	No	Yes	No (not volatile)	No (not volatile)	6.45E-02		-	-		5.85E-34	-	1.30E+01	-		1.90E-03	C	-		No	6.45E-02	-
Disulfoton	298-04-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.44E+03	1.44E+03	1.30E+01	-		-		-		No	-	-
Dithiane, 1,4-	505-29-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.14E+05	2.12E+06	1.30E+01	-		-		-		No	-	-

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,2</sub> .Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,2</sub> .Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> ,C <sub>soil,ind</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> .Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> .Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Diundecyl Phthalate	3648-20-2	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.11E-02	2.54E+03	1.30E+01	-		-		-		No	-	-
Diuron	330-54-1	No	No	No (not volatile)	No (not volatile)	-		-	-		8.65E-01	8.65E-01	1.30E+01	-		-		-		No	-	-
Dodine	2439-10-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.32E+00	2.32E+00	1.30E+01	-		-		-		No	-	-
EPTC	759-94-4	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.44E+05	2.44E+05	1.30E+01	-		-		-		No	-	-
Endosulfan	115-29-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.79E+00	8.64E+02	1.30E+01	-		-		-		No	-	-
Endosulfan Sulfate	1031-07-8	No	No	No (not volatile)	No (not volatile)	-		-	-		6.37E+00	6.38E+00	1.30E+01	-		-		-		No	-	-
Endothall	145-73-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.57E-03	1.57E-03	1.30E+01	-		-		-		No	-	-
Endrin	72-20-8	No	No	No (not volatile)	No (not volatile)	-		-	-		6.15E+01	6.50E+01	1.30E+01	-		-		-		No	-	-
Epichlorohydrin	106-89-8	Yes	Yes	Yes	Yes	4.38E+00	NC	1.46E+02	3.39E+03	--	8.18E+07	8.53E+07	1.30E+01	3.80E+00	YAWS CRC	1.20E-06	I	1.00E-03	I	No	1.02E+02	4.38E+00
Epoxybutane, 1,2-	106-88-7	Yes	Yes	Yes	Yes	8.76E+01	NC	2.92E+03	2.00E+04	--	6.98E+08	4.17E+08	1.30E+01	1.70E+00		-		2.00E-02	I	No	-	8.76E+01
Ethanol, 2-(2-methoxyethoxy)-	111-77-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.62E+06	2.55E+02	1.30E+01	1.38E+00	CRC	-		-		No	-	-
Ethephon	16672-87-0	No	No	No (not volatile)	No (not volatile)	-		-	-		7.62E-01	2.33E+02	1.30E+01	-		-		-		No	-	-
Ethion	563-12-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.10E+01	3.10E+01	1.30E+01	-		-		-		No	-	-
Ethoxyethanol Acetate, 2-	111-15-9	Yes	Yes	Yes	Yes	2.63E+02	NC	8.76E+03	4.63E+06	--	1.42E+07	1.06E+07	1.30E+01	2.00E+00	CRC	-		6.00E-02	P	No	-	2.63E+02
Ethoxyethanol, 2-	110-90-5	Yes	Yes	Yes	Yes	1.75E+02	NC	5.84E+03	2.02E+07	--	2.57E+07	8.67E+06	1.30E+01	3.00E+00	CRC	-		4.00E-02	P	No	-	1.75E+02
Ethyl Acetate	141-78-6	Yes	Yes	Yes	Yes	3.07E+02	NC	1.02E+04	9.88E+04	--	4.42E+08	2.48E+08	1.30E+01	2.00E+00	CRC	-		7.00E-02	P	No	-	3.07E+02
Ethyl Acrylate	140-88-5	Yes	Yes	Yes	Yes	3.50E+01	NC	1.17E+03	4.80E+03	--	2.08E+08	1.10E+08	1.30E+01	1.40E+00	CRC	-		8.00E-03	P	No	-	3.50E+01
Ethyl Chloride	75-00-3	Yes	Yes	Yes	Yes	1.75E+04	NC	5.84E+05	5.62E+04	--	3.50E+09	2.09E+09	1.30E+01	3.80E+00	CRC	-		4.00E+00	P	No	-	1.75E+04
Ethyl Ether	60-29-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.14E+09	1.98E+09	1.30E+01	1.90E+00	CRC	-		-		No	-	-
Ethyl Methacrylate	97-63-2	Yes	Yes	Yes	Yes	1.31E+03	NC	4.38E+04	1.35E+05	--	1.26E+08	5.26E+07	1.30E+01	1.80E+00	YAWS	-		3.00E-01	P	No	-	1.31E+03
Ethyl Tertiary Butyl Ether (ETBE)	637-92-3	Yes	Yes	Yes	Yes	1.53E+03	CA	5.11E+04	3.84E+04	--	6.81E+08	4.79E+08	1.30E+01	1.20E+00	YAWS	8.00E-08	I	4.00E+01	I	No	1.53E+03	1.75E+05
Ethyl-p-nitrophenyl Phosphonate	2104-64-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.65E+01	5.65E+01	1.30E+01	-		-		-		No	-	-
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	4.91E+01	CA	1.64E+03	2.99E+02	Yes (700)	5.48E+07	2.77E+07	1.30E+01	8.00E-01	CRC	2.50E-06	C	1.00E+00	I	No	4.91E+01	4.38E+03
Ethylene Cyanohydrin	109-78-4	No	No	No (not volatile)	No (not volatile)	-		-	-		3.07E+05	9.14E+04	1.30E+01	2.30E+00	YAWS	-		-		No	-	-
Ethylene Diamine	107-15-3	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.88E+07	3.53E+04	1.30E+01	2.50E+00	CRC	-		-		No	-	-
Ethylene Glycol	107-21-1	No	Yes	No (not volatile)	No (not volatile)	1.75E+03		-	-		3.07E+05	8.96E+05	1.30E+01	3.20E+00	CRC	-		4.00E-01	C	No	-	1.75E+03
Ethylene Glycol Monobutyl Ether	111-76-2	No	Yes	No (not volatile)	No (not volatile)	7.01E+03		-	-		5.59E+06	2.53E+07	1.30E+01	4.00E+00	CRC	-		1.60E+00	I	No	-	7.01E+03
Ethylene Oxide	75-21-8	Yes	Yes	Yes	Yes	4.09E-02	CA	1.36E+00	9.97E+00	--	3.11E+09	4.10E+09	1.30E+01	3.00E+00	CRC	3.00E-03	I	3.00E-02	C	Mut	4.09E-02	1.31E+02
Ethylene Thiourea	96-45-7	No	Yes	No (not volatile)	No (not volatile)	9.43E+00		-	-		1.11E+01	1.11E+01	1.30E+01	-		1.30E-05	C	-		No	9.43E+00	-
Ethylenimine	151-56-4	Yes	Yes	Yes	Yes	6.45E-03	CA	2.15E-01	2.22E+01	--	4.93E+08	2.91E+08	1.30E+01	3.30E+00	CRC	1.90E-02	C	-		No	6.45E-03	-
Ethylphthalyl Ethyl Glycolate	84-72-0	No	No	No (not volatile)	No (not volatile)	-		-	-		3.26E+03	5.89E+01	1.30E+01	-		-		-		No	-	-
Fenamiphos	22224-92-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.63E+01	1.63E+01	1.30E+01	-		-		-		No	-	-
Fenpropathrin	39515-41-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.03E+02	1.03E+02	1.30E+01	-		-		-		No	-	-
Fenvalerate	51630-58-1	No	No	No (not volatile)	No (not volatile)	-		-	-		3.39E-02	3.39E-02	1.30E+01	-		-		-		No	-	-
Fluometuron	2164-17-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.17E+01	1.17E+01	1.30E+01	-		-		-		No	-	-
Fluoranthene	206-44-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.00E+02	2.38E+01	1.30E+01	6.00E-01	YAWS	-		-		No	-	-
Fluorene	86-73-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		5.36E+03	2.06E+03	1.30E+01	7.00E-01	YAWS	-		-		No	-	-
Fluoride	16984-48-8	Indeterminate	Yes	No (not volatile)	No (not volatile)	5.69E+01		-	-		-	-	1.30E+01	-		-		1.30E-02	C	No	-	5.69E+01
Fluorine (Soluble Fluoride)	7782-41-4	Indeterminate	Yes	No (not volatile)	No (not volatile)	5.69E+01		-	-		-	-	1.30E+01	-		-		1.30E-02	C	No	-	5.69E+01
Fluorobenzene	462-06-6	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.99E+08	2.28E+08	1.30E+01	-		-		-		No	-	-
Fluridone	59756-60-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.73E+00	3.97E+00	1.30E+01	-		-		-		No	-	-
Flurprimidol	56425-91-3	No	No	No (not volatile)	No (not volatile)	-		-	-		6.11E+00	2.27E+00	1.30E+01	-		-		-		No	-	-

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is,Target</sub> ?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gw</sub> > C <sub>is,Target</sub> ?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> ,C <sub>ind,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>ss</sub> ,Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> ,Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m <sup>3</sup> )
Flusilazole	85509-19-9	No	No	No (not volatile)	No (not volatile)	-		-	-		4.97E+00	4.97E+00	1.30E+01	-		-		-		No	-	-
Flutolanil	66332-96-5	No	No	No (not volatile)	No (not volatile)	-		-	-		8.49E-01	8.49E-01	1.30E+01	-		-		-		No	-	-
Fluvalinate	69409-94-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.70E+00	2.96E-03	1.30E+01	-		-		-		No	-	-
Folpet	133-07-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.50E+00	2.51E+00	1.30E+01	-		-		-		No	-	-
Fomesafen	72178-02-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.77E+01	1.54E-03	1.30E+01	-		-		-		No	-	-
Fonofos	944-22-9	No	No	No (not volatile)	No (not volatile)	-		-	-		4.48E+03	4.48E+03	1.30E+01	-		-		-		No	-	-
Formaldehyde	50-00-0	Yes	Yes	Yes	Yes	9.43E+00	CA	3.14E+02	9.67E+05	--	6.28E+09	3.90E+06	1.30E+01	7.00E+00	CRC	1.30E-05	I	9.83E-03	A	No	9.43E+00	4.30E+01
Formic Acid	64-18-6	Yes	Yes	Yes	Yes	1.31E+00	NC	4.38E+01	2.85E+05	--	1.05E+08	4.61E+06	1.30E+01	1.80E+01	CRC	-		3.00E-04	X	No	-	1.31E+00
Fosetyl-LAL	39148-24-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.43E-03	1.43E-01	1.30E+01	-		-		-		No	-	-
Furan	110-00-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.20E+09	1.43E+09	1.30E+01	2.30E+00	CRC	-		-		No	-	-
Furazolidone	67-45-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.15E+01	5.33E-02	1.30E+01	-		-		-		No	-	-
Furfural	98-01-1	Yes	Yes	Yes	Yes	2.19E+02	NC	7.30E+03	3.27E+06	--	1.14E+07	4.97E+06	1.30E+01	2.10E+00	CRC	-		5.00E-02	H	No	-	2.19E+02
Furium	531-82-8	No	Yes	No (not volatile)	No (not volatile)	2.85E-01		-	-		1.20E-01	2.29E-04	1.30E+01	-		4.30E-04	C	-		No	2.85E-01	-
Furmecycloz	60568-05-0	No	Yes	No (not volatile)	No (not volatile)	1.43E+01		-	-		1.13E+03	8.45E-02	1.30E+01	-		8.60E-06	C	-		No	1.43E+01	-
Gadolinium	7440-54-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Glufosinate, Ammonium	77182-82-2	No	No	No (not volatile)	No (not volatile)	-		-	-		9.72E-05	2.48E+00	1.30E+01	-		-		-		No	-	-
Glutaraldehyde	111-30-8	No	Yes	No (not volatile)	No (not volatile)	3.50E-01		-	-		3.23E+06	1.31E+05	1.30E+01	-		-		8.00E-05	C	No	-	3.50E-01
Glycidaldehyde	765-34-4	Yes	Yes	Yes	Yes	4.38E+00	NC	1.46E+02	3.87E+05	--	1.76E+08	1.13E+07	1.30E+01	-		-		1.00E-03	X	No	-	4.38E+00
Glyphosate	1071-83-6	No	No	No (not volatile)	No (not volatile)	-		-	-		8.91E-01	9.01E-01	1.30E+01	-		-		-		No	-	-
Guanidine	113-00-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.02E+06	1.76E+00	1.30E+01	-		-		-		No	-	-
Guanidine Chloride	50-01-1	No	No	No (not volatile)	No (not volatile)	-		-	-		9.04E+00	8.87E-05	1.30E+01	-		-		-		No	-	-
Guanidine Nitrate	506-93-4	No	No	No (not volatile)	No (not volatile)	-		-	-		8.21E-01	3.66E-05	1.30E+01	-		-		-		No	-	-
Haloxypol, Methyl	69806-40-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.21E+02	1.21E+02	1.30E+01	-		-		-		No	-	-
Heptachlor	76-44-8	Yes	Yes	Yes	Yes	9.43E-02	CA	3.14E+00	2.50E+01	No (0)	8.03E+03	6.79E+02	1.30E+01	-		1.30E-03	I	-		No	9.43E-02	-
Heptachlor Epoxide	1024-57-3	Yes	Yes	Yes	Yes	4.72E-02	CA	1.57E+00	2.34E+02	No (0)	4.08E+02	4.03E+01	1.30E+01	-		2.60E-03	I	-		No	4.72E-02	-
Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	Yes	Yes	Yes	Yes	1.08E-01	CA	3.59E+00	5.10E+01	--	2.76E+00	1.56E+00	1.30E+01	-		1.14E-03	W	1.33E-03	W	No	1.08E-01	5.84E+00
Heptachlorodibenzofuran, 1,2,3,4,6,7,8-	67562-39-4	Yes	Yes	Yes	Yes	3.23E-04	CA	1.08E-02	5.60E-01	--	7.77E-04	7.78E-04	1.30E+01	-		3.80E-01	W	4.00E-06	W	No	3.23E-04	1.75E-02
Heptanal, n-	111-71-7	Yes	Yes	Yes	Yes	1.31E+01	NC	4.38E+02	2.58E+03	--	2.16E+07	6.36E+06	1.30E+01	-		-		3.00E-03	X	No	-	1.31E+01
Heptane, N-	142-82-5	Yes	Yes	Yes	Yes	1.75E+03	NC	5.84E+04	3.87E+01	--	2.48E+08	1.54E+08	1.30E+01	1.05E+00	CRC	-		4.00E-01	P	No	-	1.75E+03
Hexabromobenzene	87-82-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.83E-01	1.84E-01	1.30E+01	-		-		-		No	-	-
Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.01E+02	-	1.30E+01	-		-		-		No	-	-
Hexachlorobenzene	118-74-1	Yes	Yes	Yes	Yes	2.67E-01	CA	8.89E+00	1.20E+01	No (1)	2.76E+02	1.38E+02	1.30E+01	3.50E+00	YAWS	4.60E-04	I	-		No	2.67E-01	-
Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	Yes	Yes	Yes	Yes	1.08E-01	CA	3.59E+00	3.84E+01	--	1.13E+01	6.23E+00	1.30E+01	-		1.14E-03	W	1.33E-03	W	No	1.08E-01	5.84E+00
Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)	69782-90-7	Yes	Yes	Yes	Yes	1.08E-01	CA	3.59E+00	1.62E+01	--	1.13E+01	1.09E+01	1.30E+01	-		1.14E-03	W	1.33E-03	W	No	1.08E-01	5.84E+00
Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 156)	38380-08-4	Yes	Yes	Yes	Yes	1.08E-01	CA	3.59E+00	6.62E+01	--	3.12E+01	8.67E+00	1.30E+01	-		1.14E-03	W	1.33E-03	W	No	1.08E-01	5.84E+00
Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	Yes	Yes	Yes	Yes	1.08E-04	CA	3.59E-03	1.38E-01	--	1.13E+01	3.97E-01	1.30E+01	-		1.14E+00	W	1.33E-06	W	No	1.08E-04	5.84E-03
Hexachlorobutadiene	87-68-3	Yes	Yes	Yes	Yes	5.57E+00	CA	1.86E+02	3.13E+01	--	3.09E+06	5.70E+05	1.30E+01	2.90E+00	YAWS	2.20E-05	I	-		No	5.57E+00	-
Hexachlorocyclohexane, Alpha-	319-84-6	No	Yes	No (not volatile)	No (not volatile)	6.81E-02		-	-		5.51E+02	5.48E+02	1.30E+01	-		1.80E-03	I	-		No	6.81E-02	-
Hexachlorocyclohexane, Beta-	319-85-7	No	Yes	No (not volatile)	No (not volatile)	2.31E-01		-	-		5.63E+00	4.32E+00	1.30E+01	-		5.30E-04	I	-		No	2.31E-01	-
Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	No	Yes	No (not volatile)	No (not volatile)	3.96E-01		-	-		6.57E+02	1.53E+03	1.30E+01	-		3.10E-04	C	-		No	3.96E-01	-
Hexachlorocyclohexane, Technical	608-73-1	No	Yes	No (not volatile)	No (not volatile)	2.40E-01		-	-		5.51E+02	1.68E+03	1.30E+01	-		5.10E-04	I	-		No	2.40E-01	-
Hexachlorocyclopentadiene	77-47-4	Yes	Yes	Yes	Yes	8.76E-01	NC	2.92E+01	4.02E+01	Yes (50)	8.80E+05	3.92E+04	1.30E+01	-		-		2.00E-04	I	No	-	8.76E-01
Hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8-	39227-28-6	No	Yes	No (not volatile)	No (not volatile)	3.23E-05		-	-		8.05E-04	7.11E-04	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03
Hexachlorodibenzo-p-dioxin, Mixture	34465-46-8	No	Yes	No (not volatile)	No (not volatile)	9.43E-05		-	-		9.25E-04	9.32E-04	1.30E+01	-		1.30E+00	I	-		No	9.43E-05	-
Hexachlorodibenzofuran, 1,2,3,4,7,8-	70648-26-9	Yes	Yes	Yes	Yes	3.23E-05	CA	1.08E-03	2.03E-02	--	2.26E+00	4.73E-03	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03
Hexachloroethane	67-72-1	Yes	Yes	Yes	Yes	1.11E+01	CA	3.72E+02	7.01E+01	--	2.67E+06	7.95E+06	1.30E+01	-		1.10E-05	C	3.00E-02	I	No	1.11E+01	1.31E+02



Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>air</sub> , C <sub>is</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>air</sub> , (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air</sub> , (µg/m <sup>3</sup> )
Hexachlorophene	70-30-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.25E-03	3.14E-03	1.30E+01	-		-		-	No		-	-
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.07E+07	7.73E+09	1.30E+01	-		-		-	No		-	-
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	No	No	No (not volatile)	No (not volatile)	-		-	-		4.90E-02	4.91E-02	1.30E+01	-		-		-	No		-	-
Hexamethylene Diisocyanate, 1,6-	822-06-0	Yes	Yes	Yes	Yes	4.38E-02	NC	1.46E+00	5.06E+01	--	2.71E+05	1.01E+05	1.30E+01	-		-		1.00E-05	I	No	-	4.38E-02
Hexamethylene diisocyanate biuret	4035-89-6	No	Yes	No (not volatile)	No (not volatile)	1.75E+00		-	-		6.49E-08	8.41E-15	1.30E+01	-		-		4.00E-04	C	No	-	1.75E+00
Hexamethylene diisocyanate isocyanurate	3779-63-3	No	Yes	No (not volatile)	No (not volatile)	1.75E+00		-	-		2.65E-09	2.65E-16	1.30E+01	-		-		4.00E-04	C	No	-	1.75E+00
Hexamethylphosphoramide	680-31-9	No	No	No (not volatile)	No (not volatile)	-		-	-		4.43E+05	8.18E+05	1.30E+01	-		-		-	No		-	-
Hexane, Commercial	NA	Yes	Yes	Yes	Yes	6.13E+02	CA	2.04E+04	1.38E+01	--	7.01E+08	4.22E+08	1.30E+01	1.10E+00	CRC	2.00E-07	X	6.00E-01	P	No	6.13E+02	2.63E+03
Hexane, N-	110-54-3	Yes	Yes	Yes	Yes	3.07E+03	NC	1.02E+05	6.90E+01	--	7.01E+08	4.22E+08	1.30E+01	1.10E+00	CRC	-		7.00E-01	I	No	-	3.07E+03
Hexanedioic Acid	124-04-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.50E+00	1.05E+00	1.30E+01	1.60E+00	YAWS	-		-		No	-	-
Hexanol, 1-,2-ethyl- (2-Ethyl-1-hexanol)	104-76-7	Yes	Yes	Yes	Yes	1.75E+00	NC	5.84E+01	5.17E+03	--	9.53E+05	2.98E+05	1.30E+01	8.80E-01	CRC	-		4.00E-04	P	No	-	1.75E+00
Hexanone, 2-	591-78-6	Yes	Yes	Yes	Yes	1.31E+02	NC	4.38E+03	6.95E+04	--	6.25E+07	3.25E+07	1.30E+01	1.00E+00	CRC	-		3.00E-02	I	No	-	1.31E+02
Hexazinone	51235-04-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.05E+00	3.05E+00	1.30E+01	-		-		-	No		-	-
Hexythiazox	78587-05-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.84E-01	4.84E-01	1.30E+01	-		-		-	No		-	-
HpCDD, 1,2,3,4,6,7,8,-	35822-46-9	Yes	Yes	Yes	Yes	3.23E-04	CA	1.08E-02	4.51E-02	--	1.72E-02	1.72E-02	1.30E+01	-		3.80E-01	W	4.00E-06	W	No	3.23E-04	1.75E-02
HpCDF, 1,2,3,4,7,8,9-	55673-89-7	Yes	Yes	Yes	Yes	3.23E-04	CA	1.08E-02	5.60E-01	--	7.77E-04	7.78E-04	1.30E+01	-		3.80E-01	W	4.00E-06	W	No	3.23E-04	1.75E-02
HxCDD, 1,2,3,6,7,8-	57653-85-7	No	Yes	No (not volatile)	No (not volatile)	3.23E-05		-	-		7.57E-04	2.10E-03	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03
HxCDD, 1,2,3,7,8,9-	19408-74-3	No	Yes	No (not volatile)	No (not volatile)	3.23E-05		-	-		7.57E-04	2.10E-03	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03
HxCDF, 1,2,3,6,7,8-	57117-44-9	Yes	Yes	Yes	Yes	3.23E-05	CA	1.08E-03	2.03E-02	--	2.26E+00	5.54E-01	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03
HxCDF, 1,2,3,7,8,9-	72918-21-9	No	Yes	No (not volatile)	No (not volatile)	3.23E-05		-	-		1.55E+00	5.39E-01	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03
HxCDF, 2,3,4,6,7,8-	60851-34-5	No	Yes	No (not volatile)	No (not volatile)	3.23E-05		-	-		2.26E+00	1.64E-02	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03
Hydramethylnon	67485-29-4	No	No	No (not volatile)	No (not volatile)	-		-	-		5.40E-01	5.40E-01	1.30E+01	-		-		-	No		-	-
Hydrazine	302-01-2	Yes	Yes	Yes	Yes	2.50E-02	CA	8.34E-01	2.12E+03	--	2.48E+07	1.18E+07	1.30E+01	5.00E+00	CRC	4.90E-03	I	3.00E-05	P	No	2.50E-02	1.31E-01
Hydrazine Sulfate	10034-93-2	Indeterminate	Yes	No (not volatile)	No (not volatile)	2.50E-02		-	-		-	-	1.30E+01	-		4.90E-03	I	-		No	2.50E-02	-
Hydrogen Chloride	7647-01-0	Yes	Yes	Yes	Yes	8.76E+01	NC	2.92E+03	5.05E+09	--	6.75E+10	1.17E+04	1.30E+01	-		-		2.00E-02	I	No	-	8.76E+01
Hydrogen Cyanide	74-90-8	Yes	Yes	Yes	Yes	3.50E+00	NC	1.17E+02	1.01E+03	--	1.08E+09	3.48E+09	1.30E+01	6.00E+00	CRC	-		8.00E-04	I	No	-	3.50E+00
Hydrogen Fluoride	7664-39-3	Yes	Yes	Yes	Yes	6.13E+01	NC	2.04E+03	1.57E+04	--	9.87E+08	3.90E+09	1.30E+01	-		-		1.40E-02	C	No	-	6.13E+01
Hydrogen Sulfide	7783-06-4	Yes	Yes	Yes	Yes	8.76E+00	NC	2.92E+02	3.13E+01	--	2.87E+10	1.05E+09	1.30E+01	4.00E+00	CRC	-		2.00E-03	I	No	-	8.76E+00
Hydroquinone	123-31-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.42E+02	3.49E+01	1.30E+01	1.60E+00	YAWS	-		-		No	-	-
Imazali	35554-44-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.90E+01	1.91E+01	1.30E+01	-		-		-	No		-	-
Imazaquin	81335-37-7	No	No	No (not volatile)	No (not volatile)	-		-	-		1.72E-06	2.54E-08	1.30E+01	-		-		-	No		-	-
Imazethapyr	81335-77-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.35E-04	5.95E-06	1.30E+01	-		-		-	No		-	-
Indeno[1,2,3-cd]pyrene	193-39-5	No	Yes	No (not volatile)	No (not volatile)	2.04E+00		-	-		1.86E-03	3.98E-04	1.30E+01	-		6.00E-05	E	-		Mut	2.04E+00	-
Iodine	7553-56-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.18E+06	-	1.30E+01	-		-		-	No		-	-
Iprodione	36734-19-7	No	No	No (not volatile)	No (not volatile)	-		-	-		6.66E-02	1.77E+00	1.30E+01	-		-		-	No		-	-
Iron	7439-89-6	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-	No		-	-
Isobutyl Alcohol	78-83-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.17E+07	1.52E+07	1.30E+01	1.70E+00	CRC	-		-		No	-	-
Isophorone	78-59-1	No	Yes	No (not volatile)	No (not volatile)	8.76E+03		-	-		3.26E+06	1.35E+06	1.30E+01	8.00E-01	CRC	-		2.00E+00	C	No	-	8.76E+03
Isopropanol	33820-53-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.99E+02	4.99E+02	1.30E+01	-		-		-	No		-	-
Isopropanol	67-63-0	Yes	Yes	Yes	Yes	8.76E+02	NC	2.92E+04	5.56E+06	--	1.47E+08	1.58E+08	1.30E+01	2.00E+00	CRC	-		2.00E-01	P	No	-	8.76E+02
Isopropyl Methyl Phosphonic Acid	1832-54-8	No	No	No (not volatile)	No (not volatile)	-		-	-		8.84E+04	1.42E+04	1.30E+01	-		-		-	No		-	-
Isoxaben	82558-50-7	No	No	No (not volatile)	No (not volatile)	-		-	-		7.38E-02	7.37E-02	1.30E+01	-		-		-	No		-	-
JP-4	50815-00-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		-	2.33E+10	1.30E+01	-		-		-		No	-	-

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ind,1</sub> ) (µg/m³)	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>gs</sub> , Target (µg/m³)	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m³)	Maximum Groundwater Vapor Concentration C <sub>gc</sub> (µg/m³)	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m³) <sup>1</sup>	IUR Ref	RfC (mg/m³)	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind,1</sub> (µg/m³)	Noncarcinogenic VISL THQ=1 C <sub>ind,1</sub> (µg/m³)
JP-5	NA	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		-	1.21E+04	1.30E+01	-		-	-	-	No	-	-	
JP-7	NA	Yes	Yes		Yes	1.31E+03	NC	-	3.21E+03	--	-	4.25E+06	1.30E+01	-		-	3.00E-01	A	No	-	1.31E+03	
JP-8	NA	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		-	3.00E+04	1.30E+01	-		-	-		No	-	-	
Kerosene	8008-20-6	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		-	4.25E+06	1.30E+01	-		-	-		No	-	-	
Lactofen	77501-63-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.74E+00	1.93E+00	1.30E+01	-		-	-		No	-	-	
Lactonitrile	78-97-7	No	No	No (not volatile)	No (not volatile)	-		-	-		4.55E+05	5.95E+07	1.30E+01	2.70E+00	YAWS	-	-	-		No	-	-
Lanthanum	7439-91-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Lanthanum Acetate Hydrate	100587-90-4	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Lanthanum Chloride Heptahydrate	10025-84-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Lanthanum Chloride, Anhydrous	10099-58-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Lanthanum Nitrate Hexahydrate	10277-43-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Lead Phosphate	7446-27-7	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.02E+01		-	-		-	-	1.30E+01	-		1.20E-05	C	-	No	1.02E+01	-	
Lead acetate	301-04-2	No	Yes	No (not volatile)	No (not volatile)	1.53E+00		-	-		1.27E+04	-	1.30E+01	-		8.00E-05	C	-	No	1.53E+00	-	
Lead subacetate	1335-32-6	No	Yes	No (not volatile)	No (not volatile)	1.11E+01		-	-		1.29E-02	-	1.30E+01	-		1.10E-05	C	-	No	1.11E+01	-	
Lewisite	541-25-3	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		6.47E+06	1.98E+06	1.30E+01	-		-	-	-	No	-	-	
Linuron	330-55-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.92E+01	1.92E+01	1.30E+01	-		-	-	-	No	-	-	
Lithium	7439-93-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Lithium Perchlorate	7791-03-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Lutetium	7439-94-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
MCPA	94-74-6	No	No	No (not volatile)	No (not volatile)	-		-	-		6.37E+01	3.43E+01	1.30E+01	-		-	-	-	No	-	-	
MCPB	94-81-5	No	No	No (not volatile)	No (not volatile)	-		-	-		5.33E+00	5.32E+00	1.30E+01	-		-	-	-	No	-	-	
MCPP	93-65-2	No	No	No (not volatile)	No (not volatile)	-		-	-		8.66E+00	4.61E+02	1.30E+01	-		-	-	-	No	-	-	
Malathion	121-75-5	No	No	No (not volatile)	No (not volatile)	-		-	-		6.01E+01	2.86E+01	1.30E+01	-		-	-	-	No	-	-	
Maleic Anhydride	108-31-6	No	Yes	No (not volatile)	No (not volatile)	3.07E+00		-	-		1.32E+06	1.02E+07	1.30E+01	1.40E+00	CRC	-	7.00E-04	C	No	-	3.07E+00	
Maleic Hydrazide	123-33-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.67E+01	4.88E+00	1.30E+01	-		-	-	-	No	-	-	
Malononitrile	109-77-3	No	No	No (not volatile)	No (not volatile)	-		-	-		7.11E+05	2.71E+05	1.30E+01	2.90E+00	YAWS	-	-	-	No	-	-	
Mancozeb	8018-01-7	No	No	No (not volatile)	No (not volatile)	-		-	-		3.84E-03	3.85E-03	1.30E+01	-		-	-	-	No	-	-	
Maneb	12427-38-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.19E+00	1.19E+00	1.30E+01	-		-	-	-	No	-	-	
Manganese (Diet)	7439-96-5	No	Yes	No (not volatile)	No (not volatile)	2.19E-01		-	-		0.00E+00	-	1.30E+01	-		-	5.00E-05	I	No	-	2.19E-01	
Manganese (Non-diet)	7439-96-5	No	Yes	No (not volatile)	No (not volatile)	2.19E-01		-	-		0.00E+00	-	1.30E+01	-		-	5.00E-05	I	No	-	2.19E-01	
Meposfolan	950-10-7	No	No	No (not volatile)	No (not volatile)	-		-	-		4.61E+02	2.77E-01	1.30E+01	-		-	-	-	No	-	-	
Mepiquat Chloride	24307-26-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.99E+00	8.81E+01	1.30E+01	-		-	-	-	No	-	-	
Mercaptobenzothiazole, 2-	149-30-4	No	No	No (not volatile)	No (not volatile)	-		-	-		4.17E+03	1.78E+02	1.30E+01	1.00E+00	YAWS	-	-	-	-	No	-	-
Mercuric Chloride	7487-94-7	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.31E+00		-	-		-	-	1.30E+01	-		-	3.00E-04		No	-	1.31E+00	
Mercury (elemental)	7439-97-6	Yes	Yes	Yes	Yes	1.31E+00	NC	4.38E+01	1.06E+01	No (2)	2.11E+04	7.46E+03	1.30E+01	-		-	3.00E-04	G I	No	-	1.31E+00	
Merphos	150-50-5	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.21E+02	3.25E+00	1.30E+01	-		-	-	-	No	-	-	
Metalaxyl	57837-19-1	No	No	No (not volatile)	No (not volatile)	-		-	-		8.44E+01	1.01E+03	1.30E+01	-		-	-	-	No	-	-	

### Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>air</sub> , C <sub>soil</sub> ) (µg/m³)	Toxicity Basis	Target Gas Concentration (TCR=1E-05 or THQ=1) C <sub>gas</sub> /Target (µg/m³)	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> /Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (µg/m³)	Maximum Groundwater Vapor Concentration C <sub>g</sub> (µg/m³)	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m³) <sup>1</sup>	IUR Ref	RIC (mg/m³)	RIC Ref	Mutagenic Indicator	Carcinogenic VSL TCR=1E-05 C <sub>air</sub> (µg/m³)	Noncarcinogenic VSL THQ=1 C <sub>air</sub> (µg/m³)	
				Via Vapor Intrusion from Soil Source? (C <sub>so</sub> > C <sub>air</sub> /Target?)	Via Vapor Intrusion from Groundwater Source? (C <sub>gw</sub> > C <sub>air</sub> /Target?)																		
Methacrylonitrile	126-98-7	Yes	Yes	Yes	Yes	1.31E+02	NC	4.38E+03	2.30E+04	--	2.57E+08	1.45E+08	1.30E+01	2.00E+00	CRC	-	-	3.00E-02	P	No	-	1.31E+02	
Methamidophos	10265-92-6	No	No	No (not volatile)	No (not volatile)	-		-	-		2.68E+02	3.55E+04	1.30E+01	-		-	-	No		No	-	-	
Methanol	67-56-1	Yes	Yes	Yes	Yes	8.76E+04	NC	2.92E+06	8.71E+08	--	2.19E+08	1.01E+08	1.30E+01	6.00E+00	CRC	-	2.00E+01	I	No		-	8.76E+04	
Methidathion	950-37-8	No	No	No (not volatile)	No (not volatile)	-		-	-		5.48E+01	5.48E+01	1.30E+01	-		-	-	No		No	-	-	
Methyl	16752-77-5	No	No	No (not volatile)	No (not volatile)	-		-	-		4.71E+01	4.67E+01	1.30E+01	-		-	-	No		No	-	-	
Methoxy-5-nitroaniline, 2-	99-59-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.88E+03	5.88E+01	1.30E+01	-		-	-	No		No	-	-	
Methoxychlor	72-43-5	No	No	No (not volatile)	No (not volatile)	-		-	-		4.80E+01	8.30E-01	1.30E+01	-		-	-	No		No	-	-	
Methoxyethanol Acetate, 2-	110-49-6	Yes	Yes	Yes	Yes	4.38E+00	NC	1.46E+02	8.30E+05	--	4.45E+07	5.28E+06	1.30E+01	1.50E+00	CRC	-	1.00E-03	P	No		-	4.38E+00	
Methoxyethanol, 2-	109-86-4	Yes	Yes	Yes	Yes	3.07E+01	NC	1.02E+03	4.61E+06	--	3.89E+07	6.64E+06	1.30E+01	1.80E+00	CRC	-	7.00E-03	P	No		-	3.07E+01	
Methyl Acetate	79-20-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		8.61E+08	6.82E+08	1.30E+01	3.10E+00	CRC	-	-		No		-	-	
Methyl Acrylate	96-33-3	Yes	Yes	Yes	Yes	8.76E+01	NC	2.92E+03	1.94E+04	--	4.01E+08	2.23E+08	1.30E+01	2.80E+00	CRC	-	2.00E-02	P	No		-	8.76E+01	
Methyl Ethyl Ketone (2-Butanone)	78-93-3	Yes	Yes	Yes	Yes	2.19E+04	NC	7.30E+05	1.64E+07	--	3.51E+08	2.99E+08	1.30E+01	1.40E+00	CRC	-	5.00E+00	I	No		-	2.19E+04	
Methyl Hydrazine	60-34-4	Yes	Yes	Yes	Yes	8.76E-02	NC	2.92E+00	1.33E+03	--	1.24E+08	6.58E+07	1.30E+01	2.50E+00	CRC	1.00E-03	X	2.00E-05	X	No	1.23E-01	8.76E-02	
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	Yes	Yes	Yes	Yes	1.31E+04	NC	4.38E+05	4.47E+06	--	1.07E+08	5.99E+07	1.30E+01	1.20E+00	CRC	-	3.00E+00	I	No		-	1.31E+04	
Methyl Isocyanate	624-83-9	Yes	Yes	Yes	Yes	4.38E+00	NC	1.46E+02	1.78E-02	--	1.07E+09	7.18E+08	1.30E+01	5.30E+00	CRC	-	1.00E-03	C	No		-	4.38E+00	
Methyl Mercury	22967-92-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No		-	-	
Methyl Methacrylate	80-62-6	Yes	Yes	Yes	Yes	3.07E+03	NC	1.02E+05	4.63E+05	--	2.07E+08	9.92E+07	1.30E+01	1.70E+00	CRC	-	7.00E-01	I	No		-	3.07E+03	
Methyl Parathion	298-00-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.95E+01	1.54E+02	1.30E+01	-		-	-	No		No	-	-	
Methyl Phosphonic Acid	993-13-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.69E+03	9.98E+00	1.30E+01	-		-	-	No		No	-	-	
Methyl Styrene (Mixed Isomers)	25013-15-4	Yes	Yes	Yes	Yes	1.75E+02	NC	5.84E+03	4.42E+03	--	2.86E+07	3.53E+06	1.30E+01	-		-	4.00E-02	H	No		-	1.75E+02	
Methyl methanesulfonate	66-27-3	No	Yes	No (not volatile)	No (not volatile)	4.38E+00		-	-		1.84E+06	3.30E+07	1.30E+01	-	2.80E-05	C	-	No		No	4.38E+00	-	
Methyl tert-Butyl Ether (MTBE)	1634-04-4	Yes	Yes	Yes	Yes	4.72E+02	CA	1.57E+04	3.15E+04	--	1.19E+09	7.63E+08	1.30E+01	2.00E+00	YAWS	2.60E-07	C	3.00E+00	I	No	4.72E+02	1.31E+04	
Methyl-1,4-benzenediamine dihydrochloride, 2-	615-45-2	No	No	No (not volatile)	No (not volatile)	-		-	-		4.32E-05	2.61E-04	1.30E+01	-		-	-	No		No	-	-	
Methyl-2-Pentanol, 4-	108-11-2	Yes	Yes	Yes	Yes	1.31E+04	NC	4.38E+05	1.75E+07	--	2.91E+07	1.23E+07	1.30E+01	1.00E+00	CRC	-	3.00E+00	X	No		-	1.31E+04	
Methyl-5-Nitroaniline, 2-	99-55-8	No	No	No (not volatile)	No (not volatile)	-		-	-		7.98E+03	3.39E+03	1.30E+01	-		-	-	No		No	-	-	
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	No	Yes	No (not volatile)	No (not volatile)	5.11E-02		-	-		9.49E+02	1.33E+01	1.30E+01	-	2.40E-03	C	-	No		No	5.11E-02	-	
Methylaniline Hydrochloride, 2-	636-21-5	No	Yes	No (not volatile)	No (not volatile)	3.31E+00		-	-		2.26E+06	7.12E+05	1.30E+01	-	3.70E-05	C	-	No		No	3.31E+00	-	
Methylarsonic acid	124-58-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.22E+04	-	1.30E+01	-		-	-	No		No	-	-	
Methylbenzene,1,4-diamine monohydrochloride, 2-	74612-12-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	No		No	-	-	
Methylbenzene-1,4-diamine sulfate, 2-	615-50-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	No		No	-	-	
Methylcholanthrene, 3-	56-49-5	No	Yes	No (not volatile)	No (not volatile)	1.95E-02		-	-		6.21E-01	6.21E-01	1.30E+01	-	6.30E-03	C	-		Mut		1.95E-02	-	
Methylcyclopentane	96-37-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.22E+08	3.77E+08	1.30E+01	1.00E+00	CRC	-	-		No		No	-	-
Methylene Chloride	75-09-2	Yes	Yes	Yes	Yes	2.63E+03	NC	8.76E+04	3.12E+04	No (5)	1.99E+09	1.10E+09	1.30E+01	1.30E+01	CRC	1.00E-08	I	6.00E-01	I	No	1.23E+04	2.63E+03	
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	No	Yes	No (not volatile)	No (not volatile)	2.85E-01		-	-		4.11E+00	2.31E-02	1.30E+01	-	4.30E-04	C	-		Mut		2.85E-01	-	
Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	No	Yes	No (not volatile)	No (not volatile)	9.43E+00		-	-		2.39E+02	1.81E-01	1.30E+01	-	1.30E-05	C	-	No		No	9.43E+00	-	
Methylenebisbenzenamine, 4,4'-	101-77-9	No	Yes	No (not volatile)	No (not volatile)	2.67E-01		-	-		2.16E+00	2.17E+00	1.30E+01	-	4.60E-04	C	2.00E-02	C	No		2.67E-01	8.76E+01	
Methylenediphenyl Diisocyanate	101-68-8	No	Yes	No (not volatile)	No (not volatile)	2.63E+00		-	-		6.73E+01	7.09E+00	1.30E+01	6.00E-01	YAWS	-	6.00E-04	I	No		-	2.63E+00	
Methylnaphthalene, 1-	90-12-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.12E+05	2.11E+05	1.30E+01	8.00E-01	YAWS	-	-		No		-	-	
Methylnaphthalene, 2-	91-57-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.21E+05	1.72E+05	1.30E+01	8.00E-01	YAWS	-	-		No		-	-	
Methylstyrene, Alpha-	98-83-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.21E+07	4.68E+06	1.30E+01	1.90E+00	CRC	-	-		No		-	-	
Metolachlor	51218-45-2	No	No	No (not volatile)	No (not volatile)	-		-	-		4.79E+02	1.95E+02	1.30E+01	-	-	-	-	No		No	-	-	
Metribuzin	21087-64-9	No	No	No (not volatile)	No (not volatile)	-		-	-		5.01E+00	5.02E+00	1.30E+01	-	-	-	-	No		No	-	-	
Metsulfuron-methyl	74223-64-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.13E-05	5.13E-05	1.30E+01	-	-	-	-	No		No	-	-	

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>nc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ground</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (18 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Mdrange Aliphatic Hydrocarbon Streams	NA	Yes	Yes	Yes	Yes	2.73E+01	CA	9.08E+02	5.12E-01	--	3.07E+07	1.17E+07	1.30E+01	8.00E-01	CRC	4.50E-06	X	1.00E-01	P	No	2.73E+01	4.38E+02
Mineral oils	8012-95-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.24E+06	1.24E+06	1.30E+01	-		-		-		No	-	-
Mirex	2385-86-5	Yes	Yes	Yes	Yes	2.40E-02	CA	8.02E-01	7.25E-01	--	2.35E+01	2.82E+03	1.30E+01	-		5.10E-03	C	-		No	2.40E-02	-
Molinate	2212-67-1	No	No	No (not volatile)	No (not volatile)	-		-	-		5.64E+04	1.63E+05	1.30E+01	-		-		-		No	-	-
Molybdenum	7439-98-7	No	Yes	No (not volatile)	No (not volatile)	8.76E+00		-	-		0.00E+00	-	1.30E+01	-		-		2.00E-03	A	No	-	8.76E+00
Monoammonium phosphate	7722-76-1	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Monobutyltin Compounds	NA	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Monocalcium phosphate	7758-23-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Monochloramine	10599-90-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Monomethylaniline	100-61-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.61E+06	8.18E+05	1.30E+01	1.20E+00	YAWS	-		-		No	-	-
Myclobutanil	88671-89-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.36E+01	2.48E+01	1.30E+01	-		-		-		No	-	-
N,N-Diphenyl-1,4-benzenediamine	74-31-7	No	No	No (not volatile)	No (not volatile)	-		-	-		8.89E-02	1.61E-02	1.30E+01	5.00E-01	YAWS	-		-		No	-	-
Naled	300-76-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.10E+03	3.99E+03	1.30E+01	-		-		-		No	-	-
Naphtha, High Flash Aromatic (HFAN)	64742-95-6	Yes	Yes	Yes	Yes	4.38E+02	NC	-	2.43E+04	--	-	5.58E+05	1.30E+01	-		-		1.00E-01	P	No	-	4.38E+02
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	3.61E+00	CA	1.20E+02	4.77E+02	--	5.86E+05	2.34E+05	1.30E+01	9.00E-01	CRC	3.40E-05	C	3.00E-03	I	No	3.61E+00	1.31E+01
Naphthylamine, 2-	91-59-8	No	Yes	No (not volatile)	No (not volatile)	-		-	-		1.97E+03	6.26E+02	1.30E+01	-		0.00E+00	C	-		No	-	-
Napropamide	15299-99-7	No	No	No (not volatile)	No (not volatile)	-		-	-		2.51E+00	2.51E+00	1.30E+01	-		-		-		No	-	-
Neodymium Chloride (Stable, Nonradioactive)	10024-93-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Nickel Acetate	373-02-4	No	Yes	No (not volatile)	No (not volatile)	6.13E-02		-	-		1.70E+02	-	1.30E+01	-		2.60E-04	C	1.40E-05	C	No	4.72E-01	6.13E-02
Nickel Carbonate	3333-67-3	No	Yes	No (not volatile)	No (not volatile)	6.13E-02		-	-		2.27E+01	-	1.30E+01	-		2.60E-04	C	1.40E-05	C	No	4.72E-01	6.13E-02
Nickel Carbonyl	13463-39-3	Yes	Yes	Yes	Yes	6.13E-02	NC	2.04E+00	4.79E-03	--	2.69E+09	2.31E+09	1.30E+01	2.00E+00	N	2.60E-04	C	1.40E-05	C	No	4.72E-01	6.13E-02
Nickel Hydroxide	12054-48-7	Indeterminate	Yes	No (not volatile)	No (not volatile)	6.13E-02		-	-		-	-	1.30E+01	-		2.60E-04	C	1.40E-05	C	No	4.72E-01	6.13E-02
Nickel Oxide	1313-99-1	Indeterminate	Yes	No (not volatile)	No (not volatile)	8.76E-02		-	-		-	-	1.30E+01	-		2.60E-04	C	2.00E-05	C	No	4.72E-01	8.76E-02
Nickel Refinery Dust	NA	Indeterminate	Yes	No (not volatile)	No (not volatile)	6.13E-02		-	-		-	-	1.30E+01	-		2.40E-04	I	1.40E-05	C	No	5.11E-01	6.13E-02
Nickel Soluble Salts	7440-02-0	No	Yes	No (not volatile)	No (not volatile)	3.94E-01		-	-		0.00E+00	-	1.30E+01	-		2.60E-04	C	9.00E-05	A	No	4.72E-01	3.94E-01
Nickel Subsulfide	12035-72-2	Indeterminate	Yes	No (not volatile)	No (not volatile)	6.13E-02		-	-		-	-	1.30E+01	-		4.80E-04	I	1.40E-05	C	No	2.56E-01	6.13E-02
Nickelocene	1271-28-9	Indeterminate	Yes	No (not volatile)	No (not volatile)	6.13E-02		-	-		-	-	1.30E+01	-		2.60E-04	C	1.40E-05	C	No	4.72E-01	6.13E-02
Nitrate (measured as nitrogen)	14797-55-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Nitrite (measured as nitrogen)	14797-65-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Nitroaniline, 2-	88-74-4	No	Yes	No (not volatile)	No (not volatile)	2.19E-01		-	-		2.06E+04	8.98E+02	1.30E+01	1.50E+00	YAWS	-		5.00E-05	X	No	-	2.19E-01
Nitroaniline, 3-	99-09-2	No	No	No (not volatile)	No (not volatile)	-		-	-		7.10E+02	9.23E+01	1.30E+01	1.70E+00	YAWS	-		-		No	-	-
Nitroaniline, 4-	100-01-6	No	Yes	No (not volatile)	No (not volatile)	2.63E+01		-	-		2.38E+01	7.66E+00	1.30E+01	1.50E+00	YAWS	-		6.00E-03	P	No	-	2.63E+01
Nitrobenzene	98-95-3	Yes	Yes	Yes	Yes	3.07E+00	CA	1.02E+02	7.71E+03	--	1.62E+06	8.31E+05	1.30E+01	1.80E+00	CRC	4.00E-05	I	9.00E-03	I	No	3.07E+00	3.94E+01
Nitrocellulose	9004-70-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.94E-10	1.35E-09	1.30E+01	-		-		-		No	-	-
Nitrofurantoin	67-20-9	No	No	No (not volatile)	No (not volatile)	-		-	-		3.56E-03	4.32E-03	1.30E+01	-		-		-		No	-	-
Nitrofurazone	59-87-0	No	Yes	No (not volatile)	No (not volatile)	3.31E-01		-	-		4.59E+01	2.66E-03	1.30E+01	-		3.70E-04	C	-		No	3.31E-01	-
Nitroglycerin	55-63-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.89E+03	1.01E+03	1.30E+01	-		-		-		No	-	-
Nitroguanidine	556-88-7	No	No	No (not volatile)	No (not volatile)	-		-	-		8.00E-05	8.00E-05	1.30E+01	-		-		-		No	-	-
Nitromethane	75-52-5	Yes	Yes	Yes	Yes	1.39E+01	CA	4.65E+02	2.19E+04	--	1.18E+08	7.06E+07	1.30E+01	7.30E+00	CRC	8.80E-06	P	5.00E-03	P	No	1.39E+01	2.19E+01

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>air</sub> , C <sub>air,ind</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Gas Concentration (TCR=1E-05 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gc</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>air,ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,ind</sub> (µg/m <sup>3</sup> )
Nitrophenol, 2-	88-75-5	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		8.45E+05	1.31E+06	1.30E+01	-		-	-	-	No	-	-	
Nitropropane, 2-	79-46-9	Yes	Yes	Yes	Yes	2.11E-01	CA	7.05E+00	8.66E+01	--	8.25E+07	4.15E+07	1.30E+01	2.60E+00	CRC	5.80E-04	X	2.00E-02	I	No	2.11E-01	8.76E+01
Nitropyrene, 4-	57835-92-4	No	Yes	No (not volatile)	No (not volatile)	1.11E+00		-	-		7.40E-01	6.80E-02	1.30E+01	-		1.10E-04	C	-		No	1.11E+00	-
Nitroso-N-ethylurea, N-	759-73-9	No	Yes	No (not volatile)	No (not volatile)	1.59E-02		-	-		1.15E+05	7.02E+01	1.30E+01	-		7.70E-03	C	-		Mut	1.59E-02	-
Nitroso-N-methylurea, N-	684-93-5	No	Yes	No (not volatile)	No (not volatile)	3.61E-03		-	-		1.62E+05	5.83E+01	1.30E+01	-		3.40E-02	C	-		Mut	3.61E-03	-
Nitroso-di-N-butylamine, N-	924-16-3	Yes	Yes	Yes	Yes	7.67E-02	CA	2.56E+00	2.61E+02	--	3.99E+05	3.72E+05	1.30E+01	-		1.60E-03	I	-		No	7.67E-02	-
Nitroso-di-N-propylamine, N-	621-64-7	No	Yes	No (not volatile)	No (not volatile)	6.13E-02		-	-		6.02E+05	2.86E+06	1.30E+01	-		2.00E-03	C	-		No	6.13E-02	-
Nitrosodiethanolamine, N-	1116-54-7	No	Yes	No (not volatile)	No (not volatile)	1.53E-01		-	-		3.61E+03	1.98E+02	1.30E+01	-		8.00E-04	C	-		No	1.53E-01	-
Nitrosodiethylamine, N-	55-18-5	No	Yes	No (not volatile)	No (not volatile)	2.85E-03		-	-		4.72E+06	1.57E+07	1.30E+01	-		4.30E-02	I	-		Mut	2.85E-03	-
Nitrosodimethylamine, N-	62-75-9	Yes	Yes	Yes	Yes	8.76E-03	CA	2.92E-01	2.40E+02	--	1.08E+07	3.65E+07	1.30E+01	-		1.40E-02	I	4.00E-05	X	Mut	8.76E-03	1.75E-01
Nitrosodiphenylamine, N-	86-30-6	No	Yes	No (not volatile)	No (not volatile)	4.72E+01		-	-		1.07E+06	1.73E+03	1.30E+01	-		2.60E-06	C	-		No	4.72E+01	-
Nitrosomethylethylamine, N-	10595-95-6	Yes	Yes	Yes	Yes	1.95E-02	CA	6.49E-01	3.31E+02	--	5.21E+06	1.77E+07	1.30E+01	-		6.30E-03	C	-		No	1.95E-02	-
Nitrosomorpholine [N-]	59-89-2	No	Yes	No (not volatile)	No (not volatile)	6.45E-02		-	-		2.25E+05	1.00E+06	1.30E+01	-		1.90E-03	C	-		No	6.45E-02	-
Nitrosopiperidine [N-]	100-75-4	No	Yes	No (not volatile)	No (not volatile)	4.54E-02		-	-		5.65E+05	2.64E+06	1.30E+01	-		2.70E-03	C	-		No	4.54E-02	-
Nitrosopyrrolidine, N-	930-55-2	No	Yes	No (not volatile)	No (not volatile)	2.01E-01		-	-		3.23E+05	2.00E+06	1.30E+01	-		6.10E-04	I	-		No	2.01E-01	-
Nitrotoluene, m-	99-08-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.51E+06	7.27E+04	1.30E+01	1.30E+00	YAWS	-		-		No	-	-
Nitrotoluene, o-	88-72-2	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.39E+06	1.13E+05	1.30E+01	2.20E+00	YAWS	-		-		No	-	-
Nitrotoluene, p-	99-99-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.16E+05	3.78E+04	1.30E+01	1.60E+00	YAWS	-		-		No	-	-
Nonane, n-	111-84-2	Yes	Yes	Yes	Yes	8.76E+01	NC	2.92E+03	1.35E+00	--	3.07E+07	1.43E+07	1.30E+01	8.00E-01	CRC	-		2.00E-02	P	No	-	8.76E+01
Norflurazon	27314-13-2	No	No	No (not volatile)	No (not volatile)	-		-	-		4.72E-01	4.73E-01	1.30E+01	-		-		-		No	-	-
OCDD	3268-87-9	No	Yes	No (not volatile)	No (not volatile)	1.08E-02		-	-		2.04E-05	6.31E-05	1.30E+01	-		1.14E-02	W	1.33E-04	W	No	1.08E-02	5.84E-01
OCDF	39001-02-0	No	Yes	No (not volatile)	No (not volatile)	1.08E-02		-	-		8.95E-05	3.16E-05	1.30E+01	-		1.14E-02	W	1.33E-04	W	No	1.08E-02	5.84E-01
Octabromodiphenyl Ether	32536-52-0	No	No	No (not volatile)	No (not volatile)	-		-	-		5.47E+05	3.39E-08	1.30E+01	-		-		-		No	-	-
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0	No	No	No (not volatile)	No (not volatile)	-		-	-		5.26E-07	1.77E-01	1.30E+01	-		-		-		No	-	-
Octamethylpyrophosphoramide	152-16-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.54E+04	1.54E+04	1.30E+01	-		-		-		No	-	-
Octyl Phthalate, di-N-	117-84-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.10E+00	3.29E-01	1.30E+01	-		-		-		No	-	-
Oryzalin	19044-88-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.82E-01	1.95E-01	1.30E+01	-		-		-		No	-	-
Oxadiazon	19666-30-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.08E+00	2.08E+00	1.30E+01	-		-		-		No	-	-
Oxamyl	23135-22-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.71E+03	2.71E+03	1.30E+01	-		-		-		No	-	-
Oxyfluorfen	42874-03-3	No	No	No (not volatile)	No (not volatile)	-		-	-		3.89E+00	3.89E+00	1.30E+01	-		-		-		No	-	-
Paclobutrazol	76738-62-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.19E-01	8.80E-02	1.30E+01	-		-		-		No	-	-
Paraquat Dichloride	1910-42-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.04E+00	8.16E+00	1.30E+01	-		-		-		No	-	-
Parathion	56-38-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.05E+02	1.34E+02	1.30E+01	-		-		-		No	-	-
PeCDF, 1,2,3,7,8-	57117-41-6	No	Yes	No (not volatile)	No (not volatile)	1.08E-04		-	-		3.17E-02	4.81E-02	1.30E+01	-		1.14E+00	W	1.33E-06	W	No	1.08E-04	5.84E-03
PeCDF, 2,3,4,7,8-	57117-31-4	No	Yes	No (not volatile)	No (not volatile)	1.08E-05		-	-		3.17E-02	4.81E-02	1.30E+01	-		1.14E+01	W	1.33E-07	W	No	1.08E-05	5.84E-04
Pebulate	1114-71-2	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		9.68E+05	9.69E+05	1.30E+01	-		-		-		No	-	-
Pendimethalin	40487-42-1	No	No	No (not volatile)	No (not volatile)	-		-	-		2.21E+02	1.15E+01	1.30E+01	-		-		-		No	-	-
Pentabromodiphenyl Ether	32534-81-9	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		9.41E-01	1.06E+01	1.30E+01	-		-		-		No	-	-

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>ia</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>ia</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>air</sub> , C <sub>ground</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gc</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>air</sub> , I (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air</sub> , I (µg/m <sup>3</sup> )
Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99)	60348-60-9	No	No	No (not volatile)	No (not volatile)	-		-	-		9.41E-01	3.79E-03	1.30E+01	-		-		-		No	-	-
Pentachlorobenzene	608-93-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.36E+04	7.81E+03	1.30E+01	-		-		-		No	-	-
Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	65510-44-3	Yes	Yes	Yes	Yes	1.08E-01	CA	3.59E+00	1.38E+01	--	9.60E+01	1.24E+02	1.30E+01	-	1.14E-03	W	1.33E-03	W	No	1.08E-01	5.84E+00	
Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	Yes	Yes	Yes	Yes	1.08E-01	CA	3.59E+00	3.27E+01	--	1.58E+02	4.41E+01	1.30E+01	-	1.14E-03	W	1.33E-03	W	No	1.08E-01	5.84E+00	
Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	Yes	Yes	Yes	Yes	1.08E-01	CA	3.59E+00	3.33E+01	--	1.15E+02	1.10E+01	1.30E+01	-	1.14E-03	W	1.33E-03	W	No	1.08E-01	5.84E+00	
Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	Yes	Yes	Yes	Yes	1.08E-01	CA	3.59E+00	2.85E+01	--	9.60E+01	6.04E+01	1.30E+01	-	1.14E-03	W	1.33E-03	W	No	1.08E-01	5.84E+00	
Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	Yes	Yes	Yes	Yes	3.23E-05	CA	1.08E-03	1.49E-02	--	3.90E+01	1.59E+01	1.30E+01	-	3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03	
Pentachlorodibenzo-p-dioxin, 1,2,3,7,8-	40321-76-4	No	Yes	No (not volatile)	No (not volatile)	3.23E-06		-	-		8.34E-03	1.63E-02	1.30E+01	-		3.80E+01	W	4.00E-08	W	No	3.23E-06	1.75E-04
Pentachloroethane	76-01-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.81E+07	1.91E+07	1.30E+01	-		-		-		No	-	-
Pentachloronitrobenzene	82-68-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.94E+02	7.95E+02	1.30E+01	-		-		-		No	-	-
Pentachlorophenol	87-86-5	No	Yes	No (not volatile)	No (not volatile)	2.40E+01		-	-		1.58E+03	1.40E+01	1.30E+01	-	5.10E-06	C		-		No	2.40E+01	-
Pentaerythritol tetranitrate (PETN)	78-11-5	No	No	No (not volatile)	No (not volatile)	-		-	-		9.27E-02	1.15E-01	1.30E+01	-		-		-		No	-	-
Pentamethylphosphoramide (PMPA)	10159-46-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.29E+06	5.30E+01	1.30E+01	-		-		-		No	-	-
Pentane, n-	109-66-0	Yes	Yes	Yes	Yes	4.38E+03	NC	1.46E+05	1.30E+02	--	1.99E+09	1.28E+09	1.30E+01	1.40E+00	CRC	-		1.00E+00	P	No	-	4.38E+03
Perchlorate and Perchlorate Salts	14797-73-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Perfluorobutanesulfonate	45187-15-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Perfluorobutanesulfonic acid (PFBS)	375-73-5	No	No	No (not volatile)	No (not volatile)	-		-	-		8.07E+05	-	1.30E+01	-		-		-		No	-	-
Perfluorohexanesulfonate	108427-53-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Perfluorohexanesulfonic acid (PFHs)	355-46-4	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Perfluorononanoate	72007-68-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.37E+05	-	1.30E+01	-		-		-		No	-	-
Perfluorononanoic acid (PFNA)	375-95-1	No	No	No (not volatile)	No (not volatile)	-		-	-		2.38E+05	-	1.30E+01	-		-		-		No	-	-
Perfluorooctanesulfonate	45298-90-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.37E+04	-	1.30E+01	-		-		-		No	-	-
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.76E+04	1.23E+04	1.30E+01	-		-		-		No	-	-
Perfluorooctanoate	45285-51-6	No	No	No (not volatile)	No (not volatile)	-		-	-		6.66E+05	1.39E+06	1.30E+01	-		-		-		No	-	-
Perfluorooctanoic acid (PFOA)	335-67-1	No	No	No (not volatile)	No (not volatile)	-		-	-		6.69E+05	1.39E+06	1.30E+01	-		-		-		No	-	-
Permethrin	52645-53-1	No	No	No (not volatile)	No (not volatile)	-		-	-		4.59E-01	4.59E-01	1.30E+01	-		-		-		No	-	-
Phenacetin	62-44-2	No	Yes	No (not volatile)	No (not volatile)	1.95E+02		-	-		6.67E+00	6.67E+00	1.30E+01	-		6.30E-07	C		-	No	1.95E+02	-
Phenmedipham	13684-63-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.62E-04	1.62E-04	1.30E+01	-		-		-		No	-	-
Phenol	108-95-2	No	Yes	No (not volatile)	No (not volatile)	8.76E+02		-	-		1.77E+06	4.58E+05	1.30E+01	1.80E+00	CRC	-		2.00E-01	C	No	-	8.76E+02
Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	No	No	No (not volatile)	No (not volatile)	-		-	-		2.36E+02	1.09E+02	1.30E+01	-		-		-		No	-	-
Phenothiazine	92-84-2	No	No	No (not volatile)	No (not volatile)	-		-	-		9.54E+00	1.82E+00	1.30E+01	-		-		-		No	-	-
Phenyl Isothiocyanate	103-72-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.09E+07	1.09E+07	1.30E+01	-		-		-		No	-	-
Phenylenediamine, m-	108-45-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.22E+04	3.67E+03	1.30E+01	1.30E+00	YAWS	-		-		No	-	-
Phenylenediamine, o-	95-54-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.20E+04	3.78E+03	1.30E+01	1.50E+00	CRC	-		-		No	-	-
Phenylenediamine, p-	106-50-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.91E+04	3.03E+02	1.30E+01	1.30E+00	YAWS	-		-		No	-	-
Phenylmercuric Acetate	62-38-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.09E+02	1.01E+02	1.30E+01	-		-		-		No	-	-
Phenylphenol, 2-	90-43-7	No	No	No (not volatile)	No (not volatile)	-		-	-		1.83E+04	3.00E+04	1.30E+01	-		-		-		No	-	-
Phorate	298-02-2	No	No	No (not volatile)	No (not volatile)	-		-	-		8.93E+03	8.93E+03	1.30E+01	-		-		-		No	-	-
Phosgene	75-44-5	Yes	Yes	Yes	Yes	1.31E+00	NC	4.38E+01	3.09E+00	--	7.54E+09	2.90E+09	1.30E+01	-		-		3.00E-04	I	No	-	1.31E+00

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>nc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>is</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>is</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>-1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>is</sub> , (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>is</sub> , (µg/m <sup>3</sup> )
Phosmet	732-11-6	No	No	No (not volatile)	No (not volatile)	-		-	-		8.36E+00	8.36E+00	1.30E+01	-		-		-		No	-	-
Phosphine	7803-51-2	Yes	Yes	Yes	Yes	1.31E+00	NC	4.38E+01	1.49E+00	--	5.36E+10	2.29E+11	1.30E+01	1.80E+00	CRC	-		3.00E-04	I	No	-	1.31E+00
Phosphoric Acid	7664-38-2	No	Yes	No (not volatile)	No (not volatile)	4.38E+01		-	-		1.58E+05	-	1.30E+01	-		-		1.00E-02	I	No	-	4.38E+01
Phosphorus, White	7723-14-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.16E+04	2.12E+05	1.30E+01	-		-		-		No	-	-
Phthalic Acid, p-	100-21-0	No	No	No (not volatile)	No (not volatile)	-		-	-		8.22E+01	4.11E-05	1.30E+01	1.30E+00	YAWS	-		-		No	-	-
Phthalic Anhydride	85-44-9	No	Yes	No (not volatile)	No (not volatile)	8.76E+01		-	-		4.12E+03	1.23E+03	1.30E+01	1.70E+00	CRC	-		2.00E-02	C	No	-	8.76E+01
Picloram	1918-02-1	No	No	No (not volatile)	No (not volatile)	-		-	-		9.36E-04	9.37E-04	1.30E+01	-		-		-		No	-	-
Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3	No	No	No (not volatile)	No (not volatile)	-		-	-		4.45E+00	5.58E-01	1.30E+01	-		-		-		No	-	-
Picric Acid (2,4,6-Trinitrophenol)	88-89-1	No	No	No (not volatile)	No (not volatile)	-		-	-		9.24E+00	8.83E+00	1.30E+01	-		-		-		No	-	-
Pirimiphos, Methyl	29232-93-7	No	No	No (not volatile)	No (not volatile)	-		-	-		2.46E+02	2.46E+02	1.30E+01	-		-		-		No	-	-
Polybrominated Biphenyls	36355-01-8	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.43E-02		-	-		-	-	1.30E+01	-		8.60E-03	C	-		No	1.43E-02	-
Polychlorinated Biphenyls (high risk)	1336-36-3	Yes	Yes	Yes	Yes	2.15E-01	CA	7.15E+00	1.26E+01	No (1)	7.76E+03	1.19E+04	1.30E+01	-		5.71E-04	I	-	No	2.15E-01	-	
Polychlorinated Biphenyls (low risk)	1336-36-3	Yes	Yes	Yes	Yes	1.23E+00	CA	4.09E+01	7.23E+01	No (1)	7.76E+03	1.19E+04	1.30E+01	-		1.00E-04	I	-	No	1.23E+00	-	
Polychlorinated Biphenyls (lowest risk)	1336-36-3	Yes	Yes	Yes	Yes	6.13E+00	CA	2.04E+02	3.61E+02	No (1)	7.76E+03	1.19E+04	1.30E+01	-		2.00E-05	I	-	No	6.13E+00	-	
Polymeric Methylene Diphenyl Diisocyanate (PMDI)	9016-87-9	No	Yes	No (not volatile)	No (not volatile)	2.63E+00		-	-		1.49E-05	9.51E-10	1.30E+01	-		-		6.00E-04	I	No	-	2.63E+00
Potassium Cyanide	151-50-8	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Potassium Perchlorate	7778-74-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Potassium Silver Cyanide	506-61-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Potassium perfluorobutanesulfonate	29420-49-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.66E+00	1.66E+00	1.30E+01	-		-		-		No	-	-
Potassium perfluorooctanesulfonate	2795-39-3	No	No	No (not volatile)	No (not volatile)	-		-	-		7.18E+01	5.56E+04	1.30E+01	-		-		-		No	-	-
Praseodymium Chloride (Stable, Nonradioactive)	10361-79-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Prochloraz	67747-09-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.29E+01	2.28E+01	1.30E+01	-		-		-		No	-	-
Profluralin	26399-36-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.18E+03	1.19E+03	1.30E+01	-		-		-		No	-	-
Prometon	1610-18-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.79E+01	2.79E+01	1.30E+01	-		-		-		No	-	-
Prometryn	7287-19-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.61E+01	1.61E+01	1.30E+01	-		-		-		No	-	-
Pronamide	23950-58-5	No	No	No (not volatile)	No (not volatile)	-		-	-		5.99E+00	5.99E+00	1.30E+01	-		-		-		No	-	-
Propachlor	1918-16-7	No	No	No (not volatile)	No (not volatile)	-		-	-		2.62E+03	8.54E+03	1.30E+01	-		-		-		No	-	-
Propanil	709-98-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.06E+01	1.06E+01	1.30E+01	-		-		-		No	-	-
Propargite	2312-35-8	No	No	No (not volatile)	No (not volatile)	-		-	-		5.65E+00	5.63E+00	1.30E+01	-		-		-		No	-	-
Propargyl Alcohol	107-19-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.70E+07	4.87E+02	1.30E+01	2.40E+00	YAWS	-		-		No	-	-
Propazine	139-40-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.62E+00	1.62E+00	1.30E+01	-		-		-		No	-	-
Propham	122-42-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.35E+03	1.35E+03	1.30E+01	-		-		-		No	-	-
Propiconazole	60207-90-1	No	No	No (not volatile)	No (not volatile)	-		-	-		7.73E+00	7.74E+00	1.30E+01	-		-		-		No	-	-
Propionaldehyde	123-38-6	Yes	Yes	Yes	Yes	3.50E+01	NC	1.17E+03	1.87E+04	--	9.90E+08	5.75E+08	1.30E+01	2.60E+00	CRC	-		8.00E-03	I	No	-	3.50E+01
Propyl benzene	103-65-1	Yes	Yes	Yes	Yes	4.38E+03	NC	1.46E+05	2.17E+04	--	2.21E+07	1.06E+07	1.30E+01	8.00E-01	CRC	-		1.00E+00	X	No	-	4.38E+03
Propylene	115-07-1	Yes	Yes	Yes	Yes	1.31E+04	NC	4.38E+05	2.03E+03	--	1.97E+10	1.29E+09	1.30E+01	2.00E+00	CRC	-		3.00E+00	C	No	-	1.31E+04
Propylene Glycol	57-55-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.28E+05	1.80E+05	1.30E+01	2.60E+00	CRC	-		-		No	-	-
Propylene Glycol Dinitrate	6423-43-4	No	Yes	No (not volatile)	No (not volatile)	1.19E+00		-	-		3.38E+06	1.26E+05	1.30E+01	-		-		2.72E-04	A	No	-	1.19E+00
Propylene Glycol Monomethyl Ether	107-98-2	Yes	Yes	Yes	Yes	8.76E+03	NC	2.92E+05	4.31E+08	--	6.06E+07	2.03E+07	1.30E+01	1.60E+00	N	-		2.00E+00	I	No	-	8.76E+03
Propylene Oxide	75-56-9	Yes	Yes	Yes	Yes	3.31E+01	CA	1.10E+03	1.82E+04	--	1.68E+09	1.07E+09	1.30E+01	1.90E+00	YAWS	3.70E-06	I	3.00E-02	I	No	3.31E+01	1.31E+02

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is,TARGET</sub> ?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>is,TARGET</sub> ?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> ,C <sub>ind,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>ss,TARGET</sub> (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw,TARGET</sub> (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL ?)	Pure Phase Vapor Concentration C <sub>vp</sub> (1E-5) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m <sup>3</sup> )
Pyrene	129-00-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.90E+01	1.55E+01	1.30E+01	6.00E-01	YAWS	-		-		No	-	-
Pyridine	110-86-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		8.85E+07	2.39E+08	1.30E+01	1.80E+00	CRC	-		-		No	-	-
Quinalphos	13593-03-8	No	No	No (not volatile)	No (not volatile)	-		-	-		4.17E+01	4.17E+01	1.30E+01	-		-		-		No	-	-
Quinoline	91-22-5	No	No	No (not volatile)	No (not volatile)	-		-	-		4.17E+05	1.52E+05	1.30E+01	1.00E+00	YAWS	-		-		No	-	-
Quizalofop-ethyl	76578-14-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.30E-01	1.30E-01	1.30E+01	-		-		-		No	-	-
Refractory Ceramic Fibers (units in fibers)	NA	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.31E+05		-	-		-	-	1.30E+01	-		-		3.00E+04	A	No	-	1.31E+05
Resmethrin	10453-86-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.06E-01	2.06E-01	1.30E+01	-		-		-		No	-	-
Ronnel	299-84-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.30E+03	1.31E+03	1.30E+01	-		-		-		No	-	-
Rotenone	83-79-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.47E-02	9.16E-07	1.30E+01	-		-		-		No	-	-
Rubidium	7440-17-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Rubidium Chloride	7791-11-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Rubidium Hydroxide	1310-82-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Rubidium Iodide	7790-29-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Safrole	94-59-7	No	Yes	No (not volatile)	No (not volatile)	1.95E+00		-	-		6.54E+05	1.80E+04	1.30E+01	-		6.30E-05	C	-		Mut	1.95E+00	-
Samarium Chloride (Stable, Nonradioactive)	10361-82-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Samarium Nitrate (Stable, Nonradioactive)	10361-83-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Selenious Acid	7783-00-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Selenium	7782-49-2	No	Yes	No (not volatile)	No (not volatile)	8.76E+01		-	-		6.03E-04	-	1.30E+01	-		-		2.00E-02	C	No	-	8.76E+01
Selenium Sulfide	7446-34-6	Indeterminate	Yes	No (not volatile)	No (not volatile)	8.76E+01		-	-		-	-	1.30E+01	-		-		2.00E-02	C	No	-	8.76E+01
Sethoxydim	74051-80-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.82E+00	2.21E-02	1.30E+01	-		-		-		No	-	-
Silica (crystalline, respirable)	7631-86-9	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.31E+01		-	-		-	-	1.30E+01	-		-		3.00E-03	C	No	-	1.31E+01
Silver	7440-22-4	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Silver Cyanide	506-64-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Simazine	122-34-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.40E-01	2.39E-01	1.30E+01	-		-		-		No	-	-
Sodium Acifluorfen	62476-59-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.01E-01	6.18E+02	1.30E+01	-		-		-		No	-	-
Sodium Azide	26628-22-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Sodium Cyanide	143-33-9	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Sodium Diethyldithiocarbamate	148-18-5	No	No	No (not volatile)	No (not volatile)	-		-	-		7.55E-03	-	1.30E+01	-		-		-		No	-	-
Sodium Fluoride	7681-49-4	No	Yes	No (not volatile)	No (not volatile)	5.69E+01		-	-		0.00E+00	-	1.30E+01	-		-		1.30E-02	C	No	-	5.69E+01
Sodium Fluoroacetate	62-74-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.52E+00	4.95E+07	1.30E+01	-		-		-		No	-	-
Sodium Metavanadate	13718-26-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Sodium Perchlorate	7601-89-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Sodium Tungstate	13472-45-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Strofos (Tetrachlorovinphos)	961-11-5	No	No	No (not volatile)	No (not volatile)	-		-	-		8.27E-01	8.27E-01	1.30E+01	-		-		-		No	-	-
Strontium, Stable	7440-24-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Strychnine	57-24-9	No	No	No (not volatile)	No (not volatile)	-		-	-		5.27E-02	4.95E-04	1.30E+01	-		-		-		No	-	-



Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>nc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ind,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>nc</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m <sup>3</sup> )
Styrene	100-42-5	Yes	Yes	Yes	Yes	4.38E+03	NC	1.46E+05	8.17E+04	No (100)	3.58E+07	1.66E+07	1.30E+01	9.00E-01	CRC	-	-	1.00E+00	I	No	-	4.38E+03
Styrene-Acrylonitrile (SAN) Trimer (THNA isomer)	57964-39-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Styrene-Acrylonitrile (SAN) Trimer (THNP isomer)	57964-40-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.29E+00	-	1.30E+01	-		-	-	-		No	-	-
Sulfolane	126-33-0	No	Yes	No (not volatile)	No (not volatile)	8.76E+00		-	-		2.64E+04	6.47E+07	1.30E+01	-		-	2.00E-03	X	No	-	8.76E+00	
Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.25E+01	1.34E+01	1.30E+01	-		-	-	-		No	-	-
Sulfur Mustard	505-60-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		9.41E+05	6.85E+05	1.30E+01	-		-	-	-		No	-	-
Sulfur Trioxide	7446-11-9	Yes	Yes	Yes	Yes	4.38E+00		1.46E+02	-		1.13E+09	-	1.30E+01	-		-	1.00E-03	C	No	-	4.38E+00	
Sulfuric Acid	7664-93-9	No	Yes	No (not volatile)	No (not volatile)	4.38E+00		-	-		3.13E+02	-	1.30E+01	-		-	1.00E-03	C	No	-	4.38E+00	
Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	140-57-8	No	Yes	No (not volatile)	No (not volatile)	1.73E+01		-	-		3.93E+00	4.58E+00	1.30E+01	-		7.10E-06	I	-		No	1.73E+01	-
TCDD, 2,3,7,8-	1746-01-6	Yes	Yes	Yes	Yes	3.23E-06	CA	1.08E-04	1.58E-03	No (0)	2.60E-02	4.09E-01	1.30E+01	-		3.80E+01	C	4.00E-08	C	No	3.23E-06	1.75E-04
TCDF, 2,3,7,8-	51207-31-9	Yes	Yes	Yes	Yes	3.23E-05	CA	1.08E-03	4.73E-02	--	2.47E-01	4.72E-01	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	3.23E-05	1.75E-03
TCMTB	21564-17-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.00E+00	3.32E-02	1.30E+01	-		-	-	-		No	-	-
Tebuthiuron	34014-18-1	No	No	No (not volatile)	No (not volatile)	-		-	-		3.68E+00	1.23E+01	1.30E+01	-		-	-	-		No	-	-
Temephos	3383-96-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.98E+00	2.16E-02	1.30E+01	-		-	-	-		No	-	-
Terbacil	5902-51-2	No	No	No (not volatile)	No (not volatile)	-		-	-		5.48E+00	3.48E+00	1.30E+01	-		-	-	-		No	-	-
Terbufos	13071-79-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.96E+03	4.97E+03	1.30E+01	-		-	-	-		No	-	-
Terbutryn	886-50-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.19E+01	2.20E+01	1.30E+01	-		-	-	-		No	-	-
Tert-Butyl Acetate	540-88-5	Yes	Yes	Yes	Yes	9.43E+01	CA	3.14E+03	2.68E+03	--	2.94E+08	2.94E+08	1.30E+01	-		1.30E-06	C	-	No	9.43E+01	-	
Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.83E+00	1.77E-01	1.30E+01	-		-	-	-		No	-	-
Tetrachlorobenzene, 1,2,4,5-	95-94-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.27E+04	8.96E+03	1.30E+01	-		-	-	-		No	-	-
Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	No	Yes	No (not volatile)	No (not volatile)	3.23E-02		-	-		2.58E+02	8.19E-02	1.30E+01	-		3.80E-03	W	4.00E-04	W	No	3.23E-02	1.75E+00
Tetrachlorobiphenyl, 3,4,4',5'- (PCB 81)	70362-50-4	Yes	Yes	Yes	Yes	1.08E-02	CA	3.59E-01	1.18E+00	--	1.33E+02	2.94E-02	1.30E+01	-		1.14E-02	W	1.33E-04	W	No	1.08E-02	5.84E-01
Tetrachloroethane, 1,1,1,2-	630-20-6	Yes	Yes	Yes	Yes	1.66E+01	CA	5.52E+02	3.40E+02	--	1.08E+08	5.08E+07	1.30E+01	4.90E+00	YAWS	7.40E-06	I	-	No	1.66E+01	-	
Tetrachloroethane, 1,1,2,2-	79-34-5	Yes	Yes	Yes	Yes	2.11E+00	CA	7.05E+01	2.88E+02	--	4.17E+07	2.08E+07	1.30E+01	-		5.80E-05	C	-	No	2.11E+00	-	
Tetrachloroethylene	127-18-4	Yes	Yes	Yes	Yes	1.75E+02	NC	5.84E+03	4.56E+02	No (5)	1.65E+08	7.91E+07	1.30E+01	-		2.60E-07	I	4.00E-02	I	No	4.72E+02	1.75E+02
Tetrachlorophenol, 2,3,4,6-	58-90-2	No	No	No (not volatile)	No (not volatile)	-		-	-		8.31E+03	8.31E+03	1.30E+01	-		-	-	-		No	-	-
Tetrachlorotoluene, p- alpha, alpha, alpha-	5216-25-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.74E+05	1.24E+04	1.30E+01	-		-	-	-		No	-	-
Tetraethyl Dithiopyrophosphate	3689-24-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.82E+03	5.46E+03	1.30E+01	-		-	-	-		No	-	-
Tetraethyl Lead	78-00-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.52E+06	2.76E+06	1.30E+01	-		-	-	-		No	-	-
Tetrafluoroethane, 1,1,1,2-	811-97-2	Yes	Yes	Yes	Yes	3.50E+05	NC	1.17E+07	2.37E+05	--	2.74E+10	3.01E+09	1.30E+01	-		-	8.00E+01	I	No	-	3.50E+05	
Tetrahydrofuran	109-99-9	Yes	Yes	Yes	Yes	8.76E+03	NC	2.92E+05	5.04E+06	--	6.29E+08	1.74E+09	1.30E+01	2.00E+00	CRC	-	2.00E+00	I	No	-	8.76E+03	
Tetramethylcyclohexane	30501-43-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.56E+07	-	1.30E+01	-		-	-	-		No	-	-
Tetramethylphosphoramide, -N,N,N,N' (TMPA)	16853-36-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.95E+06	2.33E+01	1.30E+01	-		-	-	-		No	-	-
Tetryl (Trinitrophenylmethyl nitramine)	479-45-8	No	No	No (not volatile)	No (not volatile)	-		-	-		8.74E-01	8.20E+00	1.30E+01	-		-	-	-		No	-	-
Thallic Oxide	1314-32-5	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Thallium (I) Nitrate	10102-45-1	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Thallium (Soluble Salts)	7440-28-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Thallium Acetate	563-68-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.08E+08	-	1.30E+01	-		-	-	-		No	-	-
Thallium Carbonate	6533-73-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.52E+01	-	1.30E+01	-		-	-	-		No	-	-
Thallium Chloride	7791-12-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Thallium Selenite	12039-52-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>vg</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>vg</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>air,c</sub> ,C <sub>air,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> ,Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> ,Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>-1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>air,nc</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,nc</sub> (µg/m <sup>3</sup> )
Thallium Sulfate	7446-18-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Thifensulfuron-methyl	79277-27-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.67E-03	3.74E-03	1.30E+01	-		-		-		No	-	-
Thiobencarb	28249-77-6	No	No	No (not volatile)	No (not volatile)	-		-	-		3.05E+02	3.06E+02	1.30E+01	-		-		-		No	-	-
Thiocyanates	NA	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Thiocyanic Acid	463-56-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.50E+07	-	1.30E+01	-		-		-		No	-	-
Thiodiglycol	111-48-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.12E+04	2.33E+04	1.30E+01	-		-		-		No	-	-
Thiofanox	39196-18-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.00E+03	2.00E+03	1.30E+01	-		-		-		No	-	-
Thiophanate, Methyl	23564-05-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.31E+00	1.32E+00	1.30E+01	-		-		-		No	-	-
Thiram	137-26-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.23E+02	2.23E+02	1.30E+01	-		-		-		No	-	-
Tin	7440-31-5	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Titanium Tetrachloride	7550-45-0	Yes	Yes	Yes	Yes	4.38E-01		1.46E+01	-		1.02E+08	-	1.30E+01	-		-		1.00E-04	A	No	-	4.38E-01
Toluene	108-88-3	Yes	Yes	Yes	Yes	2.19E+04	NC	7.30E+05	1.48E+05	No (1000)	1.41E+08	7.80E+07	1.30E+01	1.10E+00	CRC	-	-	5.00E+00	I	No	-	2.19E+04
Toluene-2,4-diisocyanate	584-84-9	Yes	Yes	Yes	Yes	3.50E-02	NC	1.17E+00	2.41E+02	--	7.49E+04	5.46E+03	1.30E+01	9.00E-01	CRC	1.10E-05	C	8.00E-06	C	No	1.11E+01	3.50E-02
Toluene-2,5-diamine	95-70-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.23E+04	8.52E+03	1.30E+01	-		-		-		No	-	-
Toluene-2,6-diisocyanate	91-08-7	Yes	Yes	Yes	Yes	3.50E-02	NC	1.17E+00	1.99E+02	--	1.96E+05	6.62E+03	1.30E+01	1.10E+00	YAWS	1.10E-05	C	8.00E-06	C	No	1.11E+01	3.50E-02
Toluenediamine, 2,3-	2687-25-4	No	No	No (not volatile)	No (not volatile)	-		-	-		3.63E+03	7.46E+03	1.30E+01	-		-		-		No	-	-
Toluenediamine, 3,4-	496-72-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.13E+03	8.24E+03	1.30E+01	-		-		-		No	-	-
Toluic Acid, p-	99-94-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.72E+02	1.05E+03	1.30E+01	1.20E+00	YAWS	-		-		No	-	-
Toluidine, o- (Methylaniline, 2-)	95-53-4	No	Yes	No (not volatile)	No (not volatile)	2.40E+00		-	-		1.50E+06	5.47E+05	1.30E+01	1.20E+00	YAWS	5.10E-05	C	-		No	2.40E+00	-
Toluidine, p-	106-49-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.65E+06	2.08E+05	1.30E+01	1.20E+00	YAWS	-		-		No	-	-
Total Petroleum Hydrocarbons (Aliphatic High)	NA	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.24E+06	1.24E+06	1.30E+01	-		-		-		No	-	-
Total Petroleum Hydrocarbons (Aliphatic Low)	NA	Yes	Yes	Yes	Yes	1.75E+03	NC	5.84E+04	4.89E+02	--	4.76E+08	8.11E+07	1.30E+01	1.15E+00	CRC	-		4.00E-01	P	No	-	1.75E+03
Total Petroleum Hydrocarbons (Aliphatic Medium)	NA	Yes	Yes	Yes	Yes	4.38E+02	NC	1.46E+04	3.15E+00	--	3.07E+07	3.06E+07	1.30E+01	8.00E-01	CRC	-		1.00E-01	P	No	-	4.38E+02
Total Petroleum Hydrocarbons (Aromatic High)	NA	No	Yes	No (not volatile)	No (not volatile)	8.76E-03		-	-		7.45E-02	5.85E-03	1.30E+01	-		-		2.00E-06	P	Mut	-	8.76E-03
Total Petroleum Hydrocarbons (Aromatic Medium)	NA	Yes	Yes	Yes	Yes	2.63E+02	NC	8.76E+03	2.34E+03	--	1.35E+07	6.74E+06	1.30E+01	9.00E-01	CRC	-		6.00E-02	P	No	-	2.63E+02
Toxaphene	8001-35-2	No	Yes	No (not volatile)	No (not volatile)	3.83E-01		-	-		1.61E+02	1.35E+02	1.30E+01	-		3.20E-04	I	-		No	3.83E-01	-
Toxaphene, Weathered	NA	No	No	No (not volatile)	No (not volatile)	-		-	-		1.61E+02	1.35E+02	1.30E+01	-		-		-		No	-	-
Tralomethrin	66841-25-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.29E-03	1.29E-03	1.30E+01	-		-		-		No	-	-
Tri-n-butyltin	688-73-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.25E+05	2.67E+05	1.30E+01	-		-		-		No	-	-
Triacetin	102-76-1	No	No	No (not volatile)	No (not volatile)	-		-	-		2.91E+04	7.68E+03	1.30E+01	1.00E+00	CRC	-		-		No	-	-
Triadimefon	43121-43-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.37E-01	2.37E-01	1.30E+01	-		-		-		No	-	-
Triallate	2303-17-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.97E+03	1.96E+03	1.30E+01	-		-		-		No	-	-
Triasulfuron	82097-50-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.20E-04	4.23E-04	1.30E+01	-		-		-		No	-	-
Tribenuron-methyl	101200-48-0	No	No	No (not volatile)	No (not volatile)	-		-	-		8.29E-03	2.09E-04	1.30E+01	-		-		-		No	-	-
Tribromobenzene, 1,2,4-	615-54-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		9.28E+04	2.47E+04	1.30E+01	-		-		-		No	-	-
Tribromophenol, 2,4,6-	118-79-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.39E+03	1.02E+02	1.30E+01	-		-		-		No	-	-
Tribufos	78-48-8	No	No	No (not volatile)	No (not volatile)	-		-	-		8.96E+01	2.76E+01	1.30E+01	-		-		-		No	-	-
Tributyl Phosphate	126-73-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.62E+04	5.64E+03	1.30E+01	-		-		-		No	-	-
Tributyltin Compounds	NA	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> , C <sub>1,3</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Tributyltin Oxide	56-35-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.40E+02	2.41E+02	1.30E+01	-		-		-		No	-	-
Tricalcium phosphate	7758-87-4	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1	Yes	Yes	Yes	Yes	2.19E+04	NC	7.30E+05	1.60E+03	--	3.65E+09	2.33E+09	1.30E+01	-		-		5.00E+00	P	No	-	2.19E+04
Trichloro-Z'-hydroxydiphenylether	3380-34-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.00E+01	2.04E+00	1.30E+01	-		-		-		No	-	-
Trichloroacetic Acid	76-03-9	No	No	No (not volatile)	No (not volatile)	-		-	-		5.27E+05	1.30E+04	1.30E+01	-		-		-		No	-	-
Trichloroaniline HCl, 2,4,6-	33663-50-2	No	No	No (not volatile)	No (not volatile)	-		-	-		7.68E-01	6.15E-05	1.30E+01	-		-		-		No	-	-
Trichloroaniline, 2,4,6-	634-93-5	No	No	No (not volatile)	No (not volatile)	-		-	-		4.69E+04	8.19E+02	1.30E+01	-		-		-		No	-	-
Trichlorobenzene, 1,2,3-	87-61-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.05E+06	3.10E+05	1.30E+01	-		-		-		No	-	-
Trichlorobenzene, 1,2,4-	120-82-1	Yes	Yes	Yes	Yes	8.76E+00	NC	2.92E+02	3.69E+02	No (70)	4.49E+06	1.16E+06	1.30E+01	2.50E+00	CRC	-		2.00E-03	P	No	-	8.76E+00
Trichloroethane, 1,1,1-	71-55-6	Yes	Yes	Yes	Yes	2.19E+04	NC	7.30E+05	5.21E+04	No (200)	8.90E+08	5.42E+08	1.30E+01	8.00E+00	CRC	-		5.00E+00	I	No	-	2.19E+04
Trichloroethane, 1,1,2-	79-00-5	Yes	Yes	Yes	Yes	8.76E-01	NC	2.92E+01	4.91E+01	No (5)	1.65E+08	8.19E+07	1.30E+01	6.00E+00	CRC	1.60E-05	I	2.00E-04	X	No	7.67E+00	8.76E-01
Trichloroethylene	79-01-6	Yes	Yes	Yes	Yes	8.76E+00	NC	2.92E+02	3.77E+01	No (5)	4.88E+08	2.98E+08	1.30E+01	8.00E+00	CRC	4.10E-06	I	2.00E-03	I	Mut	2.99E+01	8.76E+00
Trichlorofluoromethane	75-69-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.93E+09	2.95E+09	1.30E+01	-		-		-		No	-	-
Trichlorophenol, 2,4,5-	95-95-4	No	No	No (not volatile)	No (not volatile)	-		-	-		7.96E+04	3.08E+04	1.30E+01	-		-		-		No	-	-
Trichlorophenol, 2,4,6-	88-06-2	No	Yes	No (not volatile)	No (not volatile)	3.96E+01		-	-		8.50E+04	3.31E+04	1.30E+01	-		3.10E-06	I	-		No	3.96E+01	-
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	No	No	No (not volatile)	No (not volatile)	-		-	-		5.15E+02	9.87E+01	1.30E+01	-		-		-		No	-	-
Trichlorophenoxypropionic acid, -2,4,5	93-72-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.45E+02	2.63E+01	1.30E+01	-		-		-		No	-	-
Trimethylpropane, 1,1,2-	598-77-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.46E+07	1.26E+07	1.30E+01	-		-		-		No	-	-
Trichloropropane, 1,2,3-	96-18-4	Yes	Yes	Yes	Yes	1.31E+00	NC	4.38E+01	1.92E+02	--	2.93E+07	1.20E+07	1.30E+01	3.20E+00	CRC	-		3.00E-04	I	Mut	-	1.31E+00
Trichloropropene, 1,2,3-	96-19-5	Yes	Yes	Yes	Yes	1.31E+00	NC	4.38E+01	3.63E+00	--	3.44E+07	1.21E+08	1.30E+01	-		-		3.00E-04	P	No	-	1.31E+00
Tricresyl Phosphate (TCP)	1330-78-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.19E+01	3.85E+00	1.30E+01	-		-		-		No	-	-
Tridiphanne	58138-08-2	No	No	No (not volatile)	No (not volatile)	-		-	-		6.72E+03	1.91E+01	1.30E+01	-		-		-		No	-	-
Triethylamine	121-44-8	Yes	Yes	Yes	Yes	3.07E+01	NC	1.02E+03	8.84E+03	--	3.11E+08	2.38E+08	1.30E+01	1.20E+00	CRC	-		7.00E-03	I	No	-	3.07E+01
Triethylene Glycol	112-27-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.07E+04	2.49E+02	1.30E+01	9.00E-01	CRC	-		-		No	-	-
Trifluoroethane, 1,1,1-	420-46-2	Yes	Yes	Yes	Yes	8.76E+04	NC	2.92E+06	3.42E+03	--	4.31E+10	1.95E+10	1.30E+01	-		-		2.00E+01	P	No	-	8.76E+04
Trifluralin	1582-09-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		8.26E+02	7.75E+02	1.30E+01	-		-		-		No	-	-
Trimethyl Phosphate	512-56-1	No	No	No (not volatile)	No (not volatile)	-		-	-		6.40E+06	6.34E+04	1.30E+01	2.20E+00	YAWS	-		-		No	-	-
Trimethylbenzene, 1,2,3-	526-73-8	Yes	Yes	Yes	Yes	2.63E+02	NC	8.76E+03	3.96E+03	--	1.09E+07	4.99E+06	1.30E+01	8.00E-01	CRC	-		6.00E-02	I	No	-	2.63E+02
Trimethylbenzene, 1,2,4-	95-63-6	Yes	Yes	Yes	Yes	2.63E+02	NC	8.76E+03	2.29E+03	--	1.36E+07	6.55E+06	1.30E+01	9.00E-01	CRC	-		6.00E-02	I	No	-	2.63E+02
Trimethylbenzene, 1,3,5-	108-67-8	Yes	Yes	Yes	Yes	2.63E+02	NC	8.76E+03	1.60E+03	--	1.60E+07	7.90E+06	1.30E+01	1.00E+00	CRC	-		6.00E-02	I	No	-	2.63E+02
Trimethylpentane, 2,4,4-	25167-70-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.29E+08	7.22E+07	1.30E+01	-		-		-		No	-	-
Trinitrobenzene, 1,3,5-	99-35-4	No	No	No (not volatile)	No (not volatile)	-		-	-		7.38E+01	1.88E+01	1.30E+01	-		-		-		No	-	-
Trinitrotoluene, 2,4,6-	118-96-7	No	No	No (not volatile)	No (not volatile)	-		-	-		9.80E+01	2.76E+01	1.30E+01	-		-		-		No	-	-
Triphenylphosphine Oxide	791-28-6	No	No	No (not volatile)	No (not volatile)	-		-	-		3.89E-02	1.35E+00	1.30E+01	-		-		-		No	-	-
Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.71E+00	7.47E-01	1.30E+01	-		-		-		No	-	-
Tris(1-chloro-2-propyl)phosphate	13674-84-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.56E+02	1.07E+03	1.30E+01	-		-		-		No	-	-
Tris(2,3-dibromopropyl)phosphate	126-72-7	Yes	Yes	Yes	Yes	1.86E-01	CA	6.19E+00	2.08E+02	--	7.13E+03	7.13E+03	1.30E+01	-		6.60E-04	C	-		No	1.86E-01	-
Tris(2-chloroethyl)phosphate	115-96-8	No	No	No (not volatile)	No (not volatile)	-		-	-		9.41E+05	2.97E+05	1.30E+01	-		-		-		No	-	-
Tris(2-ethylhexyl)phosphate	78-42-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.93E+00	8.09E-01	1.30E+01	-		-		-		No	-	-
Trisbutoxyethyl Phosphate	78-51-3	No	No	No (not volatile)	No (not volatile)	-		-	-		5.36E-01	5.40E-01	1.30E+01	-		-		-		No	-	-
Tungsten	7440-33-7	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Uranium	7440-61-1	No	Yes	No (not volatile)	No (not volatile)	1.75E-01		-	-		0.00E+00	-	1.30E+01	-		-		4.00E-05	A	No	-	1.75E-01

Commercial Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> ,Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> ,Target?)	Target Indoor Air Concentration (TCR=1E-05 or THQ=1) MIN(C <sub>ind</sub> ,C <sub>1,3,ind</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-05 or THQ=1) C <sub>sg</sub> ,Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-05 or THQ=1) C <sub>gw</sub> ,Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL ?)	Pure Phase Vapor Concentration C <sub>vp</sub> (18 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1,3</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-05 C <sub>1,3,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>1,3,nc</sub> (µg/m <sup>3</sup> )
Urethane	51-79-6	No	Yes	No (not volatile)	No (not volatile)	4.23E-01		-	-		1.26E+06	5.71E+05	1.30E+01	-		2.90E-04	C	-		Mut	4.23E-01	-
Vanadium Pentoxide	1314-62-1	No	Yes	No (not volatile)	No (not volatile)	1.48E-02		-	-		0.00E+00	-	1.30E+01	-		8.30E-03	P	7.00E-06	P	No	1.48E-02	3.07E-02
Vanadium and Compounds	7440-62-2	Indeterminate	Yes	No (not volatile)	No (not volatile)	4.38E-01		-	-		-	-	1.30E+01	-		-		1.00E-04	A	No	-	4.38E-01
Vernolate	1929-77-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.14E+05	1.14E+05	1.30E+01	-		-		-		No	-	-
Vinclozolin	50471-44-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.85E+00	1.85E+00	1.30E+01	-		-		-		No	-	-
Vinyl Acetate	108-05-4	Yes	Yes	Yes	Yes	8.76E+02	NC	2.92E+04	7.75E+04	--	4.17E+08	2.26E+08	1.30E+01	2.60E+00	CRC	-		2.00E-01	I	No	-	8.76E+02
Vinyl Bromide	593-60-2	Yes	Yes	Yes	Yes	8.18E+00	CA	2.73E+02	2.32E+01	--	5.94E+09	2.67E+09	1.30E+01	9.00E+00	CRC	1.50E-05	P	3.00E-03	I	No	8.18E+00	1.31E+01
Vinyl Chloride	75-01-4	Yes	Yes	Yes	Yes	2.79E+01	CA	9.29E+02	3.28E+01	No (2)	1.00E+10	7.48E+09	1.30E+01	3.60E+00	CRC	4.40E-06	I	8.00E-02	A	Mut	2.79E+01	3.50E+02
Warfarin	81-81-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.92E+00	1.93E+00	1.30E+01	-		-		-		No	-	-
Xylene, m-	106-38-3	Yes	Yes	Yes	Yes	4.38E+02	NC	1.46E+04	2.95E+03	--	4.73E+07	2.39E+07	1.30E+01	1.10E+00	CRC	-		1.00E-01	G	No	-	4.38E+02
Xylene, o-	95-47-6	Yes	Yes	Yes	Yes	4.38E+02	NC	1.46E+04	4.14E+03	--	3.77E+07	1.88E+07	1.30E+01	9.00E-01	CRC	-		1.00E-01	G	No	-	4.38E+02
Xylene, p-	106-42-3	Yes	Yes	Yes	Yes	4.38E+02	NC	1.46E+04	3.07E+03	--	5.05E+07	2.31E+07	1.30E+01	1.10E+00	CRC	-		1.00E-01	G	No	-	4.38E+02
Xylenes	1330-20-7	Yes	Yes	Yes	Yes	4.38E+02	NC	1.46E+04	3.19E+03	Yes (10000)	4.56E+07	1.46E+07	1.30E+01	-		-		1.00E-01	I	No	-	4.38E+02
Zinc Cyanide	557-21-1	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Zinc Phosphide	1314-84-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Zinc and Compounds	7440-66-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Zineb	12122-67-7	No	No	No (not volatile)	No (not volatile)	-		-	-		1.11E+00	1.11E+00	1.30E+01	-		-		-		No	-	-
Zirconium	7440-67-7	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-

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Variable	Value
Exposure Scenario	Resident
Temperature for Groundwater Vapor Concentration C	13
ED <sub>res</sub> (exposure duration) year	26
TR (target risk) unitless	0.000001
THQ (target hazard quotient) unitless	1
LT (lifetime) years	70
EF <sub>res</sub> (exposure frequency) days/yea	350
ED <sub>0-2</sub> (mutagenic exposure duration first phase) year	2
ED <sub>2-6</sub> (mutagenic exposure duration second phase) year	4
ED <sub>6-16</sub> (mutagenic exposure duration third phase) year	10
ED <sub>16-26</sub> (mutagenic exposure duration fourth phase) year	10
EF <sub>0-2</sub> (mutagenic exposure frequency first phase) days/yea	350
EF <sub>2-6</sub> (mutagenic exposure frequency second phase) days/yea	350
EF <sub>6-16</sub> (mutagenic exposure frequency third phase) days/yea	350
EF <sub>16-26</sub> (mutagenic exposure frequency fourth phase) days/yea	350
ET <sub>res</sub> (exposure time) hours/day	24
ET <sub>0-2</sub> (mutagenic exposure time first phase) hours/da	24
ET <sub>2-6</sub> (mutagenic exposure time second phase) hours/da	24
ET <sub>6-16</sub> (mutagenic exposure time third phase) hours/da	24
ET <sub>16-26</sub> (mutagenic exposure time fourth phase) hours/da	24
AF <sub>gw</sub> (Attenuation Factor Groundwater) unitles	0.001
AF <sub>ss</sub> (Attenuation Factor Sub-Slab) unitles	0.03

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Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>1,3</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>sub</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Acenaphthene	83-32-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.78E+04	9.75E+03	1.30E+01	8.00E-01	YAWS	-		-		No	-	-
Acephate	30560-19-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.67E+01	1.68E+01	1.30E+01	-		-		-		No	-	-
Acetaldehyde	75-07-0	Yes	Yes	Yes	Yes	1.28E+00	CA	4.25E+01	6.99E+02	--	2.14E+09	1.83E+09	1.30E+01	4.00E+00	CRC	2.20E-06	I	9.00E-03	I	No	1.28E+00	9.39E+00
Acetochlor	34256-82-1	No	No	No (not volatile)	No (not volatile)	-		-	-		4.06E+02	2.03E+02	1.30E+01	-		-		-		No	-	-
Acetone	67-64-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.23E+08	8.75E+08	1.30E+01	2.50E+00	CRC	-		-		No	-	-
Acetone Cyanohydrin	75-86-5	No	Yes	No (not volatile)	No (not volatile)	2.09E+00		-	-		1.56E+06	3.49E+04	1.30E+01	2.20E+00	CRC	-		2.00E-03	X	No	-	2.09E+00
Acetonitrile	75-05-8	Yes	Yes	Yes	Yes	6.26E+01	NC	2.09E+03	7.48E+04	--	1.96E+08	8.37E+08	1.30E+01	3.00E+00	CRC	-		6.00E-02	I	No	-	6.26E+01
Acetophenone	98-86-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.57E+06	1.07E+06	1.30E+01	1.10E+00	YAWS	-		-		No	-	-
Acetylaminofluorene, 2-Acrolein	53-96-3	No	Yes	No (not volatile)	No (not volatile)	2.16E-03		-	-		1.13E+00	4.34E-02	1.30E+01	-		1.30E-03	C	-		No	2.16E-03	-
	107-02-8	Yes	Yes	Yes	Yes	2.09E-02	NC	6.95E-01	6.71E+00	--	8.26E+08	6.59E+08	1.30E+01	2.80E+00	CRC	-		2.00E-05	I	No	-	2.09E-02
Acrylamide	79-06-1	No	Yes	No (not volatile)	No (not volatile)	1.01E-02		-	-		2.68E+04	6.23E+03	1.30E+01	2.70E+00	YAWS	1.00E-04	I	6.00E-03	I	Mut	1.01E-02	6.26E+00
Acrylic Acid	79-10-7	Yes	Yes	Yes	Yes	2.09E-01	NC	6.95E+00	3.38E+04	--	1.54E+07	6.18E+06	1.30E+01	2.40E+00	CRC	-		2.00E-04	P	No	-	2.09E-01
Acrylonitrile	107-13-1	Yes	Yes	Yes	Yes	4.13E-02	CA	1.38E+00	1.30E+01	--	3.10E+08	2.37E+08	1.30E+01	3.00E+00	CRC	6.80E-05	I	2.00E-03	I	No	4.13E-02	2.09E+00
Adiponitrile	111-69-3	No	Yes	No (not volatile)	No (not volatile)	6.26E+00		-	-		3.95E+03	1.04E+03	1.30E+01	1.00E+00	CRC	-		6.00E-03	P	No	-	6.26E+00
Alachlor	15972-60-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.19E+02	8.16E+01	1.30E+01	-		-		-		No	-	-
Aldicarb	116-06-3	No	No	No (not volatile)	No (not volatile)	-		-	-		3.55E+02	3.55E+02	1.30E+01	-		-		-		No	-	-
Aldicarb Sulfone	1646-86-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.08E+03	1.08E+03	1.30E+01	-		-		-		No	-	-
Aldrin	309-00-2	Yes	Yes	Yes	Yes	5.73E-04	CA	1.91E-02	7.07E+00	--	2.36E+03	1.36E+00	1.30E+01	-		4.90E-03	I	-		No	5.73E-04	-
Allyl Alcohol	107-18-6	Yes	Yes	Yes	Yes	1.04E-01	NC	3.48E+00	1.08E+03	--	8.15E+07	9.63E+07	1.30E+01	2.50E+00	CRC	-		1.00E-04	X	No	-	1.04E-01
Allyl Chloride	107-05-1	Yes	Yes	Yes	Yes	4.68E-01	CA	1.56E+01	1.67E+00	--	1.51E+09	9.42E+08	1.30E+01	2.90E+00	CRC	6.00E-06	C	1.00E-03	I	No	4.68E-01	1.04E+00
Aluminum	7429-90-5	No	Yes	No (not volatile)	No (not volatile)	5.21E+00		-	-		0.00E+00	-	1.30E+01	-		-		5.00E-03	P	No	-	5.21E+00
Aluminum Phosphide	20859-73-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Ametryn	834-12-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.35E+01	2.08E+01	1.30E+01	-		-		-		No	-	-
Aminobiphenyl, 4-	92-67-1	No	Yes	No (not volatile)	No (not volatile)	4.68E-04		-	-		1.06E+03	4.02E+02	1.30E+01	7.00E-01	YAWS	6.00E-03	C	-		No	4.68E-04	-
Aminophenol, m-	591-27-5	No	No	No (not volatile)	No (not volatile)	-		-	-		5.61E+04	8.96E+01	1.30E+01	-		-		-		No	-	-
Aminophenol, o-	95-55-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.61E+04	1.62E+02	1.30E+01	-		-		-		No	-	-
Aminophenol, p-	123-30-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.35E+02	9.10E+01	1.30E+01	-		-		-		No	-	-
Amtraz	33089-61-1	No	No	No (not volatile)	No (not volatile)	-		-	-		3.16E+01	4.04E+02	1.30E+01	-		-		-		No	-	-
Ammonia	7664-41-7	Yes	Yes	Yes	Yes	5.21E+02	NC	1.74E+04	1.08E+06	--	6.88E+09	2.32E+08	1.30E+01	1.60E+01	CRC	-		5.00E-01	I	No	-	5.21E+02
Ammonium Perchlorate	7790-98-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Ammonium Picrate	131-74-8	No	No	No (not volatile)	No (not volatile)	-		-	-		9.24E+00	8.83E+00	1.30E+01	-		-		-		No	-	-
Ammonium Sulfamate	7773-06-0	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Ammonium perfluoro-2-methyl-3-oxahexanoate	62037-80-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Amyl Alcohol, tert-	75-85-4	Yes	Yes	Yes	Yes	3.13E+00	NC	1.04E+02	1.16E+04	--	7.92E+07	2.96E+07	1.30E+01	1.20E+00	CRC	-		3.00E-03	X	No	-	3.13E+00
Aniline	62-53-3	No	Yes	No (not volatile)	No (not volatile)	1.04E+00		-	-		3.34E+06	1.30E+06	1.30E+01	1.30E+00	CRC	1.60E-06	C	1.00E-03	I	No	1.75E+00	1.04E+00
Anthracene	120-12-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.26E+01	2.83E+01	1.30E+01	6.00E-01	CRC	-		-		No	-	-
Anthraquinone, 9,10-	84-65-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.30E+00	2.96E-01	1.30E+01	-		-		-		No	-	-
Antimony (metallic)	7440-36-0	No	Yes	No (not volatile)	No (not volatile)	3.13E-01		-	-		0.00E+00	-	1.30E+01	-		-		3.00E-04	A	No	-	3.13E-01
Antimony Pentoxide	1314-60-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Antimony Potassium Tartrate	11071-15-1	No	No	No (not volatile)	No (not volatile)	-		-	-		4.16E-06	-	1.30E+01	-		-		-		No	-	-
Antimony Tetraoxide	1332-81-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gw</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ground</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Antimony Trichloride	10025-91-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.23E+06	-	1.30E+01	-		-	-	-	No		-	-
Antimony Trioxide	1309-64-4	Indeterminate	Yes	No (not volatile)	No (not volatile)	2.09E-01		-	-		-	-	1.30E+01	-		-	2.00E-04	I	No		-	2.09E-01
Aroclor 1016	12674-11-2	Yes	Yes	Yes	Yes	1.40E-01	CA	4.68E+00	1.72E+01	--	5.54E+03	3.43E+03	1.30E+01	-		2.00E-05	G	-	No	1.40E-01	-	
Aroclor 1221	11104-28-2	Yes	Yes	Yes	Yes	4.91E-03	CA	1.64E-01	5.27E-01	--	6.80E+04	1.40E+05	1.30E+01	-		5.71E-04	G	-	No	4.91E-03	-	
Aroclor 1232	11141-16-5	Yes	Yes	Yes	Yes	4.91E-03	CA	1.64E-01	1.63E-01	--	4.12E+04	4.36E+04	1.30E+01	-		5.71E-04	G	-	No	4.91E-03	-	
Aroclor 1242	53469-21-9	Yes	Yes	Yes	Yes	4.91E-03	CA	1.64E-01	1.25E+00	--	1.36E+03	1.09E+03	1.30E+01	-		5.71E-04	G	-	No	4.91E-03	-	
Aroclor 1248	12672-29-6	Yes	Yes	Yes	Yes	4.91E-03	CA	1.64E-01	2.73E-01	--	7.76E+03	1.80E+03	1.30E+01	-		5.71E-04	G	-	No	4.91E-03	-	
Aroclor 1254	11097-69-1	Yes	Yes	Yes	Yes	4.91E-03	CA	1.64E-01	1.56E+00	--	1.35E+03	1.35E+02	1.30E+01	-		5.71E-04	G	-	No	4.91E-03	-	
Aroclor 1260	11096-82-5	Yes	Yes	Yes	Yes	4.91E-03	CA	1.64E-01	3.58E-01	--	8.61E+02	1.98E+02	1.30E+01	-		5.71E-04	G	-	No	4.91E-03	-	
Aroclor 5460	11126-42-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.46E+02	2.72E+02	1.30E+01	-		-	-	-	No		-	-
Arsenic, Inorganic	7440-38-2	Indeterminate	Yes	No (not volatile)	No (not volatile)	6.53E-04		-	-		-	-	1.30E+01	-		4.30E-03	I	1.50E-05	C	No	6.53E-04	1.56E-02
Arsine	7784-42-1	Indeterminate	Yes	No (not volatile)	No (not volatile)	5.21E-02		-	-		-	-	1.30E+01	5.10E+00	YAWS	-	-	5.00E-05	I	No	-	5.21E-02
Asulam	3337-71-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.78E+01	3.50E-01	1.30E+01	-		-	-	-	No		-	-
Atrazine	1912-24-9	No	No	No (not volatile)	No (not volatile)	-		-	-		3.35E+00	3.35E+00	1.30E+01	-		-	-	-	No		-	-
Auramine	492-80-8	No	Yes	No (not volatile)	No (not volatile)	1.12E-02		-	-		1.86E+01	3.68E+00	1.30E+01	-		2.50E-04	C	-	No	1.12E-02	-	
Avermectin B1	65195-55-3	No	No	No (not volatile)	No (not volatile)	-		-	-		6.87E-23	1.89E-23	1.30E+01	-		-	-	-	No		-	-
Azinphos-methyl	86-50-0	No	Yes	No (not volatile)	No (not volatile)	1.04E+01		-	-		2.73E+01	2.04E+01	1.30E+01	-		-	1.00E-02	A	No	-	1.04E+01	
Azobenzene	103-33-3	Yes	Yes	Yes	Yes	9.06E-02	CA	3.02E+00	4.75E+02	--	3.54E+03	1.22E+03	1.30E+01	-		3.10E-05	I	-	No	9.06E-02	-	
Azodicarbonamide	123-77-3	No	Yes	No (not volatile)	No (not volatile)	7.30E-03		-	-		1.17E-03	1.17E-03	1.30E+01	-		-	7.00E-06	P	No	-	7.30E-03	
Barium	7440-39-3	Indeterminate	Yes	No (not volatile)	No (not volatile)	5.21E-01		-	-		-	-	1.30E+01	-		-	5.00E-04	H	No	-	5.21E-01	
Benfluralin	1861-40-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.18E+03	1.19E+03	1.30E+01	-		-	-	-	No		-	-
Benomyl	17804-35-2	No	No	No (not volatile)	No (not volatile)	-		-	-		5.78E-02	7.66E-04	1.30E+01	-		-	-	-	No		-	-
Bensulfuron-methyl	83055-99-6	No	No	No (not volatile)	No (not volatile)	-		-	-		4.64E-07	1.85E-05	1.30E+01	-		-	-	-	No		-	-
Bentazon	25057-89-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.46E+01	4.46E+01	1.30E+01	-		-	-	-	No		-	-
Benzo[a]anthracene	56-55-3	Yes	Yes	Yes	Yes	1.69E-02	CA	5.63E-01	1.76E+02	--	2.58E+00	9.03E-01	1.30E+01	-		6.00E-05	E	-	Mut	1.69E-02	-	
Benzaldehyde	100-52-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.25E+06	3.31E+06	1.30E+01	1.40E+00	YAWS	-	-	-	No		-	-
Benzene	71-43-2	Yes	Yes	Yes	Yes	3.60E-01	CA	1.20E+01	2.70E+00	Yes (5)	3.98E+08	2.39E+08	1.30E+01	1.20E+00	CRC	7.80E-06	I	3.00E-02	I	No	3.60E-01	3.13E+01
Benzenediamine-2-methyl sulfate, 1,4-	6369-59-1	No	No	No (not volatile)	No (not volatile)	-		-	-		3.44E-07	8.86E-10	1.30E+01	-		-	-	-	No		-	-
Benzenethiol	108-98-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.14E+07	5.32E+06	1.30E+01	1.20E+00	YAWS	-	-	-	No		-	-
Benzidine	92-87-5	No	Yes	No (not volatile)	No (not volatile)	1.51E-05		-	-		8.90E+00	1.58E-01	1.30E+01	1.40E+00	YAWS	6.70E-02	I	-	Mut	1.51E-05	-	
Benzo(e)pyrene	192-97-2	No	Yes	No (not volatile)	No (not volatile)	2.09E-03		-	-		7.74E-02	7.66E-02	1.30E+01	-		-	2.00E-06	X	No		-	2.09E-03
Benzo(f)fluoranthene	205-82-3	No	Yes	No (not volatile)	No (not volatile)	2.55E-02		-	-		3.56E-01	2.07E-02	1.30E+01	-		1.10E-04	C	-	No	2.55E-02	-	
Benzo[a]pyrene	50-32-8	No	Yes	No (not volatile)	No (not volatile)	1.69E-03		-	-		7.45E-02	5.85E-03	1.30E+01	-		6.00E-04	I	2.00E-06	I	Mut	1.69E-03	2.09E-03
Benzo(b)fluoranthene	205-99-2	No	Yes	No (not volatile)	No (not volatile)	1.69E-02		-	-		6.79E+00	9.07E-03	1.30E+01	-		6.00E-05	E	-	Mut	1.69E-02	-	
Benzo(k)fluoranthene	207-08-9	No	Yes	No (not volatile)	No (not volatile)	1.69E-01		-	-		1.31E-02	3.43E-03	1.30E+01	-		6.00E-06	E	-	Mut	1.69E-01	-	
Benzoic Acid	65-85-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.60E+03	1.77E+03	1.30E+01	1.40E+00	YAWS	-	-	-	No		-	-
Benzotrichloride	98-07-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.35E+06	2.44E+05	1.30E+01	1.60E+00	YAWS	-	-	-	No		-	-
Benzyl Alcohol	100-51-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.47E+05	2.11E+05	1.30E+01	1.30E+00	YAWS	-	-	-	No		-	-
Benzyl Chloride	100-44-7	Yes	Yes	Yes	Yes	5.73E-02	CA	1.91E+00	6.97E+00	--	8.37E+06	4.32E+06	1.30E+01	1.10E+00	CRC	4.90E-05	C	1.00E-03	P	No	5.73E-02	1.04E+00
Beryllium and compounds	7440-41-7	No	Yes	No (not volatile)	No (not volatile)	1.17E-03		-	-		0.00E+00	-	1.30E+01	-		2.40E-03	I	2.00E-05	I	No	1.17E-03	2.09E-02
Bifenox	42576-02-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.84E+00	1.76E+00	1.30E+01	-		-	-	-	No		-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1a</sub> Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1a</sub> Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MN(C <sub>ind</sub> ,C <sub>air,ind</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>sg</sub> Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>air,ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,ind</sub> (µg/m <sup>3</sup> )	
Biphenrin	82657-04-3	No	No	No (not volatile)	No (not volatile)	-		-	-		4.09E+00	4.09E-02	1.30E+01	-		-	-	-	No		-	-	
Biphenyl, 1,1'-	92-52-4	Yes	Yes	Yes	Yes	4.17E-01	NC	1.39E+01	8.73E+01	--	7.41E+04	3.57E+04	1.30E+01	6.00E-01	CRC	-	4.00E-04	X	No		-	4.17E-01	
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		5.15E+06	2.30E+06	1.30E+01	-		-	-		No		-	-	
Bis(2-chloroethoxy)methane	111-91-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.23E+06	5.12E+05	1.30E+01	-		-	-		No		-	-	
Bis(2-chloroethyl) ether	111-44-4	Yes	Yes	Yes	Yes	8.51E-03	CA	2.84E-01	3.05E+01	--	1.19E+07	4.80E+06	1.30E+01	2.70E+00	CRC	3.30E-04	I	-	No		8.51E-03	-	
Bis(2-ethylhexyl)phthalate	117-81-7	No	Yes	No (not volatile)	No (not volatile)	1.17E+00		-	-		2.98E+00	6.34E-01	1.30E+01	3.00E-01	YAWS	2.40E-06	C	-	No		1.17E+00	-	
Bis(chloromethyl) ether	542-88-1	Yes	Yes	Yes	Yes	4.53E-05	CA	1.51E-03	4.81E-04	--	1.82E+08	2.07E+09	1.30E+01	6.50E+00	YAWS	6.20E-02	I	-	No		4.53E-05	-	
Bisphenol A	80-05-7	No	No	No (not volatile)	No (not volatile)	-		-	-		4.80E+00	8.27E-03	1.30E+01	6.00E-01	YAWS	-	-	-	No		-	-	
Boron And Borates Only	7440-42-8	Indeterminate	Yes	No (not volatile)	No (not volatile)	2.09E+01		-	-		-	-	1.30E+01	-		-	2.00E-02	H	No		-	2.09E+01	
Boron Trichloride	10294-34-5	Yes	Yes	Yes	Yes	2.09E+01		6.95E+02	-		6.30E+06	-	1.30E+01	-		-	2.00E-02	P	No		-	2.09E+01	
Boron Trifluoride	7637-07-2	Yes	Yes	Yes	Yes	1.36E+01		4.52E+02	-		1.33E+11	-	1.30E+01	-		-	1.30E-02	C	No		-	1.36E+01	
Bromate	15541-45-4	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-		No		-	-	
Bromo-2-chloroethane, 1-	107-04-0	Yes	Yes	Yes	Yes	6.26E-02	NC	2.09E+00	3.42E+00	--	2.55E+08	1.26E+08	1.30E+01	-		-	6.00E-05	X	No		-	6.26E-02	
Bromo-3-fluorobenzene, 1-	1073-06-9	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		2.67E+07	1.93E+07	1.30E+01	-		-	-		No		-	-	
Bromo-4-fluorobenzene, 1-	460-00-4	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		2.67E+07	6.95E+06	1.30E+01	-		-	-		No		-	-	
Bromobenzene	108-96-1	Yes	Yes	Yes	Yes	6.26E+01	NC	2.09E+03	1.45E+03	--	3.53E+07	1.93E+07	1.30E+01	1.50E+00	YAWS	-	6.00E-02	I	No		-	6.26E+01	
Bromochloromethane	74-97-5	Yes	Yes	Yes	Yes	4.17E+01	NC	1.39E+03	1.16E+03	--	9.92E+08	6.00E+08	1.30E+01	-		-	4.00E-02	X	No		-	4.17E+01	
Bromodichloromethane	75-27-4	Yes	Yes	Yes	Yes	7.59E-02	CA	2.53E+00	1.55E+00	Yes (80)	4.41E+08	1.49E+08	1.30E+01	-		3.70E-05	C	-	No		7.59E-02	-	
Bromoform	75-25-2	Yes	Yes	Yes	Yes	2.55E+00	CA	8.51E+01	2.43E+02	No (80)	7.34E+07	3.25E+07	1.30E+01	-		1.10E-06	I	-	No		2.55E+00	-	
Bromomethane	74-83-9	Yes	Yes	Yes	Yes	5.21E+00	NC	1.74E+02	2.48E+01	--	8.25E+09	3.19E+09	1.30E+01	1.00E+01	CRC	-	5.00E-03	I	No		-	5.21E+00	
Bromophos	2104-96-3	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		2.51E+03	2.51E+03	1.30E+01	-		-	-		No		-	-	
Bromopropane, 1-	106-94-5	Yes	Yes	Yes	Yes	1.04E+02	NC	3.48E+03	5.83E+02	--	7.33E+08	4.39E+08	1.30E+01	-		-	1.00E-01	A	No		-	1.04E+02	
Bromoxynil	1689-84-5	No	No	No (not volatile)	No (not volatile)	-		-	-		7.03E-01	7.02E-01	1.30E+01	-		-	-		No		-	-	
Bromoxynil Octanoate	1689-99-2	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		1.04E+02	1.04E+02	1.30E+01	-		-	-		No		-	-	
Butadiene, 1,3-	106-99-0	Yes	Yes	Yes	Yes	9.36E-02	CA	3.12E+00	4.30E-02	--	6.13E+09	1.60E+09	1.30E+01	2.00E+00	CRC	3.00E-05	I	2.00E-03	I	No		9.36E-02	2.09E+00
Butanoic acid, 4-(2,4-dichlorophenoxy)-	94-82-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.49E+02	4.31E+00	1.30E+01	-		-	-		No		-	-	
Butanol, N-	71-36-3	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		2.67E+07	9.79E+06	1.30E+01	1.40E+00	CRC	-	-	-	No		-	-	
Butyl Alcohol, t-	75-65-0	Yes	Yes	Yes	Yes	5.21E+03	NC	1.74E+05	2.92E+07	--	1.62E+08	1.78E+08	1.30E+01	2.40E+00	CRC	-	5.00E+00	I	No		-	5.21E+03	
Butyl Benzyl Phthalate	85-68-7	No	No	No (not volatile)	No (not volatile)	-		-	-		1.39E+02	3.95E+01	1.30E+01	-		-	-		No		-	-	
Butyl Formate, tert-	762-75-4	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		4.75E+08	1.83E+08	1.30E+01	-		-	-		No		-	-	
Butyl alcohol, sec-	78-92-2	Yes	Yes	Yes	Yes	3.13E+04	NC	1.04E+06	1.84E+08	--	7.31E+07	3.08E+07	1.30E+01	1.70E+00	CRC	-	3.00E+01	P	No		-	3.13E+04	
Butylate	2008-41-5	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		1.52E+05	1.55E+05	1.30E+01	-		-	-		No		-	-	
Butylated hydroxyanisole	25013-16-5	No	Yes	No (not volatile)	No (not volatile)	4.93E+01		-	-		4.81E+04	3.75E+03	1.30E+01	-		5.70E-08	C	-	No		4.93E+01	-	
Butylated hydroxytoluene	128-37-0	No	No	No (not volatile)	No (not volatile)	-		-	-		6.12E+04	2.96E+01	1.30E+01	5.00E-01	YAWS	-	-	-	No		-	-	
Butylbenzene, n-	104-51-8	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		7.68E+06	3.46E+06	1.30E+01	8.00E-01	CRC	-	-	-	No		-	-	
Butylbenzene, sec-	135-98-8	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		1.26E+07	4.84E+06	1.30E+01	8.00E-01	YAWS	-	-	-	No		-	-	
Butylbenzene, tert-	98-06-6	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		1.59E+07	6.07E+06	1.30E+01	7.00E-01	CRC	-	-	-	No		-	-	
Butylphthalyl Butylglycolate	85-70-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.28E+02	7.41E+00	1.30E+01	-		-	-		No		-	-	
Cacodylic Acid	75-60-5	No	No	No (not volatile)	No (not volatile)	-		-	-		7.42E-01	1.47E+00	1.30E+01	-		-	-		No		-	-	
Cadmium (Diet)	7440-43-9	No	Yes	No (not volatile)	No (not volatile)	1.56E-03		-	-		0.00E+00	-	1.30E+01	-		1.80E-03	I	1.00E-05	A	No		1.56E-03	1.04E-02
Cadmium (Water)	7440-43-9	No	Yes	No (not volatile)	No (not volatile)	1.56E-03		-	-		0.00E+00	-	1.30E+01	-		1.80E-03	I	1.00E-05	A	No		1.56E-03	1.04E-02
Calcium Cyanide	592-01-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No		-	-	
Calcium hydroxide phosphate	12167-74-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No		-	-	



Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>1,3</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>1,3</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Calcium pyrophosphate	7790-76-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No		-	-
Caprolactam	105-60-2	No	Yes	No (not volatile)	No (not volatile)	2.29E+00		-	-		9.74E+03	2.50E+05	1.30E+01	3.00E-01	YAWS	-		2.20E-03	C	No	-	2.29E+00
Captafol	2425-06-1	No	Yes	No (not volatile)	No (not volatile)	6.53E-02		-	-		2.82E-01	2.82E-01	1.30E+01	-		4.30E-05	C	-		No	6.53E-02	-
Captan	133-06-2	No	Yes	No (not volatile)	No (not volatile)	4.25E+00		-	-		1.45E+00	1.46E+00	1.30E+01	-		6.60E-07	C	-		No	4.25E+00	-
Carbaryl	63-25-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.47E+01	1.47E+01	1.30E+01	-		-	-	-		No	-	-
Carbofuran	1563-66-2	No	No	No (not volatile)	No (not volatile)	-		-	-		5.77E+01	4.04E+01	1.30E+01	-		-	-	-		No	-	-
Carbon Disulfide	75-15-0	Yes	Yes	Yes	Yes	7.30E+02	NC	2.43E+04	1.91E+03	--	1.47E+09	8.27E+08	1.30E+01	1.30E+00	CRC	-		7.00E-01	I	No	-	7.30E+02
Carbon Tetrachloride	56-23-5	Yes	Yes	Yes	Yes	4.68E-01	CA	1.56E+01	6.93E-01	Yes (5)	9.51E+08	5.36E+08	1.30E+01	-		6.00E-06	I	1.00E-01	I	No	4.68E-01	1.04E+02
Carbonyl Sulfide	463-58-1	Yes	Yes	Yes	Yes	1.04E+02	NC	3.48E+03	4.02E+00	--	3.04E+10	3.17E+10	1.30E+01	1.20E+01	CRC	-		1.00E-01	P	No	-	1.04E+02
Carbosulfan	55285-14-8	No	No	No (not volatile)	No (not volatile)	-		-	-		6.28E+00	6.28E+00	1.30E+01	-		-	-	-		No	-	-
Carboxin	5234-68-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.90E+00	1.92E+00	1.30E+01	-		-	-	-		No	-	-
Ceric oxide	1306-38-3	Indeterminate	Yes	No (not volatile)	No (not volatile)	9.39E-01		-	-		-	-	1.30E+01	-		-		9.00E-04	I	No	-	9.39E-01
Chloral	75-87-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.96E+08	1.92E+03	1.30E+01	-		-	-	-		No	-	-
Chloral Hydrate	302-17-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.33E+08	1.04E+05	1.30E+01	-		-	-	-		No	-	-
Chloramben	133-90-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.11E+00	1.11E+00	1.30E+01	-		-	-	-		No	-	-
Chloranil	118-75-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.02E+01	3.34E+00	1.30E+01	-		-	-	-		No	-	-
Chlordane (alpha)	5103-71-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.93E+02	1.11E+02	1.30E+01	-		-	-	-		No	-	-
Chlordane (gamma)	5103-74-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.11E+03	1.11E+02	1.30E+01	-		-	-	-		No	-	-
Chlordane (technical mixture)	12789-03-6	Yes	Yes	Yes	Yes	2.81E-02	CA	9.36E-01	1.39E+02	No (2)	2.20E+02	1.13E+01	1.30E+01	-		1.00E-04	I	7.00E-04	I	No	2.81E-02	7.30E-01
Chlordecone (Kepone)	143-50-0	No	Yes	No (not volatile)	No (not volatile)	6.10E-04		-	-		5.94E+00	5.94E+00	1.30E+01	-		4.60E-03	C	-		No	6.10E-04	-
Chlorfenvinphos	470-90-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.45E+02	1.47E+02	1.30E+01	-		-	-	-		No	-	-
Chlorimuron, Ethyl-	90982-32-4	No	No	No (not volatile)	No (not volatile)	-		-	-		8.92E-05	8.93E-05	1.30E+01	-		-	-	-		No	-	-
Chlorine	7782-50-5	Yes	Yes	Yes	Yes	1.51E+01	NC	5.04E+00	4.15E-01	Yes (4000)	2.23E+10	2.29E+09	1.30E+01	-		-		1.45E-04	A	No	-	1.51E-01
Chlorine Dioxide	10049-04-4	Yes	Yes	Yes	Yes	2.09E-01	NC	6.95E+00	2.02E-01	Yes (800)	2.75E+09	8.24E+09	1.30E+01	-		-		2.00E-04	I	No	-	2.09E-01
Chlorite (Sodium Salt)	7758-19-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Chloro-1,1-difluoroethane, 1-	75-68-3	Yes	Yes	Yes	Yes	5.21E+04	NC	1.74E+06	7.29E+05	--	1.38E+10	1.00E+08	1.30E+01	6.00E+00	CRC	-		5.00E+01	I	No	-	5.21E+04
Chloro-1,3-butadiene, 2-	126-99-8	Yes	Yes	Yes	Yes	9.36E-03	CA	3.12E-01	7.26E-03	--	1.03E+09	1.13E+09	1.30E+01	4.00E+00	CRC	3.00E-04	I	2.00E-02	I	No	9.36E-03	2.09E+01
Chloro-2-methylaniline HCl, 4-	3165-93-3	No	No	No (not volatile)	No (not volatile)	-		-	-		3.91E+05	6.08E+04	1.30E+01	-		-	-	-		No	-	-
Chloro-2-methylaniline, 4-	95-69-2	No	Yes	No (not volatile)	No (not volatile)	3.65E-02		-	-		3.11E+05	3.03E+04	1.30E+01	-		7.70E-05	C	-		No	3.65E-02	-
Chloroacetaldehyde, 2-	107-20-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.71E+08	5.90E+07	1.30E+01	5.70E+00	YAWS	-		-		No	-	-
Chloroacetophenone, 2-	532-27-4	No	Yes	No (not volatile)	No (not volatile)	3.13E-02		-	-		4.49E+04	6.04E+04	1.30E+01	-		-		3.00E-05	I	No	-	3.13E-02
Chloroaniline, p-	106-47-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.85E+05	6.76E+04	1.30E+01	2.20E+00	YAWS	-		-		No	-	-
Chlorobenzene	108-90-7	Yes	Yes	Yes	Yes	5.21E+01	NC	1.74E+03	7.86E+02	No (100)	7.25E+07	3.30E+07	1.30E+01	1.30E+00	CRC	-		5.00E-02	P	No	-	5.21E+01
Chlorobenzene sulfonic acid, p-	98-66-8	No	No	No (not volatile)	No (not volatile)	-		-	-		4.43E+01	2.33E+04	1.30E+01	-		-	-	-		No	-	-
Chlorobenzilate	510-15-6	No	Yes	No (not volatile)	No (not volatile)	9.06E-02		-	-		3.85E+01	3.85E+01	1.30E+01	-		3.10E-05	C	-		No	9.06E-02	-
Chlorobenzoic Acid, p-	74-11-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.96E+04	2.36E+02	1.30E+01	-		-	-	-		No	-	-
Chlorobenzotrifluoride, 3-nitro-4-	121-17-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.43E+06	6.78E+04	1.30E+01	-		-	-	-		No	-	-
Chlorobenzotrifluoride, 4-	98-56-6	Yes	Yes	Yes	Yes	3.26E-01	CA	1.09E+01	4.72E-01	--	7.41E+07	2.01E+07	1.30E+01	1.80E+00	YAWS	8.60E-06	C	3.00E-01	P	No	3.26E-01	3.13E+02
Chlorobutane, 1-	109-69-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.04E+08	4.41E+08	1.30E+01	1.90E+00	CRC	-		-		No	-	-
Chlorodifluoromethane	75-45-6	Yes	Yes	Yes	Yes	5.21E+04	NC	1.74E+06	4.02E+04	--	3.37E+10	3.59E+09	1.30E+01	-		-		5.00E+01	I	No	-	5.21E+04
Chloroethanol, 2-	107-07-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.11E+07	1.39E+07	1.30E+01	4.90E+00	CRC	-		-		No	-	-
Chloroform	67-66-3	Yes	Yes	Yes	Yes	1.22E-01	CA	4.07E+00	1.33E+00	Yes (80)	1.26E+09	7.30E+08	1.30E+01	-		2.30E-05	I	9.77E-02	A	No	1.22E-01	1.02E+02

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ind,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Gas Concentration (TCR=1E-06 or THQ=1) C <sub>gs</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gc</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m <sup>3</sup> )	
Chloromethane	74-87-3	Yes	Yes	Yes	Yes	9.39E+01	NC	3.13E+03	3.49E+02	--	1.17E+10	1.43E+09	1.30E+01	8.10E+00	CRC	-	-	9.00E-02	I	No	-	9.39E+01	
Chloromethyl Methyl Ether	107-30-2	Yes	Yes	Yes	Yes	4.07E-03	CA	1.36E-01	5.25E-01	--	1.30E+08	5.38E+08	1.30E+01	-	-	6.90E-04	C	-	-	No	4.07E-03	-	
Chloronaphthalene, Beta-	91-58-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.07E+05	5.67E+04	1.30E+01	-	-	-	-	-	No	-	-	-	
Chloronitrobenzene, o-	88-73-3	No	Yes	No (not volatile)	No (not volatile)	1.04E-02	-	-	-	-	1.54E+05	5.63E+04	1.30E+01	-	-	-	1.00E-05	X	No	-	1.04E-02		
Chloronitrobenzene, p-	100-00-5	No	Yes	No (not volatile)	No (not volatile)	2.09E+00	-	-	-	-	1.86E+05	1.52E+04	1.30E+01	-	-	-	2.00E-03	P	No	-	2.09E+00		
Chlorophenol, 2-	95-57-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.75E+07	2.35E+06	1.30E+01	1.70E+00	YAWS	-	-	-	-	No	-	-	
Chlorophenol, 4-	106-48-9	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	6.15E+05	2.35E+05	1.30E+01	1.70E+00	YAWS	-	-	-	-	No	-	-	
Chloropicrin	76-06-2	Yes	Yes	Yes	Yes	4.17E-01	NC	1.39E+01	9.18E+00	--	2.12E+08	7.36E+07	1.30E+01	-	-	-	4.00E-04	C	No	-	4.17E-01		
Chlorothalnil	1897-45-6	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	8.15E+00	1.99E+01	1.30E+01	-	-	-	-	-	No	-	-	-	
Chlorotoluene, o-	95-49-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	2.34E+07	2.65E+07	1.30E+01	1.30E+00	YAWS	-	-	-	-	No	-	-	
Chlorotoluene, p-	106-43-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.83E+07	8.56E+06	1.30E+01	1.30E+00	YAWS	-	-	-	-	No	-	-	
Chlorozotocin	54749-90-5	No	Yes	No (not volatile)	No (not volatile)	4.07E-05	-	-	-	-	5.69E-07	2.75E-11	1.30E+01	-	-	6.90E-02	C	-	-	No	4.07E-05	-	
Chlorpropham	101-21-3	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	2.07E+03	2.07E+03	1.30E+01	-	-	-	-	-	No	-	-	-	
Chlorpyrifos	2921-88-2	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	3.82E+02	1.34E+02	1.30E+01	-	-	-	-	-	No	-	-	-	
Chlorpyrifos Methyl	5598-13-0	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	7.29E+02	7.30E+02	1.30E+01	-	-	-	-	-	No	-	-	-	
Chlorsulfuron	64902-72-3	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	4.33E-04	4.33E-04	1.30E+01	-	-	-	-	-	No	-	-	-	
Chlorthal-dimethyl	1861-32-1	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	4.46E+01	1.65E+01	1.30E+01	-	-	-	-	-	No	-	-	-	
Chlorthiophos	60238-56-4	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	7.71E+06	1.47E+01	1.30E+01	-	-	-	-	-	No	-	-	-	
Chromium(III), Insoluble Salts	16065-83-1	Indeterminate	No	No (not volatile)	No (not volatile)	-	-	-	-	-	-	-	1.30E+01	-	-	-	-	-	-	No	-	-	-
Chromium(VI)	18540-29-9	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.21E-05	-	-	-	-	-	-	1.30E+01	-	-	8.40E-02	G	1.00E-04	I	Mut	1.21E-05	1.04E-01	
Chrysene	218-01-9	No	Yes	No (not volatile)	No (not volatile)	1.69E+00	-	-	-	-	7.65E-02	7.76E-02	1.30E+01	5.00E-01	YAWS	6.00E-07	E	-	-	Mut	1.69E+00	-	
Cicfentezine	74115-24-5	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	1.59E-02	1.59E-02	1.30E+01	-	-	-	-	-	No	-	-	-	
Cobalt	7440-48-4	No	Yes	No (not volatile)	No (not volatile)	3.12E-04	-	-	-	-	0.00E+00	-	1.30E+01	-	-	9.00E-03	P	6.00E-06	P	No	3.12E-04	6.26E-03	
Coke Oven Emissions	NA	Yes	Yes	Yes	Yes	1.64E-03	-	-	-	-	-	-	1.30E+01	-	-	6.20E-04	I	-	-	Mut	1.64E-03	-	
Copper	7440-50-8	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	0.00E+00	-	1.30E+01	-	-	-	-	-	-	No	-	-	-
Copper Cyanide	544-92-3	Indeterminate	No	No (not volatile)	No (not volatile)	-	-	-	-	-	-	-	1.30E+01	-	-	-	-	-	-	No	-	-	-
Cresol, m-	108-39-4	No	Yes	No (not volatile)	No (not volatile)	6.26E+02	-	-	-	-	6.40E+05	3.02E+05	1.30E+01	1.10E+00	CRC	-	-	6.00E-01	C	No	-	6.26E+02	
Cresol, o-	95-48-7	No	Yes	No (not volatile)	No (not volatile)	6.26E+02	-	-	-	-	1.74E+06	5.14E+05	1.30E+01	1.40E+00	CRC	-	-	6.00E-01	C	No	-	6.26E+02	
Cresol, p-	106-44-5	No	Yes	No (not volatile)	No (not volatile)	6.26E+02	-	-	-	-	6.40E+05	3.33E+05	1.30E+01	1.10E+00	CRC	-	-	6.00E-01	C	No	-	6.26E+02	
Cresol, p-chloro-m-	59-50-7	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	3.83E+05	1.54E+05	1.30E+01	-	-	-	-	-	No	-	-	-	
Cresols	1319-77-3	No	Yes	No (not volatile)	No (not volatile)	6.26E+02	-	-	-	-	2.97E+06	8.96E+04	1.30E+01	-	-	-	-	6.00E-01	C	No	-	6.26E+02	
Crotonaldehyde, trans-	123-73-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.13E+08	1.24E+08	1.30E+01	2.10E+00	CRC	-	-	-	-	No	-	-	
Cumene	98-82-8	Yes	Yes	Yes	Yes	4.17E+02	NC	1.39E+04	2.08E+03	--	2.91E+07	1.23E+07	1.30E+01	9.00E-01	CRC	-	-	4.00E-01	I	No	-	4.17E+02	
Cupferron	135-20-6	No	Yes	No (not volatile)	No (not volatile)	4.46E-02	-	-	-	-	5.25E+02	9.00E+04	1.30E+01	-	-	6.30E-05	C	-	-	No	4.46E-02	-	
Cyanazine	21725-46-2	No	No	No (not volatile)	No (not volatile)	-	-	-	-	-	1.79E+00	1.79E-02	1.30E+01	-	-	-	-	-	No	-	-	-	
Cyanide (CN-)	57-12-5	Yes	Yes	Yes	Yes	8.34E-01	NC	2.78E+01	2.01E+02	No (200)	4.31E+08	3.96E+08	1.30E+01	-	-	-	-	8.00E-04	G	No	-	8.34E-01	
Cyanogen	460-19-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	1.20E+10	1.29E+09	1.30E+01	6.60E+00	CRC	-	-	-	-	No	-	-	
Cyanogen Bromide	506-68-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	6.93E+08	-	1.30E+01	-	-	-	-	-	-	No	-	-	
Cyanogen Chloride	506-77-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-	-	-	-	-	4.05E+09	3.16E+09	1.30E+01	6.60E+00	YAWS	-	-	-	-	No	-	-	

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>is</sub> > C <sub>is</sub> ,Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>is</sub> > C <sub>is</sub> ,Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> ,C <sub>ground</sub> ) (µg/m³)	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>sg</sub> ,Target (µg/m³)	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> ,Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m³)	Maximum Groundwater Vapor Concentration C <sub>is</sub> (µg/m³)	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m³) <sup>1</sup>	IUR Ref	RfC (mg/m³)	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m³)	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m³)
Cyclohexane	110-82-7	Yes	Yes	Yes	Yes	6.26E+03	NC	2.09E+05	1.72E+03	--	4.38E+08	2.00E+08	1.30E+01	1.30E+00	CRC	-	6.00E+00	I	No	-	6.26E+03	
Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	No	No	No (not volatile)	No (not volatile)	-		-	-		9.55E+01	2.15E+00	1.30E+01	-		-	-		No	-	-	
Cyclohexanone	108-94-1	Yes	Yes	Yes	Yes	7.30E+02	NC	2.43E+04	4.70E+06	--	2.29E+07	3.88E+06	1.30E+01	1.10E+00	CRC	-	7.00E-01	P	No	-	7.30E+02	
Cyclohexene	110-83-8	Yes	Yes	Yes	Yes	1.04E+03	NC	3.48E+04	9.53E+02	--	3.93E+08	2.33E+08	1.30E+01	1.20E+00	CRC	-	1.00E+00	X	No	-	1.04E+03	
Cyclohexylamine	108-91-8	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		5.39E+07	8.65E+07	1.30E+01	1.90E+00	CRC	-	-		No	-	-	
Cyclopentadiene	542-92-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.55E+09	1.02E+09	1.30E+01	1.70E+00	YAWS	-	-		No	-	-	
Cyfluthrin	68359-37-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.50E-03	3.56E-03	1.30E+01	-		-	-		No	-	-	
Cyhalothrin	68085-85-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.63E-02	3.03E-01	1.30E+01	-		-	-		No	-	-	
Cyromazine	66215-27-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.00E-02	3.00E-02	1.30E+01	-		-	-		No	-	-	
DDD, p,p'- (DDD)	72-54-8	No	Yes	No (not volatile)	No (not volatile)	4.07E-02		-	-		2.32E+01	2.43E+01	1.30E+01	-		6.90E-05	C	-	No	4.07E-02	-	
DDE, p,p'-	72-55-9	Yes	Yes	Yes	Yes	2.89E-02	CA	9.65E-01	6.59E+01	--	1.03E+02	1.76E+01	1.30E+01	-		9.70E-05	C	-	No	2.89E-02	-	
DDT	50-29-3	No	Yes	No (not volatile)	No (not volatile)	2.89E-02		-	-		3.05E+00	7.03E-01	1.30E+01	-		9.70E-05	I	-	No	2.89E-02	-	
Dalapon	75-99-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.16E+06	5.23E+05	1.30E+01	-		-	-		No	-	-	
Daminozide	1596-84-5	No	Yes	No (not volatile)	No (not volatile)	5.51E-01		-	-		1.72E+03	1.73E+03	1.30E+01	-		5.10E-06	C	-	No	5.51E-01	-	
Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1163-19-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.41E-04	9.23E-06	1.30E+01	-		-	-		No	-	-	
Decane	124-18-5	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.09E+07	4.74E+06	1.30E+01	8.00E-01	CRC	-	-		No	-	-	
Demeton	8065-48-3	No	No	No (not volatile)	No (not volatile)	-		-	-		9.45E+03	1.04E+05	1.30E+01	-		-	-		No	-	-	
Di(2-ethylhexyl)adipate	103-23-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.69E+01	2.83E+00	1.30E+01	4.00E-01	CRC	-	-		No	-	-	
Diallylate	2303-16-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.18E+03	2.17E+03	1.30E+01	-		-	-		No	-	-	
Diammonium phosphate	7783-28-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-		No	-	-	
Diazinon	333-41-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.47E+03	1.85E+02	1.30E+01	-		-	-		No	-	-	
Dibenz[a,h]anthracene	53-70-3	No	Yes	No (not volatile)	No (not volatile)	1.69E-03		-	-		1.43E-02	1.86E-03	1.30E+01	-		6.00E-04	E	-	Mut	1.69E-03	-	
Dibenzo[a,e]pyrene	192-65-4	No	Yes	No (not volatile)	No (not volatile)	2.55E-03		-	-		1.14E-03	4.62E-05	1.30E+01	-		1.10E-03	C	-	No	2.55E-03	-	
Dibenzofuran	132-64-9	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.24E+04	5.76E+01	1.30E+01	8.00E-01	YAWS	-	-		No	-	-	
Dibenzothiophene	132-65-0	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.03E+03	2.60E+02	1.30E+01	-		-	-		No	-	-	
Dibromo-3-chloropropane, 1,2-	96-12-8	Yes	Yes	Yes	Yes	1.69E-04	CA	5.63E-03	6.48E-02	Yes (0)	7.37E+06	3.21E+06	1.30E+01	-		6.00E-03	P	2.00E-04	I	Mut	1.69E-04	2.09E-01
Dibromobenzene, 1,3-	108-36-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.41E+06	1.43E+06	1.30E+01	-		-	-		No	-	-	
Dibromobenzene, 1,4-	106-37-6	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		7.30E+05	3.02E+05	1.30E+01	-		-	-		No	-	-	
Dibromochloromethane	124-48-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		6.21E+07	5.68E+07	1.30E+01	-		-	-		No	-	-	
Dibromomethane, 1,2-	106-93-4	Yes	Yes	Yes	Yes	4.68E-03	CA	1.56E-01	3.32E-01	No (0)	1.13E+08	5.52E+07	1.30E+01	-		6.00E-04	I	9.00E-03	I	No	4.68E-03	9.39E+00
Dibromomethane (Methylene Bromide)	74-95-3	Yes	Yes	Yes	Yes	4.17E+00	NC	1.39E+02	2.20E+02	--	4.15E+08	2.25E+08	1.30E+01	-		-	4.00E-03	X	No	-	4.17E+00	
Dibutyl Phthalate	84-74-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.01E+02	1.13E+02	1.30E+01	5.00E-01	CRC	-	-		No	-	-	
Dibutyltin Compounds	NA	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-		No	-	-	
Dibutyltin dichloride	683-18-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.29E+06	1.15E+07	1.30E+01	-		-	-		No	-	-	
Dicalcium phosphate	7757-93-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-		No	-	-	
Dicamba	1918-00-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.49E+02	7.41E+02	1.30E+01	-		-	-		No	-	-	
Dichloro-2-butene, 1,4-	764-41-0	Yes	Yes	Yes	Yes	6.68E-04	CA	2.23E-02	4.47E-03	--	2.02E+07	8.68E+07	1.30E+01	-		4.20E-03	P	-	No	6.68E-04	-	
Dichloro-2-butene, cis-1,4-	1476-11-5	Yes	Yes	Yes	Yes	6.68E-04	CA	2.23E-02	5.16E-02	--	2.75E+07	7.52E+06	1.30E+01	2.50E+00	YAWS	4.20E-03	P	-	No	6.68E-04	-	
Dichloro-2-butene, trans-1,4-	110-57-6	Yes	Yes	Yes	Yes	6.68E-04	CA	2.23E-02	5.16E-02	--	2.31E+07	1.10E+07	1.30E+01	1.50E+00	YAWS	4.20E-03	P	-	No	6.68E-04	-	
Dichloroacetic Acid	79-43-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.24E+06	1.24E+05	1.30E+01	-		-	-		No	-	-	
Dichlorobenzene, 1,2-	95-50-1	Yes	Yes	Yes	Yes	2.09E+02	NC	6.95E+03	5.71E+03	No (600)	1.08E+07	5.70E+06	1.30E+01	2.20E+00	CRC	-	2.00E-01	H	No	-	2.09E+02	

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>air</sub> , C <sub>soil</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>air,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,nc</sub> (µg/m <sup>3</sup> )
Dichlorobenzene, 1,3-	541-73-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.70E+07	6.37E+06	1.30E+01	1.80E+00	YAWS	-		-		No	-	-
Dichlorobenzene, 1,4-	106-46-7	Yes	Yes	Yes	Yes	2.55E-01	CA	8.51E+00	5.57E+00	Yes (75)	1.38E+07	3.72E+06	1.30E+01	1.80E+00	YAWS	1.10E-05	C	8.00E-01	I	No	2.55E-01	8.34E+02
Dichlorobenzidine, 3,3'-	91-94-1	No	Yes	No (not volatile)	No (not volatile)	8.26E-03		-	-		3.49E+00	3.60E-03	1.30E+01	-		3.40E-04	C	-		No	8.26E-03	-
Dichlorobenzophenone, 4,4'-	90-98-2	No	No	No (not volatile)	No (not volatile)	-		-	-		8.63E+01	1.08E+01	1.30E+01	-		-		-		No	-	-
Dichlorobenzotrifluoride, 3,4-	328-84-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.73E+07	1.98E+07	1.30E+01	-		-		-		No	-	-
Dichlorodifluoromethane	75-71-8	Yes	Yes	Yes	Yes	1.04E+02	NC	3.48E+03	9.63E+00	--	3.15E+10	3.03E+09	1.30E+01	-		-		1.00E-01	X	No	-	1.04E+02
Dichlorodisopropyl ether, 2,2'-	39638-32-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.16E+08	8.45E+06	1.30E+01	-		-		-		No	-	-
Dichloroethane, 1,1-	75-34-3	Yes	Yes	Yes	Yes	1.75E+00	CA	5.85E+01	1.24E+01	--	1.21E+09	7.14E+08	1.30E+01	5.40E+00	CRC	1.60E-06	C	-		No	1.75E+00	-
Dichloroethane, 1,2-	107-06-2	Yes	Yes	Yes	Yes	1.08E-01	CA	3.60E+00	3.92E+00	Yes (5)	4.20E+08	2.37E+08	1.30E+01	6.20E+00	CRC	2.60E-05	I	7.00E-03	P	No	1.08E-01	7.30E+00
Dichloroethylene, 1,1-	75-35-4	Yes	Yes	Yes	Yes	2.09E+02	NC	6.95E+03	2.97E+02	No (7)	3.13E+09	1.70E+09	1.30E+01	6.50E+00	CRC	-	2.00E-01	I	No	-	2.09E+02	
Dichloroethylene, cis-1,2-	156-59-2	Yes	Yes	Yes	Yes	4.17E+01	NC	1.39E+03	4.16E+02	No (70)	1.04E+09	6.43E+08	1.30E+01	3.00E+00	CRC	-	4.00E-02	X	No	-	4.17E+01	
Dichloroethylene, trans-1,2-	156-60-5	Yes	Yes	Yes	Yes	4.17E+01	NC	1.39E+03	1.75E+02	No (100)	1.73E+09	1.08E+09	1.30E+01	6.00E+00	CRC	-	4.00E-02	X	No	-	4.17E+01	
Dichlorophenol, 2,4-	120-83-2	No	No	No (not volatile)	No (not volatile)	-		-	-		7.89E+05	4.14E+05	1.30E+01	-		-		-		No	-	-
Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	No	No	No (not volatile)	No (not volatile)	-		-	-		9.81E+02	9.80E+02	1.30E+01	-		-		-		No	-	-
Dichloropropane, 1,2-	78-87-5	Yes	Yes	Yes	Yes	7.59E-01	CA	2.53E+01	1.16E+01	No (5)	3.24E+08	1.83E+08	1.30E+01	3.40E+00	YAWS	3.70E-06	P	4.00E-03	I	No	7.59E-01	4.17E+00
Dichloropropane, 1,3-	142-28-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.10E+08	5.76E+07	1.30E+01	3.40E+00	YAWS	-		-		No	-	-
Dichloropropanol, 2,3-	616-23-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.28E+06	4.11E+03	1.30E+01	-		-		-		No	-	-
Dichloropropene, 1,3-	542-75-6	Yes	Yes	Yes	Yes	7.02E-01	CA	2.34E+01	8.93E+00	--	2.03E+08	2.20E+08	1.30E+01	5.30E+00	N	4.00E-06	I	2.00E-02	I	No	7.02E-01	2.09E+01
Dichlorvos	62-73-7	No	Yes	No (not volatile)	No (not volatile)	3.38E-02		-	-		1.87E+05	1.88E+05	1.30E+01	-		8.30E-05	C	5.00E-04	I	No	3.38E-02	5.21E-01
Dicrotophos	141-66-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.04E+03	2.06E+03	1.30E+01	-		-		-		No	-	-
Dicyclopentadiene	77-73-6	Yes	Yes	Yes	Yes	3.13E-01	NC	1.04E+01	1.42E-01	--	1.63E+07	5.82E+07	1.30E+01	1.00E+00	YAWS	-		3.00E-04	X	No	-	3.13E-01
Dieldrin	60-57-1	No	Yes	No (not volatile)	No (not volatile)	6.10E-04		-	-		1.21E+02	1.71E+01	1.30E+01	-		4.60E-03	I	-		No	6.10E-04	-
Diesel Engine Exhaust	NA	Indeterminate	Yes	No (not volatile)	No (not volatile)	9.36E-03		-	-		-	-	1.30E+01	-		3.00E-04	C	5.00E-03	I	No	9.36E-03	5.21E+00
Diethanolamine	111-42-2	No	Yes	No (not volatile)	No (not volatile)	2.09E-01		-	-		1.58E+03	3.48E+02	1.30E+01	2.00E+00	CRC	-		2.00E-04	P	No	-	2.09E-01
Diethyl Phthalate	84-66-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.51E+04	7.05E+03	1.30E+01	7.00E-01	CRC	-		-		No	-	-
Diethyl-meta-Toluidine, N,N (DEET)	134-62-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.06E+04	0.00E+00	1.30E+01	-		-		-		No	-	-
Diethylene Glycol Monobutyl Ether	112-34-5	No	Yes	No (not volatile)	No (not volatile)	1.04E-01		-	-		1.91E+05	8.75E+04	1.30E+01	9.00E-01	YAWS	-		1.00E-04	P	No	-	1.04E-01
Diethylene Glycol Monoethyl Ether	111-90-0	No	Yes	No (not volatile)	No (not volatile)	3.13E-01		-	-		9.09E+05	3.35E+05	1.30E+01	1.20E+00	YAWS	-		3.00E-04	P	No	-	3.13E-01
Diethylformamide	617-84-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.58E+06	2.04E+06	1.30E+01	-		-		-		No	-	-
Diethylstilbestrol	56-53-1	No	Yes	No (not volatile)	No (not volatile)	2.81E-05		-	-		2.04E-01	2.85E-03	1.30E+01	-		1.00E-01	C	-		No	2.81E-05	-
Difenzoquat	43222-48-6	No	No	No (not volatile)	No (not volatile)	-		-	-		7.93E-05	-	1.30E+01	-		-		-		No	-	-
Diffenbenzuron	35367-38-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.50E-02	1.50E-02	1.30E+01	-		-		-		No	-	-
Difluoroethane, 1,1-	75-37-6	Yes	Yes	Yes	Yes	4.17E+04	NC	1.39E+06	6.68E+04	--	1.62E+10	2.00E+09	1.30E+01	3.70E+00	YAWS	-		4.00E+01	I	No	-	4.17E+04
Difluoropropane, 2,2-	420-45-1	Yes	Yes	Yes	Yes	3.13E+04	NC	1.04E+06	2.07E+03	--	7.75E+09	2.41E+09	1.30E+01	-		-		3.00E+01	X	No	-	3.13E+04
Dihydrosafrole	94-58-6	Yes	Yes	Yes	Yes	2.16E-01	CA	7.20E+00	1.06E+03	--	4.95E+05	1.15E+04	1.30E+01	-		1.30E-05	C	-		No	2.16E-01	-
Diisopropyl Ether	108-20-3	Yes	Yes	Yes	Yes	7.30E+02	NC	2.43E+04	1.16E+04	--	8.19E+08	5.52E+08	1.30E+01	1.40E+00	CRC	-		7.00E-01	P	No	-	7.30E+02
Diisopropyl Methylphosphonate	1445-75-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.21E+06	1.24E+06	1.30E+01	-		-		-		No	-	-
Dimethipin	55290-64-7	No	No	No (not volatile)	No (not volatile)	-		-	-		4.33E+00	4.33E+00	1.30E+01	-		-		-		No	-	-
Dimethoate	60-51-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.31E+02	2.31E+02	1.30E+01	-		-		-		No	-	-
Dimethoxybenzidine, 3,3'-	119-90-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.64E+00	1.15E-01	1.30E+01	-		-		-		No	-	-
Dimethyl methylphosphonate	756-79-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.56E+06	2.54E+06	1.30E+01	-		-		-		No	-	-
Dimethylamino azobenzene [p-]	60-11-7	No	Yes	No (not volatile)	No (not volatile)	2.16E-03		-	-		8.48E-01	3.76E-03	1.30E+01	-		1.30E-03	C	-		No	2.16E-03	-
Dimethylaniline HCl, 2,4-	21436-96-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.16E+06	3.46E+05	1.30E+01	-		-		-		No	-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have Inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1a</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1a</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ground</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Dimethylaniline, 2,4-	95-68-1	No	No	No (not volatile)	No (not volatile)	-		-	-		8.67E+05	2.51E+05	1.30E+01	-		-		-	No		-	-
Dimethylaniline, N,N-	121-69-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.56E+06	1.17E+06	1.30E+01	1.20E+00	YAWS			-		No	-	-
Dimethylbenz(a)anthracene, 7,12-	57-97-6	No	Yes	No (not volatile)	No (not volatile)	1.43E-05		-	-		9.38E+00	9.38E+00	1.30E+01	-		7.10E-02	C	-		Mut	1.43E-05	-
Dimethylbenzidine, 3,3'-	119-93-7	No	No	No (not volatile)	No (not volatile)	-		-	-		7.90E+00	1.39E+00	1.30E+01	-		-		-	No	-	-	-
Dimethylformamide	68-12-2	Yes	Yes	Yes	Yes	3.13E+01	NC	1.04E+03	2.60E+07	--	1.52E+07	1.20E+06	1.30E+01	2.20E+00	CRC			3.00E-02	I	No	-	3.13E+01
Dimethylhydrazine, 1,1-	57-14-7	Yes	Yes	Yes	Yes	2.09E-03	NC	6.95E-02	6.92E+00	--	5.27E+08	3.01E+08	1.30E+01	2.00E+00	CRC			2.00E-06	X	No	-	2.09E-03
Dimethylhydrazine, 1,2-	540-73-8	Yes	Yes	Yes	Yes	1.75E-05	CA	5.85E-04	1.05E+01	--	2.26E+08	1.67E+06	1.30E+01	-		1.60E-01	C	-		No	1.75E-05	-
Dimethylphenol, 2,4-	105-67-9	No	No	No (not volatile)	No (not volatile)	-		-	-		6.70E+05	1.11E+05	1.30E+01	1.10E+00	YAWS	-		-		No	-	-
Dimethylphenol, 2,6-	576-26-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.12E+06	6.46E+05	1.30E+01	1.40E+00	YAWS	-		-		No	-	-
Dimethylphenol, 3,4-	95-65-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.34E+05	2.67E+04	1.30E+01	1.10E+00	YAWS	-		-		No	-	-
Dimethylphthalate	131-11-3	No	No	No (not volatile)	No (not volatile)	-		-	-		3.22E+04	9.15E+03	1.30E+01	9.00E-01	CRC	-		-		No	-	-
Dimethylterephthalate	120-61-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.04E+05	3.08E+04	1.30E+01	1.00E+00	YAWS	-		-		No	-	-
Dimethylvinylchloride	513-37-1	Yes	Yes	Yes	Yes	2.16E-01	CA	7.20E+00	7.30E+00	--	1.03E+09	2.96E+07	1.30E+01	-		1.30E-05	C	-		No	2.16E-01	-
Dinitro-o-cresol, 4,6-	534-52-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.28E+03	1.13E+04	1.30E+01	-		-		-		No	-	-
Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5	No	No	No (not volatile)	No (not volatile)	-		-	-		6.00E-01	3.40E+01	1.30E+01	-		-		-		No	-	-
Dinitroaniline, 3,5-	618-87-1	No	Yes	No (not volatile)	No (not volatile)	2.09E+00		-	-		2.64E+02	1.56E+00	1.30E+01	-		-		2.00E-03	X	No	-	2.09E+00
Dinitrobenzene, 1,2-	528-29-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.11E+02	6.66E+01	1.30E+01	1.80E+00	YAWS	-		-		No	-	-
Dinitrobenzene, 1,3-	99-65-0	No	No	No (not volatile)	No (not volatile)	-		-	-		8.14E+03	2.70E+02	1.30E+01	-		-		-		No	-	-
Dinitrobenzene, 1,4-	100-25-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.36E+02	5.82E+01	1.30E+01	1.80E+00	YAWS	-		-		No	-	-
Dinitrophenol, 2,4-	51-28-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.86E+03	9.81E+03	1.30E+01	-		-		-		No	-	-
Dinitrotoluene Mixture, 2,4/2,6-	NA	No	No	No (not volatile)	No (not volatile)	-		-	-		2.11E+04	4.38E+03	1.30E+01	-		-		-		No	-	-
Dinitrotoluene, 2,4-	121-14-2	No	Yes	No (not volatile)	No (not volatile)	3.15E-02		-	-		1.44E+03	9.66E+01	1.30E+01	1.50E+00	YAWS	8.90E-05	C	-		No	3.15E-02	-
Dinitrotoluene, 2,6-	606-20-2	No	No	No (not volatile)	No (not volatile)	-		-	-		5.55E+03	1.32E+03	1.30E+01	1.50E+00	YAWS	-		-		No	-	-
Dinitrotoluene, 2-Amino-4,6-	35572-78-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.13E+02	1.63E+00	1.30E+01	-		-		-		No	-	-
Dinitrotoluene, 4-Amino-2,6-	19406-51-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.13E+02	1.63E+00	1.30E+01	-		-		-		No	-	-
Dinitrotoluene, Technical grade	25321-14-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.17E+04	1.02E+03	1.30E+01	-		-		-		No	-	-
Dinoseb	88-85-7	No	No	No (not volatile)	No (not volatile)	-		-	-		9.69E+02	9.69E+02	1.30E+01	-		-		-		No	-	-
Dioxane, 1,4-	123-91-1	Yes	Yes	Yes	Yes	5.62E-01	CA	1.87E+01	5.28E+03	--	1.80E+08	1.06E+08	1.30E+01	2.00E+00	CRC	5.00E-06	I	3.00E-02	I	No	5.62E-01	3.13E+01
Diphenamid	957-51-7	No	No	No (not volatile)	No (not volatile)	-		-	-		3.86E-01	3.86E-01	1.30E+01	-		-		-		No	-	-
Diphenyl Ether	101-84-8	Yes	Yes	Yes	Yes	4.17E-01	NC	1.39E+01	1.04E+02	--	2.06E+05	7.25E+04	1.30E+01	8.00E-01	CRC	-		4.00E-04	X	No	-	4.17E-01
Diphenyl Sulfone	127-63-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.80E+02	9.24E+02	1.30E+01	-		-		-		No	-	-
Diphenylamine	122-39-4	No	No	No (not volatile)	No (not volatile)	-		-	-		6.10E+03	1.69E+03	1.30E+01	7.00E-01	YAWS	-		-		No	-	-
Diphenylhydrazine, 1,2-	122-66-7	No	Yes	No (not volatile)	No (not volatile)	1.28E-02		-	-		4.32E+03	1.30E+03	1.30E+01	7.00E-01	YAWS	2.20E-04	I	-		No	1.28E-02	-
Diquat	2764-72-9	No	No	No (not volatile)	No (not volatile)	-		-	-		9.91E-02	4.07E+02	1.30E+01	-		-		-		No	-	-
Direct Black 38	1937-37-7	No	Yes	No (not volatile)	No (not volatile)	1.34E-03		-	-		6.42E-29	1.01E-28	1.30E+01	-		2.10E-03	C	-		No	1.34E-03	-
Direct Blue 6	2602-46-2	No	Yes	No (not volatile)	No (not volatile)	1.34E-03		-	-		4.79E-31	5.09E-40	1.30E+01	-		2.10E-03	C	-		No	1.34E-03	-
Direct Brown 95	16071-86-6	No	Yes	No (not volatile)	No (not volatile)	1.48E-03		-	-		5.85E-34	-	1.30E+01	-		1.90E-03	C	-		No	1.48E-03	-
Disulfoton	298-04-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.44E+03	1.44E+03	1.30E+01	-		-		-		No	-	-
Dithiane, 1,4-	505-29-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.14E+05	2.12E+06	1.30E+01	-		-		-		No	-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,2</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,2</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>air</sub> , C <sub>soil</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>air, c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air, nc</sub> (µg/m <sup>3</sup> )
Diundecyl Phthalate	3648-20-2	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.11E-02	2.54E+03	1.30E+01	-		-		-		No	-	-
Diuron	330-54-1	No	No	No (not volatile)	No (not volatile)	-		-	-		8.65E-01	8.65E-01	1.30E+01	-		-		-		No	-	-
Dodine	2439-10-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.32E+00	2.32E+00	1.30E+01	-		-		-		No	-	-
EPTC	759-94-4	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.44E+05	2.44E+05	1.30E+01	-		-		-		No	-	-
Endosulfan	115-29-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.79E+00	8.64E+02	1.30E+01	-		-		-		No	-	-
Endosulfan Sulfate	1031-07-8	No	No	No (not volatile)	No (not volatile)	-		-	-		6.37E+00	6.38E+00	1.30E+01	-		-		-		No	-	-
Endothall	145-73-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.57E-03	1.57E-03	1.30E+01	-		-		-		No	-	-
Endrin	72-20-8	No	No	No (not volatile)	No (not volatile)	-		-	-		6.15E+01	6.50E+01	1.30E+01	-		-		-		No	-	-
Epichlorohydrin	106-89-8	Yes	Yes	Yes	Yes	1.04E+00	NC	3.48E+01	8.06E+02	--	8.18E+07	8.53E+07	1.30E+01	3.80E+00	YAWS CRC	1.20E-06	I	1.00E-03	I	No	2.34E+00	1.04E+00
Epoxybutane, 1,2-	106-88-7	Yes	Yes	Yes	Yes	2.09E+01	NC	6.95E+02	4.75E+03	--	6.98E+08	4.17E+08	1.30E+01	1.70E+00		-		2.00E-02	I	No	-	2.09E+01
Ethanol, 2-(2-methoxyethoxy)-	111-77-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.62E+06	2.55E+02	1.30E+01	1.38E+00	CRC	-		-		No	-	-
Ethephon	16672-87-0	No	No	No (not volatile)	No (not volatile)	-		-	-		7.62E-01	2.33E+02	1.30E+01	-		-		-		No	-	-
Ethion	563-12-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.10E+01	3.10E+01	1.30E+01	-		-		-		No	-	-
Ethoxyethanol Acetate, 2-	111-15-9	Yes	Yes	Yes	Yes	6.26E+01	NC	2.09E+03	1.10E+06	--	1.42E+07	1.06E+07	1.30E+01	2.00E+00	CRC	-		6.00E-02	P	No	-	6.26E+01
Ethoxyethanol, 2-	110-90-5	Yes	Yes	Yes	Yes	4.17E+01	NC	1.39E+03	4.81E+06	--	2.57E+07	8.67E+06	1.30E+01	3.00E+00	CRC	-		4.00E-02	P	No	-	4.17E+01
Ethyl Acetate	141-78-6	Yes	Yes	Yes	Yes	7.30E+01	NC	2.43E+03	2.35E+04	--	4.42E+08	2.48E+08	1.30E+01	2.00E+00	CRC	-		7.00E-02	P	No	-	7.30E+01
Ethyl Acrylate	140-88-5	Yes	Yes	Yes	Yes	8.34E+00	NC	2.78E+02	1.14E+03	--	2.08E+08	1.10E+08	1.30E+01	1.40E+00	CRC	-		8.00E-03	P	No	-	8.34E+00
Ethyl Chloride	75-00-3	Yes	Yes	Yes	Yes	4.17E+03	NC	1.39E+05	1.34E+04	--	3.50E+09	2.09E+09	1.30E+01	3.80E+00	CRC	-		4.00E+00	P	No	-	4.17E+03
Ethyl Ether	60-29-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		2.14E+09	1.98E+09	1.30E+01	1.90E+00	CRC	-		-		No	-	-
Ethyl Methacrylate	97-63-2	Yes	Yes	Yes	Yes	3.13E+02	NC	1.04E+04	3.21E+04	--	1.26E+08	5.26E+07	1.30E+01	1.80E+00	YAWS	-		3.00E-01	P	No	-	3.13E+02
Ethyl Tertiary Butyl Ether (ETBE)	637-92-3	Yes	Yes	Yes	Yes	3.51E+01	CA	1.17E+03	8.79E+02	--	6.81E+08	4.79E+08	1.30E+01	1.20E+00	YAWS	8.00E-08	I	4.00E+01	I	No	3.51E+01	4.17E+04
Ethyl-p-nitrophenyl Phosphonate	2104-64-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.65E+01	5.65E+01	1.30E+01	-		-		-		No	-	-
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	1.12E+00	CA	3.74E+01	6.85E+00	Yes (700)	5.48E+07	2.77E+07	1.30E+01	8.00E-01	CRC	2.50E-06	C	1.00E+00	I	No	1.12E+00	1.04E+03
Ethylene Cyanohydrin	109-78-4	No	No	No (not volatile)	No (not volatile)	-		-	-		3.07E+05	9.14E+04	1.30E+01	2.30E+00	YAWS	-		-		No	-	-
Ethylene Diamine	107-15-3	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.88E+07	3.53E+04	1.30E+01	2.50E+00	CRC	-		-		No	-	-
Ethylene Glycol	107-21-1	No	Yes	No (not volatile)	No (not volatile)	4.17E+02		-	-		3.07E+05	8.96E+05	1.30E+01	3.20E+00	CRC	-		4.00E-01	C	No	-	4.17E+02
Ethylene Glycol Monobutyl Ether	111-76-2	No	Yes	No (not volatile)	No (not volatile)	1.67E+03		-	-		5.59E+06	2.53E+07	1.30E+01	4.00E+00	CRC	-		1.60E+00	I	No	-	1.67E+03
Ethylene Oxide	75-21-8	Yes	Yes	Yes	Yes	3.38E-04	CA	1.13E-02	8.24E-02	--	3.11E+09	4.10E+09	1.30E+01	3.00E+00	CRC	3.00E-03	I	3.00E-02	C	Mut	3.38E-04	3.13E+01
Ethylene Thiourea	96-45-7	No	Yes	No (not volatile)	No (not volatile)	2.16E-01		-	-		1.11E+01	1.11E+01	1.30E+01	-		1.30E-05	C	-		No	2.16E-01	-
Ethylenimine	151-56-4	Yes	Yes	Yes	Yes	1.48E-04	CA	4.93E-03	5.08E-01	--	4.93E+08	2.91E+08	1.30E+01	3.30E+00	CRC	1.90E-02	C	-		No	1.48E-04	-
Ethyolphthalyl Ethyl Glycolate	84-72-0	No	No	No (not volatile)	No (not volatile)	-		-	-		3.26E+03	5.89E+01	1.30E+01	-		-		-		No	-	-
Fenamiphos	22224-92-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.63E+01	1.63E+01	1.30E+01	-		-		-		No	-	-
Fenpropathrin	39515-41-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.03E+02	1.03E+02	1.30E+01	-		-		-		No	-	-
Fenvalerate	51630-58-1	No	No	No (not volatile)	No (not volatile)	-		-	-		3.39E-02	3.39E-02	1.30E+01	-		-		-		No	-	-
Flumeturon	2164-17-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.17E+01	1.17E+01	1.30E+01	-		-		-		No	-	-
Fluoranthene	206-44-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.00E+02	2.38E+01	1.30E+01	6.00E-01	YAWS	-		-		No	-	-
Fluorene	86-73-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		5.36E+03	2.06E+03	1.30E+01	7.00E-01	YAWS	-		-		No	-	-
Fluoride	16984-48-8	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.36E+01		-	-		-	-	1.30E+01	-		-		1.30E-02	C	No	-	1.36E+01
Fluorine (Soluble Fluoride)	7782-41-4	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.36E+01		-	-		-	-	1.30E+01	-		-		1.30E-02	C	No	-	1.36E+01
Fluorobenzene	462-06-6	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		3.99E+08	2.28E+08	1.30E+01	-		-		-		No	-	-
Fluridone	59756-60-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.73E+00	3.97E+00	1.30E+01	-		-		-		No	-	-
Flurprimidol	56425-91-3	No	No	No (not volatile)	No (not volatile)	-		-	-		6.11E+00	2.27E+00	1.30E+01	-		-		-		No	-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>nc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>air</sub> , C <sub>soil</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>sg</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>air</sub> , (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air</sub> , (µg/m <sup>3</sup> )
Flusilazole	85509-19-9	No	No	No (not volatile)	No (not volatile)	-		-	-		4.97E+00	4.97E+00	1.30E+01	-		-		-		No	-	-
Flutolanil	66332-96-5	No	No	No (not volatile)	No (not volatile)	-		-	-		8.49E-01	8.49E-01	1.30E+01	-		-		-		No	-	-
Fluvalinate	69409-94-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.70E+00	2.96E-03	1.30E+01	-		-		-		No	-	-
Folpet	133-07-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.50E+00	2.51E+00	1.30E+01	-		-		-		No	-	-
Fomesafen	72178-02-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.77E+01	1.54E-03	1.30E+01	-		-		-		No	-	-
Fonofos	944-22-9	No	No	No (not volatile)	No (not volatile)	-		-	-		4.48E+03	4.48E+03	1.30E+01	-		-		-		No	-	-
Formaldehyde	50-00-0	Yes	Yes	Yes	Yes	2.16E-01	CA	7.20E+00	2.21E+04	--	6.28E+09	3.90E+06	1.30E+01	7.00E+00	ORC	1.30E-05	I	9.83E-03	A	No	2.16E-01	1.02E+01
Formic Acid	64-18-6	Yes	Yes	Yes	Yes	3.13E-01	NC	1.04E+01	6.79E+04	--	1.05E+08	4.61E+06	1.30E+01	1.80E+01	ORC	-		3.00E-04	X	No	-	3.13E-01
Fosetyl-LAL	39148-24-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.43E-03	1.43E-01	1.30E+01	-		-		-		No	-	-
Furan	110-00-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.20E+09	1.43E+09	1.30E+01	2.30E+00	ORC	-		-		No	-	-
Furazolidone	67-45-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.15E+01	5.33E-02	1.30E+01	-		-		-		No	-	-
Furfural	98-01-1	Yes	Yes	Yes	Yes	5.21E+01	NC	1.74E+03	7.78E+05	--	1.14E+07	4.97E+06	1.30E+01	2.10E+00	ORC	-		5.00E-02	H	No	-	5.21E+01
Furium	531-82-8	No	Yes	No (not volatile)	No (not volatile)	6.53E-03		-	-		1.20E-01	2.29E-04	1.30E+01	-		4.30E-04	C	-		No	6.53E-03	-
Furmecycloxy	60568-05-0	No	Yes	No (not volatile)	No (not volatile)	3.26E-01		-	-		1.13E+03	8.45E-02	1.30E+01	-		8.60E-06	C	-		No	3.26E-01	-
Gadolinium	7440-54-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Glufosinate, Ammonium	77182-82-2	No	No	No (not volatile)	No (not volatile)	-		-	-		9.72E-05	2.48E+00	1.30E+01	-		-		-		No	-	-
Glutaraldehyde	111-30-8	No	Yes	No (not volatile)	No (not volatile)	8.34E-02		-	-		3.23E+06	1.31E+05	1.30E+01	-		-		8.00E-05	C	No	-	8.34E-02
Glycidaldehyde	765-34-4	Yes	Yes	Yes	Yes	1.04E+00	NC	3.48E+01	9.21E+04	--	1.76E+08	1.13E+07	1.30E+01	-		-		1.00E-03	X	No	-	1.04E+00
Glyphosate	1071-83-6	No	No	No (not volatile)	No (not volatile)	-		-	-		8.91E-01	9.01E-01	1.30E+01	-		-		-		No	-	-
Guanidine	113-00-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.02E+06	1.76E+00	1.30E+01	-		-		-		No	-	-
Guanidine Chloride	50-01-1	No	No	No (not volatile)	No (not volatile)	-		-	-		9.04E+00	8.87E-05	1.30E+01	-		-		-		No	-	-
Guanidine Nitrate	506-93-4	No	No	No (not volatile)	No (not volatile)	-		-	-		8.21E-01	3.66E-05	1.30E+01	-		-		-		No	-	-
Haloxypol, Methyl	69806-40-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.21E+02	1.21E+02	1.30E+01	-		-		-		No	-	-
Heptachlor	76-44-8	Yes	Yes	Yes	Yes	2.16E-03	CA	7.20E-02	5.72E-01	No (0)	8.03E-03	6.79E-02	1.30E+01	-		1.30E-03	I	-		No	2.16E-03	-
Heptachlor Epoxide	1024-57-3	Yes	Yes	Yes	Yes	1.08E-03	CA	3.60E-02	5.36E+00	No (0)	4.08E+02	4.03E+01	1.30E+01	-		2.60E-03	I	-		No	1.08E-03	-
Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	Yes	Yes	Yes	Yes	2.46E-03	CA	8.21E-02	1.19E+00	--	2.76E+00	1.56E+00	1.30E+01	-		1.14E-03	W	1.33E-03	W	No	2.46E-03	1.39E+00
Heptachlorodibenzofuran, 1,2,3,4,6,7,8-	67562-39-4	Yes	Yes	Yes	Yes	7.39E-06	CA	2.46E-04	1.28E-02	--	7.77E-04	7.78E-04	1.30E+01	-		3.80E-01	W	4.00E-06	W	No	7.39E-06	4.17E-03
Heptanal, n-	111-71-7	Yes	Yes	Yes	Yes	3.13E+00	NC	1.04E+02	6.15E+02	--	2.16E+07	6.36E+06	1.30E+01	-		-		3.00E-03	X	No	-	3.13E+00
Heptane, n-	142-82-5	Yes	Yes	Yes	Yes	4.17E+02	NC	1.39E+04	9.21E+00	--	2.48E+08	1.54E+08	1.30E+01	1.05E+00	ORC	-		4.00E-01	P	No	-	4.17E+02
Hexabromobenzene	87-82-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.83E-01	1.84E-01	1.30E+01	-		-		-		No	-	-
Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.01E+02	-	1.30E+01	-		-		-		No	-	-
Hexachlorobenzene	118-74-1	Yes	Yes	Yes	Yes	6.10E-03	CA	2.03E-01	2.75E-01	Yes (1)	2.76E+02	1.38E+02	1.30E+01	3.50E+00	YAWS	4.60E-04	I	-		No	6.10E-03	-
Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	Yes	Yes	Yes	Yes	2.46E-03	CA	8.21E-02	8.79E-01	--	1.13E+01	6.23E+00	1.30E+01	-		1.14E-03	W	1.33E-03	W	No	2.46E-03	1.39E+00
Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)	69782-90-7	Yes	Yes	Yes	Yes	2.46E-03	CA	8.21E-02	3.72E-01	--	1.13E+01	1.09E+01	1.30E+01	-		1.14E-03	W	1.33E-03	W	No	2.46E-03	1.39E+00
Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 156)	38380-08-4	Yes	Yes	Yes	Yes	2.46E-03	CA	8.21E-02	1.51E+00	--	3.12E+01	8.67E+00	1.30E+01	-		1.14E-03	W	1.33E-03	W	No	2.46E-03	1.39E+00
Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	Yes	Yes	Yes	Yes	2.46E-06	CA	8.21E-05	3.16E-03	--	1.13E+01	3.97E-01	1.30E+01	-		1.14E+00	W	1.33E-06	W	No	2.46E-06	1.39E-03
Hexachlorobutadiene	87-68-3	Yes	Yes	Yes	Yes	1.28E-01	CA	4.25E+00	7.16E-01	--	3.09E+06	5.70E+05	1.30E+01	2.90E+00	YAWS	2.20E-05	I	-		No	1.28E-01	-
Hexachlorocyclohexane, Alpha-	319-84-6	No	Yes	No (not volatile)	No (not volatile)	1.56E-03		-	-		5.51E+02	5.48E+02	1.30E+01	-		1.80E-03	I	-		No	1.56E-03	-
Hexachlorocyclohexane, Beta-	319-85-7	No	Yes	No (not volatile)	No (not volatile)	5.30E-03		-	-		5.63E+00	4.32E+00	1.30E+01	-		5.30E-04	I	-		No	5.30E-03	-
Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	No	Yes	No (not volatile)	No (not volatile)	9.06E-03		-	-		6.57E+02	1.53E+03	1.30E+01	-		3.10E-04	C	-		No	9.06E-03	-
Hexachlorocyclohexane, Technical	608-73-1	No	Yes	No (not volatile)	No (not volatile)	5.51E-03		-	-		5.51E+02	1.68E+03	1.30E+01	-		5.10E-04	I	-		No	5.51E-03	-
Hexachlorocyclopentadiene	77-47-4	Yes	Yes	Yes	Yes	2.09E-01	NC	6.95E+00	9.58E+00	Yes (50)	8.80E+05	3.92E+04	1.30E+01	-		-		2.00E-04	I	No	-	2.09E-01
Hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8-	39227-28-6	No	Yes	No (not volatile)	No (not volatile)	7.39E-07		-	-		8.05E-04	7.11E-04	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04
Hexachlorodibenzo-p-dioxin, Mixture	34465-46-8	No	Yes	No (not volatile)	No (not volatile)	2.16E-06		-	-		9.25E-04	9.32E-04	1.30E+01	-		1.30E+00	I	-		No	2.16E-06	-
Hexachlorodibenzofuran, 1,2,3,4,7,8-	70648-26-9	Yes	Yes	Yes	Yes	7.39E-07	CA	2.46E-05	4.66E-04	--	2.26E+00	4.73E-03	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04
Hexachloroethane	67-72-1	Yes	Yes	Yes	Yes	2.55E-01	CA	8.51E+00	1.60E+00	--	2.67E+06	7.95E+06	1.30E+01	-		1.10E-05	C	3.00E-02	I	No	2.55E-01	3.13E+01

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>ic</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>air</sub> , C <sub>ground</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>ic</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>air</sub> , (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air</sub> , (µg/m <sup>3</sup> )
Hexachlorophene	70-30-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.25E-03	3.14E-03	1.30E+01	-		-	-	-	No		-	-
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		4.07E+07	7.73E+09	1.30E+01	-		-	-	-	No		-	-
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	No	No	No (not volatile)	No (not volatile)	-		-	-		4.90E-02	4.91E-02	1.30E+01	-		-	-	-	No		-	-
Hexamethylene Diisocyanate, 1,6-	822-06-0	Yes	Yes	Yes	Yes	1.04E-02	NC	3.48E-01	1.21E+01	--	2.71E+05	1.01E+05	1.30E+01	-		-	-	1.00E-05	I	No	-	1.04E-02
Hexamethylene diisocyanate biuret	4035-89-6	No	Yes	No (not volatile)	No (not volatile)	4.17E-01		-	-		6.49E-08	8.41E-15	1.30E+01	-		-	-	4.00E-04	C	No	-	4.17E-01
Hexamethylene diisocyanate isocyanurate	3779-63-3	No	Yes	No (not volatile)	No (not volatile)	4.17E-01		-	-		2.65E-09	2.65E-16	1.30E+01	-		-	-	4.00E-04	C	No	-	4.17E-01
Hexamethylphosphoramide	680-31-9	No	No	No (not volatile)	No (not volatile)	-		-	-		4.43E+05	8.18E+05	1.30E+01	-		-	-	-	No		-	-
Hexane, Commercial	NA	Yes	Yes	Yes	Yes	1.40E+01	CA	4.68E+02	3.16E-01	--	7.01E+08	4.22E+08	1.30E+01	1.10E+00	CRC	2.00E-07	X	6.00E-01	P	No	1.40E+01	6.26E+02
Hexane, N-	110-54-3	Yes	Yes	Yes	Yes	7.30E+02	NC	2.43E+04	1.64E+01	--	7.01E+08	4.22E+08	1.30E+01	1.10E+00	CRC	-	-	7.00E-01	I	No	-	7.30E+02
Hexanedioic Acid	124-04-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.50E+00	1.05E+00	1.30E+01	1.60E+00	YAWS	-	-	-	-	No	-	-
Hexanol, 1-,2-ethyl- (2-Ethyl-1-hexanol)	104-76-7	Yes	Yes	Yes	Yes	4.17E-01	NC	1.39E+01	1.23E+03	--	9.53E+05	2.98E+05	1.30E+01	8.80E-01	CRC	-	-	4.00E-04	P	No	-	4.17E-01
Hexanone, 2-	591-78-6	Yes	Yes	Yes	Yes	3.13E+01	NC	1.04E+03	1.65E+04	--	6.25E+07	3.25E+07	1.30E+01	1.00E+00	CRC	-	-	3.00E-02	I	No	-	3.13E+01
Hexazinone	51235-04-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.05E+00	3.05E+00	1.30E+01	-		-	-	-	No		-	-
Hexythiazox	78587-05-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.84E-01	4.84E-01	1.30E+01	-		-	-	-	No		-	-
HpCDD, 1,2,3,4,6,7,8,-	35822-46-9	Yes	Yes	Yes	Yes	7.39E-06	CA	2.46E-04	1.03E-03	--	1.72E-02	1.72E-02	1.30E+01	-		3.80E-01	W	4.00E-06	W	No	7.39E-06	4.17E-03
HpCDF, 1,2,3,4,7,8,9-	55673-89-7	Yes	Yes	Yes	Yes	7.39E-06	CA	2.46E-04	1.28E-02	--	7.77E-04	7.78E-04	1.30E+01	-		3.80E-01	W	4.00E-06	W	No	7.39E-06	4.17E-03
HxCDD, 1,2,3,6,7,8-	57653-85-7	No	Yes	No (not volatile)	No (not volatile)	7.39E-07		-	-		7.57E-04	2.10E-03	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04
HxCDD, 1,2,3,7,8,9-	19408-74-3	No	Yes	No (not volatile)	No (not volatile)	7.39E-07		-	-		7.57E-04	2.10E-03	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04
HxCDF, 1,2,3,6,7,8-	57117-44-9	Yes	Yes	Yes	Yes	7.39E-07	CA	2.46E-05	4.66E-04	--	2.26E+00	5.54E-01	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04
HxCDF, 1,2,3,7,8,9-	72918-21-9	No	Yes	No (not volatile)	No (not volatile)	7.39E-07		-	-		1.55E+00	5.39E-01	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04
HxCDF, 2,3,4,6,7,8-	60851-34-5	No	Yes	No (not volatile)	No (not volatile)	7.39E-07		-	-		2.26E+00	1.64E-02	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04
Hydramethylnon	67485-29-4	No	No	No (not volatile)	No (not volatile)	-		-	-		5.40E-01	5.40E-01	1.30E+01	-		-	-	-	No		-	-
Hydrazine	302-01-2	Yes	Yes	Yes	Yes	5.73E-04	CA	1.91E-02	4.85E+01	--	2.48E+07	1.18E+07	1.30E+01	5.00E+00	CRC	4.90E-03	I	3.00E-05	P	No	5.73E-04	3.13E-02
Hydrazine Sulfate	10034-93-2	Indeterminate	Yes	No (not volatile)	No (not volatile)	5.73E-04		-	-		-	-	1.30E+01	-		4.90E-03	I	-	-	No	5.73E-04	-
Hydrogen Chloride	7647-01-0	Yes	Yes	Yes	Yes	2.09E+01	NC	6.95E+02	1.20E+09	--	6.75E+10	1.17E+04	1.30E+01	-		-	-	2.00E-02	I	No	-	2.09E+01
Hydrogen Cyanide	74-90-8	Yes	Yes	Yes	Yes	8.34E-01	NC	2.78E+01	2.39E+02	--	1.08E+09	3.48E+09	1.30E+01	6.00E+00	CRC	-	-	8.00E-04	I	No	-	8.34E-01
Hydrogen Fluoride	7664-39-3	Yes	Yes	Yes	Yes	1.46E+01	NC	4.87E+02	3.75E+03	--	9.87E+08	3.90E+09	1.30E+01	-		-	-	1.40E-02	C	No	-	1.46E+01
Hydrogen Sulfide	7783-06-4	Yes	Yes	Yes	Yes	2.09E+00	NC	6.95E+01	7.44E+00	--	2.87E+10	1.05E+09	1.30E+01	4.00E+00	CRC	-	-	2.00E-03	I	No	-	2.09E+00
Hydroquinone	123-31-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.42E+02	3.49E+01	1.30E+01	1.60E+00	YAWS	-	-	-	-	No	-	-
Imazali	35554-44-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.90E+01	1.91E+01	1.30E+01	-		-	-	-	No		-	-
Imazaquin	81335-37-7	No	No	No (not volatile)	No (not volatile)	-		-	-		1.72E-06	2.54E-08	1.30E+01	-		-	-	-	No		-	-
Imazethapyr	81335-77-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.35E-04	5.95E-06	1.30E+01	-		-	-	-	No		-	-
Indeno[1,2,3-cd]pyrene	193-39-5	No	Yes	No (not volatile)	No (not volatile)	1.69E-02		-	-		1.86E-03	3.98E-04	1.30E+01	-		6.00E-05	E	-		Mut	1.69E-02	-
Iodine	7553-56-2	No	No	No (not volatile)	No (not volatile)	-		-	-		3.18E+06	-	1.30E+01	-		-	-	-	No		-	-
Iprodione	36734-19-7	No	No	No (not volatile)	No (not volatile)	-		-	-		6.66E-02	1.77E+00	1.30E+01	-		-	-	-	No		-	-
Iron	7439-89-6	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-	-	-	No		-	-
Isobutyl Alcohol	78-83-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		4.17E+07	1.52E+07	1.30E+01	1.70E+00	CRC	-	-	-	-	No		-
Isophorone	78-59-1	No	Yes	No (not volatile)	No (not volatile)	2.09E+03		-	-		3.26E+06	1.35E+06	1.30E+01	8.00E-01	CRC	-	-	2.00E+00	C	No	-	2.09E+03
Isopropalin	33820-53-0	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		4.99E+02	4.99E+02	1.30E+01	-		-	-	-	No		-	-
Isopropanol	67-63-0	Yes	Yes	Yes	Yes	2.09E+02	NC	6.95E+03	1.32E+06	--	1.47E+08	1.58E+08	1.30E+01	2.00E+00	CRC	-	-	2.00E-01	P	No	-	2.09E+02
Isopropyl Methyl Phosphonic Acid	1832-54-8	No	No	No (not volatile)	No (not volatile)	-		-	-		8.84E+04	1.42E+04	1.30E+01	-		-	-	-	No		-	-
Isoxaben	82558-50-7	No	No	No (not volatile)	No (not volatile)	-		-	-		7.38E-02	7.37E-02	1.30E+01	-		-	-	-	No		-	-
JP-4	50815-00-4	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		-	2.33E+10	1.30E+01	-		-	-	-	No		-	-



Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ind,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gc</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m <sup>3</sup> )
JP-5	NA	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		-	1.21E+04	1.30E+01	-		-		-		No	-	-
JP-7	NA	Yes	Yes		Yes	3.13E+02	NC	-	7.65E+02	--	-	4.25E+06	1.30E+01	-		-		3.00E-01	A	No	-	3.13E+02
JP-8	NA	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		-	3.00E+04	1.30E+01	-		-		-		No	-	-
Kerosene	8008-20-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		-	4.25E+06	1.30E+01	-		-		-		No	-	-
Lactofen	77501-63-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.74E+00	1.93E+00	1.30E+01	-		-		-		No	-	-
Lactonitrile	78-97-7	No	No	No (not volatile)	No (not volatile)	-		-	-		4.55E+05	5.95E+07	1.30E+01	2.70E+00	YAWS	-		-		No	-	-
Lanthanum	7439-91-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Lanthanum Acetate Hydrate	100587-90-4	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Lanthanum Chloride Heptahydrate	10025-84-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Lanthanum Chloride, Anhydrous	10099-58-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Lanthanum Nitrate Hexahydrate	10277-43-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Lead Phosphate	7446-27-7	Indeterminate	Yes	No (not volatile)	No (not volatile)	2.34E-01		-	-		-	-	1.30E+01	-		1.20E-05	C	-		No	2.34E-01	-
Lead acetate	301-04-2	No	Yes	No (not volatile)	No (not volatile)	3.51E-02		-	-		1.27E+04	-	1.30E+01	-		8.00E-05	C	-		No	3.51E-02	-
Lead subacetate	1335-32-6	No	Yes	No (not volatile)	No (not volatile)	2.55E-01		-	-		1.29E-02	-	1.30E+01	-		1.10E-05	C	-		No	2.55E-01	-
Lewisite	541-25-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.47E+06	1.98E+06	1.30E+01	-		-		-		No	-	-
Linuron	330-55-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.92E+01	1.92E+01	1.30E+01	-		-		-		No	-	-
Lithium	7439-93-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Lithium Perchlorate	7791-03-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Lutetium	7439-94-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
MCPA	94-74-6	No	No	No (not volatile)	No (not volatile)	-		-	-		6.37E+01	3.43E+01	1.30E+01	-		-		-		No	-	-
MCPB	94-81-5	No	No	No (not volatile)	No (not volatile)	-		-	-		5.33E+00	5.32E+00	1.30E+01	-		-		-		No	-	-
MCPP	93-65-2	No	No	No (not volatile)	No (not volatile)	-		-	-		8.66E+00	4.61E+02	1.30E+01	-		-		-		No	-	-
Malathion	121-75-5	No	No	No (not volatile)	No (not volatile)	-		-	-		6.01E+01	2.86E+01	1.30E+01	-		-		-		No	-	-
Maleic Anhydride	108-31-6	No	Yes	No (not volatile)	No (not volatile)	7.30E-01		-	-		1.32E+06	1.02E+07	1.30E+01	1.40E+00	CRC	-		7.00E-04	C	No	-	7.30E-01
Maleic Hydrazide	123-33-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.67E+01	4.88E+00	1.30E+01	-		-		-		No	-	-
Malononitrile	109-77-3	No	No	No (not volatile)	No (not volatile)	-		-	-		7.11E+05	2.71E+05	1.30E+01	2.90E+00	YAWS	-		-		No	-	-
Mancozeb	8018-01-7	No	No	No (not volatile)	No (not volatile)	-		-	-		3.84E-03	3.85E-03	1.30E+01	-		-		-		No	-	-
Maneb	12427-38-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.19E+00	1.19E+00	1.30E+01	-		-		-		No	-	-
Manganese (Diet)	7439-96-5	No	Yes	No (not volatile)	No (not volatile)	5.21E-02		-	-		0.00E+00	-	1.30E+01	-		-		5.00E-05	I	No	-	5.21E-02
Manganese (Non-diet)	7439-96-5	No	Yes	No (not volatile)	No (not volatile)	5.21E-02		-	-		0.00E+00	-	1.30E+01	-		-		5.00E-05	I	No	-	5.21E-02
Meposfolan	950-10-7	No	No	No (not volatile)	No (not volatile)	-		-	-		4.61E+02	2.77E-01	1.30E+01	-		-		-		No	-	-
Mepiquat Chloride	24307-26-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.99E+00	8.81E+01	1.30E+01	-		-		-		No	-	-
Mercaptobenzothiazole, 2-	149-30-4	No	No	No (not volatile)	No (not volatile)	-		-	-		4.17E+03	1.78E+02	1.30E+01	1.00E+00	YAWS	-		-		No	-	-
Mercuric Chloride	7487-94-7	Indeterminate	Yes	No (not volatile)	No (not volatile)	3.13E-01		-	-		-	-	1.30E+01	-		-		3.00E-04	G	No	-	3.13E-01
Mercury (elemental)	7439-97-6	Yes	Yes	Yes	Yes	3.13E-01	NC	1.04E+01	2.52E+00	No (2)	2.11E+04	7.46E+03	1.30E+01	-		-		3.00E-04	I	No	-	3.13E-01
Merphos	150-50-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.21E+02	3.25E+00	1.30E+01	-		-		-		No	-	-
Metalaxyl	57837-19-1	No	No	No (not volatile)	No (not volatile)	-		-	-		8.44E+01	1.01E+03	1.30E+01	-		-		-		No	-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>nc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ind,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>gs</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>nc</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m <sup>3</sup> )
Methacrylonitrile	126-98-7	Yes	Yes	Yes	Yes	3.13E+01	NC	1.04E+03	5.47E+03	--	2.57E+08	1.45E+08	1.30E+01	2.00E+00	CRC	-	-	3.00E-02	P	No	-	3.13E+01
Methamidophos	10265-92-6	No	No	No (not volatile)	No (not volatile)	-		-	-		2.68E+02	3.55E+04	1.30E+01	-		-	-	-	No	-	-	
Methanol	67-56-1	Yes	Yes	Yes	Yes	2.09E+04	NC	6.95E+05	2.07E+08	--	2.19E+08	1.01E+08	1.30E+01	6.00E+00	CRC	-	-	2.00E+01	I	No	-	2.09E+04
Methidathion	950-37-8	No	No	No (not volatile)	No (not volatile)	-		-	-		5.48E+01	5.48E+01	1.30E+01	-		-	-	-	No	-	-	
Methomyl	16752-77-5	No	No	No (not volatile)	No (not volatile)	-		-	-		4.71E+01	4.67E+01	1.30E+01	-		-	-	-	No	-	-	
Methoxy-5-nitroaniline, 2-	99-59-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.88E+03	5.88E+01	1.30E+01	-		-	-	-	No	-	-	
Methoxychlor	72-43-5	No	No	No (not volatile)	No (not volatile)	-		-	-		4.80E+01	8.30E-01	1.30E+01	-		-	-	-	No	-	-	
Methoxyethanol Acetate, 2-	110-49-6	Yes	Yes	Yes	Yes	1.04E+00	NC	3.48E+01	1.98E+05	--	4.45E+07	5.28E+06	1.30E+01	1.50E+00	CRC	-	-	1.00E-03	P	No	-	1.04E+00
Methoxyethanol, 2-	109-86-4	Yes	Yes	Yes	Yes	7.30E+00	NC	2.43E+02	1.10E+06	--	3.89E+07	6.64E+06	1.30E+01	1.80E+00	CRC	-	-	7.00E-03	P	No	-	7.30E+00
Methyl Acetate	79-20-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		8.61E+08	6.82E+08	1.30E+01	3.10E+00	CRC	-	-	-		No	-	-
Methyl Acrylate	96-33-3	Yes	Yes	Yes	Yes	2.09E+01	NC	6.95E+02	4.62E+03	--	4.01E+08	2.23E+08	1.30E+01	2.80E+00	CRC	-	-	2.00E-02	P	No	-	2.09E+01
Methyl Ethyl Ketone (2-Butanone)	78-93-3	Yes	Yes	Yes	Yes	5.21E+03	NC	1.74E+05	3.89E+06	--	3.51E+08	2.99E+08	1.30E+01	1.40E+00	CRC	-	-	5.00E+00	I	No	-	5.21E+03
Methyl Hydrazine	60-34-4	Yes	Yes	Yes	Yes	2.81E-03	CA	9.36E-02	4.27E+01	--	1.24E+08	6.58E+07	1.30E+01	2.50E+00	CRC	1.00E-03	X	2.00E-05	X	No	2.81E-03	2.09E-02
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	Yes	Yes	Yes	Yes	3.13E+03	NC	1.04E+05	1.06E+06	--	1.07E+08	5.59E+07	1.30E+01	1.20E+00	CRC	-	-	3.00E+00	I	No	-	3.13E+03
Methyl Isocyanate	624-83-9	Yes	Yes	Yes	Yes	1.04E+00	NC	3.48E+01	4.24E+01	--	1.07E+09	7.18E+08	1.30E+01	5.30E+00	CRC	-	-	1.00E-03	C	No	-	1.04E+00
Methyl Mercury	22967-92-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Methyl Methacrylate	80-62-6	Yes	Yes	Yes	Yes	7.30E+02	NC	2.43E+04	1.10E+05	--	2.07E+08	9.92E+07	1.30E+01	1.70E+00	CRC	-	-	7.00E-01	I	No	-	7.30E+02
Methyl Parathion	298-00-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.95E+01	1.54E+02	1.30E+01	-		-	-	-	No	-	-	
Methyl Phosphonic Acid	993-13-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.69E+03	9.98E+00	1.30E+01	-		-	-	-	No	-	-	
Methyl Styrene (Mixed Isomers)	25013-15-4	Yes	Yes	Yes	Yes	4.17E+01	NC	1.39E+03	1.05E+03	--	2.86E+07	3.53E+06	1.30E+01	-		-	-	4.00E-02	H	No	-	4.17E+01
Methyl methanesulfonate	66-27-3	No	Yes	No (not volatile)	No (not volatile)	1.00E-01		-	-		1.84E+06	3.30E+07	1.30E+01	-		2.80E-05	C	-	No	1.00E-01	-	
Methyl tert-Butyl Ether (MTBE)	1634-04-4	Yes	Yes	Yes	Yes	1.08E+01	CA	3.60E+02	7.22E+02	--	1.19E+09	7.63E+08	1.30E+01	2.00E+00	YAWS	2.60E-07	C	3.00E+00	I	No	1.08E+01	3.13E+03
Methyl-1,4-benzenediamine dihydrochloride, 2-	615-45-2	No	No	No (not volatile)	No (not volatile)	-		-	-		4.32E-05	2.61E-04	1.30E+01	-		-	-	-	No	-	-	
Methyl-2-Pentanol, 4-	108-11-2	Yes	Yes	Yes	Yes	3.13E+03	NC	1.04E+05	4.17E+06	--	2.91E+07	1.23E+07	1.30E+01	1.00E+00	CRC	-	-	3.00E+00	X	No	-	3.13E+03
Methyl-5-Nitroaniline, 2-	99-55-8	No	No	No (not volatile)	No (not volatile)	-		-	-		7.98E+03	3.39E+03	1.30E+01	-		-	-	-	No	-	-	
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	No	Yes	No (not volatile)	No (not volatile)	1.17E-03		-	-		9.49E+02	1.33E+01	1.30E+01	-		2.40E-03	C	-	No	1.17E-03	-	
Methylaniline Hydrochloride, 2-	636-21-5	No	Yes	No (not volatile)	No (not volatile)	7.59E-02		-	-		2.26E+06	7.12E+05	1.30E+01	-		3.70E-05	C	-	No	7.59E-02	-	
Methylarsonic acid	124-58-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.22E+04	-	1.30E+01	-		-	-	-	No	-	-	
Methylbenzene, 1,4-diamine monohydrochloride, 2-	74612-12-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Methylbenzene-1,4-diamine sulfate, 2-	615-50-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No	-	-	
Methylcholanthrene, 3-	56-49-5	No	Yes	No (not volatile)	No (not volatile)	1.61E-04		-	-		6.21E-01	6.21E-01	1.30E+01	-		6.30E-03	C	-	Mut	1.61E-04	-	
Methylcyclopentane	96-37-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.22E+08	3.77E+08	1.30E+01	1.00E+00	CRC	-	-	-	No	-	-	
Methylene Chloride	75-09-2	Yes	Yes	Yes	Yes	1.01E+02	CA	3.38E+03	1.20E+03	No (5)	1.99E+09	1.10E+09	1.30E+01	1.30E+01	CRC	1.00E-08	I	6.00E-01	I	Mut	1.01E+02	6.26E+02
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	No	Yes	No (not volatile)	No (not volatile)	2.36E-03		-	-		4.11E+00	2.31E-02	1.30E+01	-		4.30E-04	C	-	Mut	2.36E-03	-	
Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	No	Yes	No (not volatile)	No (not volatile)	2.16E-01		-	-		2.39E+02	1.81E-01	1.30E+01	-		1.30E-05	C	-	No	2.16E-01	-	
Methylenabisbenzenamine, 4,4'-	101-77-9	No	Yes	No (not volatile)	No (not volatile)	6.10E-03		-	-		2.16E+00	2.17E+00	1.30E+01	-		4.60E-04	C	2.00E-02	C	No	6.10E-03	2.09E+01
Methylenediphenyl Diisocyanate	101-68-8	No	Yes	No (not volatile)	No (not volatile)	6.26E-01		-	-		6.73E+01	7.09E+00	1.30E+01	6.00E-01	YAWS	-	-	6.00E-04	I	No	-	6.26E-01
Methylnaphthalene, 1-	90-12-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.12E+05	2.11E+05	1.30E+01	8.00E-01	YAWS	-	-	-	No	-	-	
Methylnaphthalene, 2-	91-57-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.21E+05	1.72E+05	1.30E+01	8.00E-01	YAWS	-	-	-	No	-	-	
Methylstyrene, Alpha-	98-83-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.21E+07	4.68E+06	1.30E+01	1.90E+00	CRC	-	-	-	No	-	-	
Metolachlor	51218-45-2	No	No	No (not volatile)	No (not volatile)	-		-	-		4.79E+02	1.95E+02	1.30E+01	-		-	-	-	No	-	-	
Metribuzin	21087-64-9	No	No	No (not volatile)	No (not volatile)	-		-	-		5.01E+00	5.02E+00	1.30E+01	-		-	-	-	No	-	-	
Metsulfuron-methyl	74223-64-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.13E-05	5.13E-05	1.30E+01	-		-	-	-	No	-	-	

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>nc</sub> > C <sub>is</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>ground</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>p</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>ic</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Mdrange Aliphatic Hydrocarbon Streams	NA	Yes	Yes	Yes	Yes	6.24E-01	CA	2.08E+01	1.17E-02	--	3.07E+07	1.17E+07	1.30E+01	8.00E-01	CRC	4.50E-06	X	1.00E-01	P	No	6.24E-01	1.04E+02
Mineral oils	8012-95-1	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		1.24E+06	1.24E+06	1.30E+01	-		-	-	-	No	-	-	
Mirex	2385-85-5	Yes	Yes	Yes	Yes	5.51E-04	CA	1.84E-02	1.66E-02	--	2.35E+01	2.82E+03	1.30E+01	-		5.10E-03	C	-		No	5.51E-04	-
Molinate	2212-67-1	No	No	No (not volatile)	No (not volatile)	-		-	-		5.64E+04	1.63E+05	1.30E+01	-		-	-	-		No	-	-
Molybdenum	7439-98-7	No	Yes	No (not volatile)	No (not volatile)	2.09E+00		-	-		0.00E+00	-	1.30E+01	-		-	2.00E-03	A		No	-	2.09E+00
Monoammonium phosphate	7722-76-1	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Monobutyltin Compounds	NA	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Monocalcium phosphate	7758-23-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Monochloramine	10599-90-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Monomethylaniline	100-61-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.61E+06	8.18E+05	1.30E+01	1.20E+00	YAWS	-	-	-		No	-	-
Myclobutanil	88671-89-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.36E+01	2.48E+01	1.30E+01	-		-	-	-		No	-	-
N,N-Diphenyl-1,4-benzenediamine	74-31-7	No	No	No (not volatile)	No (not volatile)	-		-	-		8.89E-02	1.61E-02	1.30E+01	5.00E-01	YAWS	-	-	-		No	-	-
Naled	300-76-5	Yes	No	No Inhal. Tox Info	No Inhal. Tox. Info	-		-	-		4.10E+03	3.99E+03	1.30E+01	-		-	-	-		No	-	-
Naphtha, High Flash Aromatic (HFAN)	64742-95-6	Yes	Yes	Yes	Yes	1.04E+02	NC	-	5.80E+03	--	5.58E+05	1.30E+01	1.30E+01	-		-	-	1.00E-01	P	No	-	1.04E+02
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	8.26E-02	CA	2.75E+00	1.09E+01	--	5.86E+05	2.34E+05	1.30E+01	9.00E-01	CRC	3.40E-05	C	3.00E-03	I	No	8.26E-02	3.13E+00
Naphthylamine, 2-	91-59-8	No	Yes	No (not volatile)	No (not volatile)	-		-	-		1.97E+03	6.26E+02	1.30E+01	-		0.00E+00	C	-		No	-	-
Napropamide	15299-99-7	No	No	No (not volatile)	No (not volatile)	-		-	-		2.51E+00	2.51E+00	1.30E+01	-		-	-	-		No	-	-
Neodymium Chloride (Stable, Nonradioactive)	10024-93-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Nickel Acetate	373-02-4	No	Yes	No (not volatile)	No (not volatile)	1.08E-02		-	-		1.70E+02	-	1.30E+01	-		2.60E-04	C	1.40E-05	C	No	1.08E-02	1.46E-02
Nickel Carbonate	3333-67-3	No	Yes	No (not volatile)	No (not volatile)	1.08E-02		-	-		2.27E+01	-	1.30E+01	-		2.60E-04	C	1.40E-05	C	No	1.08E-02	1.46E-02
Nickel Carbonyl	13463-39-3	Yes	Yes	Yes	Yes	1.08E-02	CA	3.60E-01	8.43E-04	--	2.89E+09	2.31E+09	1.30E+01	2.00E+00	N	2.60E-04	C	1.40E-05	C	No	1.08E-02	1.46E-02
Nickel Hydroxide	12054-48-7	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.08E-02		-	-		-	-	1.30E+01	-		2.60E-04	C	1.40E-05	C	No	1.08E-02	1.46E-02
Nickel Oxide	1313-99-1	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.08E-02		-	-		-	-	1.30E+01	-		2.60E-04	C	2.00E-05	C	No	1.08E-02	2.09E-02
Nickel Refinery Dust	NA	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.17E-02		-	-		-	-	1.30E+01	-		2.40E-04	I	1.40E-05	C	No	1.17E-02	1.46E-02
Nickel Soluble Salts	7440-02-0	No	Yes	No (not volatile)	No (not volatile)	1.08E-02		-	-		0.00E+00	-	1.30E+01	-		2.60E-04	C	9.00E-05	A	No	1.08E-02	9.39E-02
Nickel Subsulfide	12035-72-2	Indeterminate	Yes	No (not volatile)	No (not volatile)	5.85E-03		-	-		-	-	1.30E+01	-		4.80E-04	I	1.40E-05	C	No	5.85E-03	1.46E-02
Nickelocene	1271-28-9	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.08E-02		-	-		-	-	1.30E+01	-		2.60E-04	C	1.40E-05	C	No	1.08E-02	1.46E-02
Nitrate (measured as nitrogen)	14797-55-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Nitrite (measured as nitrogen)	14797-65-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Nitroaniline, 2-	88-74-4	No	Yes	No (not volatile)	No (not volatile)	5.21E-02		-	-		2.06E+04	8.98E+02	1.30E+01	1.50E+00	YAWS	-	-	5.00E-05	X	No	-	5.21E-02
Nitroaniline, 3-	99-09-2	No	No	No (not volatile)	No (not volatile)	-		-	-		7.10E+02	9.23E+01	1.30E+01	1.70E+00	YAWS	-	-	-		No	-	-
Nitroaniline, 4-	100-01-6	No	Yes	No (not volatile)	No (not volatile)	6.26E+00		-	-		2.38E+01	7.86E+00	1.30E+01	1.50E+00	YAWS	-	-	6.00E-03	P	No	-	6.26E+00
Nitrobenzene	98-95-3	Yes	Yes	Yes	Yes	7.02E-02	CA	2.34E+00	1.77E+02	--	1.62E+06	8.31E+05	1.30E+01	1.80E+00	CRC	4.00E-05	I	9.00E-03	I	No	7.02E-02	9.39E+00
Nitrocellulose	9004-70-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.94E-10	1.35E-09	1.30E+01	-		-	-	-		No	-	-
Nitrofurantoin	67-20-9	No	No	No (not volatile)	No (not volatile)	-		-	-		3.56E-03	4.32E-03	1.30E+01	-		-	-	-		No	-	-
Nitrofurazone	59-87-0	No	Yes	No (not volatile)	No (not volatile)	7.59E-03		-	-		4.59E+01	2.66E-03	1.30E+01	-		3.70E-04	C	-		No	7.59E-03	-
Nitroglycerin	55-63-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.89E+03	1.01E+03	1.30E+01	-		-	-	-		No	-	-
Nitroguanidine	556-88-7	No	No	No (not volatile)	No (not volatile)	-		-	-		8.00E-05	8.00E-05	1.30E+01	-		-	-	-		No	-	-
Nitromethane	75-52-5	Yes	Yes	Yes	Yes	3.19E-01	CA	1.06E+01	5.02E+02	--	1.18E+08	7.06E+07	1.30E+01	7.30E+00	CRC	8.80E-06	P	5.00E-03	P	No	3.19E-01	5.21E+00

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1a</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1a</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>air</sub> , C <sub>1a,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>air,nc</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,nc</sub> (µg/m <sup>3</sup> )
Nitrophenol, 2-	88-75-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-	--	8.45E+05	1.31E+06	1.30E+01	-		-	-	-	No	-	-	
Nitropropane, 2-	79-46-9	Yes	Yes	Yes	Yes	4.84E-03	CA	1.61E-01	1.98E+00	--	8.25E+07	4.15E+07	1.30E+01	2.60E+00	CRC	5.80E-04	X	2.00E-02	I	No	4.84E-03	2.09E+01
Nitropyrene, 4-	57835-92-4	No	Yes	No (not volatile)	No (not volatile)	2.55E-02		-	-		7.40E-01	6.80E-02	1.30E+01	-		1.10E-04	C	-		No	2.55E-02	-
Nitroso-N-ethylurea, N-	759-73-9	No	Yes	No (not volatile)	No (not volatile)	1.32E-04		-	-		1.15E+05	7.02E+01	1.30E+01	-		7.70E-03	C	-		Mut	1.32E-04	-
Nitroso-N-methylurea, N-	684-93-5	No	Yes	No (not volatile)	No (not volatile)	2.98E-05		-	-		1.62E+05	5.83E+01	1.30E+01	-		3.40E-02	C	-		Mut	2.98E-05	-
Nitroso-di-N-butylamine, N-	924-16-3	Yes	Yes	Yes	Yes	1.75E-03	CA	5.85E-02	5.98E+00	--	3.99E+05	3.72E+05	1.30E+01	-		1.60E-03	I	-		No	1.75E-03	-
Nitroso-di-N-propylamine, N-	621-64-7	No	Yes	No (not volatile)	No (not volatile)	1.40E-03		-	-		6.02E+05	2.86E+06	1.30E+01	-		2.00E-03	C	-		No	1.40E-03	-
Nitrosodiethanolamine, N-	1116-54-7	No	Yes	No (not volatile)	No (not volatile)	3.51E-03		-	-		3.61E+03	1.98E+02	1.30E+01	-		8.00E-04	C	-		No	3.51E-03	-
Nitrosodiethylamine, N-	55-18-5	No	Yes	No (not volatile)	No (not volatile)	2.36E-05		-	-		4.72E+06	1.57E+07	1.30E+01	-		4.30E-02	I	-		Mut	2.36E-05	-
Nitrosodimethylamine, N-	62-75-9	Yes	Yes	Yes	Yes	7.24E-05	CA	2.41E-03	1.98E+00	--	1.08E+07	3.65E+07	1.30E+01	-		1.40E-02	I	4.00E-05	X	Mut	7.24E-05	4.17E-02
Nitrosodiphenylamine, N-	86-30-6	No	Yes	No (not volatile)	No (not volatile)	1.08E+00		-	-		1.07E+06	1.73E+03	1.30E+01	-		2.60E-06	C	-		No	1.08E+00	-
Nitrosomethylethylamine, N-	10595-95-6	Yes	Yes	Yes	Yes	4.46E-04	CA	1.49E-02	7.57E+00	--	5.21E+06	1.77E+07	1.30E+01	-		6.30E-03	C	-		No	4.46E-04	-
Nitrosomorpholine [N-]	59-89-2	No	Yes	No (not volatile)	No (not volatile)	1.48E-03		-	-		2.25E+05	1.00E+06	1.30E+01	-		1.90E-03	C	-		No	1.48E-03	-
Nitrosopiperidine [N-]	100-75-4	No	Yes	No (not volatile)	No (not volatile)	1.04E-03		-	-		5.65E+05	2.64E+06	1.30E+01	-		2.70E-03	C	-		No	1.04E-03	-
Nitrosopyrrolidine, N-	930-55-2	No	Yes	No (not volatile)	No (not volatile)	4.60E-03		-	-		3.23E+05	2.00E+06	1.30E+01	-		6.10E-04	I	-		No	4.60E-03	-
Nitrotoluene, m-	99-08-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.51E+06	7.27E+04	1.30E+01	1.30E+00	YAWS	-		-		No	-	-
Nitrotoluene, o-	88-72-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.39E+06	1.13E+05	1.30E+01	2.20E+00	YAWS	-		-		No	-	-
Nitrotoluene, p-	99-99-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.16E+05	3.78E+04	1.30E+01	1.60E+00	YAWS	-		-		No	-	-
Nonane, n-	111-84-2	Yes	Yes	Yes	Yes	2.09E+01	NC	6.95E+02	3.21E-01	--	3.07E+07	1.43E+07	1.30E+01	8.00E-01	CRC	-		2.00E-02	P	No	-	2.09E+01
Norflurazon	27314-13-2	No	No	No (not volatile)	No (not volatile)	-		-	-		4.72E-01	4.73E-01	1.30E+01	-		-		-		No	-	-
OCDD	3268-87-9	No	Yes	No (not volatile)	No (not volatile)	2.46E-04		-	-		2.04E-05	6.31E-05	1.30E+01	-		1.14E-02	W	1.33E-04	W	No	2.46E-04	1.39E-01
OCDF	39001-02-0	No	Yes	No (not volatile)	No (not volatile)	2.46E-04		-	-		8.95E-05	3.16E-05	1.30E+01	-		1.14E-02	W	1.33E-04	W	No	2.46E-04	1.39E-01
Octabromodiphenyl Ether	32536-52-0	No	No	No (not volatile)	No (not volatile)	-		-	-		5.47E+05	3.39E-08	1.30E+01	-		-		-		No	-	-
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0	No	No	No (not volatile)	No (not volatile)	-		-	-		5.26E-07	1.77E-01	1.30E+01	-		-		-		No	-	-
Octamethylpyrophosphoramide	152-16-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.54E+04	1.54E+04	1.30E+01	-		-		-		No	-	-
Octyl Phthalate, di-N-	117-84-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.10E+00	3.29E-01	1.30E+01	-		-		-		No	-	-
Oryzalin	19044-88-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.82E-01	1.95E-01	1.30E+01	-		-		-		No	-	-
Oxadiazon	19666-30-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.08E+00	2.08E+00	1.30E+01	-		-		-		No	-	-
Oxamyl	23135-22-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.71E+03	2.71E+03	1.30E+01	-		-		-		No	-	-
Oxyfluorfen	42874-03-3	No	No	No (not volatile)	No (not volatile)	-		-	-		3.89E+00	3.89E+00	1.30E+01	-		-		-		No	-	-
Paclobutrazol	76738-62-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.19E-01	8.80E-02	1.30E+01	-		-		-		No	-	-
Paraquat Dichloride	1910-42-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.04E+00	8.16E+00	1.30E+01	-		-		-		No	-	-
Parathion	56-38-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.05E+02	1.34E+02	1.30E+01	-		-		-		No	-	-
PeCDF, 1,2,3,7,8-	57117-41-6	No	Yes	No (not volatile)	No (not volatile)	2.46E-06		-	-		3.17E-02	4.81E-02	1.30E+01	-		1.14E+00	W	1.33E-06	W	No	2.46E-06	1.39E-03
PeCDF, 2,3,4,7,8-	57117-31-4	No	Yes	No (not volatile)	No (not volatile)	2.46E-07		-	-		3.17E-02	4.81E-02	1.30E+01	-		1.14E+01	W	1.33E-07	W	No	2.46E-07	1.39E-04
Pebulate	1114-71-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		9.68E+05	9.69E+05	1.30E+01	-		-		-		No	-	-
Pendimethalin	40487-42-1	No	No	No (not volatile)	No (not volatile)	-		-	-		2.21E+02	1.15E+01	1.30E+01	-		-		-		No	-	-
Pentabromodiphenyl Ether	32534-81-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		9.41E-01	1.06E+01	1.30E+01	-		-		-		No	-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>ia</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>nc</sub> > C <sub>ia</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>air,ind</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>ss</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>nc</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>air,ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,ind</sub> (µg/m <sup>3</sup> )
Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99)	60348-60-9	No	No	No (not volatile)	No (not volatile)	-		-	-		9.41E-01	3.79E-03	1.30E+01	-		-	-	-	No		-	-
Pentachlorobenzene	608-93-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.36E+04	7.81E+03	1.30E+01	-		-	-	-	No		-	-
Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	65510-44-3	Yes	Yes	Yes	Yes	2.46E-03	CA	8.21E-02	3.17E-01	--	9.60E+01	1.24E+02	1.30E+01	-	1.14E-03	W	1.33E-03	W	No	2.46E-03	1.39E+00	
Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	Yes	Yes	Yes	Yes	2.46E-03	CA	8.21E-02	7.48E-01	--	1.58E+02	4.41E+01	1.30E+01	-	1.14E-03	W	1.33E-03	W	No	2.46E-03	1.39E+00	
Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	Yes	Yes	Yes	Yes	2.46E-03	CA	8.21E-02	7.61E-01	--	1.15E+02	1.10E+01	1.30E+01	-	1.14E-03	W	1.33E-03	W	No	2.46E-03	1.39E+00	
Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	Yes	Yes	Yes	Yes	2.46E-03	CA	8.21E-02	6.52E-01	--	9.60E+01	6.04E+01	1.30E+01	-	1.14E-03	W	1.33E-03	W	No	2.46E-03	1.39E+00	
Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	Yes	Yes	Yes	Yes	7.39E-07	CA	2.46E-05	3.40E-04	--	3.90E+01	1.59E+01	1.30E+01	-	3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04	
Pentachlorodibenzo-p-dioxin, 1,2,3,7,8-	40321-76-4	No	Yes	No (not volatile)	No (not volatile)	7.39E-08		-	-		8.34E-03	1.63E-02	1.30E+01	-		3.80E+01	W	4.00E-08	W	No	7.39E-08	4.17E-05
Pentachloroethane	76-01-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.81E+07	1.91E+07	1.30E+01	-		-	-	-	No		-	-
Pentachloronitrobenzene	82-68-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		7.94E+02	7.95E+02	1.30E+01	-		-	-	-	No		-	-
Pentachlorophenol	87-86-5	No	Yes	No (not volatile)	No (not volatile)	5.51E-01		-	-		1.58E+03	1.40E+01	1.30E+01	-	5.10E-06	C	-	-	No	5.51E-01	-	
Pentaerythritol tetranitrate (PETN)	78-11-5	No	No	No (not volatile)	No (not volatile)	-		-	-		9.27E-02	1.15E-01	1.30E+01	-		-	-	-	No		-	-
Pentamethylphosphoramide (PMPA)	10159-46-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.29E+06	5.30E+01	1.30E+01	-		-	-	-	No		-	-
Pentane, n-	109-66-0	Yes	Yes	Yes	Yes	1.04E+03	NC	3.48E+04	3.10E+01	--	1.99E+09	1.28E+09	1.30E+01	1.40E+00	CRC	-	1.00E+00	P	No	-	1.04E+03	
Perchlorate and Perchlorate Salts	14797-73-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No		-	-
Perfluorobutanesulfonate	45187-15-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No		-	-
Perfluorobutanesulfonic acid (PFBS)	375-73-5	No	No	No (not volatile)	No (not volatile)	-		-	-		8.07E+05	-	1.30E+01	-		-	-	-	No		-	-
Perfluorohexanesulfonate	108427-53-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No		-	-
Perfluorohexanesulfonic acid (PFHs)	355-46-4	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-	No		-	-
Perfluorononanoate	72007-68-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.37E+05	-	1.30E+01	-		-	-	-	No		-	-
Perfluorononanoic acid (PFNA)	375-95-1	No	No	No (not volatile)	No (not volatile)	-		-	-		2.38E+05	-	1.30E+01	-		-	-	-	No		-	-
Perfluorooctanesulfonate	45298-90-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.37E+04	-	1.30E+01	-		-	-	-	No		-	-
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.76E+04	1.23E+04	1.30E+01	-		-	-	-	No		-	-
Perfluorooctanoate	45285-51-6	No	No	No (not volatile)	No (not volatile)	-		-	-		6.66E+05	1.39E+06	1.30E+01	-		-	-	-	No		-	-
Perfluorooctanoic acid (PFOA)	335-67-1	No	No	No (not volatile)	No (not volatile)	-		-	-		6.69E+05	1.39E+06	1.30E+01	-		-	-	-	No		-	-
Permethrin	52645-53-1	No	No	No (not volatile)	No (not volatile)	-		-	-		4.59E-01	4.59E-01	1.30E+01	-		-	-	-	No		-	-
Phenacetin	62-44-2	No	Yes	No (not volatile)	No (not volatile)	4.46E+00		-	-		6.67E+00	6.67E+00	1.30E+01	-		6.30E-07	C	-	No	4.46E+00	-	
Phenmedipham	13684-63-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.62E-04	1.62E-04	1.30E+01	-		-	-	-	No		-	-
Phenol	108-95-2	No	Yes	No (not volatile)	No (not volatile)	2.09E+02		-	-		1.77E+06	4.58E+05	1.30E+01	1.80E+00	CRC	-	2.00E-01	C	No	-	2.09E+02	
Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	No	No	No (not volatile)	No (not volatile)	-		-	-		2.36E+02	1.09E+02	1.30E+01	-		-	-	-	No		-	-
Phenothiazine	92-84-2	No	No	No (not volatile)	No (not volatile)	-		-	-		9.54E+00	1.82E+00	1.30E+01	-		-	-	-	No		-	-
Phenyl Isothiocyanate	103-72-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.09E+07	1.09E+07	1.30E+01	-		-	-	-	No		-	-
Phenylenediamine, m-	108-45-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.22E+04	3.67E+03	1.30E+01	1.30E+00	YAWS	-	-	-	No		-	-
Phenylenediamine, o-	95-54-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.20E+04	3.78E+03	1.30E+01	1.50E+00	CRC	-	-	-	No		-	-
Phenylenediamine, p-	106-50-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.91E+04	3.03E+02	1.30E+01	1.30E+00	YAWS	-	-	-	No		-	-
Phenylmercuric Acetate	62-38-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.09E+02	1.01E+02	1.30E+01	-		-	-	-	No		-	-
Phenylphenol, 2-	90-43-7	No	No	No (not volatile)	No (not volatile)	-		-	-		1.83E+04	3.00E+04	1.30E+01	-		-	-	-	No		-	-
Phorate	298-02-2	No	No	No (not volatile)	No (not volatile)	-		-	-		8.93E+03	8.93E+03	1.30E+01	-		-	-	-	No		-	-
Phosgene	75-44-5	Yes	Yes	Yes	Yes	3.13E-01	NC	1.04E+01	7.36E-01	--	7.54E+09	2.90E+09	1.30E+01	-		-	3.00E-04	I	No	-	3.13E-01	

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>1,3</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>sg</sub> Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>-1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Phosmet	732-11-6	No	No	No (not volatile)	No (not volatile)	-		-	-	--	8.36E+00	8.36E+00	1.30E+01	-		-		-		No	-	-
Phosphine	7803-51-2	Yes	Yes	Yes	Yes	3.13E-01	NC	1.04E+01	3.56E-01		5.36E+10	2.29E+11	1.30E+01	1.80E+00	CRC	-		3.00E-04	I	No	-	3.13E-01
Phosphoric Acid	7664-38-2	No	Yes	No (not volatile)	No (not volatile)	1.04E+01		-	-		1.58E+05	-	1.30E+01	-		-		1.00E-02	I	No	-	1.04E+01
Phosphorus, White	7723-14-0	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		4.16E+04	2.12E+05	1.30E+01	-		-		-		No	-	-
Phthalic Acid, p-	100-21-0	No	No	No (not volatile)	No (not volatile)	-		-	-		8.22E+01	4.11E-05	1.30E+01	1.30E+00	YAWS	-		-		No	-	-
Phthalic Anhydride	85-44-9	No	Yes	No (not volatile)	No (not volatile)	2.09E+01		-	-		4.12E+03	1.23E+03	1.30E+01	1.70E+00	CRC	-		2.00E-02	C	No	-	2.09E+01
Picloram	1918-02-1	No	No	No (not volatile)	No (not volatile)	-		-	-		9.36E-04	9.37E-04	1.30E+01	-		-		-		No	-	-
Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3	No	No	No (not volatile)	No (not volatile)	-		-	-		4.45E+00	5.58E-01	1.30E+01	-		-		-		No	-	-
Picric Acid (2,4,6-Trinitrophenol)	88-89-1	No	No	No (not volatile)	No (not volatile)	-		-	-		9.24E+00	8.83E+00	1.30E+01	-		-		-		No	-	-
Pirimiphos, Methyl	29232-93-7	No	No	No (not volatile)	No (not volatile)	-		-	-		2.46E+02	2.46E+02	1.30E+01	-		-		-		No	-	-
Polybrominated Biphenyls	36355-01-8	Indeterminate	Yes	No (not volatile)	No (not volatile)	3.26E-04		-	-		-	-	1.30E+01	-		8.60E-03	C	-		No	3.26E-04	-
Polychlorinated Biphenyls (high risk)	1336-36-3	Yes	Yes	Yes	Yes	4.91E-03	CA	1.64E-01	2.90E-01	Yes (1)	7.76E+03	1.19E+04	1.30E+01	-		5.71E-04	I	-		No	4.91E-03	-
Polychlorinated Biphenyls (low risk)	1336-36-3	Yes	Yes	Yes	Yes	2.81E-02	CA	9.36E-01	1.65E+00	No (1)	7.76E+03	1.19E+04	1.30E+01	-		1.00E-04	I	-		No	2.81E-02	-
Polychlorinated Biphenyls (lowest risk)	1336-36-3	Yes	Yes	Yes	Yes	1.40E-01	CA	4.68E+00	8.27E+00	No (1)	7.76E+03	1.19E+04	1.30E+01	-		2.00E-05	I	-		No	1.40E-01	-
Polymeric Methylene Diphenyl Diisocyanate (PMDI)	9016-87-9	No	Yes	No (not volatile)	No (not volatile)	6.26E-01		-	-		1.49E-05	9.51E-10	1.30E+01	-		-		6.00E-04	I	No	-	6.26E-01
Potassium Cyanide	151-50-8	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Potassium Perchlorate	7778-74-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Potassium Silver Cyanide	506-61-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Potassium perfluorobutanesulfonate	29420-49-3	No	No	No (not volatile)	No (not volatile)	-		-	-		1.66E+00	1.66E+00	1.30E+01	-		-		-		No	-	-
Potassium perfluorooctanesulfonate	2795-39-3	No	No	No (not volatile)	No (not volatile)	-		-	-		7.18E+01	5.56E+04	1.30E+01	-		-		-		No	-	-
Praseodymium Chloride (Stable, Nonradioactive)	10361-79-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Prochloraz	67747-09-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.29E+01	2.28E+01	1.30E+01	-		-		-		No	-	-
Profluralin	26399-36-0	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		1.18E+03	1.19E+03	1.30E+01	-		-		-		No	-	-
Prometon	1610-18-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.79E+01	2.79E+01	1.30E+01	-		-		-		No	-	-
Prometryn	7287-19-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.61E+01	1.61E+01	1.30E+01	-		-		-		No	-	-
Pronamide	23950-58-5	No	No	No (not volatile)	No (not volatile)	-		-	-		5.99E+00	5.99E+00	1.30E+01	-		-		-		No	-	-
Propachlor	1918-16-7	No	No	No (not volatile)	No (not volatile)	-		-	-		2.62E+03	8.54E+03	1.30E+01	-		-		-		No	-	-
Propanil	709-98-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.06E+01	1.06E+01	1.30E+01	-		-		-		No	-	-
Propargite	2312-35-8	No	No	No (not volatile)	No (not volatile)	-		-	-		5.65E+00	5.63E+00	1.30E+01	-		-		-		No	-	-
Propargyl Alcohol	107-19-7	Yes	No	No Inhal. Tox Info	No Inhal. Tox Info	-		-	-		4.70E+07	4.87E+02	1.30E+01	2.40E+00	YAWS	-		-		No	-	-
Propazine	139-40-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.62E+00	1.62E+00	1.30E+01	-		-		-		No	-	-
Propham	122-42-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.35E+03	1.35E+03	1.30E+01	-		-		-		No	-	-
Propiconazole	60207-90-1	No	No	No (not volatile)	No (not volatile)	-		-	-		7.73E+00	7.74E+00	1.30E+01	-		-		-		No	-	-
Propionaldehyde	123-38-6	Yes	Yes	Yes	Yes	8.34E+00	NC	2.78E+02	4.44E+03	--	9.90E+08	5.75E+08	1.30E+01	2.60E+00	CRC	-		8.00E-03	I	No	-	8.34E+00
Propyl benzene	103-65-1	Yes	Yes	Yes	Yes	1.04E+03	NC	3.48E+04	5.16E+03	--	2.21E+07	1.06E+07	1.30E+01	8.00E-01	CRC	-		1.00E+00	X	No	-	1.04E+03
Propylene	115-07-1	Yes	Yes	Yes	Yes	3.13E+03	NC	1.04E+05	4.84E+02	--	1.97E+10	1.29E+09	1.30E+01	2.00E+00	CRC	-		3.00E+00	C	No	-	3.13E+03
Propylene Glycol	57-55-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.28E+05	1.80E+05	1.30E+01	2.60E+00	CRC	-		-		No	-	-
Propylene Glycol Dinitrate	6423-43-4	No	Yes	No (not volatile)	No (not volatile)	2.83E-01		-	-		3.38E+06	1.26E+05	1.30E+01	-		-		2.72E-04	A	No	-	2.83E-01
Propylene Glycol Monomethyl Ether	107-98-2	Yes	Yes	Yes	Yes	2.09E+03	NC	6.95E+04	1.03E+08	--	6.06E+07	2.03E+07	1.30E+01	1.60E+00	N	-		2.00E+00	I	No	-	2.09E+03
Propylene Oxide	75-56-9	Yes	Yes	Yes	Yes	7.59E-01	CA	2.53E+01	4.17E+02	--	1.68E+09	1.07E+09	1.30E+01	1.90E+00	YAWS	3.70E-06	I	3.00E-02	I	No	7.59E-01	3.13E+01

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is,TARGET</sub> ?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>is,TARGET</sub> ?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> ,C <sub>ind,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>ss,TARGET</sub> (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw,TARGET</sub> (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL ?)	Pure Phase Vapor Concentration C <sub>vp</sub> (1E-5) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>gw</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind,cl</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m <sup>3</sup> )
Pyrene	129-00-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.90E+01	1.55E+01	1.30E+01	6.00E-01	YAWS	-		-		No	-	-
Pyridine	110-86-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		8.85E+07	2.39E+08	1.30E+01	1.80E+00	CRC	-		-		No	-	-
Quinalphos	13593-03-8	No	No	No (not volatile)	No (not volatile)	-		-	-		4.17E+01	4.17E+01	1.30E+01	-		-		-		No	-	-
Quinoline	91-22-5	No	No	No (not volatile)	No (not volatile)	-		-	-		4.17E+05	1.52E+05	1.30E+01	1.00E+00	YAWS	-		-		No	-	-
Quizalofop-ethyl	76578-14-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.30E-01	1.30E-01	1.30E+01	-		-		-		No	-	-
Refractory Ceramic Fibers (units in fibers)	NA	Indeterminate	Yes	No (not volatile)	No (not volatile)	3.13E+04		-	-		-	-	1.30E+01	-		-		3.00E+04	A	No	-	3.13E+04
Resmethrin	10453-86-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.06E-01	2.06E-01	1.30E+01	-		-		-		No	-	-
Ronnel	299-84-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.30E+03	1.31E+03	1.30E+01	-		-		-		No	-	-
Rotenone	83-79-4	No	No	No (not volatile)	No (not volatile)	-		-	-		1.47E-02	9.16E-07	1.30E+01	-		-		-		No	-	-
Rubidium	7440-17-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Rubidium Chloride	7791-11-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Rubidium Hydroxide	1310-82-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Rubidium Iodide	7790-29-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Safrole	94-59-7	No	Yes	No (not volatile)	No (not volatile)	1.61E-02		-	-		6.54E+05	1.80E+04	1.30E+01	-		6.30E-05	C	-		Mut	1.61E-02	-
Samarium Chloride (Stable, Nonradioactive)	10361-82-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Samarium Nitrate (Stable, Nonradioactive)	10361-83-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Selenious Acid	7783-00-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Selenium	7782-49-2	No	Yes	No (not volatile)	No (not volatile)	2.09E+01		-	-		6.03E-04	-	1.30E+01	-		-		2.00E-02	C	No	-	2.09E+01
Selenium Sulfide	7446-34-6	Indeterminate	Yes	No (not volatile)	No (not volatile)	2.09E+01		-	-		-	-	1.30E+01	-		-		2.00E-02	C	No	-	2.09E+01
Sethoxydim	74051-80-2	No	No	No (not volatile)	No (not volatile)	-		-	-		2.82E+00	2.21E-02	1.30E+01	-		-		-		No	-	-
Silica (crystalline, respirable)	7631-86-9	Indeterminate	Yes	No (not volatile)	No (not volatile)	3.13E+00		-	-		-	-	1.30E+01	-		-		3.00E-03	C	No	-	3.13E+00
Silver	7440-22-4	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Silver Cyanide	506-64-9	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Simazine	122-34-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.40E-01	2.39E-01	1.30E+01	-		-		-		No	-	-
Sodium Acifluorfen	62476-59-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.01E-01	6.18E+02	1.30E+01	-		-		-		No	-	-
Sodium Azide	26628-22-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Sodium Cyanide	143-33-9	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Sodium Diethyldithiocarbamate	148-18-5	No	No	No (not volatile)	No (not volatile)	-		-	-		7.55E-03	-	1.30E+01	-		-		-		No	-	-
Sodium Fluoride	7681-49-4	No	Yes	No (not volatile)	No (not volatile)	1.36E+01		-	-		0.00E+00	-	1.30E+01	-		-		1.30E-02	C	No	-	1.36E+01
Sodium Fluoroacetate	62-74-8	No	No	No (not volatile)	No (not volatile)	-		-	-		3.52E+00	4.95E+07	1.30E+01	-		-		-		No	-	-
Sodium Metavanadate	13718-26-8	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Sodium Perchlorate	7601-89-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Sodium Tungstate	13472-45-2	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Strofos (Tetrachlorovinphos)	961-11-5	No	No	No (not volatile)	No (not volatile)	-		-	-		8.27E-01	8.27E-01	1.30E+01	-		-		-		No	-	-
Strontium, Stable	7440-24-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Strychnine	57-24-9	No	No	No (not volatile)	No (not volatile)	-		-	-		5.27E-02	4.95E-04	1.30E+01	-		-		-		No	-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>is,Target</sub> ?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>gc</sub> > C <sub>is,Target</sub> ?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> ,C <sub>ind,nc</sub> ) (µg/m³)	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>sg,Target</sub> (µg/m³)	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw,Target</sub> (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m³)	Maximum Groundwater Vapor Concentration C <sub>gc</sub> (µg/m³)	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m³) <sup>1</sup>	IUR Ref	RfC (mg/m³)	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind,nc</sub> (µg/m³)	Noncarcinogenic VISL THQ=1 C <sub>ind,nc</sub> (µg/m³)
Styrene	100-42-5	Yes	Yes	Yes	Yes	1.04E+03	NC	3.48E+04	1.94E+04	No (100)	3.58E+07	1.66E+07	1.30E+01	9.00E-01	CRC	-	-	1.00E+00	I	No	-	1.04E+03
Styrene-Acrylonitrile (SAN) Trimer (THNA isomer)	57964-39-3	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Styrene-Acrylonitrile (SAN) Trimer (THNP isomer)	57964-40-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.29E+00	-	1.30E+01	-		-	-	-		No	-	-
Sulfolane	126-33-0	No	Yes	No (not volatile)	No (not volatile)	2.09E+00		-	-		2.64E+04	6.47E+07	1.30E+01	-		-	2.00E-03	X	No	-	2.09E+00	
Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9	No	No	No (not volatile)	No (not volatile)	-		-	-		1.25E+01	1.34E+01	1.30E+01	-		-	-	-		No	-	-
Sulfur Mustard	505-60-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		9.41E+05	6.85E+05	1.30E+01	-		-	-	-		No	-	-
Sulfur Trioxide	7446-11-9	Yes	Yes	Yes	Yes	1.04E+00		3.48E+01	-		1.13E+09	-	1.30E+01	-		-	1.00E-03	C	No	-	1.04E+00	
Sulfuric Acid	7664-93-9	No	Yes	No (not volatile)	No (not volatile)	1.04E+00		-	-		3.13E+02	-	1.30E+01	-		-	1.00E-03	C	No	-	1.04E+00	
Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	140-57-8	No	Yes	No (not volatile)	No (not volatile)	3.95E-01		-	-		3.93E+00	4.58E+00	1.30E+01	-		7.10E-06	I	-		No	3.95E-01	-
TCDD, 2,3,7,8-	1746-01-6	Yes	Yes	Yes	Yes	7.39E-08	CA	2.46E-06	3.61E-05	No (0)	2.60E-02	4.09E-01	1.30E+01	-		3.80E+01	C	4.00E-08	C	No	7.39E-08	4.17E-05
TCDF, 2,3,7,8-	51207-31-9	Yes	Yes	Yes	Yes	7.39E-07	CA	2.46E-05	1.08E-03	--	2.47E-01	4.72E-01	1.30E+01	-		3.80E+00	W	4.00E-07	W	No	7.39E-07	4.17E-04
TCMTB	21564-17-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.00E+00	3.32E-02	1.30E+01	-		-	-	-		No	-	-
Tebuthiuron	34014-18-1	No	No	No (not volatile)	No (not volatile)	-		-	-		3.68E+00	1.23E+01	1.30E+01	-		-	-	-		No	-	-
Temephos	3383-96-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.98E+00	2.16E-02	1.30E+01	-		-	-	-		No	-	-
Terbacil	5902-51-2	No	No	No (not volatile)	No (not volatile)	-		-	-		5.48E+00	3.48E+00	1.30E+01	-		-	-	-		No	-	-
Terbufos	13071-79-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.96E+03	4.97E+03	1.30E+01	-		-	-	-		No	-	-
Terbutryn	886-50-0	No	No	No (not volatile)	No (not volatile)	-		-	-		2.19E+01	2.20E+01	1.30E+01	-		-	-	-		No	-	-
Tert-Butyl Acetate	540-88-5	Yes	Yes	Yes	Yes	2.16E+00	CA	7.20E+01	6.13E+01	--	2.94E+08	2.94E+08	1.30E+01	-		1.30E-06	C	-	No	2.16E+00	-	
Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.83E+00	1.77E-01	1.30E+01	-		-	-	-		No	-	-
Tetrachlorobenzene, 1,2,4,5-	95-94-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.27E+04	8.96E+03	1.30E+01	-		-	-	-		No	-	-
Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	No	Yes	No (not volatile)	No (not volatile)	7.39E-04		-	-		2.58E+02	8.19E-02	1.30E+01	-		3.80E-03	W	4.00E-04	W	No	7.39E-04	4.17E-01
Tetrachlorobiphenyl, 3,4,4',5'- (PCB 81)	70362-50-4	Yes	Yes	Yes	Yes	2.46E-04	CA	8.21E-03	2.70E-02	--	1.33E+02	2.94E+02	1.30E+01	-		1.14E-02	W	1.33E-04	W	No	2.46E-04	1.39E-01
Tetrachloroethane, 1,1,1,2-	630-20-6	Yes	Yes	Yes	Yes	3.79E-01	CA	1.26E+01	7.98E+00	--	1.08E+08	5.08E+07	1.30E+01	4.90E+00	YAWS	7.40E-06	I	-	No	3.79E-01	-	
Tetrachloroethane, 1,1,2,2-	79-34-5	Yes	Yes	Yes	Yes	4.84E-02	CA	1.61E+00	6.59E+00	--	4.17E+07	2.08E+07	1.30E+01	-		5.80E-05	C	-	No	4.84E-02	-	
Tetrachloroethylene	127-18-4	Yes	Yes	Yes	Yes	1.08E+01	CA	3.60E+02	2.81E+01	No (5)	1.65E+08	7.91E+07	1.30E+01	-		2.60E-07	I	4.00E-02	I	No	1.08E+01	4.17E+01
Tetrachlorophenol, 2,3,4,6-	58-90-2	No	No	No (not volatile)	No (not volatile)	-		-	-		8.31E+03	8.31E+03	1.30E+01	-		-	-	-		No	-	-
Tetrachlorotoluene, p- alpha, alpha, alpha-	5216-25-1	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.74E+05	1.24E+04	1.30E+01	-		-	-	-		No	-	-
Tetraethyl Dithiopyrophosphate	3689-24-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.82E+03	5.46E+03	1.30E+01	-		-	-	-		No	-	-
Tetraethyl Lead	78-00-2	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.52E+06	2.76E+06	1.30E+01	-		-	-	-		No	-	-
Tetrafluoroethane, 1,1,1,2-	811-97-2	Yes	Yes	Yes	Yes	8.34E+04	NC	2.78E+06	5.65E+04	--	2.74E+10	3.01E+09	1.30E+01	-		-	8.00E+01	I	No	-	8.34E+04	
Tetrahydrofuran	109-99-9	Yes	Yes	Yes	Yes	2.09E+03	NC	6.95E+04	1.20E+06	--	6.29E+08	1.74E+09	1.30E+01	2.00E+00	CRC	-	2.00E+00	I	No	-	2.09E+03	
Tetramethylcyclohexane	30501-43-0	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		3.56E+07	-	1.30E+01	-		-	-	-		No	-	-
Tetramethylphosphoramide, -N,N,N,N' (TMPA)	16853-36-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.95E+06	2.33E+01	1.30E+01	-		-	-	-		No	-	-
Tetryl (Trinitrophenylmethylnitramine)	479-45-8	No	No	No (not volatile)	No (not volatile)	-		-	-		8.74E-01	8.20E+00	1.30E+01	-		-	-	-		No	-	-
Thallic Oxide	1314-32-5	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Thallium (I) Nitrate	10102-45-1	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Thallium (Soluble Salts)	7440-28-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Thallium Acetate	563-68-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.08E+08	-	1.30E+01	-		-	-	-		No	-	-
Thallium Carbonate	6533-73-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.52E+01	-	1.30E+01	-		-	-	-		No	-	-
Thallium Chloride	7791-12-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-
Thallium Selenite	12039-52-0	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-	-	-		No	-	-



Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>vp</sub> > C <sub>1a</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1a</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>air,c</sub> , C <sub>1a,nc</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>1a</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (13 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1c</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>air,c</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>air,nc</sub> (µg/m <sup>3</sup> )
Thallium Sulfate	7446-18-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Thifensulfuron-methyl	79277-27-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.67E-03	3.74E-03	1.30E+01	-		-		-		No	-	-
Thiobencarb	28249-77-6	No	No	No (not volatile)	No (not volatile)	-		-	-		3.05E+02	3.06E+02	1.30E+01	-		-		-		No	-	-
Thiocyanates	NA	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Thiocyanic Acid	463-56-9	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.50E+07	-	1.30E+01	-		-		-		No	-	-
Thiodiglycol	111-48-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.12E+04	2.33E+04	1.30E+01	-		-		-		No	-	-
Thiofanox	39196-18-4	No	No	No (not volatile)	No (not volatile)	-		-	-		2.00E+03	2.00E+03	1.30E+01	-		-		-		No	-	-
Thiophanate, Methyl	23564-05-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.31E+00	1.32E+00	1.30E+01	-		-		-		No	-	-
Thiram	137-26-8	No	No	No (not volatile)	No (not volatile)	-		-	-		2.23E+02	2.23E+02	1.30E+01	-		-		-		No	-	-
Tin	7440-31-5	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Titanium Tetrachloride	7550-45-0	Yes	Yes	Yes	Yes	1.04E-01		3.48E+00	-		1.02E+08	-	1.30E+01	-		-		1.00E-04	A	No	-	1.04E-01
Toluene	108-88-3	Yes	Yes	Yes	Yes	5.21E+03	NC	1.74E+05	3.52E+04	No (1000)	1.41E+08	7.80E+07	1.30E+01	1.10E+00	CRC	-	5.00E+00	I	No	-	5.21E+03	
Toluene-2,4-diisocyanate	584-84-9	Yes	Yes	Yes	Yes	8.34E-03	NC	2.78E-01	5.74E+01	--	7.49E+04	5.46E+03	1.30E+01	9.00E-01	CRC	1.10E-05	C	8.00E-06	C	No	2.55E-01	8.34E-03
Toluene-2,5-diamine	95-70-5	No	No	No (not volatile)	No (not volatile)	-		-	-		2.23E+04	8.52E+03	1.30E+01	-		-		-		No	-	-
Toluene-2,6-diisocyanate	91-08-7	Yes	Yes	Yes	Yes	8.34E-03	NC	2.78E-01	4.74E+01	--	1.96E+05	6.62E+03	1.30E+01	1.10E+00	YAWS	1.10E-05	C	8.00E-06	C	No	2.55E-01	8.34E-03
Toluenediamine, 2,3-	2687-25-4	No	No	No (not volatile)	No (not volatile)	-		-	-		3.63E+03	7.46E+03	1.30E+01	-		-		-		No	-	-
Toluenediamine, 3,4-	496-72-0	No	No	No (not volatile)	No (not volatile)	-		-	-		4.13E+03	8.24E+03	1.30E+01	-		-		-		No	-	-
Toluic Acid, p-	99-94-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.72E+02	1.05E+03	1.30E+01	1.20E+00	YAWS	-		-		No	-	-
Toluidine, o- (Methylaniline, 2-)	95-53-4	No	Yes	No (not volatile)	No (not volatile)	5.51E-02		-	-		1.50E+06	5.47E+05	1.30E+01	1.20E+00	YAWS	5.10E-05	C	-		No	5.51E-02	-
Toluidine, p-	106-49-0	No	No	No (not volatile)	No (not volatile)	-		-	-		1.65E+06	2.08E+05	1.30E+01	1.20E+00	YAWS	-		-		No	-	-
Total Petroleum Hydrocarbons (Aliphatic High)	NA	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.24E+06	1.24E+06	1.30E+01	-		-		-		No	-	-
Total Petroleum Hydrocarbons (Aliphatic Low)	NA	Yes	Yes	Yes	Yes	4.17E+02	NC	1.39E+04	1.16E+02	--	4.76E+08	8.11E+07	1.30E+01	1.15E+00	CRC	-	4.00E-01	P	No	-	4.17E+02	
Total Petroleum Hydrocarbons (Aliphatic Medium)	NA	Yes	Yes	Yes	Yes	1.04E+02	NC	3.48E+03	7.50E-01	--	3.07E+07	3.06E+07	1.30E+01	8.00E-01	CRC	-	1.00E-01	P	No	-	1.04E+02	
Total Petroleum Hydrocarbons (Aromatic High)	NA	No	Yes	No (not volatile)	No (not volatile)	2.09E-03		-	-		7.45E-02	5.85E-03	1.30E+01	-		-		2.00E-06	P	Mut	-	2.09E-03
Total Petroleum Hydrocarbons (Aromatic Medium)	NA	Yes	Yes	Yes	Yes	6.26E+01	NC	2.09E+03	5.58E+02	--	1.35E+07	6.74E+06	1.30E+01	9.00E-01	CRC	-	6.00E-02	P	No	-	6.26E+01	
Toxaphene	8001-35-2	No	Yes	No (not volatile)	No (not volatile)	8.77E-03		-	-		1.61E+02	1.35E+02	1.30E+01	-		3.20E-04	I	-		No	8.77E-03	-
Toxaphene, Weathered	NA	No	No	No (not volatile)	No (not volatile)	-		-	-		1.61E+02	1.35E+02	1.30E+01	-		-		-		No	-	-
Tralomefthrin	66841-25-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.29E-03	1.29E-03	1.30E+01	-		-		-		No	-	-
Tri-n-butyltin	688-73-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		6.25E+05	2.67E+05	1.30E+01	-		-		-		No	-	-
Triacetin	102-76-1	No	No	No (not volatile)	No (not volatile)	-		-	-		2.91E+04	7.68E+03	1.30E+01	1.00E+00	CRC	-	-		-	No	-	-
Triadimefon	43121-43-3	No	No	No (not volatile)	No (not volatile)	-		-	-		2.37E-01	2.37E-01	1.30E+01	-		-		-		No	-	-
Triallate	2303-17-5	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.97E+03	1.96E+03	1.30E+01	-		-		-		No	-	-
Triasulfuron	82097-50-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.20E-04	4.23E-04	1.30E+01	-		-		-		No	-	-
Tribenuron-methyl	101200-48-0	No	No	No (not volatile)	No (not volatile)	-		-	-		8.29E-03	2.09E-04	1.30E+01	-		-		-		No	-	-
Tribromobenzene, 1,2,4-	615-54-3	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		9.28E+04	2.47E+04	1.30E+01	-		-		-		No	-	-
Tribromophenol, 2,4,6-	118-79-6	No	No	No (not volatile)	No (not volatile)	-		-	-		5.39E+03	1.02E+02	1.30E+01	-		-		-		No	-	-
Tribufos	78-48-8	No	No	No (not volatile)	No (not volatile)	-		-	-		8.96E+01	2.76E+01	1.30E+01	-		-		-		No	-	-
Tributyl Phosphate	126-73-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.62E+04	5.64E+03	1.30E+01	-		-		-		No	-	-
Tributyltin Compounds	NA	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> , Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> , Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> , C <sub>1,3</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>1,3</sub> , Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> , Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1,3</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RfC (mg/m <sup>3</sup> )	RfC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>ind</sub> (µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>ind</sub> (µg/m <sup>3</sup> )
Tributyltin Oxide	56-35-9	No	No	No (not volatile)	No (not volatile)	-		-	-		2.40E+02	2.41E+02	1.30E+01	-		-		-		No	-	-
Tricalcium phosphate	7758-87-4	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1	Yes	Yes	Yes	Yes	5.21E+03	NC	1.74E+05	3.80E+02	--	3.65E+09	2.33E+09	1.30E+01	-		-		5.00E+00	P	No	-	5.21E+03
Trichloro-Z'-hydroxydiphenylether	3380-34-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.00E+01	2.04E+00	1.30E+01	-		-		-		No	-	-
Trichloroacetic Acid	76-03-9	No	No	No (not volatile)	No (not volatile)	-		-	-		5.27E+05	1.30E+04	1.30E+01	-		-		-		No	-	-
Trichloroaniline HCl, 2,4,6-	33663-50-2	No	No	No (not volatile)	No (not volatile)	-		-	-		7.68E-01	6.15E-05	1.30E+01	-		-		-		No	-	-
Trichloroaniline, 2,4,6-	634-93-5	No	No	No (not volatile)	No (not volatile)	-		-	-		4.69E+04	8.19E+02	1.30E+01	-		-		-		No	-	-
Trichlorobenzene, 1,2,3-	87-61-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.05E+06	3.10E+05	1.30E+01	-		-		-		No	-	-
Trichlorobenzene, 1,2,4-	120-82-1	Yes	Yes	Yes	Yes	2.09E+00	NC	6.95E+01	8.78E+01	No (70)	4.49E+06	1.16E+06	1.30E+01	2.50E+00	CRC	-		2.00E-03	P	No	-	2.09E+00
Trichloroethane, 1,1,1-	71-55-6	Yes	Yes	Yes	Yes	5.21E+03	NC	1.74E+05	1.24E+04	No (200)	8.90E+08	5.42E+08	1.30E+01	8.00E+00	CRC	-		5.00E+00	I	No	-	5.21E+03
Trichloroethane, 1,1,2-	79-00-5	Yes	Yes	Yes	Yes	1.75E-01	CA	5.85E+00	9.83E+00	No (5)	1.65E+08	1.19E+07	1.30E+01	6.00E+00	CRC	1.60E-05	I	2.00E-04	X	No	1.75E-01	2.09E-01
Trichloroethylene	79-01-6	Yes	Yes	Yes	Yes	4.78E-01	CA	1.59E+01	2.06E+00	Yes (5)	4.88E+08	2.98E+08	1.30E+01	8.00E+00	CRC	4.10E-06	I	2.00E-03	I	Mut	4.78E-01	2.09E+00
Trichlorofluoromethane	75-69-4	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		5.93E+09	2.95E+09	1.30E+01	-		-		-		No	-	-
Trichlorophenol, 2,4,5-	95-95-4	No	No	No (not volatile)	No (not volatile)	-		-	-		7.96E+04	3.08E+04	1.30E+01	-		-		-		No	-	-
Trichlorophenol, 2,4,6-	88-06-2	No	Yes	No (not volatile)	No (not volatile)	9.06E-01		-	-		8.50E+04	3.31E+04	1.30E+01	-		3.10E-06	I	-		No	9.06E-01	-
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	No	No	No (not volatile)	No (not volatile)	-		-	-		5.15E+02	9.87E+01	1.30E+01	-		-		-		No	-	-
Trichlorophenoxypropionic acid, -2,4,5	93-72-1	No	No	No (not volatile)	No (not volatile)	-		-	-		1.45E+02	2.63E+01	1.30E+01	-		-		-		No	-	-
Trimethylpropane, 1,1,2-	598-77-6	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		2.46E+07	1.26E+07	1.30E+01	-		-		-		No	-	-
Trichloropropane, 1,2,3-	96-18-4	Yes	Yes	Yes	Yes	3.13E-01	NC	1.04E+01	4.56E+01	--	2.93E+07	1.20E+07	1.30E+01	3.20E+00	CRC	-		3.00E-04	I	Mut	-	3.13E-01
Trichloropropene, 1,2,3-	96-19-5	Yes	Yes	Yes	Yes	3.13E-01	NC	1.04E+01	8.63E-01	--	3.44E+07	1.21E+08	1.30E+01	-		-		3.00E-04	P	No	-	3.13E-01
Tricresyl Phosphate (TCP)	1330-78-5	No	No	No (not volatile)	No (not volatile)	-		-	-		1.19E+01	3.85E+00	1.30E+01	-		-		-		No	-	-
Tri-diphenane	58138-08-2	No	No	No (not volatile)	No (not volatile)	-		-	-		6.72E+03	1.91E+01	1.30E+01	-		-		-		No	-	-
Triethylamine	121-44-8	Yes	Yes	Yes	Yes	7.30E+00	NC	2.43E+02	2.10E+03	--	3.11E+08	2.38E+08	1.30E+01	1.20E+00	CRC	-		7.00E-03	I	No	-	7.30E+00
Triethylene Glycol	112-27-6	No	No	No (not volatile)	No (not volatile)	-		-	-		1.07E+04	2.49E+02	1.30E+01	9.00E-01	CRC	-		-		No	-	-
Trifluoroethane, 1,1,1-	420-46-2	Yes	Yes	Yes	Yes	2.09E+04	NC	6.95E+05	8.15E+02	--	4.31E+10	1.95E+10	1.30E+01	-		-		2.00E+01	P	No	-	2.09E+04
Trifluralin	1582-09-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		8.26E+02	7.75E+02	1.30E+01	-		-		-		No	-	-
Trimethyl Phosphate	512-56-1	No	No	No (not volatile)	No (not volatile)	-		-	-		6.40E+06	6.34E+04	1.30E+01	2.20E+00	YAWS	-		-		No	-	-
Trimethylbenzene, 1,2,3-	526-73-8	Yes	Yes	Yes	Yes	6.26E+01	NC	2.09E+03	9.44E+02	--	1.09E+07	4.99E+06	1.30E+01	8.00E-01	CRC	-		6.00E-02	I	No	-	6.26E+01
Trimethylbenzene, 1,2,4-	95-63-6	Yes	Yes	Yes	Yes	6.26E+01	NC	2.09E+03	5.44E+02	--	1.36E+07	6.55E+06	1.30E+01	9.00E-01	CRC	-		6.00E-02	I	No	-	6.26E+01
Trimethylbenzene, 1,3,5-	108-67-8	Yes	Yes	Yes	Yes	6.26E+01	NC	2.09E+03	3.82E+02	--	1.60E+07	7.90E+06	1.30E+01	1.00E+00	CRC	-		6.00E-02	I	No	-	6.26E+01
Trimethylpentane, 2,4,4-	25167-70-8	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		4.29E+08	7.22E+07	1.30E+01	-		-		-		No	-	-
Trinitrobenzene, 1,3,5-	99-35-4	No	No	No (not volatile)	No (not volatile)	-		-	-		7.38E+01	1.88E+01	1.30E+01	-		-		-		No	-	-
Trinitrotoluene, 2,4,6-	118-96-7	No	No	No (not volatile)	No (not volatile)	-		-	-		9.80E+01	2.76E+01	1.30E+01	-		-		-		No	-	-
Triphenylphosphine Oxide	791-28-6	No	No	No (not volatile)	No (not volatile)	-		-	-		3.89E-02	1.35E+00	1.30E+01	-		-		-		No	-	-
Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.71E+00	7.47E-01	1.30E+01	-		-		-		No	-	-
Tris(1-chloro-2-propyl)phosphate	13674-84-5	No	No	No (not volatile)	No (not volatile)	-		-	-		3.56E+02	1.07E+03	1.30E+01	-		-		-		No	-	-
Tris(2,3-dibromopropyl)phosphate	126-72-7	Yes	Yes	Yes	Yes	4.25E-03	CA	1.42E-01	4.77E+00	--	7.13E+03	7.13E+03	1.30E+01	-		6.60E-04	C	-		No	4.25E-03	-
Tris(2-chloroethyl)phosphate	115-96-8	No	No	No (not volatile)	No (not volatile)	-		-	-		9.41E+05	2.97E+05	1.30E+01	-		-		-		No	-	-
Tris(2-ethylhexyl)phosphate	78-42-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.93E+00	8.09E-01	1.30E+01	-		-		-		No	-	-
Trisbutoxyethyl Phosphate	78-51-3	No	No	No (not volatile)	No (not volatile)	-		-	-		5.36E-01	5.40E-01	1.30E+01	-		-		-		No	-	-
Tungsten	7440-33-7	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-
Uranium	7440-61-1	No	Yes	No (not volatile)	No (not volatile)	4.17E-02		-	-		0.00E+00	-	1.30E+01	-		-		4.00E-05	A	No	-	4.17E-02

Resident Vapor Intrusion Screening Levels (VISL)

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; U = user provided; G = see RSL User's Guide Section 5; CA = cancer; NC = noncancer.

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RIC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? (C <sub>vp</sub> > C <sub>1,3</sub> ,Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? (C <sub>1c</sub> > C <sub>1,3</sub> ,Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN(C <sub>ind</sub> ,C <sub>1,3</sub> ) (µg/m <sup>3</sup> )	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C <sub>1,3</sub> ,Target (µg/m <sup>3</sup> )	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C <sub>gw</sub> ,Target (µg/L)	Is Target Groundwater Concentration < MCL? (C <sub>gw</sub> < MCL?)	Pure Phase Vapor Concentration C <sub>vp</sub> (18 °C) (µg/m <sup>3</sup> )	Maximum Groundwater Vapor Concentration C <sub>1,3</sub> (µg/m <sup>3</sup> )	Temperature for Maximum Groundwater Vapor Concentration (°C)	Lower Explosive Limit LEL (% by volume)	LEL Ref	IUR (ug/m <sup>3</sup> ) <sup>1</sup>	IUR Ref	RIC (mg/m <sup>3</sup> )	RIC Ref	Mutagenic Indicator	Carcinogenic VISL TCR=1E-06 C <sub>1,3</sub> ,c(µg/m <sup>3</sup> )	Noncarcinogenic VISL THQ=1 C <sub>1,3</sub> ,nc(µg/m <sup>3</sup> )
Urethane	51-79-6	No	Yes	No (not volatile)	No (not volatile)	3.50E-03		-	-		1.26E+06	5.71E+05	1.30E+01	-		2.90E-04	C	-		Mut	3.50E-03	-
Vanadium Pentoxide	1314-62-1	No	Yes	No (not volatile)	No (not volatile)	3.38E-04		-	-		0.00E+00	-	1.30E+01	-		8.30E-03	P	7.00E-06	P	No	3.38E-04	7.30E-03
Vanadium and Compounds	7440-62-2	Indeterminate	Yes	No (not volatile)	No (not volatile)	1.04E-01		-	-		-	-	1.30E+01	-		-		1.00E-04	A	No	-	1.04E-01
Vernolate	1929-77-7	Yes	No	No Inhal. Tox. Info	No Inhal. Tox. Info	-		-	-		1.14E+05	1.14E+05	1.30E+01	-		-		-		No	-	-
Vinclozolin	50471-44-8	No	No	No (not volatile)	No (not volatile)	-		-	-		1.85E+00	1.85E+00	1.30E+01	-		-		-		No	-	-
Vinyl Acetate	108-05-4	Yes	Yes	Yes	Yes	2.09E+02	NC	6.95E+03	1.84E+04	--	4.17E+08	2.26E+08	1.30E+01	2.60E+00	CRC	-		2.00E-01	I	No	-	2.09E+02
Vinyl Bromide	593-60-2	Yes	Yes	Yes	Yes	1.87E-01	CA	6.24E+00	5.32E-01	--	5.94E+09	2.67E+09	1.30E+01	9.00E+00	CRC	1.50E-05	P	3.00E-03	I	No	1.87E-01	3.13E+00
Vinyl Chloride	75-01-4	Yes	Yes	Yes	Yes	1.68E-01	CA	5.59E+00	1.97E-01	Yes (2)	1.00E+10	7.48E+09	1.30E+01	3.60E+00	CRC	4.40E-06	I	8.00E-02	A	Mut	1.68E-01	8.34E+01
Warfarin	81-81-2	No	No	No (not volatile)	No (not volatile)	-		-	-		1.92E+00	1.93E+00	1.30E+01	-		-		-		No	-	-
Xylene, m-	108-38-3	Yes	Yes	Yes	Yes	1.04E+02	NC	3.48E+03	7.03E+02	--	4.73E+07	2.39E+07	1.30E+01	1.10E+00	CRC	-		1.00E-01	G	No	-	1.04E+02
Xylene, o-	95-47-6	Yes	Yes	Yes	Yes	1.04E+02	NC	3.48E+03	9.89E+02	--	3.77E+07	1.88E+07	1.30E+01	9.00E-01	CRC	-		1.00E-01	G	No	-	1.04E+02
Xylene, p-	106-42-3	Yes	Yes	Yes	Yes	1.04E+02	NC	3.48E+03	7.31E+02	--	5.05E+07	2.31E+07	1.30E+01	1.10E+00	CRC	-		1.00E-01	G	No	-	1.04E+02
Xylenes	1330-20-7	Yes	Yes	Yes	Yes	1.04E+02	NC	3.48E+03	7.59E+02	Yes (10000)	4.56E+07	1.46E+07	1.30E+01	-		-		1.00E-01	I	No	-	1.04E+02
Zinc Cyanide	557-21-1	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Zinc Phosphide	1314-84-7	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Zinc and Compounds	7440-66-6	Indeterminate	No	No (not volatile)	No (not volatile)	-		-	-		-	-	1.30E+01	-		-		-		No	-	-
Zineb	12122-67-7	No	No	No (not volatile)	No (not volatile)	-		-	-		1.11E+00	1.11E+00	1.30E+01	-		-		-		No	-	-
Zirconium	7440-67-7	No	No	No (not volatile)	No (not volatile)	-		-	-		0.00E+00	-	1.30E+01	-		-		-		No	-	-

## **Attachment 2**

### **Data Validation Reports**

[REDACTED]

**DATA VALIDATION REPORT for  
REVISED SITE ASSESSMENT**

[REDACTED]  
[REDACTED]  
[REDACTED]  
**VRP Project #** [REDACTED]

**Submitted To:**

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Office of Environmental Remediation – Project Manager  
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## EXECUTIVE SUMMARY

██████████ prepared this Data Validation Report on behalf of ██████████  
██████████ (Site) for their facility addressed as ██████████  
██████████ West Virginia. This Data Validation Report was prepared as a supplement to the Revised Site Assessment Report (SAR) dated September 3, 2021 for the West Virginia Department of Environmental Protection (WVDEP) Voluntary Remediation Program (VRP # ██████████). This data validation report includes Stage IV validation in support of site risk assessment and development of exposure point concentrations (EPCs). A Stage 2A assessment is presented in the SAR (██████████ 2021).

Stage IV validation was performed on a minimum of 10% of samples collected during the initial phase of sampling in February and March 2020. Stage IV laboratory data were evaluated using the EPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Validation (EPA, 2020) and EPA analytical methods. Based on the Stage IV review, data were determined to be of appropriate quality for use. A summary of qualified results are provided in Section 3.0 and qualified results are presented in Tables 1 and 2.

## 1.0 INTRODUCTION

██████████ has prepared this Data Validation Report on behalf of ██████████ (Site) for their facility addressed as ██████████ West Virginia. This Data Validation Report was prepared as a supplement to the Revised Site Assessment Report (SAR) dated September 3, 2021 for the West Virginia Department of Environmental Protection (WVDEP) Voluntary Remediation Program (VRP #██████████). This data validation report includes Stage IV validation in support of site risk assessment and development of exposure point concentrations (EPCs). A Stage 2A assessment is presented in the SAR (██████████ 2021).

Per WVDEP directives, ██████████ performed a subsurface investigation at the site from February 11-12, 2020 to further assess the presence or absence of hexavalent chromium, metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) in soil and groundwater in response to historical releases at the site. During the investigation, seven soil borings were drilled (SB-1 through SB-7), five of which were converted to monitoring wells MW-1 through MW-5.

Soil samples were collected from soil borings SB-1 through SB-7 during site assessment activities. A total of fifteen (15) soil samples were collected and are summarized below.

Boring ID	Sample Depth (feet)	Collection Date
SB-1	2	February 11, 2020
SB-1	15	February 11, 2020
SB-2	2	February 11, 2020
SB-2	11	February 11, 2020
SB-3	2	February 11, 2020
SB-3	8	February 11, 2020
SB-4	1	February 11, 2020
SB-5	2	February 12, 2020
SB-5	7	February 12, 2020
SB-6	2	February 12, 2020
SB-6	5	February 12, 2020
SB-7	2	February 12, 2020
SB-7	5	February 12, 2020
SB-8 (field duplicate)	2	February 12, 2020
SB-8 (field duplicate)	7	February 12, 2020

Soil samples were analyzed for the following parameters:

- Hexavalent chromium by the United States Environmental Protection Agency (EPA) method 7196A;
- Mercury by EPA method 7471A;
- Metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) by EPA method 6010B;
- VOCs by EPA method 8260B;
- SVOCs by EPA method 8270C; and



- Polycyclic aromatic hydrocarbons (PAHs) by EPA method 8270C-SIM.

Groundwater samples were collected by [REDACTED] from monitoring wells MW-1 through MW-5 in March 2020, September 2020, December 2020, and April 2021. WVDEP also collected groundwater samples from wells MW-1, MW-3, and MW-4. A total of twenty-three (23) groundwater samples, including samples collected by WVDEP, were collected between March 2020 and April 2021 and are summarized below.

Monitoring Well ID	Sampler	Collection Date
MW-1	[REDACTED] March 4, 2020	
MW-1	WVDEP	March 4, 2020
MW-2	[REDACTED] March 4, 2020	
MW-3	[REDACTED] March 4, 2020	
MW-4	[REDACTED] March 4, 2020	
MW-5	[REDACTED] March 4, 2020	
MW-1	[REDACTED] September 9, 2020	
MW-2	[REDACTED]	September 9, 2020
MW-3	[REDACTED] September 9, 2020	
MW-4	[REDACTED]	September 9, 2020
MW-5	[REDACTED] September 9, 2020	
MW-1	[REDACTED] December 15, 2020	
MW-2	[REDACTED] December 15, 2020	
MW-3	[REDACTED] December 15, 2020	
MW-4	[REDACTED] December 15, 2020	
MW-5	[REDACTED] December 15, 2020	
MW-4	WVDEP	March 29, 2021
MW-3	WVDEP	April 21, 2021
MW-1	[REDACTED] April 21, 2021	
MW-2	[REDACTED]	April 21, 2021
MW-3	[REDACTED] April 21, 2021	
MW-4	[REDACTED] April 21, 2021	
MW-5	[REDACTED] April 21, 2021	

Groundwater samples were analyzed for the following parameters:

- Hexavalent chromium by EPA method 7196A;
- Mercury by EPA method 7470A;
- Metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) by EPA method 6010B;
- VOCs by EPA method 8260B;
- SVOCs by EPA method 8270C; and
- PAHs by EPA method 8270C-SIM.

Routine analytical services were provided by Pace Analytical National of Mt. Juliet, Tennessee (Pace) and Pace Analytical of Beaver, West Virginia (Pace Beaver) for required laboratory analysis of soil and groundwater using approved EPA methods. Pace and Pace Beaver are

accredited by the National Environmental Laboratory Accreditation Program (NELAP) and are accredited through WVDEP as commercial laboratories.

Laboratory packages were generally provided in a Stage 2A format; however, Stage IV quality control data packages were provided by Pace for soil and groundwater samples collected during the initial phases of sampling (soil collected February 2020 and groundwater samples collected March 2020). Per WVDEP directives, Stage IV packages were not required for the continued quarterly sampling events. Stage IV packages are provided as Appendix A and a summary of laboratory reports and validation levels are provided below.

Laboratory Report No.	Date Reported	Associated Samples	Validation Level
L1189296	February 19, 2020	Soil samples collected February 11 and 12, 2020	Stage IV
L1196141	March 13, 2020	Groundwater samples collected March 4 and 5, 2020	Stage IV
L1208691	April 15, 2020	MW-2 groundwater resampling for hexavalent chromium	Stage 2A
7341841	September 28, 2020	Groundwater samples collected September 9, 2020	Stage 2A
7341836	September 28, 2020	Groundwater sample collected September 9, 2020	Stage 2A
7354038	January 14, 2021	Groundwater samples collected on December 15, 2020	Stage 2A
21032680	April 13, 2021	Groundwater samples collected March 29, 2021 by WVDEP	Stage 2A
7368232	May 6, 2021	Groundwater samples collected April 21, 2021	Stage 2A
21041895	May 6, 2021	Groundwater samples collected April 21, 2021 by WVDEP	Stage 2A

Stage IV validation was performed on laboratory reports L1189296 and L1196141. Only 10% of data need Stage IV data validation; therefore, individual sample results for soil samples SB-2 (2') and SB-4 (1') and groundwater samples MW-1, MW-2, and MW-3 collected March 4, 2020 were reviewed using Stage IV validation criteria. Stage IV laboratory data were evaluated using the EPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Validation (EPA, 2020) and EPA analytical methods. The findings of those validations are included below. The Stage 2A validation is provided in the SAR (██████ 2021) and were found to meet requirements for precision, accuracy, representativeness, comparability, and completeness (PARCC).

## 2.0 LABORATORY COMPLIANCE

Samples chosen for Stage IV validation include soil samples SB-2 (2') and SB-4 (1') and groundwater samples MW-1, MW-2, and MW-3 collected March 4, 2020 from laboratory reports

L1189296 and L1196141, respectively. Laboratory data packages were reviewed using the EPA CLP National Functional Guidelines (EPA, 2020) and the respective EPA method guidelines. Summaries of data validation findings and qualifier verification are included below.

## 2.1 Stage IV Validation of Laboratory Report L1189296

Data validation and review was conducted for ten percent (10%) of soil samples within sample delivery group (SDG) L1189296 in accordance with the EPA National Functional Guidelines for Superfund Organic Methods Review, November 2020, EPA National Functional Guidelines for Superfund Inorganic Methods Review, November 2020, the WVDEP Voluntary Remediation Program Guidance Manual, the respective EPA analytical and preparation methods, and the Quality Assurance Project Plan (QAPP) as outlined in the WVDEP approved SAWP dated February 4, 2020. The SDG included fifteen (15) soil samples analyzed for hexavalent chromium by EPA 7196A, mercury by EPA 7471A, metals by EPA 6010B, VOCs by EPA 8260B, SVOCs by EPA 8270C, and PAHs by 8270C-SIM. Samples specific to L1189296 are included below.

SDG ID	Sample ID	Matrix	Collection Date
L1189296-01	SB-1 (2')	Soil	February 11, 2020
L1189296-02	SB-1 (15')	Soil	February 11, 2020
L1189296-03	SB-2 (2')	Soil	February 11, 2020
L1189296-04	SB-2(11')	Soil	February 11, 2020
L1189296-05	SB-3 (2')	Soil	February 11, 2020
L1189296-06	SB-3 (8')	Soil	February 11, 2020
L1189296-07	SB-4 (1')	Soil	February 11, 2020
L1189296-08	SB-5 (2')	Soil	February 12, 2020
L1189296-09	SB-5 (7')	Soil	February 12, 2020
L1189296-10	SB-6 (2')	Soil	February 12, 2020
L1189296-11	SB-6 (5')	Soil	February 12, 2020
L1189296-12	SB-7 (2')	Soil	February 12, 2020
L1189296-13	SB-7 (5')	Soil	February 12, 2020
L1189296-14	SB-8 (2')	Soil	February 12, 2020
L1189296-15	SB-8 (10')	Soil	February 12, 2020

Samples were received by the analytical laboratory, Pace Analytical National, Mt. Juliet, Tennessee. As indicated by the analytical laboratory sample receipt checklist: the cooler temperature upon receipt was 0.2°C, custody seals were intact, and containers were accurately labeled and reflected the chain of custody. Soil samples were preserved onsite with methanol for VOC analysis.

Ten percent (10%) of the analytical data used must be validated to Stage IV according to the WVDEP VRP Guidance Manual. To achieve this 10%, soil samples SB-2 (2') and SB-4 (1') were chosen for Stage IV validation. The results of the Stage IV validation are provided below.

### 2.1.1 Hexavalent Chromium

Soil samples were analyzed for hexavalent chromium using EPA method 7196A. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for hexavalent chromium data review, the site-specific QAPP, and EPA method 7196A.

**Preservation and Holding Times.** Soil samples were extracted using EPA method 3060A. This method does not require preservation of soil samples for hexavalent chromium. The holding time for extraction of hexavalent chromium in soil is 30-days for field-moist samples. Soil samples were extracted within this holding time and were analyzed within 7 days. Soil samples were maintained between  $4\pm 2$  degrees Celsius ( $^{\circ}\text{C}$ ) from the time of collection to analysis.

**Initial Calibration.** The instrument was calibrated on January 27, 2020. The lowest calibration standard was less than the quantitation limit and the calibration curve was fitted to a linear regression. Six calibration standards were used, and no calibration standards analyzed were excluded from the calibration curve. The calibration curve also was not forced through zero. The correlation coefficient was greater than 0.995 at 0.9985.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recovery was 101% and within the control limit.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples during the analytical sequence. Percent recoveries were between 98.2% and 103% and were within control limits. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank result for hexavalent chromium was less than the quantitation limit.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batch WG1427689. The recovery of hexavalent chromium in the LCS sample was 108% and within the control limit.

**Duplicate Sample Analysis.** Two laboratory duplicates were prepared and analyzed for analytical batch WG1427689. RPD values were below the control limit.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for analytical batch WG1427689. The recovery and RPD of hexavalent chromium were within control limits.

**Target Analyte Quantitation.** Hexavalent chromium was determined photometrically at 540 nm. Calculations performed appropriately using absorbance data, initial sample weight, final sample weight, percent solids, and dilution factors.

### 2.1.2 Mercury

Soil samples were analyzed for mercury using EPA method 7471A. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for mercury data review, the site-specific QAPP, and EPA method 7471A.

**Preservation and Holding Times.** Soil samples were prepared using EPA method 7471A. This method does not require preservation of soil samples for mercury. The holding time for preparation and analysis of mercury in soil is 28-days from the time of sampling. Soil samples were digested and analyzed within this holding time. Soil samples were maintained between  $4\pm 2$  degrees Celsius ( $^{\circ}\text{C}$ ) from the time of collection to analysis.

**Initial Calibration.** The instrument was calibrated the same day of analysis, before environmental and quality control samples. The lowest calibration standard was less than the quantitation limit and the calibration curve was fitted to a linear regression. Six calibration standards were used, and no calibration standards analyzed were excluded from the calibration curve. The calibration curve also was not forced through zero. The correlation coefficient was greater than 0.995 at 0.9998.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recoveries were between 99.4% and 111% and were within the control limit.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples or less during the analytical sequence and at the beginning and end of each analytical sequence. Percent recoveries were between 90.1% and 99.1% and were within control limits. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank absolute result for mercury was less than the quantitation limit.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batch WG1428529. The recovery of mercury in the LCS sample was 95.5% and within the control limit.

**Duplicate Sample Analysis.** A laboratory duplicate was not analyzed as part of the analytical batch; however, the matrix spike was performed in duplicate and precision data are determined to be acceptable.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for analytical batch WG1428529. The recovery and RPD of mercury were within control limits.

**Target Analyte Quantitation.** Calculations were performed appropriately using calibration data, initial sample weight, final sample weight, percent solids, and dilution factors.

### 2.1.3 Metals

Soil samples were analyzed for arsenic, barium, cadmium, chromium, lead, selenium, and silver using EPA method 6010B. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for ICP-AES data review, the site-specific QAPP, and EPA method 6010B.

**Preservation and Holding Times.** Soil samples were prepared using EPA method 3050B. This method does not require preservation of soil samples. The holding time for preparation and analysis of metals in soil is 180-days from the time of sampling. Soil samples were prepared and analyzed within

this holding time. Soil samples were maintained between 4±2 degrees Celsius (°C) from the time of collection to analysis.

**Initial Calibration.** The instrument was calibrated the same day of analysis, before environmental and quality control samples. The lowest calibration standard was less than the quantitation limit and the calibration curve was fitted to a linear regression forced through the blank. Five calibration standards were used, with three replicate exposures averaged, and no calibration standards analyzed were excluded from the calibration curve. The calibration curve also was not forced through zero. The correlation coefficients were greater than 0.995.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recoveries were between 91.3% and 101% and were within the control limit. The relative percent differences (RPDs) between replicate readings were less than 5%.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples or less during the analytical sequence and at the beginning and end of each analytical sequence. Percent recoveries were between 90.1% and 99.1% and were within control limits. The relative percent differences (RPDs) between replicate readings were less than 5%. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank absolute results were less than the quantitation limit.

**Interference Check Samples.** Solution A (ICS A) and Solution AB (ICS AB) were used to determine impact of interferents. ICS A and ICS AB were analyzed after the ICV at the beginning of the analytical sequence. Percent recoveries were within 15% of true values.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batch WG1428311. The recoveries of metals were between 88.8% and 103% and were within the control limit.

**Duplicate Sample Analysis.** A laboratory duplicate was not analyzed as part of the analytical batch; however, the matrix spike was performed in duplicate and precision data are determined to be acceptable.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for analytical batch WG1428311. The recovery and RPD of target metals were within control limits.

**Serial Dilution.** A serial dilution was performed on sample SB-8 (2') and RPD values were less than 10%.

**Target Analyte Quantitation.** Calculations performed appropriately using calibration data, initial sample weight, final sample weight, percent solids, and dilution factors.

#### 2.1.4 VOCs

Soil samples were analyzed for VOCs using EPA method 8260B. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for volatiles data review, the site-specific QAPP, and EPA method 8260B.

**Preservation and Holding Times.** Soil samples were prepared using EPA method 5035A. Soil samples were preserved in the field with methanol and were analyzed within 14 days of collection. Soil samples were maintained between 4±2 degrees Celsius (°C) from the time of collection to analysis.

**Instrument Performance Check.** BFB was analyzed and verified to meet ion abundance criteria. The instrument performance check was analyzed at the beginning of the sequence before any samples and was verified every 12 hours.

**Initial Calibration.** The instrument was calibrated within 12 hours of the instrument performance check and prior to the ICV, samples, and required blanks. The calibration consisted of at least five standards including target analytes and surrogates. Relative Response Factors (RRFs), mean RRFs, and Percent Relative Standard Deviations (%RSD) were within control limits.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV met criteria for minimum RRFs, maximum percent recoveries, and percent differences.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed at the beginning of the analytical sequence. RRFs and percent differences were within control limits.



**Method Blank.** A method blank was prepared and analyzed with the analytical batch WG1428500. 2-Butanone was detected in the method blank above the quantitation limit. Soil samples SB-2 (11'), SB-3 (2'), SB-4 (1'), SB-5 (2'), SB-5 (7'), SB-6 (5'), SB-7 (5'), SB-8 (2'), and SB-8 (10') had concentrations of 2-butanone that were less than 10 times the method blank concentration. These results may be biased high due to potential laboratory contamination and are 'J+' flagged.

**Surrogate.** All samples were spiked with the surrogate mixture prior to sample purging. Surrogate recoveries were within acceptable limits.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were not analyzed for analytical batch WG1428875. Precision and accuracy were determined from the LCS and field duplicate samples.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batch WG1428500. The recoveries of VOCs were within control limits.

**Internal Standards.** Internal standards were added to all samples and blanks. Area responses were within the 50-200% range of the opening CCV. Retention times did not vary more than  $\pm 30$  seconds.

**Target Analyte Identification.** The mass spectra for soil samples SB-2 (2') and SB-4 (1') were reviewed. Relative intensities agreed within  $\pm 20\%$  of the 1000 ppb calibration standard and relative retention time units were within  $\pm 0.06$ .

**Target Analyte Quantitation.** Calculations were performed appropriately using the associated initial calibration data, internal standards, appropriate quantitation ions, initial sample weight, final sample weight, percent solids, and dilution factors.

**Tentatively Identified Compounds.** Tentatively identified compounds were not reported.

### 2.1.5 SVOCs

Soil samples were analyzed for SVOCs using EPA method 8270C. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for semivolatiles data review, the site-specific QAPP, and EPA method 8270C. **Preservation and Holding Times.** Soil samples were prepared using EPA method 3546. Soil samples were unpreserved and maintained between  $4 \pm 2$  degrees Celsius ( $^{\circ}\text{C}$ ). Soil samples were extracted within 14 days of collection and analyzed within 40 days after extraction.

**Instrument Performance Check.** DFTPP was analyzed and verified to meet ion abundance criteria. The instrument performance check was analyzed at the beginning of the sequence before any samples and was verified every 12 hours.

**Initial Calibration.** The instrument was calibrated within 12 hours of the instrument performance check and prior to the ICV, samples, and required blanks. The calibration consisted of at least five standards including target analytes and surrogates. Relative Response Factors (RRFs), mean RRFs, and Percent Relative Standard Deviations (%RSD) were within control limits.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV generally met criteria for minimum RRFs, maximum percent recoveries, and percent differences with the exception of 2,4-dimethylphenol. This result is not presented in data tables as a target analyte, but not detected results should be considered estimated at the reporting limit due to the low recovery in the ICV.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed at the beginning of the analytical sequence. RRFs and percent differences were within control limits.

**Method Blank.** A method blank was prepared and analyzed with the analytical batch WG1428875. Target analytes were not detected above the quantitation limit and no additional peaks were observed in chromatograms.

**Surrogate.** All samples were spiked with the surrogate mixture prior to sample extraction. Surrogate recoveries were within acceptable limits.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batch WG1428875. Recoveries were within control limits with the exception of benzidine, which was recovered below the lower control limit. This result is not presented in data tables as a target analyte but not detected results should be considered estimated at the reporting limit due to the low recovery in the LCS.

**Internal Standards.** Internal standards were added to all samples and blanks. Area responses were within the 50-200% range of the opening CCV. Retention times did not vary more than  $\pm 10$  seconds.

**Target Analyte Identification.** The mass spectra for soil samples SB-2 (2') and SB-4 (1') were reviewed. Relative intensities agreed within  $\pm 20\%$  of the 5.0 ppb calibration standard and relative retention time units were within  $\pm 0.06$ .

**Target Analyte Quantitation.** Calculations were performed appropriately using the associated initial calibration data, internal standards, appropriate quantitation ions, initial sample weight, final sample weight, percent solids, and dilution factors.

**Tentatively Identified Compounds.** Tentatively identified compounds were not reported.

#### 2.1.6 PAHs

Soil samples were analyzed for PAHs using EPA method 8270C-SIM. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for semivolatiles data review, the site-specific QAPP, and EPA method 8270C-SIM.

**Preservation and Holding Times.** Soil samples were prepared using EPA method 3546. Soil samples were unpreserved and maintained between 4±2 degrees Celsius (°C). Soil samples were extracted within 14 days of collection and analyzed within 40 days after extraction.

**Instrument Performance Check.** DFTPP was analyzed and verified to meet ion abundance criteria. The instrument performance check was analyzed at the beginning of the sequence before any samples and was verified every 12 hours.

**Initial Calibration.** The instrument was calibrated within 12 hours of the instrument performance check and prior to the ICV, samples, and required blanks. The calibration consisted of at least five standards including target analytes and surrogates. Relative Response Factors (RRFs), mean RRFs, and Percent Relative Standard Deviations (%RSD) were within control limits.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV met criteria for minimum RRFs, maximum percent recoveries, and percent differences.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed at the beginning of the analytical sequence. RRFs and percent differences were within control limits.

**Method Blank.** A method blank was prepared and analyzed with the analytical batch WG1428889 and WG1429331. Target analytes were not detected above the quantitation limit and no additional peaks were observed in chromatograms.

**Surrogate.** All samples were spiked with the surrogate mixture prior to sample extraction. Surrogate recoveries were within acceptable limits.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batches WG1428889 and WG1429331. Recoveries were within control limits.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for analytical batches WG1428889 and WG1429331. The recovery and RPD of PAHs were within control limits.

**Internal Standards.** Internal standards were added to all samples and blanks. Area responses were within the 50-200% range of the opening CCV. Retention times did not vary more than  $\pm 10$  seconds.

**Target Analyte Identification.** The mass spectra for soil samples SB-2 (2') and SB-4 (1') were reviewed. Relative intensities agreed within  $\pm 20\%$  of the 80 ppb calibration standard and relative retention time units were within  $\pm 0.06$  with the following exceptions. Acenaphthene secondary and tertiary ions for SB-4 (1') were outside the of the  $\pm 20\%$  relative intensity when compared to the calibration standard. The reported result for acenaphthene is estimated and 'J' flagged. The secondary ion for fluorene was outside of the abundance criteria for sample SB-4 (1') and the result is 'J' flagged as estimated.

**Target Analyte Quantitation.** Calculations were performed appropriately using the associated initial calibration data, internal standards, appropriate quantitation ions, initial sample weight, final sample weight, percent solids, and dilution factors.

**Tentatively Identified Compounds.** Tentatively identified compounds were not reported.

## 2.2 Stage IV Validation of Laboratory Report L1196141

Data validation and review was conducted for ten percent (10%) of groundwater samples within sample delivery group (SDG) L1196141 in accordance with the EPA National Functional Guidelines for Superfund Organic Methods Review, November 2020, EPA National Functional Guidelines for Superfund Inorganic Methods Review, November 2020, the WVDEP Voluntary Remediation Program Guidance Manual, the respective EPA analytical and preparation methods, and the Quality Assurance Project Plan (QAPP) as outlined in the WVDEP approved SAWP dated February 4, 2020. The SDG included five (5) groundwater samples and five (5) rinsate blanks analyzed for hexavalent chromium by EPA 7196A, mercury by EPA 7470A, metals by EPA 6010B, VOCs by EPA 8260B, SVOCs by EPA 8270C, and PAHs by 8270C-SIM. Samples specific to L1196141 are included below.

SDG ID	Sample ID	Matrix	Collection Date
L1196141-01	RINSATE-1	Field QC	March 4, 2020
L1196141-02	RINSATE-2	Field QC	March 4, 2020
L1196141-03	RINSATE-3	Field QC	March 4, 2020
L1196141-04	RINSATE-4	Field QC	March 5, 2020
L1196141-05	RINSATE-5	Field QC	March 5, 2020
L1196141-06	MW-1	Groundwater	March 4, 2020
L1196141-07	MW-2	Groundwater	March 4, 2020
L1196141-08	MW-3	Groundwater	March 4, 2020
L1196141-09	MW-4	Groundwater	March 5, 2020
L1196141-10	MW-5	Groundwater	March 5, 2020

Samples were received by the analytical laboratory, Pace Analytical National, Mt. Juliet, Tennessee. As indicated by the analytical laboratory sample receipt checklist: the cooler temperature upon receipt was 0.2°C, custody seals were intact, and containers were accurately labeled and reflected the chain of custody.

Ten percent (10%) of the analytical data used must be validated to Stage IV according to the WVDEP VRP Guidance Manual. To achieve this 10%, groundwater samples MW-1, MW-2, and MW-3 were chosen for Stage IV validation. The results of the Stage IV validation are provided below.

### 2.2.1 Hexavalent Chromium

Groundwater samples were analyzed for hexavalent chromium using EPA method 7196A. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for hexavalent chromium data review, the site-specific QAPP, and EPA method 7196A.

**Preservation and Holding Times.** Groundwater samples were prepared and analyzed using EPA method 7196A. Samples were analyzed outside of the recommended holding time of 24 hours. The not detected results are 'UJ' flagged as estimated at the reporting limit. Additional quarterly groundwater monitoring was performed to confirm the hexavalent chromium concentrations in groundwater.

**Initial Calibration.** The instrument was calibrated on February 29, 2020. The lowest calibration standard was less than the quantitation limit and the calibration curve was fitted to a linear regression. Seven calibration standards were used, and no calibration standards analyzed were excluded from the calibration curve. The calibration curve also was not forced through zero. The correlation coefficient was greater than 0.995 at 0.999.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recovery was 107% and within the control limit.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples during the analytical sequence. Percent recoveries were 107% and were within control limits. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank result for hexavalent chromium was less than the quantitation limit.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batches WG1439262 and WG1439349. The recovery of hexavalent chromium in the LCS sample was 107% and within the control limit.

**Duplicate Sample Analysis.** Laboratory duplicates were prepared and analyzed for analytical batch WG1439262 and WG1439349. RPD values were below the control limit.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for analytical batches WG1439262 and WG1439349. The recovery and RPD of hexavalent chromium were within control limits.

**Target Analyte Quantitation.** Hexavalent chromium was determined photometrically at 540 nm. Calculations performed appropriately using absorbance data, initial sample weight, final sample weight, percent solids, and dilution factors.

## 2.2.2 Mercury

Groundwater samples were analyzed for mercury using EPA method 7470A. Quality assurance and quality control (QA/QC) samples and raw data

provided by the laboratory were reviewed for compliance with CLP guidance for mercury data review, the site-specific QAPP, and EPA method 7470A.

**Preservation and Holding Times.** Groundwater samples were prepared using EPA method 7470A. Groundwater samples were preserved with nitric acid to a pH < 2. The holding time for digestion and analysis of mercury in soil is 28-days from the time of sampling. Groundwater samples were digested and analyzed within this holding time and were maintained between 4±2 degrees Celsius (°C) from the time of collection to analysis.

**Initial Calibration.** The instrument was calibrated the same day of analysis, before environmental and quality control samples. The lowest calibration standard was less than the quantitation limit and the calibration curve was fitted to a linear regression. Six calibration standards were used, and no calibration standards analyzed were excluded from the calibration curve. The calibration curve also was not forced through zero. The correlation coefficient was greater than 0.995 at 0.999.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recoveries were between 97.6% and 105% and were within the control limit.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples or less during the analytical sequence and at the beginning and end of each analytical sequence. Percent recoveries were between 94.5% and 103% and were within control limits. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank absolute result for mercury was less than the quantitation limit.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batch WG1440072. The recovery of mercury in the LCS sample was 98.1% and within the control limit.

**Duplicate Sample Analysis.** A laboratory duplicate was not analyzed as part of the analytical batch; however, the matrix spike was performed in duplicate and precision data are determined to be acceptable.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for analytical batch WG1440072. The recovery and RPD of mercury were within control limits.

**Target Analyte Quantitation.** Calculations were performed appropriately using calibration data, initial sample weight, final sample weight, percent solids, and dilution factors.

### 2.2.3 Metals

Groundwater samples were analyzed for arsenic, barium, cadmium, chromium, lead, selenium, and silver using EPA method 6010B. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for ICP-AES data review, the site-specific QAPP, and EPA method 6010B.

**Preservation and Holding Times.** Groundwater samples were prepared using EPA method 3015. Groundwater samples were preserved with nitric acid and have a 180-day holding time. Groundwater samples were prepared and analyzed within this holding time.

**Initial Calibration.** The instrument was calibrated the same day of analysis, before environmental and quality control samples. The lowest calibration standard was less than the quantitation limit and the calibration curve was fitted to a linear regression forced through the blank. Seven calibration standards were used, with three replicate exposures averaged, and no calibration standards analyzed were excluded from the calibration curve. The calibration curve also was not forced through zero. The correlation coefficients were greater than 0.995.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recoveries were between 95.3% and 100% and were within the control limit. The relative standard deviation (RSD) between replicate readings were less than 5%.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples or less during the analytical sequence and at the beginning and end of each analytical sequence. Percent recoveries were between 97.6% and 101% and were within control limits.



The RSDs between replicate readings were less than 5%. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. Chromium was detected in the method blank of analytical batch WG1439222 and chromium and lead were detected in the method blank of analytical batch WG1439379. These metals were not detected in the associated samples “RINSATE-1” and “RINSATE-2” and no data was flagged.

**Interference Check Samples.** Solution A (ICS A) and Solution AB (ICS AB) were used to determine impact of interferences. ICS A and ICS AB were analyzed after the ICV at the beginning of the analytical sequence. Percent recoveries were within 15% of true values.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batches WG1439222, WG1439379, and WG1439421. The recoveries of metals were within the control limits of  $\pm 20\%$  of the true value.

**Duplicate Sample Analysis.** A laboratory duplicate was not analyzed as part of the analytical batch; however, the matrix spike was performed in duplicate and precision data are determined to be acceptable.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for analytical batches WG1439222, WG1439379, and WG1439421. The recovery and RPD of target metals were within control limits.

**Serial Dilution.** Serial dilutions were performed and RPD values were less than 10%.

**Target Analyte Quantitation.** Calculations performed appropriately using calibration data, initial sample weight, final sample weight, percent solids, and dilution factors.

## 2.2.4 VOCs

Groundwater samples were analyzed for VOCs using EPA method 8260B. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for volatiles data review, the site-specific QAPP, and EPA method 8260B.

**Preservation and Holding Times.** Groundwater samples were prepared using EPA method 8260B. Groundwater samples were preserved in the field with hydrochloric acid and were analyzed within 14 days of collection. Groundwater samples were maintained between  $4\pm 2$  degrees Celsius ( $^{\circ}\text{C}$ ) from the time of collection to analysis. The analyte 2-chloroethyl vinyl ether was reported by the laboratory but is known to degrade under acidic conditions. 2-Chloroethyl vinyl ether is not included as a target analyte in data tables; however, it should be considered estimated.

**Instrument Performance Check.** BFB was analyzed and verified to meet ion abundance criteria. The instrument performance check was analyzed at the beginning of the sequence before any samples and was verified every 12 hours.

**Initial Calibration.** The instrument was calibrated within 12 hours of the instrument performance check and prior to the ICV, samples, and required blanks. The calibration consisted of at least five standards including target analytes and surrogates. Relative Response Factors (RRFs), mean RRFs, and Percent Relative Standard Deviations (%RSD) were within control limits. Coefficients of determination (COD) were used for analytes where %RSDs were elevated. All CODs were greater than 0.991.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV met criteria for minimum RRFs, maximum percent recoveries, and percent differences.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed at the beginning of the analytical sequence. RRFs and percent differences were within control limits.

**Method Blank.** A method blank was prepared and analyzed with the analytical batches WG1439347 and WG1439707. Acetone was detected in the method blank above the quantitation limit for analytical batch WG1439707. Acetone was not detected in the associated groundwater samples and laboratory contamination is not suspected.

**Surrogate.** All samples were spiked with the surrogate mixture prior to sample purging. Surrogate recoveries were within acceptable limits.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were not analyzed. Precision and accuracy were determined from the LCS and LCSD.

**Laboratory Control Samples.** One laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were prepared and analyzed for analytical batches WG1439347 and WG1439707. The recoveries of trans-1,2-dichloroethene, di-isopropyl ether, and methyl tert-butyl ether were above the upper control limit for analytical batch WG1439707. These analytes were not detected in the associated groundwater samples and a high bias is not suspected. Additionally, the RPD for di-isopropyl ether was outside of the control limit. The associated groundwater samples were not detected for di-isopropyl ether and results are not affected by an error in precision.

**Internal Standards.** Internal standards were added to all samples and blanks. Area responses were within the 50-200% range of the opening CCV. Retention times did not vary more than  $\pm 30$  seconds.

**Target Analyte Identification.** The mass spectra for groundwater sample MW-1, MW-2, and MW-3 were reviewed. No VOCs were detected, and no additional peaks were noted on chromatograms for wells MW-1 and MW-3. Acetone and 2-butanone were detected in well MW-2 and relative intensities agreed within  $\pm 20\%$  of the 5 ppb calibration standard and relative retention time units were within  $\pm 0.06$ .

**Target Analyte Quantitation.** Calculations were performed appropriately using the associated initial calibration data, internal standards, appropriate quantitation ions, initial sample weight, final sample weight, percent solids, and dilution factors.

**Tentatively Identified Compounds.** Tentatively identified compounds were not reported.

## 2.2.5 SVOCs

Groundwater samples were analyzed for SVOCs using EPA method 8270C. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for semivolatiles data review, the site-specific QAPP, and EPA method 8270C.

**Preservation and Holding Times.** Groundwater samples were prepared using EPA method 3510C. Groundwater samples were unpreserved and maintained between  $4 \pm 2$  degrees Celsius ( $^{\circ}\text{C}$ ). Groundwater samples were

extracted within 7 days of collection and analyzed within 40 days after extraction.

**Instrument Performance Check.** DFTPP was analyzed and verified to meet ion abundance criteria. The instrument performance check was analyzed at the beginning of the sequence before any samples and was verified every 12 hours.

**Initial Calibration.** The instrument was calibrated within 12 hours of the instrument performance check and prior to the ICV, samples, and required blanks. The calibration consisted of at least five standards including target analytes and surrogates. Relative Response Factors (RRFs), mean RRFs, and Percent Relative Standard Deviations (%RSD) were within control limits. Coefficients of determination (COD) were used for analytes where %RSDs were elevated. All CODs were greater than 0.992.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV met criteria for minimum RRFs, maximum percent recoveries, and percent differences.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed at the beginning of the analytical sequence. RRFs and percent differences were within control limits.

**Method Blank.** A method blank was prepared and analyzed with the analytical batches WG1441978 and WG1442116. Target analytes were not detected above the quantitation limit and no additional peaks were observed in chromatograms.

**Surrogate.** All samples were spiked with the surrogate mixture prior to sample extraction. Surrogate recoveries were within acceptable limits.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for analytical batches WG1441978 and WG1442116. Recoveries were within control limits.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for analytical batches WG1441978 and WG1442116. The MS/MSD samples analyzed did not use a matrix source from laboratory report L1196141 and results were accepted based on the analyte recoveries in the associated LCSs. No SVOCs were detected in groundwater samples associated with laboratory report L1196141; therefore, precision statistical data is not required.

**Internal Standards.** Internal standards were added to all samples and blanks. Area responses were within the 50-200% range of the opening CCV. Retention times did not vary more than  $\pm 10$  seconds.

**Target Analyte Identification.** The mass spectra for the groundwater sample collected from wells MW-1, MW-2, and MW-3 were reviewed. No analytes were detected.

**Target Analyte Quantitation.** Calculations were performed appropriately using the associated initial calibration data, internal standards, appropriate quantitation ions, initial sample weight, final sample weight, percent solids, and dilution factors.

**Tentatively Identified Compounds.** Tentatively identified compounds were not reported.

## 2.2.6 PAHs

Groundwater samples were analyzed for PAHs using EPA method 8270C-SIM. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for semivolatiles data review, the site-specific QAPP, and EPA method 8270C-SIM.

**Preservation and Holding Times.** Soil samples were prepared using EPA method 3510C. Groundwater samples were unpreserved and maintained between  $4 \pm 2$  degrees Celsius ( $^{\circ}\text{C}$ ). Groundwater samples were extracted within 7 days of collection and analyzed within 40 days after extraction.

**Instrument Performance Check.** DFTPP was analyzed and verified to meet ion abundance criteria. The instrument performance check was analyzed at the beginning of the sequence before any samples and was verified every 12 hours.

**Initial Calibration.** The instrument was calibrated within 12 hours of the instrument performance check and prior to the ICV, samples, and required blanks. The calibration consisted of at least five standards including target analytes and surrogates. Relative Response Factors (RRFs), mean RRFs, and Percent Relative Standard Deviations (%RSD) were within control limits.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV met criteria for minimum RRFs, maximum percent recoveries, and percent differences.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed at the beginning of the analytical sequence. RRFs and percent differences were within control limits.

**Method Blank.** A method blank was prepared and analyzed with analytical batches WG1441575 and WG1441575. The method blanks samples had detections of PAHs; however, groundwater samples included in the laboratory report L1196141 were not detected for PAHs and no results were flagged.

**Surrogate.** All samples were spiked with the surrogate mixture prior to sample extraction. Surrogate recoveries were within acceptable limits.

**Laboratory Control Samples.** One laboratory control sample (LCS) and laboratory control samples duplicate (LCSD) were prepared and analyzed for analytical batches WG1441575 and WG1441575. Recoveries and RPDs for analytical batch WG1441575 were above the upper control limits; however, the associated samples were not detected for PAHs and no results were flagged.

**Internal Standards.** Internal standards were added to all samples and blanks. Area responses were within the 50-200% range of the opening CCV. Retention times did not vary more than  $\pm 10$  seconds.

**Target Analyte Identification.** The mass spectra for groundwater samples collected from wells MW-1, MW-2, and MW-3 were reviewed. No analytes were detected.

**Target Analyte Quantitation.** Calculations were performed appropriately using the associated initial calibration data, internal standards, appropriate quantitation ions, initial sample weight, final sample weight, percent solids, and dilution factors.

**Tentatively Identified Compounds.** Tentatively identified compounds were not reported.

## 2.3 Field Quality Control Samples

The field quality control samples for the project included field duplicate collection and rinsate blanks. Field duplicates were collected at soil location SB-5 at two and seven feet below ground surface. Rinsate blanks were collected at each monitoring well prior to groundwater sampling and were analyzed for the same analytes.

### 2.3.1 Field Duplicate

Field duplicates were collected from soil at location SB-5 at two and seven feet below ground surface. The relative percent difference (RPD) between the primary and field duplicate samples exceeded a 50% control limit for fluoranthene from SB-5 (2') and lead from SB-5 (7'). These results are 'J' flagged as estimated.

### 2.3.2 Rinsate Blanks

Rinsate blanks were collected at each monitoring well prior to groundwater sampling and analyzed for the same analytes for the March 2020 monitoring event. During initial sampling event in March 2020, barium was detected in both Rinsate-4 and Rinsate-5. Barium was detected in groundwater in all monitoring wells sampled, indicating that sampling equipment may have been exposed to barium and/or not properly decontaminated prior to Rinsate-4 and Rinsate-5 sample collection. The barium result for groundwater collected from monitoring well MW-4 was less than ten times the concentration of RINSATE-4. This result may be biased high and is 'J+' flagged.

## 3.0 DATA QUALIFIERS

The bulleted list below includes the qualifiers used and the justification for qualification. All qualifications are considered minor and do not affect the overall quality of the data set.

- March 4, 2020 groundwater samples collected for hexavalent chromium. A 'UJ' flagged was utilized due to not detected results with an analysis outside of the 24-hour holding time. Additional quarterly groundwater monitoring samples were collected and analyzed to confirm the March 2020 groundwater data.
- The March 4, 2020 groundwater sample collected from monitoring well MW-4 is 'J+' flagged for barium. The associated rinsate blank had a detection of barium at a concentration that may have significantly contributed to the barium concentration found in well MW-4.
- Soil samples SB-2 (11'), SB-3 (2'), SB-4 (1'), SB-5 (2'), SB-5 (7'), SB-6 (5'), SB-7 (5'), SB-8 (2'), and SB-8 (10') had concentrations of 2-butanone that were less than 10 times the method blank concentration. These results may be biased high due to potential laboratory contamination and are 'J+' flagged.
- Acenaphthene secondary and tertiary ions for SB-4 (1') were outside the of the  $\pm 20\%$  relative intensity when compared to the calibration standard. The reported result for acenaphthene is estimated and 'J' flagged.
- The secondary ion for fluorene was outside of the abundance criteria for sample SB-4 (1') and the result is 'J' flagged as estimated.
- The relative percent difference (RPD) between the primary and field duplicate samples exceeded a 50% control limit for fluoranthene for soil sample SB-5 (2'). The fluoranthene result is 'J' flagged as estimated.

- The relative percent difference (RPD) between the primary and field duplicate samples exceeded a 50% control limit for lead for soil sample SB-5 (7'). The lead result is 'J' flagged as estimated.

#### 4.0 STATEMENT OF QUALIFICATION

The analytical data associated with the Site Assessment Report for the [REDACTED] of [REDACTED] West Virginia, were determined to meet the data quality objectives of the project.

The data were reviewed by [REDACTED] a Project Chemist with [REDACTED] Ms. [REDACTED] has eight years of experience in environmental data quality and management. Ms. [REDACTED] has a diverse environmental data quality and management background. She has had hands-on experience in a laboratory setting processing and analyzing environmental samples and using quality control procedures as established in analytical methods. Additionally, Ms. [REDACTED] was the QA/QC officer at an environmental laboratory and reviewed raw data produced by the laboratory, authorized reporting, and managed client data quality needs. Her responsibilities included reviewing air, water, and soil test data produced by the laboratory for historical accuracy, appropriate use of data qualifiers, and precise identification of analytes and use of regulatory methods. Her background in environmental analysis and data review have now cemented her position as an environmental data processor. She routinely works on site investigations and remediation projects involved in environmental sampling where screening and cleanup levels are implemented. Data packages from environmental laboratories are reviewed by Ms. [REDACTED] for criteria that determine usability. Her findings are used in reports that help ensure to clients and regulators that the data was reviewed, and all possible data quality issues were known and discussed. Ms. [REDACTED] offers invaluable expertise in managing and interpreting environmental data involving numerous Contaminants of Concern, including but not limited to metals, mercury, anions, total organic carbon, perchlorate, organochlorine pesticides, organophosphorus pesticides, PCBs, herbicides, haloacetic acids, TPH, PAHs, volatiles, semi-volatile organics, and PFAS.

##### Education

BS, Chemistry, Portland State University, Portland, Oregon (2013)

##### Work History

Project Chemist at [REDACTED] (Portland, OR). January 2017 – Present

Quality Control Officer at Excelchem Environmental Laboratories (Rocklin, CA). August 2013 – December 2017

##### References

[REDACTED] 2021. *Site Assessment Report – Revised August 2021*. September 3, 2021.

EPA, 2020. *EPA National Functional Guidelines for Data Review*. November 2020.



## **TABLES**



Table 2. <span style="background-color: black; color: black;">XXXXXXXXXX</span> Current and Historical Groundwater Analytical Results									
Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP De Minimis Limits Groundwater (µg/L)	U.S. EPA VISL Residential (µg/L)	U.S. EPA VISL Industrial (µg/L)
Hexavalent Chromium <sup>1</sup>	3/4/2020 <sup>7</sup>	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10	0.035	NA	NA
	3/4/20 WVDEP	<1.0	--	--	--	--			
	09/09/20	<1.0	<1.0	<1.0	<1.0	<1.0			
	12/15/20	<1.0	<b>8.60</b>	<1.0	<1.0	<1.0			
	3/29/21 WVDEP	--	--	--	<b>0.0866</b>	--			
	4/21/21 WVDEP	--	--	<0.0350	--	--			
	04/21/21	<1.0	<1.0	<1.0	<1.0	<1.0			
	9/14/21 WVDEP	--	<0.5	--	--	--			
	09/14/21	<1.0	<1.0	<1.0	<1.0	<1.0			
Mercury <sup>2</sup>	3/4/2020 <sup>8</sup>	<0.200	<0.200	<0.200	<0.200	<0.200	2	2.52	10.6
	3/4/20 WVDEP	<0.5	--	--	--	--			
	09/09/20	<0.5	<1.0	<0.5	<0.5	<0.5			
	12/15/20	<0.5	<0.5	<0.5	<0.5	<0.5			
	3/29/21 WVDEP	--	--	--	<0.2	--			
	4/21/21 WVDEP	--	--	<0.2	--	--			
	04/21/21	<0.5	<0.5	<0.5	<0.5	<0.5			
	9/14/21 WVDEP	--	<0.2	--	--	--			
	09/14/21	<0.5	<0.5	<0.5	<0.5	<0.5			
Arsenic <sup>3</sup>	3/4/2020 <sup>9</sup>	<10	<10	<10	<10	<10	10	NA	NA
	3/4/20 WVDEP	<20	--	--	--	--			
	09/09/20	<20	<b>22</b>	<20	<20	<20			
	12/15/20	<20	<20	<20	<20	<20			
	3/29/21 WVDEP	--	--	--	<5.0	--			
	4/21/21 WVDEP	--	--	<5.0	--	--			
	04/21/21	<20	<20	<20	<20	<20			
	9/14/21 WVDEP	--	3.10	--	--	--			
	09/14/21	<20	<20	<20	<20	<20			
Barium	03/04/20	38.4	53.7	48.6	37.7 J+	58.3	2,000	NA	NA
	3/4/20 WVDEP	66.0	--	--	--	--			
	09/09/20	49.0	260.0	60.0	45.0	64.0			
	12/15/20	51.0	67.0	51.0	35.0	51.0			
	4/21/21 WVDEP	--	--	54.0	--	--			
	04/21/21	57.0	55.0	58.0	48.0	63.0			
	9/14/21 WVDEP	--	65.0	--	--	--			
	09/14/21	60.0	69.0	66.0	44.0	60.0			

Table 2. <span style="background-color: black; color: black;">[REDACTED]</span> Current and Historical Groundwater Analytical Results									
Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP De Minimis Limits Groundwater (µg/L)	U.S. EPA VISL Residential (µg/L)	U.S. EPA VISL Industrial (µg/L)
Cadmium	03/04/20	<2.0	<2.0	<2.0	<2.0	<2.0	5	NA	NA
	3/4/20 WVDEP	<1.0	--	--	--	--			
	09/09/20	<1.0	<1.0	<1.0	<1.0	<1.0			
	12/15/20	<1.0	<1.0	<1.0	<1.0	<1.0			
	4/21/21 WVDEP	--	--	<0.2	--	--			
	04/21/21	<1.0	<1.0	<1.0	<1.0	<1.0			
	9/14/21 WVDEP	--	<10.0	--	--	--			
	09/14/21	<1.0	<1.0	<1.0	<1.0	<1.0			
Chromium	03/04/20	<10	16.1	<10	<10	<10	22,000	NA	NA
	3/4/20 WVDEP	24.0	--	--	--	--			
	09/09/20	7.8	1,100.0	<5.0	<5.0	<5.0			
	12/15/20	7.7	10.0	<5.0	<5.0	<5.0			
	4/21/21 WVDEP	--	--	<5.0	--	--			
	04/21/21	11.0	34.0	<5.0	<5.0	<5.0			
	9/14/21 WVDEP	--	140.0	--	--	--			
	09/14/21	11.0	190.0	<5.0	<5.0	<5.0			
Lead	03/04/20	<5.0	<5.0	<5.0	<5.0	<5.0	15	NA	NA
	3/4/20 WVDEP	<10	--	--	--	--			
	09/09/20	<10	<b>39</b>	<10	<10	<10			
	12/15/20	<10	<10	<10	<10	<10			
	3/29/21 WVDEP	--	--	--	<5.0	--			
	4/21/21 WVDEP	--	--	<5.0	--	--			
	04/21/21	<10	<10	<10	<10	<10			
	9/14/21 WVDEP	--	<5.0	--	--	--			
	09/14/21	<10	<10	<10	<10	<10			
Selenium	03/04/20	<10	<10	<10	<10	<10	50	NA	NA
	3/4/20 WVDEP	<20	--	--	--	--			
	09/09/20	<20	<20	<20	<20	<20			
	12/15/20	<20	<20	<20	<20	<20			
	4/21/21 WVDEP	--	--	<5.0	--	--			
	04/21/21	<20	<20	<20	<20	<20			
	9/14/21 WVDEP	--	<10	--	--	--			
	09/14/21	<20	<20	<20	<20	<20			

Table 2. <span style="background-color: black; color: black;">XXXXXXXXXX</span> Current and Historical Groundwater Analytical Results									
Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP De Minimis Limits Groundwater (µg/L)	U.S. EPA VISL Residential (µg/L)	U.S. EPA VISL Industrial (µg/L)
Silver	03/04/20	<5.0	<5.0	<5.0	<5.0	<5.0	94	NA	NA
	3/4/20 WVDEP	<5.0	--	--	--	--			
	09/09/20	<5.0	<5.0	<5.0	<5.0	<5.0			
	12/15/20	<5.0	<5.0	<5.0	<5.0	<5.0			
	4/21/21 WVDEP	--	--	<5.0	--	--			
	04/21/21	<5.0	<5.0	<5.0	<5.0	<5.0			
	9/14/21 WVDEP	--	<5.0	--	--	--			
	09/14/21	<5.0	<5.0	<5.0	<5.0	<5.0			
Benzene <sup>4</sup>	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	5	2.7	118
	09/09/20	<1.0	<1.0	<1.0	<1.0	<1.0			
Toluene	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	1,000	35,200	148,000
	09/09/20	<1.0	<1.0	<1.0	<1.0	<1.0			
Ethylbenzene	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	700	6.85	299
	09/09/20	<1.0	<1.0	<1.0	<1.0	<1.0			
Total Xylenes	03/04/20	<3.0	<3.0	<3.0	<3.0	<3.0	10,000	759	3,190
	09/09/20	<3.0	<3.0	<3.0	<3.0	<3.0			
Acetone	03/04/20	<50	<50	<50	<50	<50	14,000	36,800,000	155,000,000
	09/09/20	<10	32.9	32.3	30.3	37.2			
Naphthalene	03/04/20	<5.0	<5.0	<5.0	<5.0	<5.0	0.17	11	479
	09/09/20	<2.0	<2.0	<2.0	<2.0	<2.0			
2-Butanone (MEK)	03/04/20	<10	32.5	<10	<10	<10	5,600	3,890,000	16,400,000
	09/09/20	<10	<10	<10	<10	<10			
1,2,4-Trimethylbenzene	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	15	544	2,290
	09/09/20	<1.0	<1.0	<1.0	<1.0	<1.0			
1,2,3-Trimethylbenzene	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	NA	944	3,960
	09/09/20	NA	NA	NA	NA	NA			
1,3,5-Trimethylbenzene	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	120	382	1,600
	09/09/20	<1.0	<1.0	<1.0	<1.0	<1.0			
Naphthalene <sup>5</sup>	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	0.17	11	479
	09/09/20	<4.9	<4.8	<4.9	<4.9	<4.9			
Phenanthrene	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	6,000	NA	NA
	09/09/20	<4.9	<4.8	<4.9	<4.9	<4.9			
Benzo (a) pyrene	03/04/20	<1.0	<1.0	<1.0	<1.0	<1.0	0.2	NA	NA
	09/09/20	<4.9	<4.8	<4.9	<4.9	<4.9			

Table 2. XXXXXXXXXX Current and Historical Groundwater Analytical Results

Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP De Minimis Limits Groundwater (µg/L)	U.S. EPA VISL Residential (µg/L)	U.S. EPA VISL Industrial (µg/L)
Dimethylphthalate	03/04/20	<3.0	<3.0	<3.0	<3.0	<3.0	NA	NA	NA
	09/09/20	<7.6	<7.6	<7.6	<7.6	<7.7			
Acenaphthene <sup>6</sup>	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	240	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Benzo (a) anthracene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	0.012	176	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Benzo (a) pyrene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Benzo (b) fluoranthene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	0.034	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Benzo (g,h,i)perylene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	600	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Chrysene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	3.4	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Fluoranthene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	800	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Fluorene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	150	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Naphthalene	03/04/20	<0.250	<0.250	<0.250	<0.250	<0.250	0.17	11	479
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Phenanthrene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	6,000	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
Pyrene	03/04/20	<0.05	<0.05	<0.05	<0.05	<0.05	79	NA	NA
	09/09/20	<0.097	<0.10	<0.096	<0.098	<0.097			
1-Methylnaphthalene	03/04/20	<0.250	<0.250	<0.250	<0.250	<0.250	1.1	NA	NA
	09/09/20	NA	NA	NA	NA	NA			
2-Methylnaphthalene	03/04/20	<0.250	<0.250	<0.250	<0.250	<0.250	36	NA	NA
	09/09/20	NA	NA	NA	NA	NA			

<sup>1</sup> Hexavalent Chromium analyses via method EPA 218.6, reported in micrograms per liter (µg/l).

<sup>2</sup> Mercury analyses via method 245.1, reported in reported in µg/L.

<sup>3</sup> Metals analyses via method 200.7, reported in µg/l.

<sup>4</sup> VOCs analyses via method 8260B, reported in µg/l.

<sup>5</sup> SVOCs analyses via method 8270D, reported in µg/l.

<sup>6</sup> SVOCs analyses via method 8270D Sim Method, reported in µg/l

<sup>7</sup> March 2020 Hexavalent Chromium analysis via method 7196A, reported in µg/l.

<sup>8</sup> March 2020 Mercury analysis via method 7470A, reported in µg/l.

<sup>9</sup> March 2020 Metals analysis via method 6010B, reported in µg/l.

**Bold** represents a detection above the WV De Minimis limit.

UJ = The not detected result is estimated at the reporting limit.

**Table 2. [REDACTED] Current and Historical Groundwater Analytical Results**

Parameter (µg/L)	Date	MW-1	MW-2	MW-3	MW-4	MW-5	WVDEP De Minimis Limits Groundwater (µg/L)	U.S. EPA VISL Residential (µg/L)	U.S. EPA VISL Industrial (µg/L)
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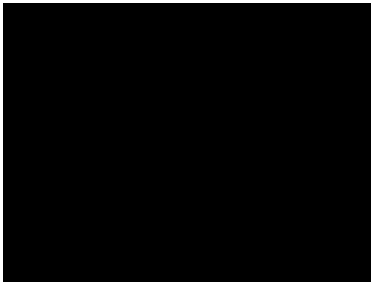
J+ = The result is an estimated value that may be biased high.

NA = Not Applicable.

## **APPENDIX A**

Stage IV Laboratory Quality Control Data Packages





**DATA VALIDATION REPORT for  
REVISED SITE ASSESSMENT**



**Submitted To:**

Mr. Kevin Richardson  
Office of Environmental Remediation – Project Manager  
West Virginia Department of Environmental Protection  
1159 Nick Rahall Greenway  
Fayetteville, West Virginia 25840

**Prepared For:**

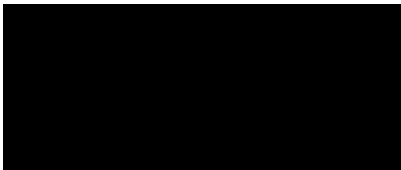


**Prepared By:**



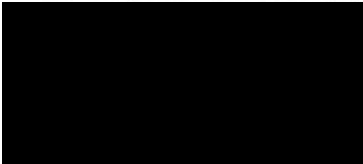
September 12, 2022

**Prepared By:**



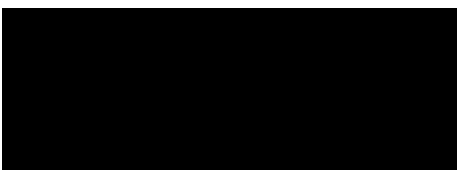
Project Chemist

**Reviewed By:**

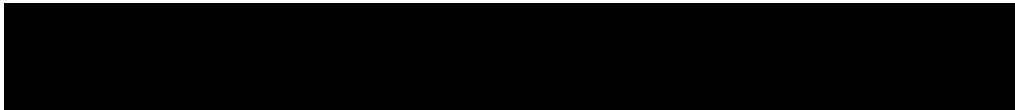


Sr. Program Manager

**Reviewed By:**




Program Manage



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## EXECUTIVE SUMMARY

██████████ prepared this Data Validation Report on behalf of ██████████  
██████████ for their facility addressed as ██████████  
██████████ West Virginia. This Data Validation Report was prepared as a supplement to the Risk Assessment being prepared for the West Virginia Department of Environmental Protection (WVDEP) Voluntary Remediation Program (VRP # ██████████). This data validation report includes Stage IV validation in support of site risk assessment and development of exposure point concentrations (EPCs).

Stage IV validation was performed on a minimum of 10% of samples collected during the risk assessment phase of surface water and sediment sampling of ██████████ on April 26, 2022. Stage IV laboratory data were evaluated using the EPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Validation (EPA, 2020) and EPA analytical methods. Based on the Stage IV review, data were determined to be of appropriate quality for use. A summary of qualified results are provided in Section 3.0 and qualified results are presented in Table 1.

## 1.0 INTRODUCTION

██████████ has prepared this Data Validation Report on behalf of ██████████ (Site) for their facility addressed as ██████████ West Virginia. This Data Validation Report was prepared as a supplement to the Risk Assessment being prepared for the West Virginia Department of Environmental Protection (WVDEP) Voluntary Remediation Program (VRP #██████████). This data validation report includes Stage IV validation in support of site risk assessment and development of exposure point concentrations (EPCs).

In response to Site's proximity to ██████████ (Lake), during the Risk Assessment, it was determined that surface water and sediment samples should be collected from the lake for laboratory analysis to assess the presence or absence of hexavalent chromium and metals.

One surface water (Lake-1) and one sediment (Sed-1) sample were collected from the Lake on April 26, 2022.

The samples were analyzed for the following parameters:

### **Surface Water**

- Hexavalent chromium by the United States Environmental Protection Agency (EPA) method 218.7; and
- Metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) by EPA method 200.7.

### **Sediment**

- Hexavalent chromium by EPA method 7196A; and
- Metals (arsenic, barium, cadmium, chromium, copper, lead, molybdenum, nickel, selenium, silver, and zinc) by EPA method 6010D.

Routine analytical services were provided by Pace Analytical of Beaver, West Virginia (Pace Beaver) for required laboratory analysis of surface water and sediment using approved EPA methods. Pace Beaver are accredited by the National Environmental Laboratory Accreditation Program (NELAP) and are accredited through WVDEP as commercial laboratories. Stage IV packages are provided as Appendix A and a summary of laboratory reports and validation levels are provided below.

Laboratory Report No.	Date Reported	Associated Samples	Validation Level
30485042	June 3, 2022	Surface water and sediment samples.	Stage IV

Stage IV validation was performed on the laboratory report 30485042. Stage IV laboratory data were evaluated using the EPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Validation (EPA, 2020) and EPA analytical methods. The findings of those validations are included below.

## 2.0 LABORATORY COMPLIANCE

Stage IV validation includes the surface water sample LAKE-1 and sediment sample SED-1 from laboratory report 30485042. Laboratory data packages were reviewed using the EPA CLP National Functional Guidelines (EPA, 2020) and the respective EPA method guidelines. Summaries of data validation findings and qualifier verification are included below.

### 2.1 Stage IV Validation of Laboratory Report 30485042

Data validation and review was conducted for samples within sample delivery group (SDG) 30485042 in accordance with the EPA National Functional Guidelines for Superfund Inorganic Methods Review, November 2020, the WVDEP Voluntary Remediation Program Guidance Manual, the respective EPA analytical and preparation methods, and the Quality Assurance Project Plan (QAPP) as outlined in the WVDEP approved SAWP dated February 4, 2020. The SDG included one surface water sample and one sediment sample. The surface water sample (LAKE-1) was analyzed for hexavalent chromium by EPA 218.7 and metals by EPA 200.7. The sediment sample (SED-1) was analyzed for hexavalent chromium by EPA 7196A and metals by EPA 6010D. Samples specific to 30485042 are included below.

SDG ID	Sample ID	Matrix	Collection Date
30485042001	LAKE-1	Surface Water	April 26, 2022
30485042002	SED-1	Sediment	April 26, 2022

Samples were received by the analytical laboratory, Pace Beaver. As indicated by the analytical laboratory sample receipt checklist: the cooler temperature upon receipt was 3.5°C and containers were accurately labeled and reflected the chain of custody. Hexavalent chromium samples were pH adjusted by the laboratory upon receipt.

#### 2.1.1 Hexavalent Chromium by EPA 218.7

The surface water sample LAKE-1 was analyzed for hexavalent chromium using EPA method 218.6. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for hexavalent chromium data review, the site-specific QAPP, and EPA method 218.7.

**Preservation and Holding Times.** The surface water sample was field filtered using a 0.45 µm filter. Upon receipt, the laboratory adjusted the pH of the sample between 9 and 9.5 using a buffer solution. The holding time for analysis of hexavalent chromium in water is 14-days from the time of collection. The surface water sample LAKE-1 was analyzed within the holding time and was maintained between 4±2 degrees Celsius (°C) from the time of collection to analysis.

**Initial Calibration.** The instrument was calibrated on May 12, 2022. The lowest calibration standard was at the quantitation limit and the calibration curve was fitted to a linear regression. Six calibration standards were used, and no calibration standards analyzed were excluded from the calibration curve. The calibration curve also was not forced through zero. The correlation coefficient was greater than 0.995 at 0.999.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recovery was 91% and within the control limit.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples during the analytical sequence. Percent recoveries were between 91% and 100% and were within control limits. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank result for hexavalent chromium was less than the quantitation limit.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for the analytical batch. The recovery of hexavalent chromium in the LCS sample was 86% and within the control limit.

**Duplicate Sample Analysis.** One laboratory duplicate was prepared and analyzed for the analytical batch and the RPD value (6 percent) was below the control limit.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for the analytical batch. The recovery and RPD of hexavalent chromium were within the National Functional Guidelines control limits.

**Target Analyte Quantitation.** Hexavalent chromium was determined photometrically at 530 nm. Calculations performed appropriately using absorbance data and dilution factors.

### 2.1.2 Hexavalent Chromium by EPA 7196

The sediment sample SED-1 was analyzed for hexavalent chromium using EPA method 7196. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for hexavalent chromium data review, the site-specific QAPP, and EPA method 7196.

**Preservation and Holding Times.** The sediment sample SED-1 was extracted using EPA method 3060A. This method does not require preservation of soil samples for hexavalent chromium. The holding time for extraction of hexavalent chromium in soil is 30-days for field-moist samples. Soil samples were extracted within this holding time and were analyzed within 7 days. Soil samples were maintained between 4±2 degrees Celsius (°C) from the time of collection to analysis.

**Initial Calibration.** The instrument was calibrated on March 23, 2022. The lowest calibration standard was less than the quantitation limit and the calibration curve was fitted to a linear regression. Eight calibration standards were used, and no calibration standards analyzed were excluded from the calibration curve. The calibration curve also was not forced through zero. The correlation coefficient was greater than 0.995 and percent error was within 10 percent of the true value.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recovery was 100.1 and within the control limit.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples during the analytical sequence. Percent recoveries were between 100.7% and 101.9% and were within control limits. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank result for hexavalent chromium was less than the quantitation limit.

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for the analytical batch. The recovery of hexavalent chromium in the LCS sample was 104% and within the control limit.

**Duplicate Sample Analysis.** A laboratory duplicate was not and precision was determined from the matrix spike samples.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for the analytical batch. The hexavalent chromium spike was not recovered in the MS and MSD and indicates a potential reducing nature of the SED-1 matrix. The hexavalent chromium results for SED-1 is 'J-' flagged as an estimated value that may be biased low.

**Target Analyte Quantitation.** Hexavalent chromium was determined photometrically at 540 nm. Calculations performed appropriately using absorbance data, initial sample weight, final sample weight, percent solids, and dilution factors.

### 2.1.3 Metals by EPA 200.7

Soil samples were analyzed for arsenic, barium, cadmium, chromium, lead, selenium, and silver using EPA method 200.7. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for ICP-AES data review, the site-specific QAPP, and EPA method 200.7.

**Preservation and Holding Times.** The surface water sample LAKE-1 was preserved with nitric acid (HNO<sub>3</sub>). The holding time for preparation and analysis of metals in preserved water is 180-days from the time of sampling. The sample LAKE-1 was prepared and analyzed within this holding time and was maintained between 4±2 degrees Celsius (°C) from the time of collection to analysis.

**Initial Calibration.** The instrument was calibrated the same day of analysis, before environmental and quality control samples with a two-point calibration method. Three replicate exposures averaged, and no calibration standards analyzed were excluded from the calibration. The linear dynamic range and instrument detection limits were previously assessed using this calibration setup and the calibration was verified as discussed below.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recoveries were between 100.4% and 102.7% and were within the control limit. The relative standard deviations (RSDs) between replicate readings were less than 5%.



**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples or less during the analytical sequence and at the beginning and end of each analytical sequence. Percent recoveries were between 100.4% and 104.5% and were within control limits. The relative standard deviations (RSDs) between replicate readings were less than 5%. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit, with the exception of cadmium. Cadmium was not detected in the LAKE-1 sample and results are considered acceptable for use.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank absolute results were less than the quantitation limit.

**Interference Check Samples.** Solution A (ICS A) and Solution AB (ICS AB) are used to determine impact of interferences. An ICS A and ICS AB solution were not analyzed within the sequence. The interferent concentrations (aluminum, calcium, iron, and magnesium) for LAKE-1 are low and below concentrations analyzed for the ICS A and ICS AB solutions. However, concentrations should be considered estimated (detected results 'J' flagged and not detected results 'UJ' flagged).

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for the analytical batch. The recoveries of metals were between 99% and 103% and were within the control limit.

**Duplicate Sample Analysis.** A laboratory duplicate was not analyzed as part of the analytical batch; however, the matrix spike was performed in duplicate and precision data are determined to be acceptable.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for the analytical batch. The recovery and RPD of target metals were within control limits.

**Serial Dilution.** A serial dilution was not performed on the sample.

**Target Analyte Quantitation.** Calculations performed appropriately using calibration data and dilution factors.

#### 2.1.4 Metals by EPA 6010D

Soil samples were analyzed for arsenic, barium, cadmium, chromium, lead, selenium, and silver using EPA method 6010D. Quality assurance and quality control (QA/QC) samples and raw data provided by the laboratory were reviewed for compliance with CLP guidance for ICP-AES data review, the site-specific QAPP, and EPA method 6010D.

**Preservation and Holding Times.** Soil samples were prepared using EPA method 3050B. This method does not require preservation of soil samples. The holding time for preparation and analysis of metals in soil is 180-days from the time of sampling. Soil samples were prepared and analyzed within this holding time. Soil samples were maintained between  $4\pm 2$  degrees Celsius ( $^{\circ}\text{C}$ ) from the time of collection to analysis.

**Initial Calibration.** The instrument was calibrated the same day of analysis, before environmental and quality control samples with a two-point calibration method. Three replicate exposures averaged, and no calibration standards analyzed were excluded from the calibration. The linear dynamic range and instrument detection limits were previously assessed using this calibration setup and the calibration was verified as discussed below.

**Initial Calibration Verification.** An initial calibration verification (ICV) was analyzed from an independent source at the beginning of the analytical sequence near the middle of the calibration range. The ICV percent recoveries were between 97.5 and 102.1% and were within the control limit. The relative percent differences (RPDs) between replicate readings were less than 5%.

**Continuing Calibration Verification.** A continuing calibration verification (CCV) was analyzed every ten (10) samples or less during the analytical sequence and at the beginning and end of each analytical sequence. Percent recoveries were between 90.8% and 113% and were within control limits. The relative percent differences (RPDs) between replicate readings were less than 5%. Calibration blanks were analyzed after CCVs.

**Initial Calibration Blank.** An initial calibration blank (ICB) was analyzed after the ICV. The absolute value of the ICB result was less than the quantitation limit.

**Continuing Calibration Blank.** Continuing calibration blanks (CCBs) were analyzed after each CCV. The absolute value of the CCBs were less than the quantitation limit.

**Preparation Blank (Method Blank).** A method blank was prepared and analyzed with the analytical batch. The method blank absolute results were less than the quantitation limit.

**Interference Check Samples.** Solution A (ICS A) and Solution AB (ICS AB) are used to determine impact of interferents. Only ICS A was analyzed within the sequence. Results for the SED-1 sample should be considered estimated (detected results ‘J’ flagged and not detected results ‘UJ’ flagged).

**Laboratory Control Samples.** One laboratory control sample (LCS) was prepared and analyzed for the analytical batch. The recoveries of metals were between 87% and 109% and were within the control limit.

**Duplicate Sample Analysis.** One laboratory duplicate was analyzed the RPD values were within control limits.

**Spike Sample Analysis.** A matrix spike (MS) and matrix spike duplicate (MSD) pair were analyzed for the analytical batch. The recovery of arsenic was above the upper control limit and the RPD value for arsenic was also outside of the control limit. The arsenic results for SED-1 should be considered estimated and ‘J’ flagged.

**Serial Dilution.** A serial dilution was performed on sample SED-1 and RPD values were less than 10%.

**Post Digestion Spike.** The post-digestion spike for SED-1 had low recoveries of arsenic and selenium. Selenium should be considered estimated with a potential low bias and ‘J-‘ flagged. Since arsenic has other data quality issues, the result should be considered estimated as discussed above.

**Target Analyte Quantitation.** Calculations performed appropriately using calibration data, initial sample weight, final sample weight, percent solids, and dilution factors.

### 3.0 DATA QUALIFIERS

The bulleted list below includes the qualifiers used and the justification for qualification.

- For sediment sample SED-1, the hexavalent chromium spike was not recovered in the MS and MSD and indicates a potential reducing nature of the matrix. The hexavalent chromium results for SED-1 is ‘J-‘ flagged as an estimated value that may be biased low.
- An ICS A and ICS AB solution were not analyzed within the sequence for surface water sample LAKE-1. The interferent concentrations (aluminum, calcium, iron, and magnesium) for LAKE-1 are low and below concentrations analyzed for the ICS A

and ICS AB solutions. However, the reported metals concentrations should still be considered estimated (detected results ‘J’ flagged and not detected results ‘UJ’ flagged).

- Only ICS A was analyzed within the sequence for sediment sample SED-1. Metals results for the SED-1 sample should be considered estimated (detected results ‘J’ flagged and not detected results ‘UJ’ flagged).
- The MS/MSD recovery of arsenic was above the upper control limit and the RPD value for arsenic was also outside of the control limit when SED-1 was used as the source sample. The arsenic results for SED-1 should be considered estimated and ‘J’ flagged.
- The post-digestion spike for SED-1 had low recoveries of arsenic and selenium. Selenium should be considered estimated with a potential low bias and ‘J-‘ flagged. Since arsenic has other data quality issues, the result should be considered estimated as discussed above.

#### 4.0 STATEMENT OF QUALIFICATION

The analytical data associated with this supplement to the Risk Assessment for the [REDACTED] of [REDACTED] West Virginia, were determined to meet the data quality objectives of the project.

The data were reviewed by [REDACTED] a Project Chemist with [REDACTED] Ms. [REDACTED] has eight years of experience in environmental data quality and management. Ms. [REDACTED] has a diverse environmental data quality and management background. She has had hands-on experience in a laboratory setting processing and analyzing environmental samples and using quality control procedures as established in analytical methods. Additionally, Ms. [REDACTED] was the QA/QC officer at an environmental laboratory and reviewed raw data produced by the laboratory, authorized reporting, and managed client data quality needs. Her responsibilities included reviewing air, water, and soil test data produced by the laboratory for historical accuracy, appropriate use of data qualifiers, and precise identification of analytes and use of regulatory methods. Her background in environmental analysis and data review have now cemented her position as an environmental data processor. She routinely works on site investigations and remediation projects involved in environmental sampling where screening and cleanup levels are implemented. Data packages from environmental laboratories are reviewed by Ms. [REDACTED] for criteria that determine usability. Her findings are used in reports that help ensure to clients and regulators that the data was reviewed, and all possible data quality issues were known and discussed. Ms. [REDACTED] offers invaluable expertise in managing and interpreting environmental data involving numerous Contaminants of Concern, including but not limited to metals, mercury, anions, total organic carbon, perchlorate, organochlorine pesticides, organophosphorus pesticides, PCBs, herbicides, haloacetic acids, TPH, PAHs, volatiles, semi-volatile organics, and PFAS.

##### Education

BS, Chemistry, Portland State University, Portland, Oregon (2013)

##### Work History

Project Chemist at [REDACTED] (Portland, OR). January 2017 – Present  
Quality Control Officer at Excelchem Environmental Laboratories (Rocklin, CA). August 2013 – December 2017

## References

[REDACTED] 2021. *Site Assessment Report – Revised August 2021*. September 3, 2021.

EPA, 2020. *EPA National Functional Guidelines for Data Review*. November 2020.

## TABLE

**Table 1. [REDACTED] Lake Surface Water and Sediment Sample Results**

Parameter (µg/L)	Date	LAKE-1			SED-1		
Hexavalent Chromium <sup>1,2</sup>	04/26/22		0.049			0.92	J-
Arsenic <sup>3,4</sup>	04/26/22	<	0.020	UJ		8.2	J
Barium	04/26/22		0.042	J		55.9	J
Cadmium	04/26/22	<	0.0020	UJ	<	1.3	UJ
Chromium	04/26/22	<	0.0050	UJ		15.0	J
Copper	04/26/22		NA			4.7	J
Lead	04/26/22	<	0.010	UJ		11.5	J
Molybdenum	04/26/22		NA		<	6.3	UJ
Nickel	04/26/22		NA			8.0	J
Selenium	04/26/22	<	0.020	UJ		2.8	J-
Silver	04/26/22	<	0.0050	UJ	<	3.2	UJ
Zinc	04/26/22		NA			21.4	J

<sup>1</sup> Hexavalent Chromium analyses via method EPA 218.6, reported in micrograms per liter (µg/l).

<sup>2</sup> Hexavalent Chromium analyses via EPA 7196A, reported in reported in milligram per kilogram (mg/kg)

<sup>3</sup> Metals analyses via method 200.7, reported in milligram per liter (mg/L)

<sup>4</sup> Metals analyses via method 6010D, reported in mg/kg.

J- Cr(VI) for SED-1 = Low recovery of the MS and MSD

J and UJ for all LAKE-1 metals = Lab not analyzing the required interferent check standard

J and UJ for SED-1 metals = Lab not analyzing the required interferent check standard

J- for Selenium SED-1 = Low recovery of the post-digestion spike

NA = Not Analyzed

## **APPENDIX A**

### Stage IV Laboratory Quality Control Data Package





# Analytical Data Package

**Prepared by:**

**Pace Analytical Services**

**Pace Project No.: 30485042**

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## InOrganic

### ICP

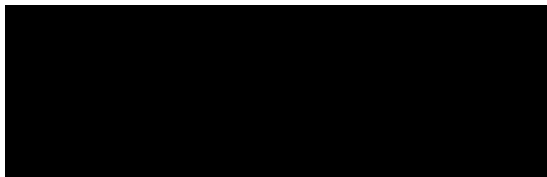
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June 03, 2022



RE: Project: 768569-001  
Pace Project No.: 30485042

Dear Mr. Wagner:

Enclosed are the analytical results for sample(s) received by the laboratory on April 26, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Asheville
- Pace Analytical Services - Beaver
- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Steven L. Smith  
steve.l.smith@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: 



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 768569-001  
Pace Project No.: 30485042

### Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

### Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804  
Florida/NELAP Certification #: E87648  
North Carolina Drinking Water Certification #: 37712  
North Carolina Wastewater Certification #: 40

South Carolina Laboratory ID: 99030  
South Carolina Certification #: 99030001  
Virginia/VELAP Certification #: 460222

### Pace Analytical Services Beaver

225 Industrial Park Road, Beaver, WV 25813  
Virginia VELAP 460148  
West Virginia DEP 060  
West Virginia DHHR 00412CM

North Carolina DEQ 466  
Kentucky Wastewater Certification KY90039  
Pennsylvania DEP 68-00839

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 768569-001

Pace Project No.: 30485042

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30485042001	LAKE-1	Water	04/26/22 11:45	04/26/22 14:15
30485042002	SED-1	Solid	04/26/22 12:00	04/26/22 14:15

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE ANALYTE COUNT

Project: 768569-001

Pace Project No.: 30485042

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30485042001	LAKE-1	EPA 200.7	MEH	7	PASI-BV
		EPA 218.7 Rev 1.0 2011	JCM	1	PASI-A
30485042002	SED-1	EPA 6010D	MFC	11	PASI-BV
		SM 2540G-2015	SRW	1	PASI-PA
		EPA 7196A	BM1	1	PASI-PA

PASI-A = Pace Analytical Services - Asheville

PASI-BV = Pace Analytical Services - Beaver

PASI-PA = Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 768569-001  
Pace Project No.: 30485042

Sample: LAKE-1 Lab ID: 30485042001 Collected: 04/26/22 11:45 Received: 04/26/22 14:15 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>BVR 200.7 Metals Total</b> Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Beaver									
Arsenic	ND	mg/L	0.020	0.0064	1	05/04/22 13:56	05/12/22 00:53	7440-38-2	
Barium	0.042	mg/L	0.0050	0.0014	1	05/04/22 13:56	05/12/22 00:53	7440-39-3	
Cadmium	ND	mg/L	0.0020	0.0018	1	05/04/22 13:56	05/12/22 00:53	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0013	1	05/04/22 13:56	05/12/22 00:53	7440-47-3	
Lead	ND	mg/L	0.010	0.0025	1	05/04/22 13:56	05/12/22 00:53	7439-92-1	
Selenium	ND	mg/L	0.020	0.0092	1	05/04/22 13:56	05/12/22 00:53	7782-49-2	
Silver	ND	mg/L	0.0050	0.0026	1	05/04/22 13:56	05/12/22 00:53	7440-22-4	
<b>218.7 Chromium, Hexavalent</b> Analytical Method: EPA 218.7 Rev 1.0 2011 Pace Analytical Services - Asheville									
Chromium, Hexavalent	0.049	ug/L	0.025	0.012	1		05/14/22 17:50	18540-29-9	

Sample: SED-1 Lab ID: 30485042002 Collected: 04/26/22 12:00 Received: 04/26/22 14:15 Matrix: Solid									
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>BVR 6010D MET ICP,Solid,3050B</b> Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Beaver									
Arsenic	8.2	mg/kg	6.3	0.69	1	05/03/22 08:39	05/03/22 14:41	7440-38-2	M1,R1
Barium	55.9	mg/kg	6.3	0.72	1	05/03/22 08:39	05/03/22 14:41	7440-39-3	
Cadmium	ND	mg/kg	1.3	0.15	1	05/03/22 08:39	05/03/22 14:41	7440-43-9	
Chromium	15.0	mg/kg	6.3	0.73	1	05/03/22 08:39	05/03/22 14:41	7440-47-3	
Copper	4.7J	mg/kg	6.3	0.73	1	05/03/22 08:39	05/03/22 14:41	7440-50-8	
Lead	11.5	mg/kg	6.3	0.61	1	05/03/22 08:39	05/03/22 14:41	7439-92-1	
Molybdenum	ND	mg/kg	6.3	0.54	1	05/03/22 08:39	05/03/22 14:41	7439-98-7	
Nickel	8.0	mg/kg	6.3	0.76	1	05/03/22 08:39	05/03/22 14:41	7440-02-0	
Selenium	2.8J	mg/kg	6.3	1.3	1	05/03/22 08:39	05/03/22 14:41	7782-49-2	
Silver	ND	mg/kg	3.2	0.53	1	05/03/22 08:39	05/03/22 14:41	7440-22-4	
Zinc	21.4	mg/kg	6.3	4.1	1	05/03/22 08:39	05/03/22 14:41	7440-66-6	
<b>Percent Moisture</b> Analytical Method: SM 2540G-2015 Pace Analytical Services - Greensburg									
Percent Moisture	20.7	%	0.10	0.10	1		05/04/22 11:37		H1
<b>7196 Chromium, Hexavalent</b> Analytical Method: EPA 7196A Preparation Method: EPA 3060A Pace Analytical Services - Greensburg									
Chromium, Hexavalent	0.92J	mg/kg	1.3	0.83	1	05/05/22 12:14	05/06/22 17:52	18540-29-9	

## REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 768569-001  
Pace Project No.: 30485042

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

H1 Analysis conducted outside the EPA method holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 768569-001

Pace Project No.: 30485042

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30485042001	LAKE-1	EPA 200.7	502031	EPA 200.7	503792
30485042002	SED-1	EPA 3050B	501539	EPA 6010D	501688
30485042002	SED-1	SM 2540G-2015	501628		
30485042002	SED-1	EPA 3060A	502194	EPA 7196A	502787
30485042001	LAKE-1	EPA 218.7 Rev 1.0 2011	698011		

## REPORT OF LABORATORY ANALYSIS

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## LIMS73 Lab Sample Condition Upon Receipt (West Virginia)



Client Name: \_\_\_\_\_

WO#: 30485042

PM: SLS

Due Date: 05/10/22

CLIENT: [REDACTED]

Page 9 of 11

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client ☐ Commercial ☐ Pace ☐ Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box/Containers Present: ☐ yes ☒ noSeals intact: ☐ yes ☒ no

Thermometer Used

SCIR23

Type of Ice: ☒ Wet ☐ Blue ☐ None

Cooler Temperature

Observed Temp

3.5

°C

Correction Factor: 0.0

°C

Final Temp: 3.5

°C

Comments:

pH paper Lot#

22S320

Date and Initials of person examining

SM 42622

contents: \_\_\_\_\_

	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID				Lab Labeled by: [Signature]
Matrix: SL, WT				Checked by: [Signature]
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Buffer - 36494
-pH adjusted within 24 hours? (If yes, indicate acid lot #)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	paper 20D4193
Filtered volume received for Dissolved tests:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.
All containers have been checked for preservation:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.
exceptions: VOA, coliform, O&G, LLMercury, Non-aqueous matrix				
All containers meet method preservation requirements:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: SM
				Date: 42622
Tests not preserved:				
Headspace in VOA Vials:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
Trip Blank Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17.
Trip Blank Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				Initial when completed: SM
				Date: 42622

## Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

☐ A check in this box indicates that additional information has been stored in ereports.

\*PM review is documented electronically in LIMS, when the Project Manager closes the SRF Review schedule in LIMS. The status may be reviewed in the Status section of the Workorder Edit Screen.

# COOLER 19\*\*

<b>*COOLER 19*</b>	Shipping Laboratory Location Code		Receiving Laboratory Location Code	
	<b>BEAV</b>		<b>GBUR</b>	
	Pace Beaver: 225 Industrial Park Road Beaver WV 25813		Pace Greensburg: 1638 Roseytown Road Suite 2,3,4 Greensburg PA 15601	
	Shipping Information		Received Information	
	Cooler ID	19	Cooler temp (rcvd) °C	2.7
	Packaged on Ice ( Y/N)	Y	Correction Factor	-1.7
	Shipping Method	COURIER	Cooler temp (corr) °C	2.0
Tracking #		IR GUN ID	15	
PWS* Drinking water?		Received on ice?	Yes	

	Signature	Location	Date	Time
Relinquished	<i>Donald Luck</i>	BEAV	5/2/22	15:26
Received	<i>M F</i>	6BR	5/2/22	22:00
Relinquished				
Received				
Relinquished				
Received				

[illegible]

WIO#: 30485042



## Pittsburgh Lab Sample Condition Upon Receipt



Client Name:

Beaver

Project #

 Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☒ Other 3rd p.
Tracking #: Drop-off

Label	<u>N/A</u>
LIMS Login	<u>N/A</u>

 Custody Seal on Cooler/Box Present: ☐ yes ☒ no
 Seals intact: ☐ yes ☒ no

 Thermometer Used 15
 Type of Ice: Wet Blue None

 Cooler Temperature Observed Temp 2.7 °C
 Correction Factor: -7.7 °C
 Final Temp: 2.0 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>S.2.22 mt</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>SL</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>mt</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: Date: Survey Meter SN:

## Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

**WO# : 30485042**

PM: SLS Due Date: 05/10/22

CLIENT: BV-APEXCOR0A

## **Manual Integration Letter Code System**

NI: indicates that the peak was not integrated at all by the computer software.

LT: indicates that the peak in question was inappropriately integrated to an area less than what it should be (i.e. Peak area was cut)

GT: indicates that the peak in question was inappropriately integrated to an area greater than it should be (i.e. Peak tailing)

BA: indicates that the baseline had to be adjusted correctly by the analyst.

WP: indicates that the wrong peak was chosen (i.e. The surrogate peak was misidentified by the computer system.).

CO: indicates that the analyst had to split two co-eluting peaks apart that were not (or could not be) separated by the computer system.

RT: indicates that the retention time for the peak in question has shifted from the expected retention time.

INT: indicates that there was electronic interference (i.e. Noise).

Letter Codes from Manual Integration SOP S-ALL-Q-016-3

# Data Qualifier Flags

## Organic Data Flags

- A:** Target compound was detected but, the quantitated amount exceeded the maximum amount of the calibration range.
- a.** Target compound was detected but, the amount quantitated was below the limit of quantitation.
- B:** This flag is used when the analyte is found in the associated method blank as well as in the sample.
- DF:** This indicates the amount of the diluted analyte.
- J:** This flag designates a result that is between the method detection limit (MDL) and the reporting limit (RL). The reported number should be considered an estimated value.
- M:** Compound response was manually integrated.
- N:** This flag indicates presumptive evidence of a compound for a tentatively identified compound.
- ND:** This flag indicates the compound was analyzed for but not detected.
- Q:** One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV)
- R:** Spike/Surrogate failed the recovery limits
- U:** This flag indicates the compound was analyzed for but not detected.



# Data Qualifier Flags

## Inorganic Data Flags

- B:** This flag is used when the analyte is found in the associated method blank as well as in the sample.
- J:** This flag designates a result that is between the method detection limit (MDL) and the reporting limit (RL). The reported number should be considered an estimated value.
- D:** This flag represents a sample analyte that was reanalyzed at a dilution. For example, when the concentration of an analyte exceeds the upper calibration range, the more diluted concentrations are reported and with the letter D flag.
- DF:** This indicates that the analyte was diluted and the amount of the dilution.
- N:** This flag indicates presumptive evidence of a compound for a tentatively identified compound.
- NC:** This flag denotes that the percent recovery was not calculated because the sample concentration was greater than four times spike concentration.
- ND:** This flag indicates the compound was analyzed for but not detected.
- Q:** One or more quality control criteria failed (e.g., LCS recovery, surrogate spike recovery or CCV)
- R:** This represents a compound for the duplicate analysis that was not within the specified acceptable limits.
- U:** This flag indicates the compound was analyzed for but not detected.

FORM I INORGANIC-1  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

LAKE-1

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001  
Lab Sample ID: 30485042001 Percent Moisture: \_\_\_\_\_

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
7440-38-2	Arsenic	ND	U	mg/L	1	05/12/2022 00:53
7440-39-3	Barium	0.042		mg/L	1	05/12/2022 00:53
7440-43-9	Cadmium	ND	U	mg/L	1	05/12/2022 00:53
7440-47-3	Chromium	ND	U	mg/L	1	05/12/2022 00:53
7439-92-1	Lead	ND	U	mg/L	1	05/12/2022 00:53
7782-49-2	Selenium	ND	U	mg/L	1	05/12/2022 00:53
7440-22-4	Silver	ND	U	mg/L	1	05/12/2022 00:53

FORM I INORGANIC-1  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-1

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001  
Lab Sample ID: 30485042002 Percent Moisture: 20.7

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
7440-38-2	Arsenic	8.2		mg/kg	1	05/03/2022 14:41
7440-39-3	Barium	55.9		mg/kg	1	05/03/2022 14:41
7440-43-9	Cadmium	ND	U	mg/kg	1	05/03/2022 14:41
7440-47-3	Chromium	15.0		mg/kg	1	05/03/2022 14:41
7440-50-8	Copper	4.7	J	mg/kg	1	05/03/2022 14:41
7439-92-1	Lead	11.5		mg/kg	1	05/03/2022 14:41
7439-98-7	Molybdenum	ND	U	mg/kg	1	05/03/2022 14:41
7440-02-0	Nickel	8.0		mg/kg	1	05/03/2022 14:41
7782-49-2	Selenium	2.8	J	mg/kg	1	05/03/2022 14:41
7440-22-4	Silver	ND	U	mg/kg	1	05/03/2022 14:41
7440-66-6	Zinc	21.4		mg/kg	1	05/03/2022 14:41

FORM II INORGANIC-1  
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Initial Calibration Verification Source: 186424

Continuing Calibration Verification Source: 186428

Concentration Units: ug/L Instrument ID: 73IP04

	Initial Calibration Verification				Continuing Calibration Verification						
	05/11/2022 17:09				05/11/2022 18:22			05/11/2022 23:55			Control Limit
Analyte	True	Found	%R	Control Limit	True	Found	%R	True	Found	%R	
Arsenic	2000	2030	101.7	95-105	2000	2020	100.8	2000	2020	100.9	90-110
Barium	2000	2090	104.3	95-105	2000	2070	103.7	2000	2070	103.7	90-110
Cadmium	2000	2080	104.1	95-105	2000	2060	103.0	2000	2050	102.7	90-110
Chromium	2000	2050	102.3	95-105	2000	2040	102.0	2000	2030	101.7	90-110
Lead	2000	2070	103.6	95-105	2000	2050	102.7	2000	2050	102.3	90-110
Selenium	2000	2080	103.9	95-105	2000	2050	102.5	2000	2050	102.7	90-110
Silver	1000	1010	101.3	95-105	1000	1010	100.9	1000	1010	101.2	90-110

FORM II INORGANIC-2  
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Initial Calibration Verification Source: \_\_\_\_\_

Continuing Calibration Verification Source: 186428

Concentration Units: ug/L Instrument ID: 73IP04

	Continuing Calibration Verification									
	05/12/2022 00:19			05/12/2022 00:43			05/12/2022 07:37			Control Limit
Analyte	True	Found	%R	True	Found	%R	True	Found	%R	
Arsenic	2000	2010	100.4	2000	2010	100.4	2000	2070	103.4	90-110
Barium	2000	2050	102.7	2000	2050	102.6	2000	2090	104.4	90-110
Cadmium	2000	2020	101.2	2000	2020	100.8	2000	2070	103.3	90-110
Chromium	2000	2020	101.0	2000	2020	101.1	2000	2060	103.0	90-110
Lead	2000	2020	101.1	2000	2010	100.7	2000	2070	103.3	90-110
Selenium	2000	2030	101.6	2000	2030	101.4	2000	2090	104.5	90-110
Silver	1000	1010	100.6	1000	1010	100.7	1000	1020	102.3	90-110

FORM II INORGANIC-1  
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Initial Calibration Verification Source: 184581

Continuing Calibration Verification Source: 184583

Concentration Units: ug/L Instrument ID: 73IP03

	Initial Calibration Verification				Continuing Calibration Verification						
	05/03/2022 09:28				05/03/2022 10:45			05/03/2022 14:22			Control Limit
Analyte	True	Found	%R	Control Limit	True	Found	%R	True	Found	%R	
Arsenic	2000	1960	98.1	90-110	2000	1830	91.7	2000	1900	95.0	90-110
Barium	2000	2080	104.1	90-110	2000	2270	113.6	2000	2140	106.9	90-110
Cadmium	2000	2010	100.7	90-110	2000	2180	109.2	2000	2110	105.7	90-110
Chromium	2000	2040	101.8	90-110	2000	2220	111.2	2000	2090	104.3	90-110
Copper	2000	2010	100.5	90-110	2000	2240	112.0	2000	1990	99.7	90-110
Lead	2000	2020	101.0	90-110	2000	1980	99.2	2000	2180	109.1	90-110
Molybdenum	2000	1970	98.5	90-110	2000	1940	96.8	2000	2040	102.2	90-110
Nickel	2000	2040	102.1	90-110	2000	2260	113.0	2000	2150	107.4	90-110
Selenium	2000	1950	97.5	90-110	2000	1850	92.3	2000	1900	94.8	90-110
Silver	1000	1010	100.8	90-110	1000	983	98.3	1000	1020	102.5	90-110
Zinc	2000	2030	101.4	90-110	2000	2210	110.5	2000	2070	103.4	90-110

FORM II INORGANIC-2  
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Initial Calibration Verification Source: \_\_\_\_\_

Continuing Calibration Verification Source: 184583

Concentration Units: ug/L Instrument ID: 73IP03

	Continuing Calibration Verification						
	05/03/2022 14:50			05/03/2022 15:18			Control Limit
Analyte	True	Found	%R	True	Found	%R	
Arsenic	2000	1860	93.0	2000	1820	90.8	90-110
Barium	2000	2160	108.2	2000	2120	106.2	90-110
Cadmium	2000	2120	106.0	2000	2070	103.6	90-110
Chromium	2000	2110	105.6	2000	2070	103.5	90-110
Copper	2000	2030	101.6	2000	1980	98.9	90-110
Lead	2000	2160	108.1	2000	2140	107.2	90-110
Molybdenum	2000	2010	100.5	2000	1990	99.3	90-110
Nickel	2000	2160	107.9	2000	2110	105.5	90-110
Selenium	2000	1880	94.2	2000	1860	92.9	90-110
Silver	1000	1020	101.7	1000	1010	101.2	90-110
Zinc	2000	2080	104.2	2000	2020	101.0	90-110

FORM II INORGANIC-1  
CRDL CHECK STANDARD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

CRDL Check Standard Source: 186425 Analysis Date/Time: 05/11/2022 17:13

Concentration Units: ug/L

Analyte	CRDL Check Standard			
	True	Found	%R	Control Limit %R
Arsenic	20	22.5	112.4	80-120
Barium	5.0	5.3	106.2	80-120
Cadmium	1.0	1.0	102.0	80-120
Chromium	5.0	5.2	104.4	80-120
Lead	10.0	9.9	99.4	80-120
Selenium	20	23.3	116.6	80-120
Silver	5.0	5.2	104.0	80-120



FORM II INORGANIC-1  
CRDL CHECK STANDARD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

CRDL Check Standard Source: 183670 Analysis Date/Time: 05/03/2022 09:37

Concentration Units: ug/L

Analyte	CRDL Check Standard			
	True	Found	%R	Control Limit %R
Arsenic	100	80.1	80.1	70-130
Barium	100	96.2	96.2	70-130
Cadmium	20	17.3	86.4	70-130
Chromium	100	98.9	98.9	70-130
Copper	100	99.0	99.0	70-130
Lead	100	90.5	90.5	70-130
Molybdenum	100	95.9	95.9	70-130
Nickel	100	98.8	98.8	70-130
Selenium	100	87.0	87.0	70-130
Silver	50	47.0	94.0	70-130
Zinc	100	95.2	95.2	70-130

FORM III INORGANIC-1  
BLANKS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract : 768569-001

Method Blank Matrix: Water Instrument ID: 73IP04

Method Blank Concentration Units: mg/L

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Method Blank	
	05/11/2022 17:11	C	05/11/2022 18:25	C	05/11/2022 23:57	C	05/12/2022 00:21	C	2430096	C
Arsenic	4.6	U	4.6	U	4.6	U	4.6	U	ND	U
Barium	0.28	U	0.28	U	0.28	U	0.73	J	ND	U
Cadmium	0.18	U	0.22	J	0.18	U	0.46	J	ND	U
Chromium	0.78	U	0.78	U	0.78	U	0.78	U	ND	U
Lead	3.1	U	3.1	U	3.1	U	3.1	U	ND	U
Selenium	7.7	U	7.7	U	7.7	U	7.7	U	ND	U
Silver	0.88	U	0.88	U	0.88	U	0.88	U	ND	U

FORM III INORGANIC-2  
BLANKS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract : 768569-001

Method Blank Matrix: \_\_\_\_\_ Instrument ID: 73IP04

Method Blank Concentration Units: \_\_\_\_\_

Analyte	Initial Calibration Blank		Continuing Calibration Blank (ug/L)					
		C	05/12/2022 00:45	C	05/12/2022 07:39	C		C
Arsenic			4.6	U	4.6	U		
Barium			0.32	J	0.32	J		
Cadmium			0.18	U	0.18	U		
Chromium			0.78	U	0.78	U		
Lead			3.1	U	3.1	U		
Selenium			7.7	U	7.7	U		
Silver			0.88	U	0.88	U		

FORM III INORGANIC-1  
BLANKS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract : 768569-001

Method Blank Matrix: Solid Instrument ID: 73IP03

Method Blank Concentration Units: mg/kg

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Method Blank	
	05/03/2022 09:30	C	05/03/2022 10:48	C	05/03/2022 14:24	C	05/03/2022 14:52	C	2427569	C
Arsenic	11.9	U	11.9	U	11.9	U	11.9	U	ND	U
Barium	13.1	U	13.1	U	13.1	U	13.1	U	ND	U
Cadmium	3.9	U	3.9	U	3.9	U	3.9	U	ND	U
Chromium	11.1	U	11.1	U	11.1	U	11.1	U	ND	U
Copper	9.5	U	9.5	U	9.5	U	9.5	U	ND	U
Lead	11.1	U	11.1	U	11.1	U	11.1	U	ND	U
Molybdenum	13.4	U	13.4	U	13.4	U	13.4	U	ND	U
Nickel	15.9	U	15.9	U	15.9	U	15.9	U	ND	U
Selenium	15.5	U	15.5	U	15.5	U	15.5	U	ND	U
Silver	12.6	U	12.6	U	12.6	U	12.6	U	ND	U
Zinc	47.0	U	47.0	U	47.0	U	47.0	U	ND	U

FORM III INORGANIC-2  
BLANKS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract : 768569-001

Method Blank Matrix: \_\_\_\_\_ Instrument ID: 73IP03

Method Blank Concentration Units: \_\_\_\_\_

Analyte	Initial Calibration Blank		Continuing Calibration Blank (ug/L)					
		C	05/03/2022 15:20	C		C		C
Arsenic			11.9	U				
Barium			13.1	U				
Cadmium			3.9	U				
Chromium			11.1	U				
Copper			9.5	U				
Lead			11.1	U				
Molybdenum			13.4	U				
Nickel			15.9	U				
Selenium			15.5	U				
Silver			12.6	U				
Zinc			47.0	U				

FORM IV INORGANIC-1  
INTERFERENCE CHECK SAMPLE

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Instrument ID: 73IP03 Solution A Run Date: 05/03/2022 09:40

ICS Source: 175645 Solution AB Run Date: \_\_\_\_\_

Concentration Units: ug/L

Analyte	True	Found		
	Sol. A	Sol. A	%R	Limits
Aluminum	500000	524229.99	104.8	90-110
Arsenic		-1.42		90-110
Barium		-2.4		90-110
Cadmium		-0.87		90-110
Calcium	500000	470327.47	94.1	90-110
Chromium		-0.63		90-110
Copper		1.75		90-110
Iron	200000	184392.76	92.2	90-110
Lead		-3.76		90-110
Magnesium	500000	509452.91	101.9	90-110
Molybdenum		-1.25		90-110
Nickel		12.84		90-110
Selenium		25.41		90-110
Silver		1.88		90-110
Zinc		-12.02		90-110

FORM V INORGANIC-1  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

2430145MS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Water Basis: Wet Parent Sample ID: 30484028001

Percent Moisture:                     

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Arsenic	mg/L	70-130	2.0	ND	2.0	100
Barium	mg/L	70-130	2.0	0.014	2.0	100
Cadmium	mg/L	70-130	1.0	ND	1.0	100
Chromium	mg/L	70-130	2.0	ND	2.0	101
Lead	mg/L	70-130	2.0	ND	2.0	98
Selenium	mg/L	70-130	2.0	ND	2.0	99
Silver	mg/L	70-130	0.52	ND	0.50	103

FORM V INORGANIC-2  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

2430146MSD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Water Basis: Wet Parent Sample ID: 30484028001

Percent Moisture:                     

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Arsenic	mg/L	70-130	1.9	ND	2.0	95
Barium	mg/L	70-130	1.9	0.014	2.0	95
Cadmium	mg/L	70-130	0.95	ND	1.0	95
Chromium	mg/L	70-130	1.9	ND	2.0	96
Lead	mg/L	70-130	1.9	ND	2.0	93
Selenium	mg/L	70-130	1.9	ND	2.0	93
Silver	mg/L	70-130	0.52	ND	0.50	104



FORM V INORGANIC-3  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

2430147MS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Water Basis: Wet Parent Sample ID: 30483803001

Percent Moisture:                     

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Arsenic	mg/L	70-130	2.1	ND ug/L	2.0	103
Barium	mg/L	70-130	2.1	47.7 ug/L	2.0	100
Cadmium	mg/L	70-130	1.0	ND ug/L	1.0	101
Chromium	mg/L	70-130	2.0	ND ug/L	2.0	102
Lead	mg/L	70-130	2.0	ND ug/L	2.0	99
Selenium	mg/L	70-130	2.0	ND ug/L	2.0	101
Silver	mg/L	70-130	0.53	ND ug/L	0.50	105

FORM V INORGANIC-4  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

2430148MSD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Water Basis: Wet Parent Sample ID: 30483803001

Percent Moisture:                     

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Arsenic	mg/L	70-130	2.1	ND ug/L	2.0	103
Barium	mg/L	70-130	2.1	47.7 ug/L	2.0	100
Cadmium	mg/L	70-130	1.0	ND ug/L	1.0	100
Chromium	mg/L	70-130	2.0	ND ug/L	2.0	102
Lead	mg/L	70-130	2.0	ND ug/L	2.0	98
Selenium	mg/L	70-130	2.0	ND ug/L	2.0	100
Silver	mg/L	70-130	0.53	ND ug/L	0.50	105

FORM V INORGANIC-1  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

2427573MS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Solid Basis: Dry Parent Sample ID: SED-1

Percent Moisture: 20.7

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Arsenic	mg/kg	75-125	173	8.2	126	131*
Barium	mg/kg	75-125	210	55.9	126	122
Cadmium	mg/kg	75-125	61.9	ND	63.0	98
Chromium	mg/kg	75-125	155	15.0	126	111
Copper	mg/kg	75-125	134	4.7J	126	103
Lead	mg/kg	75-125	142	11.5	126	104
Molybdenum	mg/kg	75-125	128	ND	126	101
Nickel	mg/kg	75-125	140	8.0	126	104
Selenium	mg/kg	75-125	107	2.8J	126	83
Silver	mg/kg	75-125	32.6	ND	31.5	104
Zinc	mg/kg	75-125	155	21.4	126	106

\* Spike Recovery outside QC Limits

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FORM V INORGANIC-2  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

2427574MSD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Solid Basis: Dry Parent Sample ID: SED-1

Percent Moisture: 20.7

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Arsenic	mg/kg	75-125	122	8.2	129	88
Barium	mg/kg	75-125	215	55.9	129	123
Cadmium	mg/kg	75-125	64.0	ND	64.3	99
Chromium	mg/kg	75-125	152	15.0	129	107
Copper	mg/kg	75-125	130	4.7J	129	98
Lead	mg/kg	75-125	147	11.5	129	105
Molybdenum	mg/kg	75-125	126	ND	129	98
Nickel	mg/kg	75-125	142	8.0	129	104
Selenium	mg/kg	75-125	112	2.8J	129	85
Silver	mg/kg	75-125	34.0	ND	32.2	106
Zinc	mg/kg	75-125	152	21.4	129	102

FORM V INORGANIC-1  
POST-DIGESTION SPIKE SAMPLE RECOVERY

SAMPLE NO.

2428077PDS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Solid Parent Sample ID: SED-1

Analyte	Units	Control Limit %R	DF	Spiked Sample Result (SSR)	DF	Sample Result (SR)	Spike Added (SA)	%R
Arsenic	ug/L	85-115	1	1680	1	130	2000	77.3*
Barium	ug/L	85-115	1	2750	1	887	2000	93.0
Cadmium	ug/L	85-115	1	924	1	2.4U	1000	92.4
Chromium	ug/L	85-115	1	2110	1	238	2000	93.8
Copper	ug/L	85-115	1	1900	1	73.8J	2000	91.2
Lead	ug/L	85-115	1	2000	1	183	2000	90.9
Molybdenum	ug/L	85-115	1	1820	1	8.6U	2000	91.2
Nickel	ug/L	85-115	1	2010	1	127	2000	93.9
Selenium	ug/L	85-115	1	1510	1	44.7J	2000	73.3*
Silver	ug/L	85-115	1	473	1	8.5U	500	94.6
Zinc	ug/L	85-115	1	2180	1	339	2000	91.9

FORM VI INORGANIC-1  
DUPLICATES

2430146MSD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001Matrix: Water Concentration Units: mg/LPercent Moisture:                      Basis: Wet

Analyte	RPD Control Limit	Sample	Duplicate	RPD
Arsenic	20	2.0	1.9	5
Barium	20	2.0	1.9	5
Cadmium	20	1.0	0.95	5
Chromium	20	2.0	1.9	5
Lead	20	2.0	1.9	5
Selenium	20	2.0	1.9	5
Silver	20	0.52	0.52	1

FORM VI INORGANIC-2  
DUPLICATES

2430148MSD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001Matrix: Water Concentration Units: mg/LPercent Moisture:                      Basis: Wet

Analyte	RPD Control Limit	Sample	Duplicate	RPD
Arsenic	20	2.1	2.1	0
Barium	20	2.1	2.1	0
Cadmium	20	1.0	1.0	0
Chromium	20	2.0	2.0	0
Lead	20	2.0	2.0	0
Selenium	20	2.0	2.0	1
Silver	20	0.53	0.53	0

FORM VI INORGANIC-1  
DUPLICATES

2427571DUP

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001Matrix: Solid Concentration Units: mg/kgPercent Moisture: 46.4 Basis: Dry

Analyte	RPD Control Limit	Sample	Duplicate	RPD
Arsenic	20	ND	1.5J	
Barium	20	ND	3.5J	
Cadmium	20	ND	ND	
Chromium	20	11.4	11.0	3
Copper	20	ND	1.3J	
Lead	20	ND	ND	
Molybdenum	20	ND	1.4J	
Nickel	20	ND	7.9J	
Selenium	20	ND	4.4J	
Silver	20	ND	ND	
Zinc	20	26800	24600	9



FORM VI INORGANIC-2  
DUPLICATES

2427572DUP

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001Matrix: Solid Concentration Units: mg/kgPercent Moisture:                      Basis: Wet

Analyte	RPD Control Limit	Sample	Duplicate	RPD
Arsenic	20	184	217	16
Copper	20	303	306	1
Molybdenum	20	17.7	7.0	86*
Nickel	20	52.2	21.2	84*

\* RPD outside QC Limits

FORM VI INORGANIC-3  
DUPLICATES

2427574MSD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001Matrix: Solid Concentration Units: mg/kgPercent Moisture: 20.7 Basis: Dry

Analyte	RPD Control Limit	Sample	Duplicate	RPD
Arsenic	20	173	122	35*
Barium	20	210	215	2
Cadmium	20	61.9	64.0	3
Chromium	20	155	152	2
Copper	20	134	130	3
Lead	20	142	147	3
Molybdenum	20	128	126	1
Nickel	20	140	142	1
Selenium	20	107	112	5
Silver	20	32.6	34.0	4
Zinc	20	155	152	1

\* RPD outside QC Limits

FORM VII INORGANIC-1  
LABORATORY CONTROL SAMPLE

SAMPLE NO.

2430097LCS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Water

Analyte	Units	True	Found	%R	Limits	
Arsenic	mg/L	2.0	2.0	99	85	115
Barium	mg/L	2.0	2.0	101	85	115
Cadmium	mg/L	1.0	1.0	101	85	115
Chromium	mg/L	2.0	2.0	102	85	115
Lead	mg/L	2.0	2.0	100	85	115
Selenium	mg/L	2.0	2.0	99	85	115
Silver	mg/L	0.50	0.52	103	85	115

FORM VII INORGANIC-1  
LABORATORY CONTROL SAMPLE

SAMPLE NO.

2427570LCS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Solid

Analyte	Units	True	Found	%R	Limits	
Arsenic	mg/kg	100	87.0	87	80	120
Barium	mg/kg	100	103	103	80	120
Cadmium	mg/kg	50.0	50.5	101	80	120
Chromium	mg/kg	100	103	103	80	120
Copper	mg/kg	100	99.3	99	80	120
Lead	mg/kg	100	103	103	80	120
Molybdenum	mg/kg	100	100	100	80	120
Nickel	mg/kg	100	105	105	80	120
Selenium	mg/kg	100	81.6	82	80	120
Silver	mg/kg	25.0	24.8	99	80	120
Zinc	mg/kg	100	109	109	80	120

FORM VIII INORGANIC-1  
SERIAL DILUTIONS

2428078SD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001Matrix: SolidParent Sample ID: 2427573

Analyte	Units	Initial Sample Result	Serial Dilution Result	% Difference	Control Limit %D
Arsenic	ug/L	2750	2690	2.1	10
Barium	ug/L	3320	3220	3.1	10
Cadmium	ug/L	983	976	0.6	10
Chromium	ug/L	2470	2420	1.8	10
Copper	ug/L	2130	2070	2.8	10
Lead	ug/L	2260	2250	0.3	10
Molybdenum	ug/L	2030	1970	2.7	10
Nickel	ug/L	2210	2210	0.4	10
Selenium	ug/L	1700	1760	3.1	10
Silver	ug/L	518	474	8.4	10
Zinc	ug/L	2450	2390	2.4	10

\* Indicates that the % Difference exceeds the control limit.  
No difference is calculated if either result is a non-detect.

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FORM IX INORGANIC-1  
INSTRUMENT DETECTION LIMITS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Preparation Method: None Instrument ID: 73IP04

Concentration Units: ug/L

Analyte	PQL	IDL	IDL Date
Arsenic	20.0	4.6	11/11/2020
Barium	5.0	0.28	11/11/2020
Cadmium	1.0	0.18	11/11/2020
Chromium	5.0	0.78	11/11/2020
Lead	10.0	3.1	11/11/2020
Selenium	20.0	7.7	11/11/2020
Silver	5.0	0.88	11/11/2020

FORM IX INORGANIC-2  
METHOD DETECTION LIMITS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Preparation Method: EPA 200.7 Instrument ID: 73IP04

Concentration Units: mg/L

Analyte	PQL	MDL	MDL Date
Arsenic	0.020	0.0064	02/01/2022
Barium	0.0050	0.0014	02/01/2022
Cadmium	0.0020	0.0018	02/01/2022
Chromium	0.0050	0.0013	02/01/2022
Lead	0.010	0.0025	02/01/2022
Selenium	0.020	0.0092	02/01/2022
Silver	0.0050	0.0026	02/01/2022

FORM IX INORGANIC-1  
INSTRUMENT DETECTION LIMITS

Lab Name: Pace Analytical - Pittsburgh      SDG No. : 30485042      Contract: 768569-001

Preparation Method: None      Instrument ID: 73IP03

Concentration Units: ug/L

Analyte	PQL	IDL	IDL Date
Arsenic	100	11.9	01/01/2019
Barium	100	13.1	01/01/2019
Cadmium	20.0	3.9	01/01/2019
Chromium	100	11.1	01/01/2019
Copper	100	9.5	01/01/2019
Lead	100	11.1	01/01/2019
Molybdenum	100	13.4	01/01/2019
Nickel	100	15.9	01/01/2019
Selenium	100	15.5	01/01/2019
Silver	50.0	12.6	01/01/2019
Zinc	100	47.0	01/01/2019



FORM IX INORGANIC-2  
METHOD DETECTION LIMITS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Preparation Method: EPA 3050B Instrument ID: 73IP03

Concentration Units: mg/kg

Analyte	PQL	MDL	MDL Date
Arsenic	5.0	0.55	06/11/2021
Barium	5.0	0.57	06/11/2021
Cadmium	1.0	0.12	06/11/2021
Chromium	5.0	0.58	06/11/2021
Copper	5.0	0.58	06/11/2021
Lead	5.0	0.48	06/11/2021
Molybdenum	5.0	0.43	06/11/2021
Nickel	5.0	0.60	06/11/2021
Selenium	5.0	1.1	06/11/2021
Silver	2.5	0.42	06/11/2021
Zinc	5.0	3.2	06/11/2021

FORM XI - INORGANIC-1  
LINEAR DYNAMIC RANGES

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract : 768569-001  
Instrument ID: 73IP04 Effective Date:06/30/2021

Analyte	Concentration (ug/L)
Arsenic	45000
Barium	9000
Cadmium	9000
Chromium	45000
Lead	45000
Selenium	45000
Silver	2000

FORM XI - INORGANIC-1  
LINEAR DYNAMIC RANGES

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract : 768569-001  
Instrument ID: 73IP03 Effective Date:06/30/2021

Analyte	Concentration (ug/L)
Arsenic	45000
Barium	9000
Cadmium	9000
Chromium	45000
Copper	45000
Lead	45000
Molybdenum	9000
Nickel	9000
Selenium	45000
Silver	2000
Zinc	45000

FORM XII INORGANIC-1  
PREPARATION LOG

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Preparation Method: EPA 200.7 Batch: BMPR 2871

Lab Sample ID	Sample Name	Preparation Date	Initial Volume (mL)	Final Volume (mL)
2430096	2430096BLANK	05/04/2022	10	10
2430097	2430097LCS	05/04/2022	10	10
2430145	2430145MS	05/04/2022	10	10
2430146	2430146MSD	05/04/2022	10	10
2430147	2430147MS	05/04/2022	10	10
2430148	2430148MSD	05/04/2022	10	10
30485042001	LAKE-1	05/04/2022	10	10

FORM XII INORGANIC-1  
PREPARATION LOG

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Preparation Method: EPA 3050B Batch: BMPR 2824

Lab Sample ID	Sample Name	Preparation Date	Initial Weight (g)	Final Volume (mL)
2427569	2427569BLANK	05/03/2022	1	50
2427570	2427570LCS	05/03/2022	1	50
2427571	2427571DUP	05/03/2022	1	50
2427572	2427572DUP	05/03/2022	0.98	50
2427573	2427573MS	05/03/2022	1	50
2427574	2427574MSD	05/03/2022	0.98	50
30485042002	SED-1	05/03/2022	1	50

FORM XIII INORGANIC-1  
ANALYSIS RUN LOG

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Instrument ID: 73IP04 Analysis Method: EPA 200.7

Start Date: 05/11/2022 17:05 End Date: 05/12/2022 07:49

Sample Name	Lab Sample ID	D/F	Date	Time	Ag	As	Ba	Cd	Cr	Pb	Se
16528456CAL0	16528456CAL0	1	05/11/2022	17:05	X	X	X	X	X	X	X
16528457CAL1	16528457CAL1	1	05/11/2022	17:07	X	X	X	X	X	X	X
16528458ICV	16528458ICV	1	05/11/2022	17:09	X	X	X	X	X	X	X
16528459ICB	16528459ICB	1	05/11/2022	17:11	X	X	X	X	X	X	X
16528460CRDL	16528460CRDL	1	05/11/2022	17:13	X	X	X	X	X	X	X
16528556CCV	16528556CCV	1	05/11/2022	18:22	X	X	X	X	X	X	X
16528557CCB	16528557CCB	1	05/11/2022	18:25	X	X	X	X	X	X	X
16528650CCV	16528650CCV	1	05/11/2022	23:55	X	X	X	X	X	X	X
16528651CCB	16528651CCB	1	05/11/2022	23:57	X	X	X	X	X	X	X
2430096BLANK	2430096	1	05/12/2022	00:15	X	X	X	X	X	X	X
2430097LCS	2430097	1	05/12/2022	00:17	X	X	X	X	X	X	X
16528652CCV	16528652CCV	1	05/12/2022	00:19	X	X	X	X	X	X	X
16528653CCB	16528653CCB	1	05/12/2022	00:21	X	X	X	X	X	X	X
30484028001	30484028001	1	05/12/2022	00:23							
2430145MS	2430145	1	05/12/2022	00:25	X	X	X	X	X	X	X
2430146MSD	2430146	1	05/12/2022	00:27	X	X	X	X	X	X	X
16528654CCV	16528654CCV	1	05/12/2022	00:43	X	X	X	X	X	X	X
16528655CCB	16528655CCB	1	05/12/2022	00:45	X	X	X	X	X	X	X
LAKE-1	30485042001	1	05/12/2022	00:53	X	X	X	X	X	X	X
16528656CCV	16528656CCV	1	05/12/2022	07:37	X	X	X	X	X	X	X
16528657CCB	16528657CCB	1	05/12/2022	07:39	X	X	X	X	X	X	X
30483803001	30483803001	1	05/12/2022	07:45							
2430147MS	2430147	1	05/12/2022	07:47	X	X	X	X	X	X	X
2430148MSD	2430148	1	05/12/2022	07:49	X	X	X	X	X	X	X

FORM XIII INORGANIC-1  
ANALYSIS RUN LOG

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Instrument ID: 73IP03 Analysis Method: EPA 6010D

Start Date: 05/03/2022 09:23 End Date: 05/10/2022 15:47

Sample Name	Lab Sample ID	D/F	Date	Time	Ag	As	Ba	Cd	Cr	Cu	Mo	Ni	Pb	Se	Zn
16446602CAL0	16446602CAL0	1	05/03/2022	09:23	X	X	X	X	X	X	X	X	X	X	X
16446603CAL1	16446603CAL1	1	05/03/2022	09:25	X	X	X	X	X	X	X	X	X	X	X
16446604ICV	16446604ICV	1	05/03/2022	09:28	X	X	X	X	X	X	X	X	X	X	X
16446605ICB	16446605ICB	1	05/03/2022	09:30	X	X	X	X	X	X	X	X	X	X	X
16446606CRDL	16446606CRDL	1	05/03/2022	09:37	X	X	X	X	X	X	X	X	X	X	X
16446607ICSA	16446607ICSA	1	05/03/2022	09:40	X	X	X	X	X	X	X	X	X	X	X
16446608CCV	16446608CCV	1	05/03/2022	10:45	X	X	X	X	X	X	X	X	X	X	X
16446609CCB	16446609CCB	1	05/03/2022	10:48	X	X	X	X	X	X	X	X	X	X	X
16446634CCV	16446634CCV	1	05/03/2022	14:22	X	X	X	X	X	X	X	X	X	X	X
16446636CCB	16446636CCB	1	05/03/2022	14:24	X	X	X	X	X	X	X	X	X	X	X
2427569BLANK	2427569	1	05/03/2022	14:27	X	X	X	X	X	X	X	X	X	X	X
2427570LCS	2427570	1	05/03/2022	14:29	X	X	X	X	X	X	X	X	X	X	X
30470762001	30470762001	1	05/03/2022	14:31											
2427571DUP	2427571	1	05/03/2022	14:34	X	X	X	X	X	X	X	X	X	X	X
30481063008	30481063008	1	05/03/2022	14:36		X									
2427572DUP	2427572	1	05/03/2022	14:38	X	X	X	X	X	X	X	X	X	X	X
SED-1	30485042002	1	05/03/2022	14:41											
2428077PDS	2428077	1	05/03/2022	14:43	X	X	X	X	X	X	X	X	X	X	X
2427573MS	2427573	1	05/03/2022	14:45	X	X	X	X	X	X	X	X	X	X	X
2428078SD	2428078	1	05/03/2022	14:48	X	X	X	X	X	X	X	X	X	X	X
16446641CCV	16446641CCV	1	05/03/2022	14:50	X	X	X	X	X	X	X	X	X	X	X
16446642CCB	16446642CCB	1	05/03/2022	14:52	X	X	X	X	X	X	X	X	X	X	X
2427574MSD	2427574	1	05/03/2022	14:55	X	X	X	X	X	X	X	X	X	X	X
16446644CCV	16446644CCV	1	05/03/2022	15:18	X	X	X	X	X	X	X	X	X	X	X
16446646CCB	16446646CCB	1	05/03/2022	15:20	X	X	X	X	X	X	X	X	X	X	X
30470762001	30470762001	10	05/10/2022	15:45											X
30470762001	30470762001	100	05/10/2022	15:47											

FORM XV INORGANIC-1  
INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Pace Analytical - Pittsburgh      SDG No. : 30485042      Contract: 768569-001

Instrument ID: 73IP04      Start Date: 05/11/2022 17:05      End Date: 05/12/2022 07:49

Sample Name	Time	Y1
16528456CAL0	17:05	100.0
16528457CAL1	17:07	97.7
16528458ICV	17:09	99.1
16528459ICB	17:11	99.7
16528460CRDL	17:13	100.7
16528556CCV	18:22	99.5
16528557CCB	18:25	100.6
16528650CCV	23:55	105.3
16528651CCB	23:57	106.0
2430096BLANK	00:15	107.5
2430097LCS	00:17	104.8
16528652CCV	00:19	105.7
16528653CCB	00:21	105.1
30484028001	00:23	107.0
2430145MS	00:25	104.7
2430146MSD	00:27	105.0
16528654CCV	00:43	104.7
16528655CCB	00:45	105.7
LAKE-1	00:53	107.1
16528656CCV	07:37	106.3
16528657CCB	07:39	106.1
30483803001	07:45	106.9
2430147MS	07:47	103.5
2430148MSD	07:49	104.8



FORM XV INORGANIC-1  
INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Pace Analytical - Pittsburgh      SDG No. : 30485042      Contract: 768569-001

Instrument ID: 73IP03      Start Date: 05/03/2022 09:23      End Date: 05/10/2022 15:47

Sample Name	Time	Tb1	Tb2
16446602CAL0	09:23	100.0	100.0
16446603CAL1	09:25	101.9	99.5
16446604ICV	09:28	104.0	101.6
16446605ICB	09:30	104.4	102.5
16446606CRDL	09:37	111.1	103.9
16446607ICSA	09:40	98.7	101.4
16446608CCV	10:45	115.1	99.5
16446609CCB	10:48	112.6	105.8
16446634CCV	14:22	97.3	91.1
16446636CCB	14:24	99.7	90.4
2427569BLANK	14:27	98.3	91.2
2427570LCS	14:29	96.8	89.4
30470762001	14:31	90.2	86.2
2427571DUP	14:34	89.0	88.7
30481063008	14:36	83.9	85.1
2427572DUP	14:38	85.9	87.7
SED-1	14:41	96.3	95.5
2427573MS	14:45	99.3	95.2
16446641CCV	14:50	102.8	97.7
16446642CCB	14:52	101.6	96.7
2427574MSD	14:55	97.8	95.4
16446644CCV	15:18	105.8	99.7
16446646CCB	15:20	103.2	99.0
30470762001	15:45	111.0	108.3
30470762001	15:47	111.6	110.5

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CAL0****Analysis Time: 5/3/2022 9:23:30 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX		1 Ratio	19169.67	1	1	1
Tb 360.044	360 Tb RAD		1 Ratio	3933.03	1	1	1
Ag 328.068	Ag		0 ug/L	-1001.05	0	0	0
Al 396.152	Al		0 ug/L	1.92	0	0	0
As 188.980	As		0 ug/L	1.49	0	0	0
B 249.678	B		0 ug/L	9.98	0	0	0
Ba 233.527	Ba		0 ug/L	-0.88	0	0	0
Be 234.861	Be		0 ug/L	4.08	0	0	0
Ca 315.887	Ca		0 ug/L	-19.7	0	0	0
Cd 214.439	Cd		0 ug/L	2.99	0	0	0
Co 228.615	Co		0 ug/L	-1.43	0	0	0
Cr 267.716	Cr		0 ug/L	-21.51	0	0	0
Cu 327.395	Cu		0 ug/L	-242.73	0	0	0
Fe 261.187	Fe		0 ug/L	6.79	0	0	0
K 766.491	K		0 ug/L	500.89	0	0	0
Li 670.783	Li		0 ug/L	3044.73	0	0	0
Mg 279.078	Mg		0 ug/L	-9.55	0	0	0
Mn 257.610	Mn		0 ug/L	5.87	0	0	0
Mo 204.598	Mo		0 ug/L	-9.37	0	0	0
Na 589.592	Na		0 ug/L	-12.84	0	0	0
Ni 231.604	Ni		0 ug/L	-1.28	0	0	0
P 213.618	P		0 ug/L	-1.54	0	0	0
Pb 220.353	Pb		0 ug/L	5.55	0	0	0
S 181.972	S		0 ug/L	0.99	0	0	0
Sb 206.834	Sb		0 ug/L	2.66	0	0	0
Se 196.026	Se		0 ug/L	-0.87	0	0	0
Sn 189.925	Sn		0 ug/L	2.75	0	0	0
Sr 421.552	Sr		0 ug/L	-40.36	0	0	0
Ti 334.941	Ti		0 ug/L	1800.62	0	0	0
Tl 190.794	Tl		0 ug/L	-3.47	0	0	0
V 292.401	V		0 ug/L	-12.66	0	0	0
Zn 213.857	Zn		0 ug/L	1.07	0	0	0

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CAL1****Analysis Time: 5/3/2022 9:25:48 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.02	Ratio	19527.3	1.01	1.02	1.02
Tb 360.044	360 Tb RAD	1	Ratio	3914.7	0.99	0.98	1.02
Ag 328.068	Ag	2000	ug/L	74876.36	2000	2000	2000
Al 396.152	Al	20000	ug/L	65610.58	20000	20000	20000
As 188.980	As	4000	ug/L	1589.04	4000	4000	4000
B 249.678	B	4000	ug/L	11453.04	4000	4000	4000
Ba 233.527	Ba	4000	ug/L	36472.75	4000	4000	4000
Be 234.861	Be	4000	ug/L	178511.34	4000	4000	4000
Ca 315.887	Ca	20000	ug/L	26615.91	20000	20000	20000
Cd 214.439	Cd	4000	ug/L	12561.3	4000	4000	4000
Co 228.615	Co	4000	ug/L	7878.14	4000	4000	4000
Cr 267.716	Cr	4000	ug/L	16769.27	4000	4000	4000
Cu 327.395	Cu	4000	ug/L	26616.96	4000	4000	4000
Fe 261.187	Fe	20000	ug/L	20697.45	20000	20000	20000
K 766.491	K	20000	ug/L	28859.82	20000	20000	20000
Li 670.783	Li	4000	ug/L	71941.38	4000	4000	4000
Mg 279.078	Mg	20000	ug/L	7440.13	20000	20000	20000
Mn 257.610	Mn	4000	ug/L	153071.42	4000	4000	4000
Mo 204.598	Mo	4000	ug/L	7331.04	4000	4000	4000
Na 589.592	Na	20000	ug/L	180945.67	20000	20000	20000
Ni 231.604	Ni	4000	ug/L	2123.28	4000	4000	4000
P 213.618	P	4000	ug/L	1052.33	4000	4000	4000
Pb 220.353	Pb	4000	ug/L	3991.89	4000	4000	4000
S 181.972	S	20000	ug/L	69.13	20000	20000	20000
Sb 206.834	Sb	4000	ug/L	3159.22	4000	4000	4000
Se 196.026	Se	4000	ug/L	1431.64	4000	4000	4000
Sn 189.925	Sn	4000	ug/L	312.33	4000	4000	4000
Sr 421.552	Sr	4000	ug/L	1352609.23	4000	4000	4000
Ti 334.941	Ti	4000	ug/L	181960.3	4000	4000	4000
Tl 190.794	Tl	4000	ug/L	2358.64	4000	4000	4000
V 292.401	V	4000	ug/L	14007.14	4000	4000	4000
Zn 213.857	Zn	4000	ug/L	21075.25	4000	4000	4000

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: ICV****Analysis Time: 5/3/2022 9:28:07 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	19939.86	1.06	1.06	1
Tb 360.044	360 Tb RAD	1.02	Ratio	3994.13	1.02	1.04	0.99
Ag 328.068	Ag	1007.8	ug/L	37476.14	990.17	984.21	1049.03
Al 396.152	Al	10169.14	ug/L	33722.05	10092.39	9872.73	10542.29
As 188.980	As	1962.42	ug/L	776.6	1914.84	1925.01	2047.4
B 249.678	B	2094.36	ug/L	6003.39	2091.18	2037.96	2153.95
Ba 233.527	Ba	2082.01	ug/L	18979.93	2072.19	2026.84	2147.01
Be 234.861	Be	1990.93	ug/L	88855.61	1976.39	1933.75	2062.64
Ca 315.887	Ca	10140.98	ug/L	13486.09	10082.81	9869.23	10470.91
Cd 214.439	Cd	2014.57	ug/L	6329.84	2001.74	1963.28	2078.69
Co 228.615	Co	2085.85	ug/L	4115.98	2080.12	2027.68	2149.74
Cr 267.716	Cr	2035.2	ug/L	8519.67	2023.06	1982.52	2100.01
Cu 327.395	Cu	2009.46	ug/L	13248.87	2004.05	1954.31	2070.01
Fe 261.187	Fe	10195.75	ug/L	10556.82	10133.73	9927.49	10526.03
K 766.491	K	10201.7	ug/L	14797.02	10178.23	9906.18	10520.71
Li 670.783	Li	2044.41	ug/L	38182.26	2035.94	1987.78	2109.5
Mg 279.078	Mg	10166.12	ug/L	3777.89	10105.71	9887.08	10505.59
Mn 257.610	Mn	2027.08	ug/L	77713.09	2014.62	1970.69	2095.91
Mo 204.598	Mo	1969.07	ug/L	3604.55	1937.66	1923.88	2045.68
Na 589.592	Na	10168.26	ug/L	94007.9	10142.76	9886.26	10475.77
Ni 231.604	Ni	2042.89	ug/L	1083.39	2045.67	1989.11	2093.89
P 213.618	P	2002.96	ug/L	490.59	2005.52	1931.49	2071.86
Pb 220.353	Pb	2019.95	ug/L	2017.4	1982.39	1968.64	2108.83
S 181.972	S	10115.92	ug/L	35.25	10503.88	10033.94	9809.95
Sb 206.834	Sb	2020.99	ug/L	1596.79	1973.57	1982.44	2106.96
Se 196.026	Se	1950.5	ug/L	694.44	1934.05	1895.35	2022.09
Sn 189.925	Sn	1951.36	ug/L	153.57	1906.23	1912.09	2035.74
Sr 421.552	Sr	2050.36	ug/L	693350.87	2043.12	1992.94	2115.01
Ti 334.941	Ti	2027.78	ug/L	93175.88	2016.13	1965.7	2101.5
Tl 190.794	Tl	2041.13	ug/L	1203.07	1992.5	1995.81	2135.06
V 292.401	V	2026.93	ug/L	7058.09	2013.74	1978.56	2088.48
Zn 213.857	Zn	2027.07	ug/L	10737.44	2015.8	1978.46	2086.96

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

Sample: ICB

Analysis Time: 5/3/2022 9:30:26 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	20021.69	1.04	1.04	1.05
Tb 360.044	360 Tb RAD	1.03	Ratio	4032.84	1.01	1.03	1.03
Ag 328.068	Ag	0.6	ug/L	-978.38	0.54	0.58	0.67
Al 396.152	Al	-6.73	ug/L	-20.12	-3.86	-5.34	-10.98
As 188.980	As	-7.28	ug/L	-1.4	-9.33	-2.53	-9.97
B 249.678	B	1.37	ug/L	13.89	1.85	0.93	1.34
Ba 233.527	Ba	0.04	ug/L	-0.49	0.28	0.18	-0.33
Be 234.861	Be	-0.02	ug/L	3.18	0.02	-0.02	-0.06
Ca 315.887	Ca	-3.25	ug/L	-24.02	-11.2	-6.08	7.53
Cd 214.439	Cd	0.04	ug/L	3.11	0.77	-0.38	-0.28
Co 228.615	Co	0.64	ug/L	-0.17	0.51	2.61	-1.2
Cr 267.716	Cr	1.35	ug/L	-15.86	0.31	1.71	2.02
Cu 327.395	Cu	0.39	ug/L	-240.08	0.52	-0.82	1.48
Fe 261.187	Fe	1.28	ug/L	8.1	2.8	-0.38	1.41
K 766.491	K	-14.01	ug/L	481.26	-3.58	-5.06	-33.39
Li 670.783	Li	-0.14	ug/L	3042.49	1.2	-1.84	0.23
Mg 279.078	Mg	-7.66	ug/L	-12.41	-9.46	-2.36	-11.17
Mn 257.610	Mn	0.01	ug/L	6.3	-0.03	0.06	0.01
Mo 204.598	Mo	0.05	ug/L	-9.29	-1.81	1.45	0.5
Na 589.592	Na	-5.03	ug/L	-58.3	-4.27	-6.05	-4.77
Ni 231.604	Ni	-0.87	ug/L	-1.75	1.16	-3.61	-0.16
P 213.618	P	-2.16	ug/L	-2.12	-0.14	-3.41	-2.94
Pb 220.353	Pb	2.39	ug/L	7.93	-0.18	8.01	-0.67
S 181.972	S	-231.65	ug/L	0.2	128.75	-500.22	-323.49
Sb 206.834	Sb	-0.39	ug/L	2.37	-1.99	1.56	-0.75
Se 196.026	Se	5.47	ug/L	1.09	3.1	8.16	5.16
Sn 189.925	Sn	-15.41	ug/L	1.56	-6.31	-3.41	-36.52
Sr 421.552	Sr	0.01	ug/L	-35.79	0	-0.03	0.07
Ti 334.941	Ti	-1.06	ug/L	1752.74	-0.88	-0.83	-1.48
Tl 190.794	Tl	-1.82	ug/L	-4.55	-3.12	0.65	-2.99
V 292.401	V	0.68	ug/L	-10.27	-2.2	3.02	1.23
Zn 213.857	Zn	-0.23	ug/L	-0.18	0	-0.13	-0.58

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

Sample: CRDL

Analysis Time: 5/3/2022 9:37:56 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.11	Ratio	21297.77	1.1	1.11	1.13
Tb 360.044	360 Tb RAD	1.04	Ratio	4088.33	1.04	1.04	1.04
Ag 328.068	Ag	47.01	ug/L	780.91	47.78	46.89	46.38
Al 396.152	Al	93.4	ug/L	321.94	96.45	87.51	96.26
As 188.980	As	80.13	ug/L	33.17	88.15	83.18	69.07
B 249.678	B	95.47	ug/L	283.5	95.32	94.55	96.55
Ba 233.527	Ba	96.25	ug/L	876.48	95.55	97.36	95.83
Be 234.861	Be	9.36	ug/L	421.76	9.15	9.35	9.57
Ca 315.887	Ca	970.14	ug/L	1273.14	955.55	979.98	974.89
Cd 214.439	Cd	17.29	ug/L	57.42	16.14	17.12	18.6
Co 228.615	Co	99.51	ug/L	195.09	96.33	99.34	102.86
Cr 267.716	Cr	98.86	ug/L	393.44	97.7	99.41	99.46
Cu 327.395	Cu	99.03	ug/L	421.86	99.19	96.95	100.95
Fe 261.187	Fe	95.5	ug/L	105.82	100.52	92.94	93.02
K 766.491	K	473.06	ug/L	1157.99	489.67	468.67	460.83
Li 670.783	Li	102.72	ug/L	4807.16	101.37	102.86	103.92
Mg 279.078	Mg	473.04	ug/L	166.91	466.7	476.94	475.5
Mn 257.610	Mn	97.15	ug/L	3730.97	96.11	97.7	97.63
Mo 204.598	Mo	95.89	ug/L	166.55	97.14	95.84	94.69
Na 589.592	Na	977.85	ug/L	8928.38	963.73	981.98	987.84
Ni 231.604	Ni	98.76	ug/L	51.16	99.05	99.95	97.29
P 213.618	P	476.35	ug/L	122.16	457.09	493.53	478.42
Pb 220.353	Pb	90.47	ug/L	95.69	91.16	86.16	94.08
S 181.972	S	212.01	ug/L	1.69	164.49	411.14	60.4
Sb 206.834	Sb	88.97	ug/L	72.6	89.96	90.7	86.25
Se 196.026	Se	86.99	ug/L	30.02	95.25	83.77	81.96
Sn 189.925	Sn	436	ug/L	36.48	420.77	443.99	443.25
Sr 421.552	Sr	97.79	ug/L	33031.58	96.87	98.1	98.4
Ti 334.941	Ti	96.37	ug/L	6143.51	95.03	97.07	97.01
Tl 190.794	Tl	88.07	ug/L	48.63	85.84	86.12	92.26
V 292.401	V	97.77	ug/L	328.58	94.68	99.79	98.83
Zn 213.857	Zn	95.24	ug/L	505.53	94.78	95.8	95.15

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: ICSA****Analysis Time: 5/3/2022 9:40:15 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.99	Ratio	18925.53	0.98	0.99	0.99
Tb 360.044	360 Tb RAD	1.01	Ratio	3989.33	1.02	1.02	1
Ag 328.068	Ag	1.88	ug/L	-976.78	1.92	1.81	1.9
Al 396.152	Al	524229.99	ug/L	1718978.05	517354.2	519561.27	535774.5
As 188.980	As	-1.42	ug/L	-1	4	-4.91	-3.35
B 249.678	B	-20.34	ug/L	-183.21	-20.36	-20.23	-20.43
Ba 233.527	Ba	-2.4	ug/L	-0.12	-2.88	-2.18	-2.14
Be 234.861	Be	-0.45	ug/L	23.38	-0.74	-0.35	-0.26
Ca 315.887	Ca	470327.47	ug/L	626279.09	463063.98	467874.16	480044.28
Cd 214.439	Cd	-0.87	ug/L	10.58	-0.16	-1.01	-1.42
Co 228.615	Co	-2.52	ug/L	-4.22	-0.25	-4.86	-2.46
Cr 267.716	Cr	-0.63	ug/L	-28.64	1.57	-2.55	-0.93
Cu 327.395	Cu	1.75	ug/L	-209.9	2.59	2.26	0.4
Fe 261.187	Fe	184392.76	ug/L	190818.33	181403.08	183091.16	188684.04
K 766.491	K	-6.06	ug/L	471.36	-29.56	-19.9	31.27
Li 670.783	Li	12.46	ug/L	3233.55	10.41	12.02	14.94
Mg 279.078	Mg	509452.91	ug/L	189735.3	501051.21	506228.83	521078.69
Mn 257.610	Mn	-2.57	ug/L	27.98	-2.71	-2.32	-2.68
Mo 204.598	Mo	-1.25	ug/L	10	-5.19	-1.59	3.03
Na 589.592	Na	5.32	ug/L	158.76	3.27	6.69	5.99
Ni 231.604	Ni	12.84	ug/L	2.04	12.35	17.48	8.67
P 213.618	P	23.16	ug/L	0.23	14.06	39.59	15.83
Pb 220.353	Pb	-3.76	ug/L	0.97	1.21	-8.15	-4.33
S 181.972	S	298.23	ug/L	2.5	479.37	-183.78	599.1
Sb 206.834	Sb	3.55	ug/L	14.27	3.46	1.57	5.63
Se 196.026	Se	25.41	ug/L	-7.54	23.73	21.98	30.53
Sn 189.925	Sn	17.48	ug/L	2.21	46.75	-0.61	6.3
Sr 421.552	Sr	-1.36	ug/L	1621.35	-1.45	-1.42	-1.21
Ti 334.941	Ti	-2.82	ug/L	1576.08	-2.84	-2.71	-2.92
Tl 190.794	Tl	-9.3	ug/L	-8.41	-2.22	-13.59	-12.09
V 292.401	V	6.42	ug/L	8.45	6.31	5.85	7.1
Zn 213.857	Zn	-12.02	ug/L	75.49	-12.39	-12.03	-11.63

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: RINSE****Analysis Time: 5/3/2022 9:42:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20620.74	1.07	1.08	1.08
Tb 360.044	360 Tb RAD	1.03	Ratio	4058.68	1.04	1.03	1.03
Ag 328.068	Ag	0.63	ug/L	-977.35	0.39	0.42	1.07
Al 396.152	Al	0.91	ug/L	5.12	6.35	1.29	-4.9
As 188.980	As	-4.18	ug/L	-0.17	-10.35	-0.64	-1.56
B 249.678	B	-2.57	ug/L	2.55	0.17	-4.01	-3.86
Ba 233.527	Ba	0.05	ug/L	-0.39	-0.31	0.14	0.34
Be 234.861	Be	-0.06	ug/L	1.56	-0.1	-0.01	-0.07
Ca 315.887	Ca	4.46	ug/L	-13.76	1.68	4.43	7.27
Cd 214.439	Cd	-0.94	ug/L	0.04	-1.22	-0.99	-0.61
Co 228.615	Co	-0.55	ug/L	-2.53	0.38	-1.84	-0.2
Cr 267.716	Cr	0.12	ug/L	-21	0.47	-0.67	0.57
Cu 327.395	Cu	1.54	ug/L	-232.4	1.16	2.12	1.33
Fe 261.187	Fe	3.06	ug/L	9.95	5.76	4.01	-0.59
K 766.491	K	-32.15	ug/L	455.51	-25.37	-19.37	-51.71
Li 670.783	Li	10.87	ug/L	3232.02	10.02	11.39	11.2
Mg 279.078	Mg	-0.42	ug/L	-9.73	2.7	-1.53	-2.43
Mn 257.610	Mn	-0.16	ug/L	-0.19	-0.12	-0.1	-0.26
Mo 204.598	Mo	1.8	ug/L	-6.06	-1.81	4.84	2.38
Na 589.592	Na	-4.61	ug/L	-54.47	-4.38	-6.01	-3.44
Ni 231.604	Ni	2.72	ug/L	0.16	0.04	4.28	3.85
P 213.618	P	-3.25	ug/L	-2.41	2.18	-12.89	0.95
Pb 220.353	Pb	-2.53	ug/L	3.03	-2.44	-0.94	-4.22
S 181.972	S	-4.03	ug/L	0.98	161.34	284.14	-457.58
Sb 206.834	Sb	-0.32	ug/L	2.4	-0.44	-1.6	1.07
Se 196.026	Se	-4.28	ug/L	-2.4	-8.4	-8.59	4.15
Sn 189.925	Sn	-12.9	ug/L	1.75	-13.69	-17.2	-7.82
Sr 421.552	Sr	0.04	ug/L	-26.89	0.03	0.1	-0.01
Ti 334.941	Ti	-1.17	ug/L	1747.98	-1.26	-1.22	-1.03
Tl 190.794	Tl	-0.47	ug/L	-3.75	2.28	-6.13	2.46
V 292.401	V	0.29	ug/L	-11.71	-0.51	1.55	-0.18
Zn 213.857	Zn	0.06	ug/L	1.45	-0.27	0.36	0.1



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

Sample: RINSE

Analysis Time: 5/3/2022 9:44:54 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20385.35	1.07	1.06	1.06
Tb 360.044	360 Tb RAD	1.03	Ratio	4067.56	1.03	1.04	1.04
Ag 328.068	Ag	0.68	ug/L	-975.36	0.54	0.77	0.72
Al 396.152	Al	-2.89	ug/L	-7.54	-6.89	-1.13	-0.67
As 188.980	As	-0.82	ug/L	1.16	-1.51	-0.61	-0.35
B 249.678	B	-2.08	ug/L	4.06	-0.56	-1.92	-3.76
Ba 233.527	Ba	0.11	ug/L	0.08	0.66	0.16	-0.51
Be 234.861	Be	-0.03	ug/L	2.91	-0.02	-0.02	-0.04
Ca 315.887	Ca	4.24	ug/L	-14.04	1.48	7.04	4.21
Cd 214.439	Cd	0.11	ug/L	3.33	-0.43	-0.07	0.84
Co 228.615	Co	0.81	ug/L	0.15	0.54	2.1	-0.22
Cr 267.716	Cr	0.12	ug/L	-21.02	0.18	0.05	0.12
Cu 327.395	Cu	2.1	ug/L	-228.61	2.01	1.73	2.57
Fe 261.187	Fe	2.44	ug/L	9.31	-1.62	1.18	7.77
K 766.491	K	-7.97	ug/L	489.77	0.73	-14.62	-10.02
Li 670.783	Li	10.27	ug/L	3221.65	11.26	10.05	9.49
Mg 279.078	Mg	-7.19	ug/L	-12.23	-12.23	2.09	-11.43
Mn 257.610	Mn	-0.11	ug/L	1.71	-0.05	-0.2	-0.07
Mo 204.598	Mo	0.43	ug/L	-8.57	0.48	1.54	-0.72
Na 589.592	Na	-1.36	ug/L	-25.05	-0.32	-1.8	-1.98
Ni 231.604	Ni	0.48	ug/L	-1.03	-0.86	-5.05	7.33
P 213.618	P	9.11	ug/L	0.83	6.66	3.6	17.06
Pb 220.353	Pb	-0.63	ug/L	4.92	-5.22	-0.36	3.69
S 181.972	S	-324.24	ug/L	-0.11	-439.05	-628.82	95.17
Sb 206.834	Sb	1.18	ug/L	3.59	1.42	1.93	0.19
Se 196.026	Se	7.96	ug/L	1.99	10.75	-0.01	13.14
Sn 189.925	Sn	-22.51	ug/L	1.01	-41.1	-0.33	-26.09
Sr 421.552	Sr	0.03	ug/L	-29.8	0.03	0.04	0.02
Ti 334.941	Ti	-1.2	ug/L	1746.38	-1.41	-1.15	-1.05
Tl 190.794	Tl	-0.92	ug/L	-4.01	0.01	1.66	-4.42
V 292.401	V	0.06	ug/L	-12.46	-0.9	1.36	-0.29
Zn 213.857	Zn	0.21	ug/L	2.16	0.16	-0.44	0.91

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: LRVA RINSE****Analysis Time: 5/3/2022 9:52:30 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.03	Ratio	19666.98	1.03	1.02	1.03
Tb 360.044	360 Tb RAD	1	Ratio	3922	1.01	0.98	1
Ag 328.068	Ag	1.92	ug/L	-948.69	1.96	1.88	1.94
Al 396.152	Al	211349.39	ug/L	693027.45	208035.69	215586.76	210425.71
As 188.980	As	-3.99	ug/L	-1.43	4.38	-5.27	-11.1
B 249.678	B	-13.88	ug/L	-173.46	-11.9	-17.42	-12.31
Ba 233.527	Ba	0.12	ug/L	13.92	-0.32	0.96	-0.26
Be 234.861	Be	-0.46	ug/L	13.52	0.04	-0.78	-0.64
Ca 315.887	Ca	193912.18	ug/L	258197.46	190737.38	198759.72	192239.43
Cd 214.439	Cd	-1.38	ug/L	8.43	-2.57	-0.66	-0.92
Co 228.615	Co	4.33	ug/L	8.55	3.99	3.71	5.29
Cr 267.716	Cr	6.58	ug/L	5.86	6.08	7.43	6.24
Cu 327.395	Cu	3.51	ug/L	-207.02	1.69	4.79	4.05
Fe 261.187	Fe	195913.83	ug/L	202707.17	192937.71	200155.98	194647.79
K 766.491	K	209918.17	ug/L	298134.37	206752.48	214295.7	208706.33
Li 670.783	Li	17.8	ug/L	3328.73	15.01	20.32	18.07
Mg 279.078	Mg	204576.08	ug/L	76166.26	201426.92	209035.82	203265.51
Mn 257.610	Mn	2.28	ug/L	199.06	2.37	2.23	2.23
Mo 204.598	Mo	-1.88	ug/L	-2.55	-1.06	-3.62	-0.95
Na 589.592	Na	206036.5	ug/L	1864242.33	202522.26	210777.64	204809.6
Ni 231.604	Ni	9.52	ug/L	2.87	11.57	-0.89	17.89
P 213.618	P	199359.1	ug/L	52520.76	197067.46	202846.56	198163.29
Pb 220.353	Pb	-8.64	ug/L	-1.9	-5.72	-12.1	-8.09
S 181.972	S	-41.83	ug/L	1	222.48	-184.52	-163.44
Sb 206.834	Sb	-5.71	ug/L	5.37	-8.83	-6.2	-2.09
Se 196.026	Se	32.4	ug/L	-2.14	27.23	33.64	36.34
Sn 189.925	Sn	-12.97	ug/L	0.88	-15.81	-24.88	1.79
Sr 421.552	Sr	-0.53	ug/L	669.09	-0.56	-0.48	-0.55
Ti 334.941	Ti	-1.07	ug/L	1711.2	-1.23	-1.29	-0.68
Tl 190.794	Tl	-7.96	ug/L	-9.94	-0.11	-14.92	-8.86
V 292.401	V	8.62	ug/L	-9.98	7.8	9.91	8.15
Zn 213.857	Zn	-1.27	ug/L	101.19	-1.84	-1.13	-0.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: LRVB RINSE****Analysis Time: 5/3/2022 9:54:50 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20795.98	1.01	1.11	1.13
Tb 360.044	360 Tb RAD	1.08	Ratio	4237.46	1.1	1.07	1.06
Ag 328.068	Ag	3.45	ug/L	-928.14	3.53	3.48	3.35
Al 396.152	Al	12.99	ug/L	32.19	16.73	12.15	10.1
As 188.980	As	45015.45	ug/L	17775.66	48382.58	43822.24	42841.53
B 249.678	B	49541.23	ug/L	141932.7	48456.53	49871.93	50295.22
Ba 233.527	Ba	2.42	ug/L	4.42	2.49	2.87	1.92
Be 234.861	Be	0.52	ug/L	33.6	0.49	0.54	0.54
Ca 315.887	Ca	-112.01	ug/L	47.9	-108.28	-115.46	-112.3
Cd 214.439	Cd	-2.1	ug/L	3.9	-2.35	-2.78	-1.17
Co 228.615	Co	50157.4	ug/L	98837.54	49132.83	50549.61	50789.77
Cr 267.716	Cr	49106.29	ug/L	206147.37	48156.7	49408.09	49754.07
Cu 327.395	Cu	50658.01	ug/L	339990.29	49598.72	51030.15	51345.17
Fe 261.187	Fe	-8.68	ug/L	-23.5	-7.47	-9.12	-9.44
K 766.491	K	737.61	ug/L	479.14	717.5	740.82	754.5
Li 670.783	Li	58.33	ug/L	3145.76	54.16	61.43	59.4
Mg 279.078	Mg	-24.31	ug/L	-11.62	-28.98	-18.04	-25.92
Mn 257.610	Mn	-2.47	ug/L	25.59	-2.56	-2.51	-2.34
Mo 204.598	Mo	7.5	ug/L	-5.57	10.48	6.53	5.5
Na 589.592	Na	18.86	ug/L	215.49	17	18.54	21.05
Ni 231.604	Ni	4.41	ug/L	-0.19	-3.79	5.36	11.67
P 213.618	P	-234.31	ug/L	-616.38	-205.17	-253.75	-244
Pb 220.353	Pb	50422.02	ug/L	50230.22	54243.26	49089.68	47933.13
S 181.972	S	53771.02	ug/L	182.34	53386.96	53153.69	54772.41
Sb 206.834	Sb	-230.71	ug/L	270.67	-201.56	-241.49	-249.09
Se 196.026	Se	45165.44	ug/L	16141.75	48491.54	43963.46	43041.32
Sn 189.925	Sn	44549.72	ug/L	3449.98	43525.64	44773.69	45349.81
Sr 421.552	Sr	0.82	ug/L	227.43	0.88	0.79	0.79
Ti 334.941	Ti	0.04	ug/L	2264.24	-0.35	0.38	0.08
Tl 190.794	Tl	33.6	ug/L	71.53	33.17	31.16	36.46
V 292.401	V	-9.39	ug/L	-255.65	-8.57	-8.11	-11.49
Zn 213.857	Zn	47846.85	ug/L	252107.4	46649.03	48287.36	48604.15

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: LRVC RINSE****Analysis Time: 5/3/2022 9:57:10 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.11	Ratio	21333.13	1.11	1.12	1.11
Tb 360.044	360 Tb RAD	1.04	Ratio	4087.76	1.05	1.06	1
Ag 328.068	Ag	8.19	ug/L	-839.92	7.99	8.11	8.46
Al 396.152	Al	-103.01	ug/L	1259.48	-111.42	-109.27	-88.36
As 188.980	As	1.54	ug/L	1.86	-1.33	-2.42	8.37
B 249.678	B	35.46	ug/L	118.87	40.53	35.16	30.67
Ba 233.527	Ba	10200.14	ug/L	92988.74	10029.08	9999.8	10571.54
Be 234.861	Be	10092.57	ug/L	450405.94	9920.03	9882.45	10475.21
Ca 315.887	Ca	8.79	ug/L	36.22	2.66	10.01	13.7
Cd 214.439	Cd	10049.24	ug/L	31559.04	9907.46	9870.21	10370.06
Co 228.615	Co	-4.15	ug/L	25.28	-4.07	-4.2	-4.18
Cr 267.716	Cr	5.31	ug/L	-12.57	6.36	5.79	3.78
Cu 327.395	Cu	7.99	ug/L	-215.91	7.64	8.7	7.62
Fe 261.187	Fe	1.47	ug/L	16.78	-5.27	3.28	6.41
K 766.491	K	410.16	ug/L	494.69	406.72	397.84	425.92
Li 670.783	Li	10427.18	ug/L	182459.54	10243.88	10222.92	10814.72
Mg 279.078	Mg	-23.09	ug/L	-9.55	-29.42	-23.78	-16.06
Mn 257.610	Mn	10365.33	ug/L	397297.94	10194.88	10180.43	10720.67
Mo 204.598	Mo	9988.95	ug/L	18323.45	10034.45	9964.06	9968.34
Na 589.592	Na	73.85	ug/L	10542.87	55.64	45.87	120.05
Ni 231.604	Ni	10310.65	ug/L	5474.08	10106.37	10121.29	10704.28
P 213.618	P	22.1	ug/L	-64.93	15.31	26.56	24.43
Pb 220.353	Pb	-3.46	ug/L	0.32	-6.2	-1.34	-2.82
S 181.972	S	120.75	ug/L	0.79	593.36	183.28	-414.4
Sb 206.834	Sb	27.33	ug/L	-74	30.98	23.34	27.66
Se 196.026	Se	21.56	ug/L	1.23	24.74	24.92	15.03
Sn 189.925	Sn	33.41	ug/L	4.26	8.82	39.72	51.7
Sr 421.552	Sr	2.72	ug/L	879.93	2.71	2.62	2.83
Ti 334.941	Ti	10345.33	ug/L	467877.43	10175.1	10103.49	10757.41
Tl 190.794	Tl	9722.48	ug/L	5731.68	9716.45	9743.67	9707.32
V 292.401	V	10219.13	ug/L	35683.99	10045.76	10016.13	10595.52
Zn 213.857	Zn	10179.95	ug/L	53889.84	10053.15	9968	10518.72

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: RINSE****Analysis Time: 5/3/2022 11:13:43 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20354.43	1.09	1.03	1.07
Tb 360.044	360 Tb RAD	0.98	Ratio	3869.19	0.96	1.01	0.98
Ag 328.068	Ag	-0.05	ug/L	-1002.79	-0.3	-0.01	0.17
Al 396.152	Al	-0.26	ug/L	1.39	1.05	-1.97	0.15
As 188.980	As	-3.96	ug/L	-0.08	-3.17	-3.11	-5.58
B 249.678	B	-2.35	ug/L	3.23	-2.54	-0.92	-3.59
Ba 233.527	Ba	0.28	ug/L	1.67	0.48	0.38	-0.02
Be 234.861	Be	0.01	ug/L	4.49	0.04	-0.12	0.1
Ca 315.887	Ca	2.43	ug/L	-16.45	1.8	1.94	3.55
Cd 214.439	Cd	-0.4	ug/L	1.75	-1.21	-0.16	0.19
Co 228.615	Co	0.66	ug/L	-0.13	0.78	1.13	0.07
Cr 267.716	Cr	1.49	ug/L	-15.28	1.65	0.81	1.99
Cu 327.395	Cu	2.23	ug/L	-227.75	1.81	1.64	3.24
Fe 261.187	Fe	5.83	ug/L	12.82	7.89	6.58	3.01
K 766.491	K	22.7	ug/L	533.02	9.38	35.52	23.2
Li 670.783	Li	40.98	ug/L	3750.48	45.82	36.37	40.73
Mg 279.078	Mg	-5.64	ug/L	-11.66	3.98	-5.67	-15.22
Mn 257.610	Mn	-0.1	ug/L	2.06	-0.05	0.04	-0.29
Mo 204.598	Mo	2.19	ug/L	-5.36	2.41	1.39	2.76
Na 589.592	Na	3.11	ug/L	15.58	6.05	0.58	2.69
Ni 231.604	Ni	2.39	ug/L	-0.02	4.42	-4.67	7.41
P 213.618	P	1.43	ug/L	-1.2	0.98	2.85	0.47
Pb 220.353	Pb	-2.85	ug/L	2.71	-0.85	-3.22	-4.48
S 181.972	S	21.74	ug/L	1.06	112.71	192.08	-239.57
Sb 206.834	Sb	-2.37	ug/L	0.79	0.19	-6.52	-0.78
Se 196.026	Se	5.64	ug/L	1.15	7.31	8.14	1.46
Sn 189.925	Sn	-9.32	ug/L	2.03	-30.93	28.37	-25.41
Sr 421.552	Sr	0.03	ug/L	-30.2	-0.01	0.06	0.04
Ti 334.941	Ti	-0.14	ug/L	1794.5	0.15	-0.39	-0.17
Tl 190.794	Tl	-0.24	ug/L	-3.61	1.85	-3.26	0.7
V 292.401	V	1.01	ug/L	-9.18	1.9	-0.05	1.16
Zn 213.857	Zn	0.11	ug/L	1.82	0.32	0.47	-0.47

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

Sample: RINSE

Analysis Time: 5/3/2022 11:16:02 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20202.01	1.05	1.05	1.05
Tb 360.044	360 Tb RAD	0.99	Ratio	3911.13	1	0.98	1
Ag 328.068	Ag	0.15	ug/L	-995.31	0.35	-0.01	0.12
Al 396.152	Al	-0.65	ug/L	-0.15	-1.34	-1.92	1.32
As 188.980	As	-0.19	ug/L	1.41	-2.2	2.86	-1.23
B 249.678	B	-3.13	ug/L	0.94	-2.72	-3.36	-3.31
Ba 233.527	Ba	0.14	ug/L	0.39	-0.21	0.3	0.33
Be 234.861	Be	-0.01	ug/L	3.71	0.07	-0.03	-0.06
Ca 315.887	Ca	-2.81	ug/L	-23.44	-7.17	-3.72	2.45
Cd 214.439	Cd	-0.59	ug/L	1.13	-0.74	-0.82	-0.22
Co 228.615	Co	-0.11	ug/L	-1.66	-1.75	-0.49	1.91
Cr 267.716	Cr	1.09	ug/L	-16.95	2.15	-0.16	1.27
Cu 327.395	Cu	2.17	ug/L	-228.16	1.45	2.96	2.09
Fe 261.187	Fe	0.36	ug/L	7.15	-5.01	5.32	0.76
K 766.491	K	34.18	ug/L	549.66	20.11	25.99	56.44
Li 670.783	Li	37.92	ug/L	3698.02	35.37	41.27	37.12
Mg 279.078	Mg	-1.26	ug/L	-10.05	-2.53	1.58	-2.84
Mn 257.610	Mn	-0.09	ug/L	2.59	-0.03	-0.09	-0.13
Mo 204.598	Mo	0.47	ug/L	-8.52	0.89	1.13	-0.62
Na 589.592	Na	1.01	ug/L	-3.49	1.3	-2.09	3.83
Ni 231.604	Ni	-1.8	ug/L	-2.24	-2.77	-3.41	0.78
P 213.618	P	-2.79	ug/L	-2.29	-2.28	-24.27	18.19
Pb 220.353	Pb	-0.24	ug/L	5.31	-0.62	1.9	-2
S 181.972	S	-267.48	ug/L	0.08	-248.28	-728.57	174.42
Sb 206.834	Sb	1.66	ug/L	3.99	4.74	0.59	-0.35
Se 196.026	Se	5.91	ug/L	1.25	18.22	6.58	-7.07
Sn 189.925	Sn	-13.58	ug/L	1.7	-8.63	13.74	-45.86
Sr 421.552	Sr	0.04	ug/L	-26.06	0.05	-0.01	0.08
Ti 334.941	Ti	-0.38	ug/L	1783.3	-0.42	-0.37	-0.36
Tl 190.794	Tl	1.29	ug/L	-2.71	4.92	-2.38	1.32
V 292.401	V	0.96	ug/L	-9.33	3.25	2.14	-2.5
Zn 213.857	Zn	-0.17	ug/L	0.2	0.22	-0.16	-0.58

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

Sample: 2424518\_3023

Analysis Time: 5/3/2022 10:43:27 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.16	Ratio	22164.84	1.21	1.14	1.12
Tb 360.044	360 Tb RAD	1.07	Ratio	4209.9	1.1	1.08	1.03
Ag 328.068	Ag	0.74	ug/L	-972.71	0.98	0.76	0.5
Al 396.152	Al	53.3	ug/L	176.11	53.56	53.85	52.48
As 188.980	As	-1.08	ug/L	1.06	-5.18	-1.5	3.43
B 249.678	B	-1.54	ug/L	5.42	-2.73	-1.09	-0.78
Ba 233.527	Ba	0.64	ug/L	4.95	0.79	0.38	0.75
Be 234.861	Be	0.03	ug/L	5.23	0.07	0.08	-0.07
Ca 315.887	Ca	505.08	ug/L	652.96	488.01	501	526.24
Cd 214.439	Cd	-1.18	ug/L	-0.68	-1.99	-0.12	-1.41
Co 228.615	Co	1.31	ug/L	1.16	0.72	2.04	1.16
Cr 267.716	Cr	1.69	ug/L	-14.42	1.71	1.72	1.64
Cu 327.395	Cu	4.95	ug/L	-209.48	5.81	3.95	5.1
Fe 261.187	Fe	154.67	ug/L	166.82	147.08	153.37	163.57
K 766.491	K	42.2	ug/L	560.26	20.29	49.24	57.06
Li 670.783	Li	11.49	ug/L	3242.5	3.49	12.04	18.96
Mg 279.078	Mg	28.5	ug/L	1.05	43.19	13.01	29.3
Mn 257.610	Mn	9.53	ug/L	370.6	9.28	9.61	9.69
Mo 204.598	Mo	0.6	ug/L	-8.26	0.45	0.86	0.51
Na 589.592	Na	95.98	ug/L	856.29	92.79	94.08	101.06
Ni 231.604	Ni	4.69	ug/L	1.2	9.29	6.87	-2.09
P 213.618	P	23.19	ug/L	4.51	25.05	7.53	37
Pb 220.353	Pb	0.42	ug/L	5.98	0.35	2.62	-1.71
S 181.972	S	-150.98	ug/L	0.47	179.47	-98.12	-534.28
Sb 206.834	Sb	1.19	ug/L	3.6	2.35	1.91	-0.68
Se 196.026	Se	-1.75	ug/L	-1.52	2.43	-2.75	-4.93
Sn 189.925	Sn	10.4	ug/L	3.55	-6.04	42.55	-5.32
Sr 421.552	Sr	0.47	ug/L	120.95	0.43	0.56	0.42
Ti 334.941	Ti	1.62	ug/L	1873.37	1.55	1.51	1.79
Tl 190.794	Tl	-2.31	ug/L	-4.83	-0.96	0.63	-6.6
V 292.401	V	0.71	ug/L	-10.19	2.68	-0.47	-0.07
Zn 213.857	Zn	44.61	ug/L	236.36	43.63	43.67	46.52

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCV****Analysis Time: 5/3/2022 10:45:46 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.15	Ratio	22065.2	1.14	1.16	1.16
Tb 360.044	360 Tb RAD	0.99	Ratio	3912.66	1.09	1.09	0.81
Ag 328.068	Ag	983.4	ug/L	36576.88	1001.74	978.31	970.14
Al 396.152	Al	11071.47	ug/L	36688.21	9838.04	9879.98	13496.39
As 188.980	As	1834.85	ug/L	725.55	1870.74	1812.48	1821.32
B 249.678	B	2327.27	ug/L	6669.77	2075.87	2080.06	2825.9
Ba 233.527	Ba	2271.74	ug/L	20710.02	2022.4	2025.22	2767.59
Be 234.861	Be	2171.19	ug/L	96900.53	1940.94	1942.88	2629.76
Ca 315.887	Ca	10928.41	ug/L	14534.24	9713.22	9770.51	13301.5
Cd 214.439	Cd	2183.11	ug/L	6859.08	1940.96	1948.71	2659.67
Co 228.615	Co	2280.57	ug/L	4500.5	2024.15	2043.23	2774.32
Cr 267.716	Cr	2224.99	ug/L	9316.42	1982.79	1982.3	2709.89
Cu 327.395	Cu	2240.43	ug/L	14799.99	1993.96	2001.49	2725.83
Fe 261.187	Fe	11102.14	ug/L	11494.59	9874.89	9902.38	13529.16
K 766.491	K	11309.71	ug/L	16356.31	10086.35	10095.04	13747.73
Li 670.783	Li	2330.84	ug/L	43110.87	2059.29	2063.22	2870.02
Mg 279.078	Mg	10988.14	ug/L	4084	9792.4	9828.69	13343.34
Mn 257.610	Mn	2244.34	ug/L	86026.7	1995.23	2000.76	2737.02
Mo 204.598	Mo	1936.5	ug/L	3544.86	1972.62	1928.56	1908.33
Na 589.592	Na	11252.12	ug/L	103999.95	10001.09	10020.14	13735.13
Ni 231.604	Ni	2260.43	ug/L	1198.9	2010.79	2028.69	2741.79
P 213.618	P	2194.11	ug/L	538.06	1947.33	1970.09	2664.9
Pb 220.353	Pb	1983.82	ug/L	1981.34	2011.37	1978.55	1961.53
S 181.972	S	11919.83	ug/L	41.37	10840.4	10705.56	14213.52
Sb 206.834	Sb	1932.63	ug/L	1528.88	1977.88	1913.84	1906.18
Se 196.026	Se	1845.95	ug/L	656.81	1880.5	1829.73	1827.62
Sn 189.925	Sn	2007.19	ug/L	157.87	1758.39	1805.02	2458.16
Sr 421.552	Sr	2263.05	ug/L	765278.09	2012.41	2025.5	2751.24
Ti 334.941	Ti	2252.8	ug/L	103314.64	2003.09	2010.17	2745.12
Tl 190.794	Tl	1981.27	ug/L	1167.86	2019.09	1976.77	1947.94
V 292.401	V	2226.3	ug/L	7757.02	1980.83	1988.09	2709.98
Zn 213.857	Zn	2209.5	ug/L	11704.73	1966.42	1968.91	2693.18



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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCB****Analysis Time: 5/3/2022 10:48:05 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.13	Ratio	21594.17	1.13	1.13	1.13
Tb 360.044	360 Tb RAD	1.06	Ratio	4160.84	1.06	1.06	1.06
Ag 328.068	Ag	0.81	ug/L	-970.31	0.61	1.31	0.51
Al 396.152	Al	0.45	ug/L	3.51	-2.22	3.3	0.27
As 188.980	As	-3.17	ug/L	0.23	-4.97	-3.62	-0.9
B 249.678	B	0.12	ug/L	10.25	-0.9	1.36	-0.1
Ba 233.527	Ba	-0.12	ug/L	-1.96	-0.28	-0.2	0.12
Be 234.861	Be	0	ug/L	4.07	0.05	-0.04	-0.01
Ca 315.887	Ca	1.98	ug/L	-17.05	1.45	-1.66	6.15
Cd 214.439	Cd	-1.2	ug/L	-0.77	-1.59	-1.4	-0.6
Co 228.615	Co	1.03	ug/L	0.59	1.61	-0.31	1.78
Cr 267.716	Cr	1.03	ug/L	-17.18	1.37	0.69	1.03
Cu 327.395	Cu	2.54	ug/L	-225.65	2.64	3.08	1.91
Fe 261.187	Fe	-1.07	ug/L	5.68	-4.01	3.01	-2.21
K 766.491	K	-15.58	ug/L	478.68	-1.98	-12.41	-32.36
Li 670.783	Li	17.13	ug/L	3339.66	15.96	18.07	17.35
Mg 279.078	Mg	-3.35	ug/L	-10.81	-5.68	-9.38	5.02
Mn 257.610	Mn	0.06	ug/L	8.22	0.06	0.09	0.02
Mo 204.598	Mo	1.04	ug/L	-7.47	1.95	1.83	-0.68
Na 589.592	Na	-2.37	ug/L	-34.32	-3.29	-1.2	-2.6
Ni 231.604	Ni	2.05	ug/L	-0.19	0.86	3.18	2.12
P 213.618	P	7.69	ug/L	0.46	-3.79	13.35	13.52
Pb 220.353	Pb	-1.76	ug/L	3.8	-5.51	0.69	-0.46
S 181.972	S	168.73	ug/L	1.56	506.9	54.91	-55.63
Sb 206.834	Sb	-0.58	ug/L	2.2	-0.18	-0.48	-1.09
Se 196.026	Se	7.52	ug/L	1.81	11.72	0.66	10.16
Sn 189.925	Sn	-1.52	ug/L	2.63	-4.87	0.53	-0.23
Sr 421.552	Sr	0.03	ug/L	-30.92	0.05	0.03	0.01
Ti 334.941	Ti	-0.98	ug/L	1756.44	-0.97	-1.11	-0.86
Tl 190.794	Tl	-0.94	ug/L	-4.02	-0.23	0.68	-3.27
V 292.401	V	0.94	ug/L	-9.42	0.99	1.41	0.41
Zn 213.857	Zn	0.46	ug/L	3.57	0.55	0.62	0.2

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2424519\_3023****Analysis Time: 5/3/2022 10:50:23 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.11	Ratio	21276.36	1.11	1.12	1.1
Tb 360.044	360 Tb RAD	1.06	Ratio	4154.23	1.08	1.03	1.05
Ag 328.068	Ag	485.24	ug/L	17376.69	487.67	479.62	488.42
Al 396.152	Al	2135.19	ug/L	7252.22	2060.89	2201.05	2143.63
As 188.980	As	1777.43	ug/L	703.01	1793.4	1746.93	1791.94
B 249.678	B	1940.19	ug/L	5568.06	1882.29	1994.22	1944.06
Ba 233.527	Ba	2014.11	ug/L	18361.55	1951.6	2069.82	2020.92
Be 234.861	Be	498.89	ug/L	22269.48	482.51	513.68	500.49
Ca 315.887	Ca	40890.17	ug/L	54454.29	39330.09	41913.72	41426.71
Cd 214.439	Cd	967.52	ug/L	3042.25	938.87	994.77	968.92
Co 228.615	Co	2060.57	ug/L	4065.47	1991.82	2114	2075.89
Cr 267.716	Cr	2030.1	ug/L	8498.22	1967.11	2085.59	2037.59
Cu 327.395	Cu	2055.61	ug/L	13559.15	1992.37	2113.53	2060.94
Fe 261.187	Fe	2292.44	ug/L	2381.36	2221	2353.25	2303.06
K 766.491	K	20889.88	ug/L	29966.61	20229.06	21491.9	20948.67
Li 670.783	Li	1840.61	ug/L	34675.6	1778.1	1900.66	1843.08
Mg 279.078	Mg	20231.1	ug/L	7528.65	19553.34	20807.77	20332.2
Mn 257.610	Mn	2051.91	ug/L	78657.19	1981.98	2112.17	2061.59
Mo 204.598	Mo	1926.37	ug/L	3525.97	1933.99	1903.26	1941.86
Na 589.592	Na	20897.17	ug/L	191025.91	20284.38	21481.59	20925.55
Ni 231.604	Ni	2030.36	ug/L	1076.42	1954.84	2103.83	2032.41
P 213.618	P	40197.7	ug/L	10553.22	38961.78	41279.73	40351.57
Pb 220.353	Pb	1998.88	ug/L	1996.63	2005.73	1973.94	2016.98
S 181.972	S	2115.17	ug/L	8.02	2443.39	2125.35	1776.76
Sb 206.834	Sb	1830.8	ug/L	1447.41	1844.46	1805.39	1842.54
Se 196.026	Se	1686.36	ug/L	600.31	1715.67	1673.65	1669.75
Sn 189.925	Sn	1647.36	ug/L	129.87	1565.36	1649.13	1727.59
Sr 421.552	Sr	2066.94	ug/L	699092.18	2001.51	2128.86	2070.44
Ti 334.941	Ti	1975.08	ug/L	90791.56	1903.02	2027.44	1994.78
Tl 190.794	Tl	1934.08	ug/L	1140	1935.43	1917.43	1949.37
V 292.401	V	2044.78	ug/L	7123.87	1980.4	2103.72	2050.21
Zn 213.857	Zn	2032.21	ug/L	10763.56	1964.69	2092.29	2039.64

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30483106001\_3023****Analysis Time: 5/3/2022 10:52:41 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20299.36	1.07	1.06	1.05
Tb 360.044	360 Tb RAD	1.03	Ratio	4059.42	1.03	1.03	1.04
Ag 328.068	Ag	-1.56	ug/L	-1038.82	-1.64	-1.5	-1.55
Al 396.152	Al	161108.28	ug/L	528215.98	160676.1	162111.26	160537.47
As 188.980	As	96.29	ug/L	38.09	106.91	80.63	101.34
B 249.678	B	113.96	ug/L	184.19	115.45	115.2	111.21
Ba 233.527	Ba	664.53	ug/L	6072.45	663.89	669.15	660.55
Be 234.861	Be	4.05	ug/L	213.95	3.85	4.12	4.18
Ca 315.887	Ca	212234.44	ug/L	282604.4	212871.09	213043.69	210788.54
Cd 214.439	Cd	0.97	ug/L	16.6	1.37	0.79	0.76
Co 228.615	Co	90.96	ug/L	182.48	91.69	91.57	89.62
Cr 267.716	Cr	167.67	ug/L	680.77	167.83	169.66	165.53
Cu 327.395	Cu	221.71	ug/L	1258.94	221.71	222.45	220.98
Fe 261.187	Fe	207601.77	ug/L	214790.29	207515.93	208825.97	206463.4
K 766.491	K	27729.14	ug/L	39769.49	27676.3	27918.74	27592.4
Li 670.783	Li	303.62	ug/L	8252.43	302.17	306.24	302.44
Mg 279.078	Mg	98950.52	ug/L	36822.12	98908.55	99436.43	98506.57
Mn 257.610	Mn	3380.77	ug/L	129487.03	3381.93	3402.66	3357.72
Mo 204.598	Mo	19.5	ug/L	35.22	18.93	20.64	18.94
Na 589.592	Na	25091.23	ug/L	227694.79	25004.09	25287.63	24981.97
Ni 231.604	Ni	257.55	ug/L	133.44	265.35	256.24	251.05
P 213.618	P	4386.86	ug/L	1148.85	4399.29	4381.21	4380.08
Pb 220.353	Pb	279.56	ug/L	286.18	277.69	279.12	281.88
S 181.972	S	10041.55	ug/L	35.25	9940.12	9814.98	10369.54
Sb 206.834	Sb	-0.12	ug/L	10.58	5.77	-1.12	-5.02
Se 196.026	Se	26.51	ug/L	-3.99	14.64	36.02	28.88
Sn 189.925	Sn	8.86	ug/L	2.65	17.68	14.8	-5.91
Sr 421.552	Sr	296.53	ug/L	101197.92	296.44	298.22	294.93
Ti 334.941	Ti	1147.89	ug/L	53460.38	1150.83	1155.03	1137.82
Tl 190.794	Tl	-3.34	ug/L	-7.41	-10.55	0.5	0.01
V 292.401	V	221.91	ug/L	733.14	221.89	223.29	220.55
Zn 213.857	Zn	1186.54	ug/L	6367.4	1189.46	1190.85	1179.32

## Agilent 5110 ICP-OES Report

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**Sample: 30483106002\_3023****Analysis Time: 5/3/2022 10:55:00 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.09	Ratio	20920.05	1.09	1.09	1.09
Tb 360.044	360 Tb RAD	1.05	Ratio	4127.2	1.05	1.05	1.05
Ag 328.068	Ag	-0.62	ug/L	-1031.93	-0.84	-0.56	-0.47
Al 396.152	Al	125535.79	ug/L	411214.71	124663.01	126012.24	125932.11
As 188.980	As	68.49	ug/L	27.39	72.34	67.01	66.14
B 249.678	B	53.95	ug/L	23.35	56.32	50.85	54.68
Ba 233.527	Ba	399.24	ug/L	3658	395.03	401.08	401.63
Be 234.861	Be	1.07	ug/L	77.24	0.43	1.66	1.12
Ca 315.887	Ca	401791.91	ug/L	535059.88	399890.03	399489.52	405996.16
Cd 214.439	Cd	-0.19	ug/L	13.03	0.85	-2.25	0.84
Co 228.615	Co	78.04	ug/L	156.43	79.02	78.6	76.5
Cr 267.716	Cr	146.21	ug/L	585.57	143.75	147.34	147.53
Cu 327.395	Cu	261.94	ug/L	1532.72	263.94	260.16	261.73
Fe 261.187	Fe	189970.14	ug/L	196548.72	188917.54	190342.94	190649.93
K 766.491	K	15301.9	ug/L	22154.79	15235.95	15329.17	15340.58
Li 670.783	Li	218.12	ug/L	6789.45	218.04	216.72	219.6
Mg 279.078	Mg	62167.62	ug/L	23127.37	61796.05	62290.46	62416.34
Mn 257.610	Mn	2353.06	ug/L	90156.13	2341.12	2357.29	2360.78
Mo 204.598	Mo	14.42	ug/L	25	12.39	15.9	14.99
Na 589.592	Na	1963.01	ug/L	18202.36	1944.04	1966.32	1978.68
Ni 231.604	Ni	229.28	ug/L	115.15	227.34	225.36	235.14
P 213.618	P	4602.73	ug/L	1205.09	4577.37	4623.46	4607.35
Pb 220.353	Pb	293.24	ug/L	301.15	292.12	298.26	289.34
S 181.972	S	13492.77	ug/L	47.07	13346.26	13491	13641.05
Sb 206.834	Sb	-0.6	ug/L	9.88	1.28	-10.48	7.41
Se 196.026	Se	22.1	ug/L	-5.3	22.44	16.61	27.25
Sn 189.925	Sn	19.19	ug/L	3.07	8.7	11.71	37.18
Sr 421.552	Sr	356.9	ug/L	122409.62	354.7	357.96	358.04
Ti 334.941	Ti	1357.05	ug/L	62833.17	1344.2	1360.66	1366.3
Tl 190.794	Tl	-6.28	ug/L	-7.68	-9.72	-12.67	3.55
V 292.401	V	213.1	ug/L	712.28	211.36	213.94	214
Zn 213.857	Zn	963.55	ug/L	5196.9	956.17	970.75	963.75

## Agilent 5110 ICP-OES Report

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**Sample: 30483106003\_3023****Analysis Time: 5/3/2022 10:57:18 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.09	Ratio	20800.55	1.09	1.08	1.08
Tb 360.044	360 Tb RAD	1.04	Ratio	4107.98	1.04	1.05	1.05
Ag 328.068	Ag	-1.66	ug/L	-996.93	-1.17	-1.56	-2.26
Al 396.152	Al	175099.3	ug/L	573872.26	175620.8	174531.74	175145.36
As 188.980	As	158.19	ug/L	60.87	146.93	168.6	159.03
B 249.678	B	108.32	ug/L	34.83	110.2	109.63	105.14
Ba 233.527	Ba	790.11	ug/L	7228.66	791.76	788.75	789.83
Be 234.861	Be	2.48	ug/L	165.87	2.23	2.62	2.59
Ca 315.887	Ca	370779.01	ug/L	493749.56	372495.9	369101.81	370739.32
Cd 214.439	Cd	-1.69	ug/L	17.59	-0.88	-2.26	-1.94
Co 228.615	Co	131.76	ug/L	262.51	135.05	126.37	133.86
Cr 267.716	Cr	289.25	ug/L	1189.28	290.79	289.73	287.22
Cu 327.395	Cu	316.42	ug/L	1904.89	316.75	315.29	317.21
Fe 261.187	Fe	379775.46	ug/L	392917.47	380369.58	378651.33	380305.46
K 766.491	K	32086.42	ug/L	45909.24	32152.31	31929.35	32177.59
Li 670.783	Li	362.07	ug/L	9238.64	361.72	361.99	362.51
Mg 279.078	Mg	146001.74	ug/L	54328.74	146052.02	145589.94	146363.25
Mn 257.610	Mn	16964.25	ug/L	649371.07	17019.8	16920.16	16952.79
Mo 204.598	Mo	38.18	ug/L	72.15	40.2	37.06	37.3
Na 589.592	Na	4902.89	ug/L	45190.75	4909.02	4895.44	4904.21
Ni 231.604	Ni	373.14	ug/L	193.46	378.32	368.78	372.32
P 213.618	P	5034.92	ug/L	1316.37	5043.35	5031.07	5030.33
Pb 220.353	Pb	191.07	ug/L	203.91	190.15	196.01	187.04
S 181.972	S	3065.97	ug/L	11.35	2913.98	3867.02	2416.91
Sb 206.834	Sb	-5.38	ug/L	15.07	-3.73	-17.28	4.86
Se 196.026	Se	51.37	ug/L	-3.8	54.82	41.5	57.8
Sn 189.925	Sn	24.06	ug/L	3.32	-18.47	20.51	70.13
Sr 421.552	Sr	456.38	ug/L	155979.99	457.64	455.24	456.27
Ti 334.941	Ti	822.67	ug/L	38775.96	822.61	823.65	821.75
Tl 190.794	Tl	-3.59	ug/L	-7.29	-5.28	-2.38	-3.11
V 292.401	V	311.46	ug/L	1011.16	314.65	308.21	311.53
Zn 213.857	Zn	1492.23	ug/L	8070.66	1493.98	1487.56	1495.17

## Agilent 5110 ICP-OES Report

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**Sample: 30483106004\_3023****Analysis Time: 5/3/2022 10:59:37 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1	Ratio	19232.95	1	1	1
Tb 360.044	360 Tb RAD	0.98	Ratio	3870.2	0.98	0.98	0.99
Ag 328.068	Ag	1.27	ug/L	-976.83	1.06	1.2	1.55
Al 396.152	Al	74605.38	ug/L	241031.56	74693.2	74748.84	74374.09
As 188.980	As	37.13	ug/L	14.7	37.08	38	36.31
B 249.678	B	187.07	ug/L	448.55	190.59	189.9	180.74
Ba 233.527	Ba	321	ug/L	3001.77	322.93	322.28	317.8
Be 234.861	Be	1.67	ug/L	104.08	2.19	1.78	1.05
Ca 315.887	Ca	2322411.82	ug/L	3092914.69	2331980.81	2322376.05	2312878.59
Cd 214.439	Cd	-2.43	ug/L	11.42	-1.66	-2.21	-3.42
Co 228.615	Co	35.35	ug/L	62.61	37.45	34.2	34.41
Cr 267.716	Cr	117.64	ug/L	420.37	120.14	115.93	116.86
Cu 327.395	Cu	115.23	ug/L	584.74	115.21	114.2	116.26
Fe 261.187	Fe	106755.27	ug/L	110556.03	106910.8	107004.65	106350.37
K 766.491	K	24292.61	ug/L	34950.71	24324.42	24321.99	24231.4
Li 670.783	Li	328.02	ug/L	8693.74	328.11	328.61	327.33
Mg 279.078	Mg	907675.56	ug/L	338121.13	908501.95	910067.26	904457.47
Mn 257.610	Mn	4375.37	ug/L	167579.75	4379.78	4387.41	4358.92
Mo 204.598	Mo	5.42	ug/L	12.99	1.72	8.18	6.37
Na 589.592	Na	4028.19	ug/L	37131.79	4031.79	4037.37	4015.4
Ni 231.604	Ni	172.53	ug/L	60.73	177.22	166.46	173.92
P 213.618	P	4184.47	ug/L	1090.12	4226.06	4178.68	4148.68
Pb 220.353	Pb	220.18	ug/L	247.26	224.63	220.32	215.58
S 181.972	S	13490.48	ug/L	47.58	14181.09	12222.48	14067.89
Sb 206.834	Sb	-1.42	ug/L	14.02	-5.8	-4.02	5.55
Se 196.026	Se	37.97	ug/L	-7.4	21.58	48.98	43.35
Sn 189.925	Sn	88.06	ug/L	1.96	141.76	74.46	47.96
Sr 421.552	Sr	1180.63	ug/L	409409.76	1182.34	1183.04	1176.51
Ti 334.941	Ti	760.02	ug/L	35445.17	759.95	756.04	764.06
Tl 190.794	Tl	-21.06	ug/L	-1.71	-9.24	-31.87	-22.06
V 292.401	V	168.33	ug/L	678.36	165.13	170.79	169.07
Zn 213.857	Zn	475.46	ug/L	2763.13	477.03	475.6	473.74

## Agilent 5110 ICP-OES Report

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**Sample: 30483106005\_3023****Analysis Time: 5/3/2022 11:01:56 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.1	Ratio	21053.58	1.09	1.1	1.11
Tb 360.044	360 Tb RAD	1.05	Ratio	4128.07	1.05	1.04	1.05
Ag 328.068	Ag	-1.06	ug/L	-1034.94	-1.23	-1.01	-0.95
Al 396.152	Al	172691.3	ug/L	566444.08	171885.13	173540.96	172647.82
As 188.980	As	112.82	ug/L	44.03	131.42	95.77	111.26
B 249.678	B	108.38	ug/L	84.18	109.62	107.41	108.12
Ba 233.527	Ba	857.34	ug/L	7830.58	855.18	860.9	855.93
Be 234.861	Be	2.4	ug/L	153.41	1.9	2.15	3.15
Ca 315.887	Ca	66786.55	ug/L	88897.63	66582.97	67127.44	66649.26
Cd 214.439	Cd	-0.51	ug/L	16.61	-1.04	0.08	-0.57
Co 228.615	Co	133.65	ug/L	266.06	131.41	133.86	135.68
Cr 267.716	Cr	212.99	ug/L	875.89	212.72	214.63	211.63
Cu 327.395	Cu	273.85	ug/L	1609.53	271.83	277.41	272.31
Fe 261.187	Fe	327645.44	ug/L	338973.63	326033.73	329306.26	327596.32
K 766.491	K	29887.61	ug/L	42818.13	29802.85	30023.52	29836.46
Li 670.783	Li	311.53	ug/L	8374.74	309.35	318.16	307.1
Mg 279.078	Mg	52112.55	ug/L	19355.03	51909.65	52405.03	52022.96
Mn 257.610	Mn	2416.71	ug/L	92646.84	2408.9	2431.34	2409.88
Mo 204.598	Mo	28.03	ug/L	52.12	28.12	28.5	27.48
Na 589.592	Na	2224.77	ug/L	20962.95	2222.6	2234.99	2216.71
Ni 231.604	Ni	371.8	ug/L	196.45	364.3	384.95	366.15
P 213.618	P	3122.87	ug/L	814.9	3124.12	3114.88	3129.61
Pb 220.353	Pb	265.15	ug/L	271.68	267.23	265.94	262.29
S 181.972	S	11697.13	ug/L	40.82	11679.07	11890.89	11521.44
Sb 206.834	Sb	4	ug/L	17.39	1.17	7.41	3.41
Se 196.026	Se	37.53	ug/L	-5.59	37.28	46.78	28.53
Sn 189.925	Sn	32.06	ug/L	4.8	46.6	35.03	14.55
Sr 421.552	Sr	220.53	ug/L	74915.38	219.76	221.65	220.19
Ti 334.941	Ti	761.39	ug/L	36087.86	757.75	767.45	758.97
Tl 190.794	Tl	-2.48	ug/L	-9.38	-3.2	-8.1	3.85
V 292.401	V	294.28	ug/L	952.56	292.44	296.74	293.66
Zn 213.857	Zn	966.76	ug/L	5248.78	959.97	971.18	969.13

## Agilent 5110 ICP-OES Report

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**Sample: 30484052001\_3023****Analysis Time: 5/3/2022 11:18:20 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.03	Ratio	19808.16	1.03	1.03	1.04
Tb 360.044	360 Tb RAD	0.97	Ratio	3811.28	0.96	0.98	0.97
Ag 328.068	Ag	-0.04	ug/L	-1006.67	-0.16	-0.65	0.7
Al 396.152	Al	69194.14	ug/L	226980.88	69409.23	68402.4	69770.78
As 188.980	As	26.74	ug/L	11.29	26.78	28.8	24.64
B 249.678	B	55.48	ug/L	88.36	57.69	53.43	55.31
Ba 233.527	Ba	756.29	ug/L	6899.97	758.61	747.41	762.85
Be 234.861	Be	1.41	ug/L	81.66	1.19	1	2.04
Ca 315.887	Ca	23108.98	ug/L	30745.86	23186.74	22841.95	23298.23
Cd 214.439	Cd	0.31	ug/L	9.15	0.37	-0.31	0.89
Co 228.615	Co	53.62	ug/L	105.87	55.65	54.44	50.78
Cr 267.716	Cr	92.61	ug/L	368.53	94.52	91.75	91.57
Cu 327.395	Cu	292.64	ug/L	1726.92	294.44	289.93	293.54
Fe 261.187	Fe	116791.98	ug/L	120833.77	117286.89	115395.73	117693.31
K 766.491	K	11890.74	ug/L	17333.69	11938.24	11754.93	11979.05
Li 670.783	Li	145.5	ug/L	5537.75	147.07	141.85	147.58
Mg 279.078	Mg	11392.32	ug/L	4217.93	11434.64	11229.07	11513.25
Mn 257.610	Mn	760.44	ug/L	29160.6	763.85	751.98	765.49
Mo 204.598	Mo	9.31	ug/L	11.49	7.03	8.45	12.47
Na 589.592	Na	1154.7	ug/L	11166.42	1162.81	1137.28	1164.02
Ni 231.604	Ni	126.57	ug/L	65.9	129.99	125.09	124.63
P 213.618	P	8411.84	ug/L	2210.29	8470.13	8339.48	8425.91
Pb 220.353	Pb	134.9	ug/L	140.36	132.8	135.43	136.46
S 181.972	S	42171.35	ug/L	144.66	42682.37	41708.84	42122.82
Sb 206.834	Sb	5.92	ug/L	11.32	10.07	1	6.7
Se 196.026	Se	22.09	ug/L	0.77	29.36	18.21	18.69
Sn 189.925	Sn	77.08	ug/L	8.55	69.99	107.29	53.96
Sr 421.552	Sr	196.48	ug/L	66534.62	197.23	194.13	198.08
Ti 334.941	Ti	463.05	ug/L	22656.01	464.21	457.62	467.32
Tl 190.794	Tl	-4.24	ug/L	-7.57	-0.32	-6.05	-6.36
V 292.401	V	131.25	ug/L	425.07	132.74	129.08	131.92
Zn 213.857	Zn	677.81	ug/L	3624.94	679.36	669.84	684.23



## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427747\_3023****Analysis Time: 5/3/2022 11:20:40 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20049.79	1.05	1.05	1.04
Tb 360.044	360 Tb RAD	0.98	Ratio	3870.46	0.98	0.98	0.99
Ag 328.068	Ag	456.3	ug/L	16275.2	458.32	455	455.59
Al 396.152	Al	66822.17	ug/L	219441.3	66954.53	67206.18	66305.8
As 188.980	As	1739.33	ug/L	687.36	1746.17	1730.68	1741.14
B 249.678	B	2000.1	ug/L	5664.06	2002.82	2013.37	1984.12
Ba 233.527	Ba	2634.83	ug/L	24025.84	2638.93	2651.61	2613.94
Be 234.861	Be	462.8	ug/L	20672.3	463.56	467.44	457.4
Ca 315.887	Ca	60619.95	ug/L	80719.56	60497.36	61375.5	59986.99
Cd 214.439	Cd	948.79	ug/L	2988.29	951.59	951.9	942.88
Co 228.615	Co	2028.18	ug/L	4003.09	2024.52	2046.48	2013.54
Cr 267.716	Cr	2023.08	ug/L	8470.04	2029.14	2034.67	2005.43
Cu 327.395	Cu	2141.6	ug/L	14140.62	2148.28	2154.66	2121.85
Fe 261.187	Fe	110420.27	ug/L	114244.84	110545.43	111097.6	109617.77
K 766.491	K	30962.46	ug/L	44224.28	31021.26	31209.97	30656.15
Li 670.783	Li	2093.41	ug/L	39018.36	2095.71	2111.28	2073.24
Mg 279.078	Mg	30371.24	ug/L	11290.77	30397.65	30585.83	30130.23
Mn 257.610	Mn	2644.24	ug/L	101372.94	2647.24	2664.33	2621.16
Mo 204.598	Mo	1888.58	ug/L	3460.12	1902.06	1880.13	1883.55
Na 589.592	Na	20785.94	ug/L	190620.08	20836.36	20924.27	20597.19
Ni 231.604	Ni	2071.52	ug/L	1098.29	2094.01	2068.68	2051.89
P 213.618	P	46572.99	ug/L	12231.08	46736.54	46857.18	46125.26
Pb 220.353	Pb	2030.95	ug/L	2028.96	2044.25	2018.34	2030.25
S 181.972	S	41107.42	ug/L	140.85	40794.74	41685.27	40842.24
Sb 206.834	Sb	1800.04	ug/L	1426.3	1803.82	1785.82	1810.48
Se 196.026	Se	1686.86	ug/L	594.63	1699.97	1673.64	1686.96
Sn 189.925	Sn	1928.67	ug/L	151.5	1946.86	1922.14	1916.99
Sr 421.552	Sr	2105.21	ug/L	712147.84	2112.6	2118.36	2084.67
Ti 334.941	Ti	2353.11	ug/L	107816.73	2350.99	2387.89	2320.46
Tl 190.794	Tl	1819.75	ug/L	1070.92	1839.15	1807.65	1812.46
V 292.401	V	2054.85	ug/L	7139.23	2061.94	2069.01	2033.59
Zn 213.857	Zn	2527.21	ug/L	13418.88	2533.69	2541.63	2506.31

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2424526\_3023****Analysis Time: 5/3/2022 11:22:58 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20068.21	1.05	1.04	1.05
Tb 360.044	360 Tb RAD	0.99	Ratio	3893.35	0.98	0.99	1
Ag 328.068	Ag	454.88	ug/L	16224.18	456.01	458.06	450.56
Al 396.152	Al	158279.81	ug/L	519460.98	159808.99	157483.89	157546.56
As 188.980	As	1808.62	ug/L	714.32	1807.65	1838.39	1779.81
B 249.678	B	1943.09	ug/L	5489.71	1960.15	1944.05	1925.07
Ba 233.527	Ba	3108.67	ug/L	28347.52	3130.13	3104.33	3091.54
Be 234.861	Be	476.56	ug/L	21290.51	481.15	479.92	468.61
Ca 315.887	Ca	60898.12	ug/L	81076.29	61827.34	60922.78	59944.23
Cd 214.439	Cd	977.15	ug/L	3077.9	986.34	977.61	967.52
Co 228.615	Co	2083.75	ug/L	4113.03	2103.26	2086.41	2061.59
Cr 267.716	Cr	2152.61	ug/L	9014.4	2170	2153.4	2134.42
Cu 327.395	Cu	2230.1	ug/L	14737.17	2248.23	2226.86	2215.21
Fe 261.187	Fe	128025.02	ug/L	132458.55	129102.34	128005.33	126967.38
K 766.491	K	58267.75	ug/L	82935.8	58730.07	58190.24	57882.93
Li 670.783	Li	1940.84	ug/L	36391.7	1957.67	1939.69	1925.17
Mg 279.078	Mg	37060.57	ug/L	13779.64	37394.72	36994.93	36792.07
Mn 257.610	Mn	2759.15	ug/L	105770.85	2781.39	2757.91	2738.14
Mo 204.598	Mo	1754.49	ug/L	3217.39	1760.88	1762.61	1739.98
Na 589.592	Na	22254.14	ug/L	204360.5	22404.24	22238.18	22120
Ni 231.604	Ni	2137.02	ug/L	1132.97	2163.49	2129.35	2118.22
P 213.618	P	48775.65	ug/L	12810.86	49076.36	48829.81	48420.79
Pb 220.353	Pb	2076.98	ug/L	2073.46	2081.86	2090.61	2058.48
S 181.972	S	43738.84	ug/L	149.89	43218.74	43919.71	44078.07
Sb 206.834	Sb	1336.8	ug/L	1063.91	1340.14	1340.28	1329.97
Se 196.026	Se	1647.41	ug/L	579.39	1633.24	1671.48	1637.5
Sn 189.925	Sn	1637.58	ug/L	128.99	1629.68	1687.73	1595.32
Sr 421.552	Sr	2268.88	ug/L	767517.61	2284.06	2263.71	2258.87
Ti 334.941	Ti	2507.83	ug/L	114792.35	2539.86	2510.34	2473.28
Tl 190.794	Tl	1872.42	ug/L	1102.09	1859.5	1905.2	1852.55
V 292.401	V	2240.14	ug/L	7787.66	2261.08	2237.2	2222.14
Zn 213.857	Zn	2653.25	ug/L	14093.38	2669.49	2658.71	2631.57

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427748\_3023****Analysis Time: 5/3/2022 11:25:17 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20662.66	1.07	1.08	1.08
Tb 360.044	360 Tb RAD	1	Ratio	3916.98	1.01	0.99	0.99
Ag 328.068	Ag	87.15	ug/L	2298.92	87.32	87.11	87.02
Al 396.152	Al	31812.86	ug/L	104408.5	31295.11	31745.78	32397.7
As 188.980	As	365.4	ug/L	145.48	375.29	357.85	363.04
B 249.678	B	394.79	ug/L	1123.19	389.29	395.73	399.35
Ba 233.527	Ba	632.71	ug/L	5768.87	620.52	635.22	642.37
Be 234.861	Be	97.14	ug/L	4342.96	95.85	97.25	98.32
Ca 315.887	Ca	12405.74	ug/L	16500.69	12231.52	12439.83	12545.87
Cd 214.439	Cd	202.67	ug/L	640.71	200.49	203.4	204.11
Co 228.615	Co	432.88	ug/L	853.26	430.12	435.22	433.31
Cr 267.716	Cr	442.38	ug/L	1835.46	438.33	443.31	445.5
Cu 327.395	Cu	459.06	ug/L	2840.88	455.41	458.62	463.16
Fe 261.187	Fe	26560.26	ug/L	27485.39	26211.73	26611.08	26857.98
K 766.491	K	11667.99	ug/L	17008.03	11480.05	11717.88	11806.06
Li 670.783	Li	415.61	ug/L	10186.6	409.37	415.69	421.76
Mg 279.078	Mg	7507.13	ug/L	2783.59	7410.45	7516.96	7593.98
Mn 257.610	Mn	567.44	ug/L	21756.73	559.97	569.07	573.3
Mo 204.598	Mo	350.74	ug/L	635.72	357.21	344.93	350.09
Na 589.592	Na	4433.62	ug/L	40716.58	4371	4443.77	4486.07
Ni 231.604	Ni	443.82	ug/L	234.29	440.49	443.2	447.78
P 213.618	P	9839.93	ug/L	2583.14	9705.46	9872.69	9941.65
Pb 220.353	Pb	421.34	ug/L	425.05	416.62	425.43	421.97
S 181.972	S	8511.3	ug/L	29.96	8434.05	8595.81	8504.04
Sb 206.834	Sb	262.66	ug/L	211.34	261.02	264.31	262.66
Se 196.026	Se	349.45	ug/L	122.3	350.62	350.78	346.95
Sn 189.925	Sn	308.57	ug/L	26.53	294.12	309.86	321.74
Sr 421.552	Sr	458.85	ug/L	155188.42	452.64	459.97	463.94
Ti 334.941	Ti	506.59	ug/L	24625.39	499	508.51	512.25
Tl 190.794	Tl	378.16	ug/L	219.82	376.07	380.88	377.54
V 292.401	V	453.19	ug/L	1565.34	447.71	452.66	459.2
Zn 213.857	Zn	540.11	ug/L	2870.12	532.42	543.74	544.18

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCV****Analysis Time: 5/3/2022 11:27:36 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.09	Ratio	20803.98	1.09	1.08	1.09
Tb 360.044	360 Tb RAD	1.01	Ratio	3977.95	1.01	1.01	1.02
Ag 328.068	Ag	983.53	ug/L	36553.94	987.21	985.91	977.47
Al 396.152	Al	10039	ug/L	33296.42	10079.98	10113.1	9923.91
As 188.980	As	1862.71	ug/L	736.95	1864.05	1860.98	1863.1
B 249.678	B	2110.26	ug/L	6048.83	2120.06	2122.66	2088.06
Ba 233.527	Ba	2103.74	ug/L	19178.09	2112.23	2111.58	2087.42
Be 234.861	Be	1993.77	ug/L	88982.56	2003.52	2004.26	1973.53
Ca 315.887	Ca	10242.57	ug/L	13621.66	10290.79	10279.22	10157.68
Cd 214.439	Cd	2067.87	ug/L	6497.19	2077.1	2073.65	2052.86
Co 228.615	Co	2118.77	ug/L	4180.87	2129.17	2124.57	2102.57
Cr 267.716	Cr	2054.95	ug/L	8602.59	2060.82	2065.4	2038.63
Cu 327.395	Cu	2006.56	ug/L	13229.44	2015.74	2012.33	1991.59
Fe 261.187	Fe	10261.62	ug/L	10624.95	10284.62	10327.59	10172.66
K 766.491	K	10189.34	ug/L	14778.15	10268.71	10224.78	10074.53
Li 670.783	Li	2071.15	ug/L	38642.38	2080.77	2082.13	2050.55
Mg 279.078	Mg	10290.6	ug/L	3824.22	10321.05	10343.49	10207.26
Mn 257.610	Mn	2064.84	ug/L	79158.83	2065.16	2079.55	2049.8
Mo 204.598	Mo	1975.02	ug/L	3615.49	1983.84	1975.21	1966.02
Na 589.592	Na	10043.23	ug/L	92903.06	10097.84	10068.87	9963
Ni 231.604	Ni	2106.16	ug/L	1117	2108.22	2126.38	2083.89
P 213.618	P	2041.14	ug/L	500.17	2044.01	2068.12	2011.29
Pb 220.353	Pb	2059.68	ug/L	2056.98	2055.29	2070.94	2052.81
S 181.972	S	10783.32	ug/L	37.52	11036.3	10394.02	10919.63
Sb 206.834	Sb	1954.67	ug/L	1544.67	1964.94	1960.3	1938.78
Se 196.026	Se	1849.81	ug/L	658.37	1839.67	1857.11	1852.66
Sn 189.925	Sn	1946.15	ug/L	153.16	1978.17	1964.77	1895.5
Sr 421.552	Sr	2033.02	ug/L	687489.37	2042.35	2042.47	2014.24
Ti 334.941	Ti	2052.02	ug/L	94268.31	2052.75	2068.06	2035.26
Tl 190.794	Tl	2021.08	ug/L	1191.27	2034.94	2023.23	2005.06
V 292.401	V	2039.77	ug/L	7102.86	2045.42	2049.76	2024.13
Zn 213.857	Zn	2040.23	ug/L	10808.52	2049.1	2052.58	2019.03

## Agilent 5110 ICP-OES Report

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**Sample: CCB****Analysis Time: 5/3/2022 11:29:55 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.07	Ratio	20573.65	1.07	1.08	1.07
Tb 360.044	360 Tb RAD	1	Ratio	3930.27	1	1	1
Ag 328.068	Ag	0.47	ug/L	-983.33	0.65	0.46	0.3
Al 396.152	Al	-7.11	ug/L	-21.32	-6.16	-9.37	-5.79
As 188.980	As	0.09	ug/L	1.52	1.62	4.05	-5.39
B 249.678	B	0.03	ug/L	10.13	-0.79	1.44	-0.54
Ba 233.527	Ba	0.09	ug/L	-0.05	0.3	-0.16	0.13
Be 234.861	Be	-0.04	ug/L	2.5	-0.03	-0.07	-0.01
Ca 315.887	Ca	7.46	ug/L	-9.71	4.18	10.42	7.79
Cd 214.439	Cd	-0.26	ug/L	2.19	-0.03	-0.28	-0.46
Co 228.615	Co	-0.08	ug/L	-1.52	0.16	0.37	-0.77
Cr 267.716	Cr	-0.52	ug/L	-23.7	-0.34	-1.39	0.16
Cu 327.395	Cu	3.49	ug/L	-219.37	1.95	2.83	5.68
Fe 261.187	Fe	2.12	ug/L	9.02	0.26	2.15	3.95
K 766.491	K	-5.69	ug/L	490.7	-6.33	-19.31	8.55
Li 670.783	Li	33.25	ug/L	3616.88	32.74	33.41	33.61
Mg 279.078	Mg	-6.16	ug/L	-11.8	-6.26	6.73	-18.95
Mn 257.610	Mn	-0.02	ug/L	5.68	0.01	-0.02	-0.04
Mo 204.598	Mo	0.71	ug/L	-8.07	1.29	2.65	-1.82
Na 589.592	Na	-0.57	ug/L	-18.07	8.24	-3.63	-6.32
Ni 231.604	Ni	99.45	ug/L	51.54	300.41	2.08	-4.14
P 213.618	P	3.79	ug/L	-0.6	-1.74	13.58	-0.48
Pb 220.353	Pb	-1.85	ug/L	3.72	1.36	-2.03	-4.87
S 181.972	S	11.07	ug/L	1.02	-38.67	-256.6	328.48
Sb 206.834	Sb	0.9	ug/L	3.33	0.26	2.87	-0.42
Se 196.026	Se	10.04	ug/L	2.72	3.96	16.39	9.76
Sn 189.925	Sn	10.69	ug/L	3.58	34.84	12.11	-14.89
Sr 421.552	Sr	0.04	ug/L	-25.63	0.07	0.01	0.05
Ti 334.941	Ti	-0.5	ug/L	1778.31	-0.84	-0.27	-0.39
Tl 190.794	Tl	3.77	ug/L	-1.23	2.5	7.21	1.61
V 292.401	V	1.83	ug/L	-6.18	0.82	2.3	2.39
Zn 213.857	Zn	0.37	ug/L	5.4	1.85	-0.39	-0.36

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2424527\_3023****Analysis Time: 5/3/2022 11:32:13 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20180.21	1.05	1.06	1.05
Tb 360.044	360 Tb RAD	1	Ratio	3934.15	1	1	1
Ag 328.068	Ag	441.52	ug/L	15720.51	443.28	441.53	439.74
Al 396.152	Al	144350.84	ug/L	473757.76	143343.8	144338.4	145370.33
As 188.980	As	1793.01	ug/L	708.2	1785.9	1798.85	1794.27
B 249.678	B	1818.7	ug/L	5140.71	1811.1	1810.23	1834.78
Ba 233.527	Ba	2955.6	ug/L	26951.56	2942.46	2949.52	2974.83
Be 234.861	Be	476.7	ug/L	21295.33	473.26	474.59	482.25
Ca 315.887	Ca	58877.59	ug/L	78387.35	58455.6	58667.95	59509.21
Cd 214.439	Cd	974.52	ug/L	3069.16	972.16	971.63	979.78
Co 228.615	Co	2080.86	ug/L	4106.86	2068.47	2073.92	2100.17
Cr 267.716	Cr	2132.64	ug/L	8930.49	2126	2125.15	2146.77
Cu 327.395	Cu	2208.71	ug/L	14593.17	2197.61	2201.63	2226.88
Fe 261.187	Fe	118016.18	ug/L	122103.79	117518	117671.38	118859.16
K 766.491	K	53673.36	ug/L	76427.54	53350.3	53586.04	54083.73
Li 670.783	Li	1888.96	ug/L	35500.34	1881.04	1881.82	1904.04
Mg 279.078	Mg	35531.1	ug/L	13211.31	35400.96	35415.14	35777.19
Mn 257.610	Mn	2727.74	ug/L	104560.2	2715.51	2719.06	2748.64
Mo 204.598	Mo	1692.23	ug/L	3102.51	1700.5	1685.25	1690.93
Na 589.592	Na	22126.89	ug/L	203060.33	22015.77	22104.76	22260.15
Ni 231.604	Ni	2138.48	ug/L	1133.77	2128.67	2139	2147.76
P 213.618	P	46587.93	ug/L	12235.23	46318.43	46627.26	46818.11
Pb 220.353	Pb	2075.23	ug/L	2071.88	2088.74	2071.38	2065.58
S 181.972	S	38071.57	ug/L	130.58	38222.62	37340.42	38651.67
Sb 206.834	Sb	1280.61	ug/L	1019.75	1287.98	1279.77	1274.09
Se 196.026	Se	1634.24	ug/L	575.32	1634.11	1648.8	1619.81
Sn 189.925	Sn	1552.93	ug/L	122.46	1495.55	1572.26	1590.98
Sr 421.552	Sr	2245.22	ug/L	759504.8	2234	2243.68	2258
Ti 334.941	Ti	2358.63	ug/L	108071.44	2337.55	2348.02	2390.32
Tl 190.794	Tl	1874.5	ug/L	1103.54	1875.28	1890.49	1857.75
V 292.401	V	2200.69	ug/L	7651.93	2183.5	2191.74	2226.82
Zn 213.857	Zn	2604.05	ug/L	13829.79	2586.59	2598.2	2627.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484167001\_3023****Analysis Time: 5/3/2022 11:34:32 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.98	Ratio	18871.11	1.02	1.01	0.92
Tb 360.044	360 Tb RAD	0.96	Ratio	3794.13	0.98	0.97	0.95
Ag 328.068	Ag	0.61	ug/L	-984.1	0.46	0.5	0.87
Al 396.152	Al	3403.46	ug/L	10829.97	3343.07	3387.03	3480.27
As 188.980	As	8.37	ug/L	2.96	10.89	16.64	-2.41
B 249.678	B	0.83	ug/L	-24.21	1.81	-0.11	0.79
Ba 233.527	Ba	41.48	ug/L	385.27	39.77	42.56	42.11
Be 234.861	Be	-0.13	ug/L	4.09	-0.13	-0.09	-0.17
Ca 315.887	Ca	227196.87	ug/L	302555	222706.62	226340.84	232543.15
Cd 214.439	Cd	0.03	ug/L	6.4	1.03	0.33	-1.27
Co 228.615	Co	9.21	ug/L	16.6	10.76	9.76	7.1
Cr 267.716	Cr	804.98	ug/L	3352.85	788.78	804.15	822.01
Cu 327.395	Cu	275.25	ug/L	1611.78	271.11	272.88	281.76
Fe 261.187	Fe	50754.28	ug/L	52516.77	49773.82	50535.04	51953.97
K 766.491	K	1364.91	ug/L	2417.02	1339.17	1338.13	1417.43
Li 670.783	Li	41.53	ug/L	3754.59	38.17	40.18	46.24
Mg 279.078	Mg	6263.6	ug/L	2321.27	6161.65	6202.15	6427
Mn 257.610	Mn	368.84	ug/L	14155.42	362.19	367.02	377.31
Mo 204.598	Mo	39.04	ug/L	63.61	40.66	36.77	39.7
Na 589.592	Na	14869.93	ug/L	134602.26	14598.04	14825.2	15186.57
Ni 231.604	Ni	632.79	ug/L	331.54	628.69	619.45	650.22
P 213.618	P	2026.95	ug/L	528.08	1990.14	2018.21	2072.5
Pb 220.353	Pb	14.17	ug/L	21.9	13.85	12.6	16.06
S 181.972	S	15345.33	ug/L	53.3	15182.9	15466.06	15387.02
Sb 206.834	Sb	134.81	ug/L	118.64	123.51	133	147.92
Se 196.026	Se	31.11	ug/L	6.67	39.7	21.95	31.68
Sn 189.925	Sn	72.42	ug/L	7.77	70.14	90.27	56.84
Sr 421.552	Sr	69.69	ug/L	24480.93	68.37	69.35	71.36
Ti 334.941	Ti	52.54	ug/L	4120.76	51.8	52.57	53.25
Tl 190.794	Tl	-16.09	ug/L	-11.78	-21.69	-9.58	-17
V 292.401	V	15.15	ug/L	34.21	15.71	15.93	13.83
Zn 213.857	Zn	928.93	ug/L	4947.68	913.93	921.56	951.29

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484167002\_3023****Analysis Time: 5/3/2022 11:36:51 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	19988.73	1.04	1.04	1.04
Tb 360.044	360 Tb RAD	0.97	Ratio	3834.53	0.97	0.98	0.97
Ag 328.068	Ag	2.38	ug/L	-871.07	2.27	2.31	2.56
Al 396.152	Al	7128.3	ug/L	23274.19	7129.38	7097.95	7157.57
As 188.980	As	23.1	ug/L	10.37	21.67	38.06	9.56
B 249.678	B	4.22	ug/L	16.66	3.25	4.31	5.09
Ba 233.527	Ba	46.17	ug/L	422.57	46.1	46.01	46.4
Be 234.861	Be	-0.02	ug/L	4.41	-0.02	-0.09	0.05
Ca 315.887	Ca	82524.42	ug/L	109881.07	82446.58	82019.74	83106.94
Cd 214.439	Cd	-0.39	ug/L	2.43	-0.3	-0.58	-0.29
Co 228.615	Co	0.47	ug/L	0.22	0.98	-0.49	0.9
Cr 267.716	Cr	158.98	ug/L	644.89	159.22	158.47	159.25
Cu 327.395	Cu	1808.08	ug/L	11900.39	1809.26	1797.19	1817.8
Fe 261.187	Fe	7186.16	ug/L	7442.26	7212.98	7147.02	7198.48
K 766.491	K	15367.71	ug/L	22277.61	15424.48	15269.62	15409.02
Li 670.783	Li	54.24	ug/L	3970.66	55.79	54.96	51.97
Mg 279.078	Mg	1058	ug/L	385.17	1052.31	1066.17	1055.52
Mn 257.610	Mn	49.57	ug/L	1910.72	49.74	49.34	49.64
Mo 204.598	Mo	11.55	ug/L	12.31	10.9	11.37	12.39
Na 589.592	Na	11315.96	ug/L	102429.95	11336.07	11262.68	11349.14
Ni 231.604	Ni	257.51	ug/L	134.13	265.1	250.9	256.54
P 213.618	P	382.34	ug/L	79.4	407.65	380.36	359
Pb 220.353	Pb	8.6	ug/L	14.68	11.73	3.19	10.87
S 181.972	S	108672.86	ug/L	371.24	108506.39	108888.97	108623.22
Sb 206.834	Sb	4.6	ug/L	7.95	5.61	4.27	3.94
Se 196.026	Se	26.31	ug/L	7.59	24.18	29.25	25.5
Sn 189.925	Sn	102.38	ug/L	10.47	108.81	73.76	124.57
Sr 421.552	Sr	31.12	ug/L	10827.27	31.23	30.96	31.18
Ti 334.941	Ti	221.76	ug/L	11771.06	221.8	220.19	223.28
Tl 190.794	Tl	-24.36	ug/L	-17.44	-29.83	-15.89	-27.36
V 292.401	V	6.61	ug/L	11.91	6.24	7.46	6.14
Zn 213.857	Zn	63028.77	ug/L	332086.94	63236.68	62707.55	63142.08



## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484472001\_3023****Analysis Time: 5/3/2022 11:39:09 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.07	Ratio	20450.86	1.05	1.07	1.08
Tb 360.044	360 Tb RAD	0.99	Ratio	3909.35	0.98	0.98	1.02
Ag 328.068	Ag	-1.16	ug/L	-1036.06	-1.56	-1.28	-0.65
Al 396.152	Al	173404.16	ug/L	568891.01	174218.18	175602.34	170391.97
As 188.980	As	43.99	ug/L	16.97	44.12	42.94	44.92
B 249.678	B	12.81	ug/L	-135.48	12.57	11.6	14.25
Ba 233.527	Ba	1671.18	ug/L	15246.93	1686.89	1683.11	1643.54
Be 234.861	Be	3.23	ug/L	181.7	3.79	2.93	2.97
Ca 315.887	Ca	6535.81	ug/L	8658.64	6597.85	6595.8	6413.8
Cd 214.439	Cd	-2.07	ug/L	8.15	-1.54	-1.3	-3.37
Co 228.615	Co	143.18	ug/L	286.61	144.83	143.22	141.49
Cr 267.716	Cr	199.96	ug/L	821.28	201.24	201.28	197.35
Cu 327.395	Cu	100.87	ug/L	444.86	101.81	102.64	98.15
Fe 261.187	Fe	263911.08	ug/L	273034.45	266071	266222.77	259439.47
K 766.491	K	15574.67	ug/L	22514.39	15703.86	15718.33	15301.81
Li 670.783	Li	187.57	ug/L	6248.56	190.48	192.27	179.96
Mg 279.078	Mg	11584.96	ug/L	4269.53	11730.84	11624.84	11399.21
Mn 257.610	Mn	5736.57	ug/L	219646.72	5790.76	5786.87	5632.09
Mo 204.598	Mo	2.41	ug/L	4.01	2.91	2.03	2.3
Na 589.592	Na	1072	ug/L	11300.65	1082.49	1082.57	1050.94
Ni 231.604	Ni	130.15	ug/L	68.3	131.64	129.47	129.35
P 213.618	P	2937.71	ug/L	768.56	2940.23	2973.37	2899.52
Pb 220.353	Pb	125.2	ug/L	131.07	130.75	122.33	122.51
S 181.972	S	1125.61	ug/L	4.77	549.18	1691.61	1136.03
Sb 206.834	Sb	5.64	ug/L	16.13	9.05	7.1	0.79
Se 196.026	Se	20.92	ug/L	-6.82	17.02	20.56	25.17
Sn 189.925	Sn	51.82	ug/L	6.55	19.33	89.57	46.55
Sr 421.552	Sr	101.36	ug/L	34352.96	102.37	102.03	99.68
Ti 334.941	Ti	1547.02	ug/L	71490.63	1569.56	1561.31	1510.2
Tl 190.794	Tl	-7.13	ug/L	-11.51	-3.51	-7.58	-10.31
V 292.401	V	354.86	ug/L	1179.27	358.22	356.85	349.5
Zn 213.857	Zn	437.24	ug/L	2417.6	441.18	441.1	429.44

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484472002\_3023****Analysis Time: 5/3/2022 11:41:28 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20252.47	1.05	1.06	1.06
Tb 360.044	360 Tb RAD	0.98	Ratio	3857.48	0.98	0.98	0.99
Ag 328.068	Ag	-1.34	ug/L	-1048.65	-1.17	-1.38	-1.47
Al 396.152	Al	231569.75	ug/L	759691.2	231392.44	232944.41	230372.39
As 188.980	As	56.88	ug/L	21.83	69.68	47.44	53.52
B 249.678	B	6.85	ug/L	-187.81	6.7	8.43	5.43
Ba 233.527	Ba	1292.96	ug/L	11800.11	1290.44	1298.17	1290.29
Be 234.861	Be	2.5	ug/L	155.97	2.75	2.35	2.39
Ca 315.887	Ca	7554.65	ug/L	10005.69	7551.36	7585.13	7527.44
Cd 214.439	Cd	-1.4	ug/L	12.44	-2.75	-0.98	-0.47
Co 228.615	Co	115.2	ug/L	232.96	112.29	115.12	118.18
Cr 267.716	Cr	266.74	ug/L	1102.52	265.37	267.95	266.9
Cu 327.395	Cu	188.78	ug/L	1037.27	189.32	189.38	187.64
Fe 261.187	Fe	314035.15	ug/L	324890.31	313355.53	315791.88	312958.04
K 766.491	K	16859.18	ug/L	24332.59	16840.02	16973.64	16763.88
Li 670.783	Li	303.73	ug/L	8244.66	298.66	307.95	304.57
Mg 279.078	Mg	21072.7	ug/L	7795.47	21008.67	21236.67	20972.77
Mn 257.610	Mn	3262.92	ug/L	125013.6	3255.02	3286.42	3247.31
Mo 204.598	Mo	10.59	ug/L	21.66	9.9	10.38	11.49
Na 589.592	Na	1612.37	ug/L	15832.53	1610.1	1623.31	1603.71
Ni 231.604	Ni	186.82	ug/L	98.52	192.72	192.86	174.9
P 213.618	P	2144.84	ug/L	558.3	2161.9	2146.66	2125.96
Pb 220.353	Pb	153.69	ug/L	158.64	152.81	149.21	159.05
S 181.972	S	1015.52	ug/L	4.46	1369.79	559.88	1116.89
Sb 206.834	Sb	4.62	ug/L	17.03	0.25	8.43	5.17
Se 196.026	Se	35.08	ug/L	-4.92	26.42	31.63	47.2
Sn 189.925	Sn	46.27	ug/L	6.12	47.11	40.5	51.22
Sr 421.552	Sr	98.32	ug/L	33348.15	98.08	98.99	97.89
Ti 334.941	Ti	1723.8	ug/L	79454.89	1734.78	1729.31	1707.3
Tl 190.794	Tl	1.99	ug/L	-7.26	-1.49	3.31	4.17
V 292.401	V	429.07	ug/L	1429.61	426.31	433.56	427.33
Zn 213.857	Zn	610.55	ug/L	3353.59	609.1	614.62	607.94

## Agilent 5110 ICP-OES Report

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**Sample: 30484472003\_3023****Analysis Time: 5/3/2022 11:43:46 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20311	1.05	1.06	1.06
Tb 360.044	360 Tb RAD	0.99	Ratio	3891.07	0.99	0.99	0.99
Ag 328.068	Ag	-1.3	ug/L	-1022.15	-1.78	-0.67	-1.45
Al 396.152	Al	174920.38	ug/L	573852.89	174175.32	174745.89	175839.94
As 188.980	As	134.67	ug/L	52.12	132.94	139.62	131.45
B 249.678	B	33.19	ug/L	-175.83	31.94	37.33	30.3
Ba 233.527	Ba	1797.16	ug/L	16400.98	1792.99	1795.65	1802.85
Be 234.861	Be	3.53	ug/L	210.65	2.64	3.77	4.17
Ca 315.887	Ca	20878.65	ug/L	27759.03	20810.22	20860.15	20965.58
Cd 214.439	Cd	-1.98	ug/L	14.79	-1.41	-2.63	-1.88
Co 228.615	Co	188.15	ug/L	375.24	188.61	190.51	185.32
Cr 267.716	Cr	228.41	ug/L	941.98	229.26	227.66	228.3
Cu 327.395	Cu	200.28	ug/L	1116.99	199.63	198.37	202.84
Fe 261.187	Fe	400499.38	ug/L	414340.36	399646.15	399537.69	402314.29
K 766.491	K	19397.03	ug/L	27915.56	19358.96	19343.43	19488.69
Li 670.783	Li	170.22	ug/L	5934.64	168.14	169.51	173.01
Mg 279.078	Mg	13664.59	ug/L	5025.39	13636.3	13602.93	13754.52
Mn 257.610	Mn	8987.33	ug/L	344106.04	8958.09	8987.04	9016.86
Mo 204.598	Mo	10.82	ug/L	20.99	11.15	11.84	9.47
Na 589.592	Na	1040.28	ug/L	11139.9	1038.29	1038.6	1043.94
Ni 231.604	Ni	182.86	ug/L	96.65	182.96	181.5	184.12
P 213.618	P	5042.79	ug/L	1321	5009.44	5031.77	5087.15
Pb 220.353	Pb	216.06	ug/L	223.99	210.75	221.79	215.63
S 181.972	S	2290.4	ug/L	8.66	2421.12	2113.38	2336.71
Sb 206.834	Sb	6.31	ug/L	21.32	9	4.97	4.97
Se 196.026	Se	34.96	ug/L	-8.62	32.89	34.7	37.27
Sn 189.925	Sn	12.12	ug/L	3.36	52.44	-7.02	-9.06
Sr 421.552	Sr	145.27	ug/L	49290.09	145.1	145.1	145.62
Ti 334.941	Ti	1393.49	ug/L	64572.24	1392.28	1402.19	1385.99
Tl 190.794	Tl	0.61	ug/L	-8.4	0.45	-1.28	2.66
V 292.401	V	459.16	ug/L	1514.35	457.19	458.08	462.23
Zn 213.857	Zn	498.92	ug/L	2801.34	497.95	497.72	501.09

## Agilent 5110 ICP-OES Report

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**Sample: 30484472004\_3023****Analysis Time: 5/3/2022 11:46:04 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.07	Ratio	20458.94	1.07	1.07	1.07
Tb 360.044	360 Tb RAD	1.01	Ratio	3961.74	0.99	1.02	1.01
Ag 328.068	Ag	-0.83	ug/L	-1037.34	-0.98	-0.81	-0.69
Al 396.152	Al	189391.67	ug/L	621326.01	192158.69	186112.91	189903.4
As 188.980	As	55.28	ug/L	21.54	59.94	51.85	54.06
B 249.678	B	35.69	ug/L	-81.25	33.73	35.73	37.62
Ba 233.527	Ba	1285.6	ug/L	11731.69	1304.33	1267.17	1285.31
Be 234.861	Be	1.56	ug/L	109.22	1.35	2.13	1.2
Ca 315.887	Ca	7094.83	ug/L	9400	7171.53	7003.09	7109.86
Cd 214.439	Cd	-0.85	ug/L	12.65	-0.64	-0.77	-1.13
Co 228.615	Co	115.03	ug/L	232.11	123.23	111.69	110.18
Cr 267.716	Cr	212.22	ug/L	873.09	216.47	207.48	212.72
Cu 327.395	Cu	85.58	ug/L	342.66	86.45	84.53	85.77
Fe 261.187	Fe	279820.14	ug/L	289492.68	283736.19	275536.01	280188.23
K 766.491	K	15762.33	ug/L	22785.02	15988.46	15496.35	15802.19
Li 670.783	Li	173.24	ug/L	6001.41	177.68	167.36	174.69
Mg 279.078	Mg	13051.46	ug/L	4812.42	13219.73	12818.49	13116.16
Mn 257.610	Mn	2368.74	ug/L	90779.67	2404.05	2333.03	2369.13
Mo 204.598	Mo	5.55	ug/L	10.63	4.99	2.04	9.63
Na 589.592	Na	591.14	ug/L	6581.01	602.95	580.11	590.36
Ni 231.604	Ni	170.5	ug/L	89.76	174.73	165.03	171.74
P 213.618	P	2643.04	ug/L	691.05	2681.42	2583.06	2664.64
Pb 220.353	Pb	143	ug/L	148.09	142.02	145.8	141.17
S 181.972	S	1764.34	ug/L	6.99	1839.39	1705.62	1748.02
Sb 206.834	Sb	10.37	ug/L	19.94	14.9	10.05	6.15
Se 196.026	Se	28.32	ug/L	-5.5	31.18	28.08	25.71
Sn 189.925	Sn	37.49	ug/L	5.44	25.13	47.96	39.38
Sr 421.552	Sr	97.39	ug/L	33016.11	98.77	95.86	97.54
Ti 334.941	Ti	1691.65	ug/L	78003.94	1716.52	1661.13	1697.3
Tl 190.794	Tl	1.21	ug/L	-7.4	-5.15	2.73	6.05
V 292.401	V	353.72	ug/L	1172.7	359.2	349.06	352.9
Zn 213.857	Zn	418.58	ug/L	2326.8	427.46	409.62	418.65

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484472005\_3023****Analysis Time: 5/3/2022 11:48:22 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20267.49	1.06	1.06	1.06
Tb 360.044	360 Tb RAD	0.99	Ratio	3891.47	0.99	0.97	1.01
Ag 328.068	Ag	-1.08	ug/L	-1031.01	-0.87	-0.75	-1.61
Al 396.152	Al	234712.14	ug/L	770016.48	233157.56	239138.06	231840.8
As 188.980	As	122.61	ug/L	46.57	121.88	130.89	115.05
B 249.678	B	27.62	ug/L	-320.19	28.93	23.02	30.92
Ba 233.527	Ba	1296.07	ug/L	11837.94	1292.18	1316.9	1279.13
Be 234.861	Be	1.99	ug/L	163.61	1.98	1.44	2.57
Ca 315.887	Ca	2918.23	ug/L	3827.47	2920.5	2948.36	2885.83
Cd 214.439	Cd	-2.73	ug/L	20.33	-4.02	-2.13	-2.04
Co 228.615	Co	150.5	ug/L	303.43	149.22	152.78	149.48
Cr 267.716	Cr	395.14	ug/L	1644.87	396.06	400.85	388.51
Cu 327.395	Cu	309.13	ug/L	1852.89	309.24	314.21	303.92
Fe 261.187	Fe	572764.29	ug/L	592553.21	571295.5	581995.02	565002.34
K 766.491	K	26803.98	ug/L	38408.42	26737.36	27236.4	26438.19
Li 670.783	Li	308.21	ug/L	8293.38	305.72	318.76	300.15
Mg 279.078	Mg	11462.68	ug/L	4176.48	11474.78	11591.22	11322.03
Mn 257.610	Mn	2579.6	ug/L	98988.71	2575.35	2618.4	2545.06
Mo 204.598	Mo	14.16	ug/L	31.38	12.53	12.97	16.98
Na 589.592	Na	879.15	ug/L	9202.83	878.67	892.72	866.04
Ni 231.604	Ni	141.76	ug/L	75.64	135.72	145.1	144.46
P 213.618	P	2155.44	ug/L	557.98	2123.07	2164.96	2178.29
Pb 220.353	Pb	168.18	ug/L	176.06	172.62	175.94	155.99
S 181.972	S	1501.97	ug/L	6.02	1716.9	1733.26	1055.75
Sb 206.834	Sb	4.35	ug/L	25.48	-9.09	7.42	14.73
Se 196.026	Se	47.5	ug/L	-14.55	26.91	49.73	65.85
Sn 189.925	Sn	50.94	ug/L	6.31	31.34	64.34	57.14
Sr 421.552	Sr	110.04	ug/L	37346.55	109.62	111.89	108.6
Ti 334.941	Ti	1660	ug/L	76582.77	1664.24	1673.79	1641.96
Tl 190.794	Tl	2.44	ug/L	-11.14	3.32	7.83	-3.82
V 292.401	V	767.03	ug/L	2554.45	772.99	773.02	755.08
Zn 213.857	Zn	406.87	ug/L	2388.26	405.82	413.01	401.79

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484472006\_3023****Analysis Time: 5/3/2022 11:50:41 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.14	Ratio	21768.07	1.22	1.1	1.09
Tb 360.044	360 Tb RAD	1.02	Ratio	4023.37	1.06	1	1
Ag 328.068	Ag	-1.34	ug/L	-1032.44	-0.91	-1.46	-1.65
Al 396.152	Al	167205.41	ug/L	548544.53	159383.96	170973.36	171258.91
As 188.980	As	121.65	ug/L	47.46	115.94	125.25	123.78
B 249.678	B	37.67	ug/L	-151.55	35.07	41.81	36.13
Ba 233.527	Ba	888.94	ug/L	8118.59	847.06	911.16	908.6
Be 234.861	Be	3.85	ug/L	222.59	4.88	3.13	3.53
Ca 315.887	Ca	4884.87	ug/L	6457.67	4662.1	4996.03	4996.47
Cd 214.439	Cd	-1.95	ug/L	13.94	-2.77	-0.7	-2.37
Co 228.615	Co	163.64	ug/L	326.48	159.15	167.96	163.8
Cr 267.716	Cr	214.97	ug/L	886.17	202.91	221.25	220.75
Cu 327.395	Cu	634.36	ug/L	4030.65	604.63	650.8	647.65
Fe 261.187	Fe	384031.71	ug/L	397302.48	365972.33	392970.08	393152.72
K 766.491	K	28118.81	ug/L	40304.72	26765.51	28853.74	28737.19
Li 670.783	Li	168.27	ug/L	5902.97	153.87	174.78	176.18
Mg 279.078	Mg	8742.23	ug/L	3191.83	8342.04	8915.2	8969.44
Mn 257.610	Mn	2143.37	ug/L	82203.44	2039.96	2198.89	2191.25
Mo 204.598	Mo	5.87	ug/L	11.59	4.24	5.9	7.49
Na 589.592	Na	948.3	ug/L	9433.83	901.83	974.3	968.76
Ni 231.604	Ni	145.51	ug/L	76.98	151.82	143.63	141.08
P 213.618	P	3035.77	ug/L	788.12	2913.63	3136.29	3057.38
Pb 220.353	Pb	122.66	ug/L	129.53	118.13	119.06	130.79
S 181.972	S	1125.38	ug/L	4.77	237	1374.49	1764.65
Sb 206.834	Sb	9.46	ug/L	22.71	11.01	6.4	10.98
Se 196.026	Se	29.61	ug/L	-10.5	31.03	33.91	23.9
Sn 189.925	Sn	3.54	ug/L	2.78	-0.71	13.9	-2.57
Sr 421.552	Sr	119.29	ug/L	40429.45	113.73	122.1	122.03
Ti 334.941	Ti	1092.66	ug/L	51022.93	1047.17	1117.9	1112.91
Tl 190.794	Tl	-6.75	ug/L	-13.32	-6.41	-8.48	-5.35
V 292.401	V	344.04	ug/L	1113.76	328.89	352.81	350.43
Zn 213.857	Zn	310.29	ug/L	1798.22	293.85	318.93	318.08

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484472007\_3023****Analysis Time: 5/3/2022 11:52:59 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	19985.8	1.04	1.04	1.04
Tb 360.044	360 Tb RAD	1	Ratio	3938.84	1.01	0.99	1.01
Ag 328.068	Ag	-1.49	ug/L	-1043.12	-1.36	-1.71	-1.4
Al 396.152	Al	263367.54	ug/L	864019.58	261679.7	266562.17	261860.74
As 188.980	As	81.36	ug/L	29.43	69.68	91.22	83.18
B 249.678	B	72.51	ug/L	-313.46	75.25	68.32	73.96
Ba 233.527	Ba	1520.84	ug/L	13893.81	1505.24	1540.37	1516.91
Be 234.861	Be	11.24	ug/L	596.22	11.39	11.07	11.26
Ca 315.887	Ca	11051.72	ug/L	14651.88	10923.38	11199.96	11031.8
Cd 214.439	Cd	-3.53	ug/L	25.5	-2.37	-3.19	-5.04
Co 228.615	Co	104.26	ug/L	215.69	104.54	105.84	102.39
Cr 267.716	Cr	446.09	ug/L	1860.81	443.6	451.23	443.44
Cu 327.395	Cu	224.88	ug/L	1292.45	222.02	227.52	225.11
Fe 261.187	Fe	735071.49	ug/L	760466.46	727577.35	744259.82	733377.31
K 766.491	K	56049.94	ug/L	79855.93	55479.24	56806.35	55864.23
Li 670.783	Li	294.56	ug/L	8044.36	288.9	301.93	292.85
Mg 279.078	Mg	23725.61	ug/L	8718.94	23443.56	24054.85	23678.43
Mn 257.610	Mn	959.93	ug/L	37089.2	949.1	974.16	956.54
Mo 204.598	Mo	2.49	ug/L	13.21	4.21	3.27	-0.02
Na 589.592	Na	1173.93	ug/L	12088.77	1165.39	1186.82	1169.58
Ni 231.604	Ni	321.23	ug/L	171.46	325.02	314.09	324.58
P 213.618	P	4248.46	ug/L	1109.09	4207.01	4290.41	4247.96
Pb 220.353	Pb	138	ug/L	147.14	124.37	139.85	149.78
S 181.972	S	660.98	ug/L	3.11	976.47	-271.36	1277.83
Sb 206.834	Sb	8.3	ug/L	33.48	9.19	-0.24	15.94
Se 196.026	Se	47.02	ug/L	-23.92	58.58	40.3	42.18
Sn 189.925	Sn	21.67	ug/L	3.85	55.41	7.88	1.7
Sr 421.552	Sr	321.08	ug/L	108789.75	317.71	324.93	320.61
Ti 334.941	Ti	2402.98	ug/L	110041.88	2376.14	2443.79	2388.99
Tl 190.794	Tl	-3.05	ug/L	-17.92	-9.33	-5.26	5.44
V 292.401	V	507.67	ug/L	1611.35	502.14	518.23	502.64
Zn 213.857	Zn	699.26	ug/L	4003.61	691.48	708.47	697.83

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCV****Analysis Time: 5/3/2022 11:55:18 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.11	Ratio	21218.55	1.11	1.11	1.11
Tb 360.044	360 Tb RAD	1.04	Ratio	4079.63	1.05	1.03	1.03
Ag 328.068	Ag	992.19	ug/L	36882.59	997.22	990.39	988.97
Al 396.152	Al	10049.97	ug/L	33333.97	9954.7	10129.19	10066.02
As 188.980	As	1852.45	ug/L	732.86	1872.21	1825.81	1859.34
B 249.678	B	2121.49	ug/L	6080.91	2120.78	2122.94	2120.77
Ba 233.527	Ba	2110.2	ug/L	19236.95	2107.98	2113.54	2109.09
Be 234.861	Be	1999.02	ug/L	89216.64	1998.5	1998.21	2000.34
Ca 315.887	Ca	10201.46	ug/L	13566.88	10183.4	10237.46	10183.51
Cd 214.439	Cd	2077.79	ug/L	6528.34	2070.22	2082.6	2080.54
Co 228.615	Co	2114.05	ug/L	4171.55	2106.97	2121.34	2113.83
Cr 267.716	Cr	2061.88	ug/L	8631.7	2056.12	2066.08	2063.44
Cu 327.395	Cu	2008.34	ug/L	13241.4	2006.83	2012.85	2005.34
Fe 261.187	Fe	10303.76	ug/L	10668.54	10267.5	10345.88	10297.89
K 766.491	K	10186.21	ug/L	14773.29	10186.71	10226.68	10145.24
Li 670.783	Li	2108.55	ug/L	39286.29	2102.31	2115.86	2107.46
Mg 279.078	Mg	10298.85	ug/L	3827.29	10306.63	10311.65	10278.27
Mn 257.610	Mn	2077.9	ug/L	79659.32	2071.75	2084.91	2077.03
Mo 204.598	Mo	1984.47	ug/L	3632.83	2000.48	1971.92	1981.02
Na 589.592	Na	9949.37	ug/L	92063.27	9927.08	9974.54	9946.5
Ni 231.604	Ni	2117.58	ug/L	1123.06	2127.27	2096.83	2128.65
P 213.618	P	2027.31	ug/L	496.18	2024.9	2042.18	2014.85
Pb 220.353	Pb	2089.28	ug/L	2086.48	2102.32	2069.89	2095.63
S 181.972	S	11049.66	ug/L	38.43	11142.93	11160.02	10846.03
Sb 206.834	Sb	1947.68	ug/L	1539.19	1957.49	1938.27	1947.29
Se 196.026	Se	1852.85	ug/L	659.45	1864.06	1858.69	1835.81
Sn 189.925	Sn	1947.67	ug/L	153.28	1945.17	1963.39	1934.46
Sr 421.552	Sr	2033.46	ug/L	687637.45	2030.56	2036.72	2033.1
Ti 334.941	Ti	2052.42	ug/L	94286.07	2044.34	2067.91	2045
Tl 190.794	Tl	2020.85	ug/L	1191.13	2033.97	2025.32	2003.25
V 292.401	V	2043.16	ug/L	7114.51	2037.71	2046.82	2044.94
Zn 213.857	Zn	2043.8	ug/L	10827.73	2042.1	2048.94	2040.36



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

Sample: CCB

Analysis Time: 5/3/2022 11:57:38 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.1	Ratio	21091.17	1.1	1.11	1.1
Tb 360.044	360 Tb RAD	1.04	Ratio	4106.81	1.04	1.05	1.04
Ag 328.068	Ag	0.27	ug/L	-990.97	0.17	0.5	0.12
Al 396.152	Al	1.34	ug/L	6.45	3.5	-1.14	1.66
As 188.980	As	-1.32	ug/L	0.96	3.63	-0.15	-7.43
B 249.678	B	-0.05	ug/L	9.78	1.04	0.19	-1.37
Ba 233.527	Ba	0.86	ug/L	6.92	1.2	0.85	0.51
Be 234.861	Be	-0.03	ug/L	2.78	-0.05	-0.02	-0.02
Ca 315.887	Ca	-2	ug/L	-22.35	0.02	-3.21	-2.8
Cd 214.439	Cd	-0.45	ug/L	1.59	-0.43	0.39	-1.3
Co 228.615	Co	1.23	ug/L	0.98	1.31	0.32	2.06
Cr 267.716	Cr	1.48	ug/L	-15.31	1.31	0.52	2.6
Cu 327.395	Cu	2.72	ug/L	-224.47	3.55	2.54	2.07
Fe 261.187	Fe	3.84	ug/L	10.76	2.31	2.65	6.56
K 766.491	K	-3.61	ug/L	495.74	-4.8	-2.57	-3.45
Li 670.783	Li	33.65	ug/L	3624.28	33.78	32.87	34.3
Mg 279.078	Mg	-5.76	ug/L	-11.71	-10.48	6.84	-13.63
Mn 257.610	Mn	0.1	ug/L	9.85	0.14	0.09	0.07
Mo 204.598	Mo	0.76	ug/L	-7.97	1.68	0.8	-0.19
Na 589.592	Na	-2.14	ug/L	-31.38	-2.6	0.76	-4.6
Ni 231.604	Ni	-0.64	ug/L	-1.62	-7.91	-2.23	8.23
P 213.618	P	4.34	ug/L	-0.41	0.9	10.69	1.42
Pb 220.353	Pb	-2.47	ug/L	3.09	-0.08	-2.32	-5.02
S 181.972	S	-421.62	ug/L	-0.45	-951.28	-116.17	-197.41
Sb 206.834	Sb	-3.1	ug/L	0.22	-2.47	0.55	-7.37
Se 196.026	Se	3.29	ug/L	0.3	7.87	-2.38	4.38
Sn 189.925	Sn	-0.72	ug/L	2.69	-23.08	13.32	7.6
Sr 421.552	Sr	0.03	ug/L	-29	0.03	0.05	0.02
Ti 334.941	Ti	-0.32	ug/L	1786.22	-0.37	-0.47	-0.13
Tl 190.794	Tl	-1.97	ug/L	-4.63	1.07	-8.34	1.38
V 292.401	V	0.64	ug/L	-10.46	0.65	2.69	-1.42
Zn 213.857	Zn	0.5	ug/L	3.81	0.55	1.14	-0.18

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484472008\_3023****Analysis Time: 5/3/2022 11:59:56 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	19974	1.05	1.03	1.04
Tb 360.044	360 Tb RAD	1.04	Ratio	4077.17	1.01	1.06	1.05
Ag 328.068	Ag	-1.8	ug/L	-1053.46	-1.52	-2	-1.89
Al 396.152	Al	256016.55	ug/L	839910.98	262780.94	252222.4	253046.31
As 188.980	As	55.29	ug/L	19.8	59.66	42.45	63.76
B 249.678	B	62.05	ug/L	-243.96	57.26	65.04	63.87
Ba 233.527	Ba	1722.01	ug/L	15723.19	1770.46	1688.75	1706.82
Be 234.861	Be	12.14	ug/L	620.94	11.91	13.18	11.32
Ca 315.887	Ca	8310.54	ug/L	11004.18	8544.7	8161.82	8225.1
Cd 214.439	Cd	-3.89	ug/L	18.13	-3.27	-5.57	-2.83
Co 228.615	Co	172.5	ug/L	349.47	177.27	172.35	167.89
Cr 267.716	Cr	345.15	ug/L	1435.58	353.75	336.55	345.17
Cu 327.395	Cu	162.73	ug/L	870.93	164.55	161.38	162.27
Fe 261.187	Fe	593117.66	ug/L	613612.43	608392.41	582574.73	588385.85
K 766.491	K	45128.61	ug/L	64378.45	46254.11	44349.18	44782.55
Li 670.783	Li	269.6	ug/L	7626.25	280.17	263.75	264.88
Mg 279.078	Mg	46006.69	ug/L	17038.62	47305.22	45149.14	45565.71
Mn 257.610	Mn	1308.56	ug/L	50367.35	1342.95	1284.57	1298.14
Mo 204.598	Mo	0.17	ug/L	7.17	-3.67	1.23	2.94
Na 589.592	Na	996.49	ug/L	10675.33	1025.78	973.31	990.38
Ni 231.604	Ni	518.41	ug/L	275.87	535.21	509.79	510.22
P 213.618	P	3755.37	ug/L	980.71	3848.87	3679.84	3737.41
Pb 220.353	Pb	121.47	ug/L	129.26	111.3	132.66	120.45
S 181.972	S	250.06	ug/L	1.74	35.4	127.88	586.91
Sb 206.834	Sb	9.39	ug/L	29.47	16.3	0.48	11.4
Se 196.026	Se	45.49	ug/L	-17.29	35.93	45.26	55.27
Sn 189.925	Sn	23.12	ug/L	4.01	-21.03	48.97	41.41
Sr 421.552	Sr	290.93	ug/L	98551.11	299.3	285.65	287.83
Ti 334.941	Ti	2388.87	ug/L	109406.89	2452.9	2360.76	2352.95
Tl 190.794	Tl	-7.45	ug/L	-18.32	-2.7	-15.75	-3.89
V 292.401	V	354.58	ug/L	1106.22	364.82	351	347.93
Zn 213.857	Zn	1162.39	ug/L	6392.5	1194.59	1140.34	1152.23

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484472009\_3023****Analysis Time: 5/3/2022 12:02:14 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.1	Ratio	21002.89	1.15	1.07	1.07
Tb 360.044	360 Tb RAD	0.97	Ratio	3811.49	0.99	0.99	0.93
Ag 328.068	Ag	-1.71	ug/L	-1039.03	-1.96	-1.94	-1.23
Al 396.152	Al	261698.94	ug/L	858556.24	255318.7	256543.14	273234.99
As 188.980	As	112.54	ug/L	40.6	111.92	112.04	113.65
B 249.678	B	80.31	ug/L	-427.88	79.41	84.34	77.19
Ba 233.527	Ba	1692.69	ug/L	15467.55	1652.23	1654.11	1771.73
Be 234.861	Be	12.4	ug/L	669.77	13.59	10.95	12.66
Ca 315.887	Ca	8862.17	ug/L	11737.9	8669.9	8674.08	9242.53
Cd 214.439	Cd	-3.33	ug/L	34.93	-4.18	-2.48	-3.32
Co 228.615	Co	521.01	ug/L	1036.51	509.57	504.48	548.97
Cr 267.716	Cr	465.62	ug/L	1945.19	455.68	455.01	486.18
Cu 327.395	Cu	484.95	ug/L	3045.65	471.58	472.72	510.56
Fe 261.187	Fe	909221.85	ug/L	940631.36	888660.64	888618.83	950386.09
K 766.491	K	61239.39	ug/L	87186.3	59867.96	59923.16	63927.06
Li 670.783	Li	298.2	ug/L	8084.03	288	285.79	320.81
Mg 279.078	Mg	21668.52	ug/L	7926.39	21188.46	21142.09	22675.02
Mn 257.610	Mn	6844.12	ug/L	262344.63	6680.34	6693.31	7158.71
Mo 204.598	Mo	2.13	ug/L	14.52	1.81	-2.03	6.61
Na 589.592	Na	1284.17	ug/L	13258	1251.41	1250.72	1350.37
Ni 231.604	Ni	361	ug/L	193.39	355.84	363.57	363.6
P 213.618	P	5177.25	ug/L	1349.52	5096.22	5018.47	5417.06
Pb 220.353	Pb	219.3	ug/L	231.39	215.39	217.68	224.84
S 181.972	S	825.5	ug/L	3.53	499.57	971.84	1005.08
Sb 206.834	Sb	8.78	ug/L	40.5	1.91	14.69	9.76
Se 196.026	Se	79.46	ug/L	-21.61	91.13	76.32	70.94
Sn 189.925	Sn	42.62	ug/L	5.38	29.7	51.95	46.22
Sr 421.552	Sr	329.9	ug/L	111803.85	322.69	322.45	344.55
Ti 334.941	Ti	2099.75	ug/L	96384.38	2039.73	2051.83	2207.68
Tl 190.794	Tl	-3.23	ug/L	-19.7	5.08	-13.68	-1.08
V 292.401	V	578.24	ug/L	1814.85	565.9	565.84	602.97
Zn 213.857	Zn	625.1	ug/L	3692.78	611.19	610.22	653.87

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484472010\_3023****Analysis Time: 5/3/2022 12:04:33 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.07	Ratio	20533.02	1.08	1.08	1.06
Tb 360.044	360 Tb RAD	1.01	Ratio	3974.33	1	1.02	1.01
Ag 328.068	Ag	-1.32	ug/L	-1049.54	-1.41	-1.15	-1.39
Al 396.152	Al	201996.25	ug/L	662453.62	203554.27	199687.64	202746.84
As 188.980	As	72.52	ug/L	27.4	67.6	72.8	77.16
B 249.678	B	46.79	ug/L	-212.3	45.06	49.17	46.14
Ba 233.527	Ba	1165.73	ug/L	10651.1	1174.04	1157.75	1165.41
Be 234.861	Be	5.98	ug/L	332.96	6.34	5.04	6.57
Ca 315.887	Ca	156056.79	ug/L	207781.06	157162.51	154567.41	156440.46
Cd 214.439	Cd	-1.91	ug/L	20.27	-1.02	-3.59	-1.13
Co 228.615	Co	400.01	ug/L	797.76	400.89	400.05	399.08
Cr 267.716	Cr	260.73	ug/L	1076.13	263.91	256.34	261.93
Cu 327.395	Cu	92.16	ug/L	397.04	93.64	91.24	91.61
Fe 261.187	Fe	487250.23	ug/L	504091.83	490539.44	483036.4	488174.86
K 766.491	K	32866.76	ug/L	47008.56	33101.91	32553.39	32944.98
Li 670.783	Li	225.47	ug/L	6878.95	225.67	222.26	228.49
Mg 279.078	Mg	62073.33	ug/L	23041.82	62567.74	61501.92	62150.33
Mn 257.610	Mn	1518.47	ug/L	58353.62	1527.52	1507.53	1520.35
Mo 204.598	Mo	3.22	ug/L	10.23	1.65	4.3	3.7
Na 589.592	Na	1308.21	ug/L	12982.22	1319.19	1293.62	1311.8
Ni 231.604	Ni	309.93	ug/L	162.73	297.31	318.18	314.28
P 213.618	P	2348.87	ug/L	611.31	2342.11	2339.47	2365.04
Pb 220.353	Pb	108.58	ug/L	117	109.64	104.01	112.1
S 181.972	S	11745.52	ug/L	40.96	12399.44	11117.59	11719.51
Sb 206.834	Sb	4.91	ug/L	22.11	6.68	4.26	3.8
Se 196.026	Se	53.03	ug/L	-9.61	50.5	41.21	67.38
Sn 189.925	Sn	-1.6	ug/L	1.79	-8.95	9.93	-5.77
Sr 421.552	Sr	330.5	ug/L	112515.13	332.97	326.91	331.62
Ti 334.941	Ti	2689.18	ug/L	122895.36	2704.59	2658.27	2704.67
Tl 190.794	Tl	-5.25	ug/L	-14.53	-7.59	-7.74	-0.42
V 292.401	V	464.11	ug/L	1519.8	468.93	457.8	465.6
Zn 213.857	Zn	678.95	ug/L	3807.21	680.93	673.36	682.55

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484498008 3023****Analysis Time: 5/3/2022 12:06:51 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.1	Ratio	21182.25	1.11	1.1	1.1
Tb 360.044	360 Tb RAD	1.04	Ratio	4108.12	1.04	1.05	1.05
Ag 328.068	Ag	2.98	ug/L	-717.62	2.67	2.94	3.33
Al 396.152	Al	44587.04	ug/L	146298.1	44894.76	44382.84	44483.53
As 188.980	As	32.35	ug/L	11.51	29.45	34.1	33.5
B 249.678	B	157.78	ug/L	387.24	159.05	156.88	157.41
Ba 233.527	Ba	2693.85	ug/L	24566.66	2717.25	2676.45	2687.84
Be 234.861	Be	0.83	ug/L	55.31	0.63	0.97	0.89
Ca 315.887	Ca	37355.15	ug/L	49726.07	37480.3	37290.11	37295.06
Cd 214.439	Cd	3.22	ug/L	18.71	2.59	4.47	2.59
Co 228.615	Co	41	ug/L	80.21	42.52	36.94	43.54
Cr 267.716	Cr	108.29	ug/L	433.08	108.43	107.63	108.81
Cu 327.395	Cu	1531.61	ug/L	10049.06	1541.25	1521.67	1531.9
Fe 261.187	Fe	107771.11	ug/L	111506.25	108569.89	107364.93	107378.51
K 766.491	K	10715.32	ug/L	15588.5	10818.17	10658.23	10669.55
Li 670.783	Li	82.29	ug/L	4436.65	85.76	79.76	81.36
Mg 279.078	Mg	9453.93	ug/L	3509.66	9535.24	9428	9398.54
Mn 257.610	Mn	39504.09	ug/L	1511738.26	39722.46	39181.12	39608.7
Mo 204.598	Mo	29.59	ug/L	46.49	31.86	28.43	28.49
Na 589.592	Na	2448.74	ug/L	24761.9	2469.96	2439.62	2436.65
Ni 231.604	Ni	97.56	ug/L	50.18	98.39	100.61	93.67
P 213.618	P	53910.53	ug/L	14182.92	54328.16	53602.86	53800.57
Pb 220.353	Pb	114.29	ug/L	127.44	112.29	114.57	116.02
S 181.972	S	43024.01	ug/L	147.15	43178.9	43052.34	42840.79
Sb 206.834	Sb	3.27	ug/L	13.43	4.24	1.68	3.88
Se 196.026	Se	26	ug/L	7.88	25.11	27.03	25.85
Sn 189.925	Sn	128.65	ug/L	12.62	147.74	127.37	110.84
Sr 421.552	Sr	377.67	ug/L	127871.6	380.67	375.89	376.45
Ti 334.941	Ti	316.93	ug/L	16079.99	319.57	315.85	315.36
Tl 190.794	Tl	-0.75	ug/L	-0.25	-2.04	3.97	-4.18
V 292.401	V	76.67	ug/L	230.29	77.19	75.31	77.51
Zn 213.857	Zn	1901.39	ug/L	10071.14	1914.93	1894.38	1894.85

## Agilent 5110 ICP-OES Report

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**Sample: 30484498010\_3023****Analysis Time: 5/3/2022 12:09:08 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20639.22	1.07	1.07	1.08
Tb 360.044	360 Tb RAD	1.04	Ratio	4081.63	1.03	1.04	1.04
Ag 328.068	Ag	34.58	ug/L	502.27	34.92	34.89	33.93
Al 396.152	Al	72293.16	ug/L	237030.49	72343.27	72035.77	72500.45
As 188.980	As	53.25	ug/L	18.24	53.91	57.53	48.31
B 249.678	B	87.44	ug/L	52.55	88.73	82.61	90.99
Ba 233.527	Ba	4892.34	ug/L	44624.06	4901.32	4877.79	4897.9
Be 234.861	Be	-0.22	ug/L	30.87	-0.21	-0.3	-0.13
Ca 315.887	Ca	187506.38	ug/L	249689.89	188391.11	186552.54	187575.49
Cd 214.439	Cd	5.79	ug/L	35.82	4.84	5.22	7.31
Co 228.615	Co	38.98	ug/L	74.57	40.14	38.38	38.43
Cr 267.716	Cr	227.33	ug/L	932.33	228.32	223.51	230.17
Cu 327.395	Cu	2822.95	ug/L	18729.58	2829.2	2812.41	2827.23
Fe 261.187	Fe	286405.83	ug/L	296313.72	286950.19	285672.95	286594.34
K 766.491	K	11050.69	ug/L	16016.43	11057.12	11018.33	11076.62
Li 670.783	Li	106.24	ug/L	4827.29	107.2	103.29	108.24
Mg 279.078	Mg	20326.19	ug/L	7537.5	20353.98	20305.51	20319.08
Mn 257.610	Mn	46812.99	ug/L	1791514.8	46869.11	46652.22	46917.64
Mo 204.598	Mo	39.75	ug/L	68.36	41.5	39.21	38.54
Na 589.592	Na	3008.54	ug/L	31961.78	3017.59	2991.34	3016.69
Ni 231.604	Ni	160.6	ug/L	81.98	155.54	160.19	166.07
P 213.618	P	128490.1	ug/L	33815.69	129062.14	127766.15	128642.03
Pb 220.353	Pb	283.68	ug/L	300.44	282.35	289.45	279.26
S 181.972	S	128312.21	ug/L	437.6	129016.79	127915.15	128004.67
Sb 206.834	Sb	3.45	ug/L	21.53	-7.94	14.58	3.71
Se 196.026	Se	46.5	ug/L	5.65	57.07	26.47	55.97
Sn 189.925	Sn	209.21	ug/L	18.25	186.79	185.32	255.52
Sr 421.552	Sr	811.38	ug/L	275206.56	812.26	808.56	813.33
Ti 334.941	Ti	379.32	ug/L	18858.73	379.27	378.88	379.8
Tl 190.794	Tl	-1.95	ug/L	-1.59	-8.16	1.33	0.99
V 292.401	V	117.26	ug/L	336.96	118.58	116.78	116.43
Zn 213.857	Zn	5223.42	ug/L	27663.61	5231.91	5198.62	5239.74

## Agilent 5110 ICP-OES Report

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Sample: 2424773\_3024

Analysis Time: 5/3/2022 12:11:26 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.12	Ratio	21383.5	1.11	1.12	1.12
Tb 360.044	360 Tb RAD	1.03	Ratio	4035.3	0.99	1.03	1.05
Ag 328.068	Ag	-0.24	ug/L	-1010.14	-0.24	-0.02	-0.48
Al 396.152	Al	118.46	ug/L	389.65	123.07	115.31	117
As 188.980	As	-1.53	ug/L	0.88	-5.02	1.92	-1.49
B 249.678	B	-2.15	ug/L	3.69	-2.3	-1.89	-2.24
Ba 233.527	Ba	1.81	ug/L	15.61	1.99	1.95	1.49
Be 234.861	Be	-0.01	ug/L	3.68	-0.05	-0.03	0.06
Ca 315.887	Ca	611.37	ug/L	794.51	624.38	607.73	602
Cd 214.439	Cd	-0.54	ug/L	1.31	-0.08	-0.72	-0.82
Co 228.615	Co	1.26	ug/L	1.07	1.61	4.24	-2.08
Cr 267.716	Cr	2.38	ug/L	-11.54	0.89	3.27	2.97
Cu 327.395	Cu	5.48	ug/L	-205.97	5.08	5.22	6.12
Fe 261.187	Fe	241.22	ug/L	256.37	250.46	237.49	235.7
K 766.491	K	146.75	ug/L	708.14	169.34	150.08	120.84
Li 670.783	Li	44.2	ug/L	3805.74	49.79	43.03	39.8
Mg 279.078	Mg	80.4	ug/L	20.41	82.6	76.83	81.77
Mn 257.610	Mn	42.4	ug/L	1628.76	44.1	41.92	41.19
Mo 204.598	Mo	0.08	ug/L	-9.23	0.53	-0.43	0.13
Na 589.592	Na	131.04	ug/L	1174.73	136.72	128.18	128.23
Ni 231.604	Ni	8.96	ug/L	3.47	10.28	5.16	11.45
P 213.618	P	34.47	ug/L	7.48	39.01	31.77	32.64
Pb 220.353	Pb	-0.48	ug/L	5.09	1.11	-0.54	-2.02
S 181.972	S	2.39	ug/L	1	-348.82	210.14	145.84
Sb 206.834	Sb	2.59	ug/L	4.71	1.93	5.25	0.59
Se 196.026	Se	9.87	ug/L	2.65	8.34	6.62	14.66
Sn 189.925	Sn	43.1	ug/L	6.08	42.43	36.11	50.77
Sr 421.552	Sr	0.7	ug/L	198.19	0.73	0.7	0.66
Ti 334.941	Ti	4.42	ug/L	1999.63	4.16	3.97	5.13
Tl 190.794	Tl	-3.68	ug/L	-5.64	-5.23	-3.23	-2.59
V 292.401	V	1.75	ug/L	-6.54	3.07	1.62	0.56
Zn 213.857	Zn	34.37	ug/L	182.58	35.45	33.97	33.71

## Agilent 5110 ICP-OES Report

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**Sample: 2424774\_3024****Analysis Time: 5/3/2022 12:13:44 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20689.6	1.07	1.08	1.08
Tb 360.044	360 Tb RAD	1.01	Ratio	3990.44	1.02	1.03	1
Ag 328.068	Ag	494.45	ug/L	17724.5	497.96	493.04	492.35
Al 396.152	Al	2010.62	ug/L	6852.94	2001.23	1989.49	2041.14
As 188.980	As	1599.31	ug/L	632.51	1620.73	1578.85	1598.34
B 249.678	B	2017.46	ug/L	5788.77	2007.51	1990.94	2053.94
Ba 233.527	Ba	1935.19	ug/L	17641.69	1926.58	1914.11	1964.88
Be 234.861	Be	470.18	ug/L	20987.92	466.89	465.77	477.88
Ca 315.887	Ca	39069.31	ug/L	52028.8	38938.3	38679.6	39590.04
Cd 214.439	Cd	938.08	ug/L	2949.84	933.36	927.51	953.38
Co 228.615	Co	1952.45	ug/L	3852.65	1936.71	1930.79	1989.85
Cr 267.716	Cr	1937.26	ug/L	8108.46	1926.61	1916.88	1968.28
Cu 327.395	Cu	1887.75	ug/L	12431.74	1880.31	1866.39	1916.55
Fe 261.187	Fe	2167.47	ug/L	2251.98	2159.82	2135.69	2206.92
K 766.491	K	19108.69	ug/L	27442.81	19032.18	18859.49	19434.39
Li 670.783	Li	1924.88	ug/L	36128.76	1914.14	1902.73	1957.78
Mg 279.078	Mg	19362.29	ug/L	7204.98	19251.3	19176.85	19658.72
Mn 257.610	Mn	1971.83	ug/L	75596.11	1970.27	1945.93	1999.28
Mo 204.598	Mo	1990.76	ug/L	3644.15	2006.89	1980.34	1985.07
Na 589.592	Na	18686.04	ug/L	170951.94	18607.44	18476.83	18973.84
Ni 231.604	Ni	1956.4	ug/L	1037.15	1940.46	1954.34	1974.39
P 213.618	P	37611.07	ug/L	9872.56	37347.34	37228.46	38257.41
Pb 220.353	Pb	1932.64	ug/L	1930.59	1946.99	1929.47	1921.47
S 181.972	S	1704.63	ug/L	6.62	1745.92	1737.49	1630.48
Sb 206.834	Sb	1829.95	ug/L	1445.41	1852.72	1812.36	1824.77
Se 196.026	Se	1499.62	ug/L	533.48	1521.99	1501.11	1475.76
Sn 189.925	Sn	1712.95	ug/L	134.95	1678.76	1687.46	1772.61
Sr 421.552	Sr	1924	ug/L	650746.37	1918.56	1898.19	1955.24
Ti 334.941	Ti	2034.48	ug/L	93465.65	2030.6	2009.98	2062.85
Tl 190.794	Tl	1793.03	ug/L	1056.47	1806.21	1792.44	1780.46
V 292.401	V	1932.85	ug/L	6730.93	1924.63	1909.15	1964.77
Zn 213.857	Zn	1888.29	ug/L	10003.57	1879.87	1864.04	1920.96



## Agilent 5110 ICP-OES Report

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**Sample: 30483436001\_3024****Analysis Time: 5/3/2022 12:16:02 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20359.63	1.06	1.06	1.06
Tb 360.044	360 Tb RAD	1.01	Ratio	3963.18	1	0.99	1.03
Ag 328.068	Ag	5.64	ug/L	-789.79	5.84	5.49	5.59
Al 396.152	Al	9959.4	ug/L	32656.57	9921.69	10167.41	9789.11
As 188.980	As	24.58	ug/L	8.69	17.69	15.61	40.44
B 249.678	B	144.22	ug/L	119.53	143.54	146.29	142.83
Ba 233.527	Ba	1388.84	ug/L	12679.56	1394.87	1414.7	1356.94
Be 234.861	Be	-0.61	ug/L	25.32	-0.91	-0.29	-0.62
Ca 315.887	Ca	46810.54	ug/L	62316.3	46861.35	47658.12	45912.15
Cd 214.439	Cd	0.48	ug/L	23.74	1.13	0.25	0.06
Co 228.615	Co	9.41	ug/L	18.36	7.04	9.47	11.7
Cr 267.716	Cr	315.08	ug/L	1306.51	314.62	321.77	308.85
Cu 327.395	Cu	1830.38	ug/L	12060.91	1838.85	1861.46	1790.84
Fe 261.187	Fe	414402.01	ug/L	428721.75	415595.44	421904.76	405705.83
K 766.491	K	26853.05	ug/L	38519.88	26947.67	27351.74	26259.74
Li 670.783	Li	57.87	ug/L	3989.88	56.71	62.9	54
Mg 279.078	Mg	21129.97	ug/L	7800.3	21159.18	21505.47	20725.27
Mn 257.610	Mn	822.43	ug/L	31676.06	823.37	837.2	806.71
Mo 204.598	Mo	24.31	ug/L	40.51	22.35	22.93	27.65
Na 589.592	Na	22482.15	ug/L	204746.29	22525.67	22891.4	22029.37
Ni 231.604	Ni	93.37	ug/L	49.23	86.82	102.78	90.49
P 213.618	P	120728.59	ug/L	31783.01	121040.7	123114.25	118030.83
Pb 220.353	Pb	55.26	ug/L	66.09	46.46	57.2	62.13
S 181.972	S	36685.66	ug/L	125.78	36428.42	37650.49	35978.09
Sb 206.834	Sb	14.98	ug/L	29.55	8.58	14.16	22.19
Se 196.026	Se	58.2	ug/L	-2.53	69.96	42.5	62.12
Sn 189.925	Sn	145.23	ug/L	13.41	151.68	156.02	128
Sr 421.552	Sr	445.99	ug/L	151065.16	447.9	454.51	435.55
Ti 334.941	Ti	223.27	ug/L	11843.99	224.61	228.3	216.9
Tl 190.794	Tl	-10.19	ug/L	-15.84	-2.44	-14.19	-13.95
V 292.401	V	54.42	ug/L	87.22	55.15	55.19	52.93
Zn 213.857	Zn	1907.46	ug/L	10230.65	1912.81	1942.24	1867.34

## Agilent 5110 ICP-OES Report

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**Sample: 30484604001\_3024****Analysis Time: 5/3/2022 12:18:21 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20725.26	1.08	1.08	1.08
Tb 360.044	360 Tb RAD	1.03	Ratio	4056.87	1.05	1.02	1.02
Ag 328.068	Ag	-2.13	ug/L	-1068.27	-1.71	-2.01	-2.65
Al 396.152	Al	241072.03	ug/L	790829.27	235962.22	243700.61	243553.25
As 188.980	As	164.93	ug/L	63.74	158.27	174.57	161.95
B 249.678	B	41.83	ug/L	-192.73	43.69	37.81	43.98
Ba 233.527	Ba	879.23	ug/L	8033.5	861.96	886.11	889.62
Be 234.861	Be	2.6	ug/L	177.73	2.44	2.56	2.78
Ca 315.887	Ca	24469.1	ug/L	32528.54	24085.99	24605.63	24715.67
Cd 214.439	Cd	-1.7	ug/L	18.21	-0.91	-2.03	-2.15
Co 228.615	Co	190.56	ug/L	379.49	187.7	191.96	192.03
Cr 267.716	Cr	332.88	ug/L	1381.82	323.27	336.65	338.72
Cu 327.395	Cu	243.7	ug/L	1411.07	238.36	247.11	245.63
Fe 261.187	Fe	445995.16	ug/L	461411.01	437120.24	450300.82	450564.42
K 766.491	K	25767.7	ug/L	36957.78	25247.54	25998.7	26056.86
Li 670.783	Li	490.13	ug/L	11437.95	476.3	497.39	496.71
Mg 279.078	Mg	59849.63	ug/L	22218.81	58596.74	60419.33	60532.82
Mn 257.610	Mn	4618.04	ug/L	176939.58	4521.86	4664.18	4668.08
Mo 204.598	Mo	14.49	ug/L	31	17.28	14.4	11.81
Na 589.592	Na	1024.06	ug/L	10125.33	997.72	1036.27	1038.18
Ni 231.604	Ni	359.09	ug/L	190.72	358.72	356.63	361.91
P 213.618	P	2729.69	ug/L	710.74	2678.4	2757.96	2752.72
Pb 220.353	Pb	212.53	ug/L	219.52	209.9	206.23	221.46
S 181.972	S	1255.75	ug/L	5.24	1037.28	1433.56	1296.42
Sb 206.834	Sb	-4.23	ug/L	15.95	-9.92	-3.23	0.45
Se 196.026	Se	45.09	ug/L	-9.04	50.74	33.86	50.69
Sn 189.925	Sn	-8.98	ug/L	1.69	-36.07	31.76	-22.64
Sr 421.552	Sr	158.34	ug/L	53748.73	155.08	159.99	159.95
Ti 334.941	Ti	811.41	ug/L	38355.28	794.97	822.74	816.52
Tl 190.794	Tl	-8.3	ug/L	-14.55	-8.51	-11.75	-4.64
V 292.401	V	422.52	ug/L	1373.98	416.7	424.73	426.13
Zn 213.857	Zn	899.42	ug/L	4942.34	882.87	904.88	910.5

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484604002\_3024****Analysis Time: 5/3/2022 12:20:39 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.07	Ratio	20480.32	1.06	1.07	1.07
Tb 360.044	360 Tb RAD	1.02	Ratio	3996.77	1.02	1.03	1.01
Ag 328.068	Ag	-3.37	ug/L	-1081.27	-3.6	-3.51	-2.99
Al 396.152	Al	311687.71	ug/L	1022454.38	310969.13	306743.53	317350.47
As 188.980	As	210.59	ug/L	80.44	225.43	200.1	206.24
B 249.678	B	107.34	ug/L	-116.55	104.55	110.11	107.35
Ba 233.527	Ba	1504.47	ug/L	13741.23	1503.37	1484.96	1525.08
Be 234.861	Be	5.5	ug/L	327.3	4.97	5.69	5.83
Ca 315.887	Ca	56242.23	ug/L	74832.7	56208.55	55514.58	57003.57
Cd 214.439	Cd	-0.83	ug/L	28.27	-0.61	-1.41	-0.45
Co 228.615	Co	279.46	ug/L	555.46	280.18	277.66	280.53
Cr 267.716	Cr	414.32	ug/L	1725.05	413.57	411.29	418.11
Cu 327.395	Cu	369.09	ug/L	2259.73	370.49	366.37	370.41
Fe 261.187	Fe	583347.5	ug/L	603511.48	582583.63	575774.1	591684.77
K 766.491	K	48866.49	ug/L	69670.04	48898.67	48184.11	49516.69
Li 670.783	Li	683.5	ug/L	14748.55	686.61	671.18	692.7
Mg 279.078	Mg	94783.26	ug/L	35211.41	94564.76	93753.43	96031.58
Mn 257.610	Mn	12814.21	ug/L	490653.83	12801.79	12647.81	12993.05
Mo 204.598	Mo	11.77	ug/L	30.15	14.36	13.3	7.64
Na 589.592	Na	4140.36	ug/L	38938.51	4138.01	4085.47	4197.6
Ni 231.604	Ni	631.27	ug/L	335.53	622.74	626.79	644.28
P 213.618	P	5060.56	ug/L	1321.78	5064.34	5010.02	5107.3
Pb 220.353	Pb	298.31	ug/L	307.49	301.81	302.34	290.77
S 181.972	S	736.08	ug/L	3.38	232.03	1042.65	933.55
Sb 206.834	Sb	-0.54	ug/L	25.31	-4.62	-1.79	4.77
Se 196.026	Se	45.55	ug/L	-16.5	43.78	51.46	41.39
Sn 189.925	Sn	28.68	ug/L	4.42	51.53	37.89	-3.37
Sr 421.552	Sr	266.14	ug/L	90382.47	265.92	262.42	270.07
Ti 334.941	Ti	804.56	ug/L	38044.87	803.83	798.17	811.67
Tl 190.794	Tl	5.69	ug/L	-7.18	1.95	7.78	7.33
V 292.401	V	543.15	ug/L	1764.42	543.95	533.55	551.94
Zn 213.857	Zn	1312.96	ug/L	7196.88	1312.45	1295.71	1330.71

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**Sample: CCV****Analysis Time: 5/3/2022 12:23:03 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.14	Ratio	21926.66	1.15	1.13	1.15
Tb 360.044	360 Tb RAD	1.07	Ratio	4212.91	1.06	1.07	1.08
Ag 328.068	Ag	985.8	ug/L	36633.53	984.14	999.81	973.45
Al 396.152	Al	9844.63	ug/L	32653.96	10072.31	9750.59	9710.99
As 188.980	As	1812.77	ug/L	717.15	1815.25	1833.87	1789.19
B 249.678	B	2083.38	ug/L	5971.82	2108.65	2084.92	2056.58
Ba 233.527	Ba	2076.5	ug/L	18929.71	2106.22	2072.69	2050.58
Be 234.861	Be	1955.37	ug/L	87268.97	1989.85	1957.11	1919.15
Ca 315.887	Ca	9932.26	ug/L	13208.3	10064.45	9916.92	9815.42
Cd 214.439	Cd	2038.38	ug/L	6404.56	2063.97	2037.9	2013.26
Co 228.615	Co	2054.02	ug/L	4053.06	2092.27	2038.78	2031.01
Cr 267.716	Cr	2025.49	ug/L	8479	2053.18	2021.96	2001.34
Cu 327.395	Cu	1951.35	ug/L	12858.78	1978.33	1945.14	1930.59
Fe 261.187	Fe	10007.89	ug/L	10362.39	10162.17	9980.64	9880.87
K 766.491	K	9770.28	ug/L	14187.67	9931.21	9727.45	9652.18
Li 670.783	Li	2107.19	ug/L	39264.77	2144.08	2095.89	2081.59
Mg 279.078	Mg	10096.83	ug/L	3752.02	10229.94	10102.21	9958.34
Mn 257.610	Mn	2048.66	ug/L	78537.69	2085.88	2053.09	2007
Mo 204.598	Mo	1950.12	ug/L	3569.8	1951.51	1974.13	1924.74
Na 589.592	Na	9503.4	ug/L	88000.21	9633.1	9491.54	9385.55
Ni 231.604	Ni	2076.95	ug/L	1101.48	2105.52	2075.08	2050.25
P 213.618	P	1978	ug/L	483.62	2010.39	1982.83	1940.79
Pb 220.353	Pb	2092.25	ug/L	2089.47	2091.53	2113.75	2071.47
S 181.972	S	11501.14	ug/L	39.97	11699.59	11041.42	11762.41
Sb 206.834	Sb	1927.44	ug/L	1523.35	1929.37	1950.95	1902
Se 196.026	Se	1822.58	ug/L	648.7	1816.55	1851.32	1799.88
Sn 189.925	Sn	1879.6	ug/L	148.01	1879.74	1886.04	1873.02
Sr 421.552	Sr	1987.7	ug/L	672163.94	2016.38	1985.8	1960.93
Ti 334.941	Ti	1993.26	ug/L	91620.69	2045.68	1968.76	1965.33
Tl 190.794	Tl	1982.13	ug/L	1168.24	1979.4	2016.31	1950.67
V 292.401	V	1994.38	ug/L	6944.03	2020.36	1995.57	1967.2
Zn 213.857	Zn	1991.06	ug/L	10548.87	2016.07	1989.63	1967.5

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**Sample: CCB****Analysis Time: 5/3/2022 12:25:22 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.12	Ratio	21414.45	1.12	1.11	1.11
Tb 360.044	360 Tb RAD	1.04	Ratio	4077.95	1.04	1.04	1.03
Ag 328.068	Ag	0.35	ug/L	-987.71	0.51	0.39	0.16
Al 396.152	Al	-2.66	ug/L	-6.72	-3.32	-5.17	0.52
As 188.980	As	0.23	ug/L	1.58	-1.16	2.6	-0.74
B 249.678	B	-1.78	ug/L	4.84	-0.48	-2.08	-2.77
Ba 233.527	Ba	-0.06	ug/L	-1.47	0.14	-0.64	0.31
Be 234.861	Be	0.08	ug/L	7.76	0.14	0.09	0.01
Ca 315.887	Ca	-0.71	ug/L	-20.62	5.19	-2.38	-4.93
Cd 214.439	Cd	-0.83	ug/L	0.39	-1.29	-1.05	-0.15
Co 228.615	Co	2.06	ug/L	2.63	2.16	3.15	0.88
Cr 267.716	Cr	0.18	ug/L	-20.77	-0.11	-0.43	1.08
Cu 327.395	Cu	3.42	ug/L	-219.75	1.65	4.82	3.79
Fe 261.187	Fe	3.73	ug/L	10.64	1.19	6.5	3.49
K 766.491	K	-1.77	ug/L	498.43	-0.22	-13.87	8.77
Li 670.783	Li	50.14	ug/L	3908.38	49.36	50.73	50.34
Mg 279.078	Mg	4.47	ug/L	-7.9	27.04	2.92	-16.56
Mn 257.610	Mn	-0.06	ug/L	3.64	0.02	-0.15	-0.05
Mo 204.598	Mo	0.48	ug/L	-8.49	0.92	0.49	0.04
Na 589.592	Na	-6.53	ug/L	-71.93	-4.38	-6.02	-9.18
Ni 231.604	Ni	0.22	ug/L	-1.17	-9.63	8	2.29
P 213.618	P	10.27	ug/L	1.15	17.65	17.1	-3.93
Pb 220.353	Pb	-2.21	ug/L	3.35	-1.15	-4.55	-0.92
S 181.972	S	-72.16	ug/L	0.74	-131.01	-77.33	-8.14
Sb 206.834	Sb	5.37	ug/L	6.9	6.35	7.06	2.71
Se 196.026	Se	10.19	ug/L	2.78	9.12	1.25	20.19
Sn 189.925	Sn	-3.28	ug/L	2.5	13.3	9.13	-32.28
Sr 421.552	Sr	0.06	ug/L	-20.34	0.08	0.07	0.03
Ti 334.941	Ti	0.39	ug/L	1818.04	0.24	-0.1	1.02
Tl 190.794	Tl	-2.11	ug/L	-4.71	-5.42	-2.06	1.16
V 292.401	V	0.8	ug/L	-9.87	-0.55	3.62	-0.66
Zn 213.857	Zn	0.43	ug/L	3.4	1.11	0.24	-0.05

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**Sample: 30484604003 3024****Analysis Time: 5/3/2022 12:27:40 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	19853.02	1.04	1.04	1.03
Tb 360.044	360 Tb RAD	1.03	Ratio	4044.54	1.01	1.05	1.03
Ag 328.068	Ag	-3.58	ug/L	-1055.76	-3.85	-3.3	-3.6
Al 396.152	Al	314630.91	ug/L	1032069.97	320918.07	308511.38	314463.29
As 188.980	As	357.99	ug/L	138.28	351.32	354.44	368.21
B 249.678	B	136.56	ug/L	-82.99	136.16	139.77	133.74
Ba 233.527	Ba	1511.41	ug/L	13807.67	1536.56	1481.18	1516.48
Be 234.861	Be	4.7	ug/L	299.89	5.88	5.21	2.99
Ca 315.887	Ca	84469.5	ug/L	112424.83	85811.68	83025.99	84570.84
Cd 214.439	Cd	-1.07	ug/L	30.96	-1.24	-1.28	-0.68
Co 228.615	Co	286.26	ug/L	569.65	286.39	283.77	288.61
Cr 267.716	Cr	406.87	ug/L	1693.72	411.83	400.93	407.86
Cu 327.395	Cu	375.1	ug/L	2303.27	380.9	367.25	377.13
Fe 261.187	Fe	645411.83	ug/L	667721.71	656240.52	633581.55	646413.42
K 766.491	K	52574.83	ug/L	74909.48	53486.97	51564.94	52672.57
Li 670.783	Li	689.05	ug/L	14835.9	702.31	673.79	691.06
Mg 279.078	Mg	110437.95	ug/L	41035.33	112339.54	108226.32	110748
Mn 257.610	Mn	20352.81	ug/L	779162.53	20702.42	19945.22	20410.78
Mo 204.598	Mo	22.64	ug/L	50.9	25.32	21.51	21.08
Na 589.592	Na	4338.32	ug/L	40748.51	4411.12	4250.36	4353.5
Ni 231.604	Ni	602.48	ug/L	320.21	608.19	595.96	603.3
P 213.618	P	5534.09	ug/L	1445.66	5610.68	5427.91	5563.67
Pb 220.353	Pb	287.54	ug/L	299.18	281.85	284.56	296.2
S 181.972	S	505.36	ug/L	2.51	905.05	782.66	-171.62
Sb 206.834	Sb	2.19	ug/L	30.17	-6.27	7.62	5.22
Se 196.026	Se	46.12	ug/L	-19.08	45.32	30.84	62.19
Sn 189.925	Sn	29.21	ug/L	4.36	47.7	33.91	6.01
Sr 421.552	Sr	300.78	ug/L	102233.17	306.09	295.19	301.07
Ti 334.941	Ti	855.44	ug/L	40330.68	868.96	841.87	855.51
Tl 190.794	Tl	0.04	ug/L	-10.58	4.2	-4.63	0.55
V 292.401	V	570.3	ug/L	1845.02	579.6	558.58	572.72
Zn 213.857	Zn	1336.91	ug/L	7353.9	1358.05	1312.59	1340.1

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**Sample: 30484604004 3024****Analysis Time: 5/3/2022 12:29:58 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.07	Ratio	20441.36	1.07	1.07	1.07
Tb 360.044	360 Tb RAD	1.02	Ratio	4028.97	1.02	1.03	1.03
Ag 328.068	Ag	-3.48	ug/L	-1107.16	-3.36	-3.56	-3.52
Al 396.152	Al	319213.89	ug/L	1047206.22	320651.51	320006.36	316983.79
As 188.980	As	222.31	ug/L	85.01	226.76	216.6	223.57
B 249.678	B	115.39	ug/L	-117.31	118.84	113.93	113.41
Ba 233.527	Ba	2167.65	ug/L	19788.98	2182.13	2164.28	2156.56
Be 234.861	Be	6.68	ug/L	384.09	5.82	7.52	6.7
Ca 315.887	Ca	28538.23	ug/L	37934.62	28453.1	28678.92	28482.68
Cd 214.439	Cd	-2.03	ug/L	25.73	-3.22	-2	-0.86
Co 228.615	Co	250.59	ug/L	497.88	249.55	251.47	250.75
Cr 267.716	Cr	465.97	ug/L	1943.25	467.96	468.42	461.54
Cu 327.395	Cu	385.77	ug/L	2371.55	387.08	385.76	384.48
Fe 261.187	Fe	614380.26	ug/L	635615.02	618522.7	613488.28	611129.79
K 766.491	K	48359.6	ug/L	68950.66	48658.79	48350.41	48069.6
Li 670.783	Li	721.22	ug/L	15394.75	724.41	721.95	717.3
Mg 279.078	Mg	95629.96	ug/L	35519.65	96095.36	95751.57	95042.95
Mn 257.610	Mn	7609.34	ug/L	291497.49	7649.52	7622.15	7556.35
Mo 204.598	Mo	11.38	ug/L	30.23	13.92	11.91	8.31
Na 589.592	Na	1601.03	ug/L	16591.46	1618.75	1597.18	1587.16
Ni 231.604	Ni	753.65	ug/L	401.04	753.22	754.52	753.22
P 213.618	P	5625.01	ug/L	1470.1	5634.16	5643.66	5597.21
Pb 220.353	Pb	256.25	ug/L	264.71	257.46	259.97	251.32
S 181.972	S	737.19	ug/L	3.4	790.34	802.99	618.25
Sb 206.834	Sb	1.17	ug/L	27.59	3.77	0.27	-0.52
Se 196.026	Se	48.61	ug/L	-17.79	48.95	51.38	45.51
Sn 189.925	Sn	41.04	ug/L	5.33	31.16	51.11	40.84
Sr 421.552	Sr	291.33	ug/L	98796.93	292.97	291.18	289.84
Ti 334.941	Ti	768.94	ug/L	36447.12	772.87	769.14	764.8
Tl 190.794	Tl	-0.82	ug/L	-12.28	1.26	3.09	-6.8
V 292.401	V	554.12	ug/L	1795.17	557.62	553.93	550.81
Zn 213.857	Zn	1405.73	ug/L	7700.37	1414.59	1409.43	1393.18

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Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20656.99	1.08	1.08	1.07
Tb 360.044	360 Tb RAD	1.01	Ratio	3985.33	0.99	1.03	1.02
Ag 328.068	Ag	-3.04	ug/L	-1100.54	-2.84	-2.91	-3.38
Al 396.152	Al	299256.72	ug/L	981724.37	303333.29	295278.13	299158.75
As 188.980	As	140.73	ug/L	53.5	136.45	148.8	136.95
B 249.678	B	86.48	ug/L	-114.88	87.77	86.69	84.97
Ba 233.527	Ba	1367.4	ug/L	12487.31	1393.61	1345.07	1363.52
Be 234.861	Be	5.31	ug/L	308.63	5.61	6.02	4.31
Ca 315.887	Ca	18956.65	ug/L	25178.06	19279.27	18693.48	18897.2
Cd 214.439	Cd	-2.92	ug/L	17.51	-1.7	-4.6	-2.46
Co 228.615	Co	268.34	ug/L	533.13	270.97	264.54	269.52
Cr 267.716	Cr	396.65	ug/L	1650.8	403.08	390.93	395.93
Cu 327.395	Cu	308.8	ug/L	1851.13	312.18	306.26	307.96
Fe 261.187	Fe	507936.98	ug/L	525493.56	515826.63	501148.22	506836.1
K 766.491	K	42485.79	ug/L	60645.31	43209.36	41921.52	42326.49
Li 670.783	Li	640.61	ug/L	14021.08	654.11	631.45	636.26
Mg 279.078	Mg	73929.27	ug/L	27453.11	75161.71	73004.52	73621.56
Mn 257.610	Mn	5924.37	ug/L	226962.21	6028.85	5841.85	5902.42
Mo 204.598	Mo	4.88	ug/L	16.25	4.7	7.72	2.21
Na 589.592	Na	3501.77	ug/L	33017.25	3560.29	3454.2	3490.82
Ni 231.604	Ni	504.16	ug/L	268.09	512.56	513.04	486.89
P 213.618	P	3629.45	ug/L	946.34	3684.55	3559.67	3644.13
Pb 220.353	Pb	268.47	ug/L	275.26	272.12	263.85	269.45
S 181.972	S	1302.31	ug/L	5.39	1346.3	1082.35	1478.28
Sb 206.834	Sb	4.12	ug/L	25.56	6.37	-4.83	10.81
Se 196.026	Se	52.99	ug/L	-10.01	60.36	52.84	45.76
Sn 189.925	Sn	-5.75	ug/L	1.9	-28.45	16.08	-4.89
Sr 421.552	Sr	190.11	ug/L	64496.99	193.25	187.53	189.55
Ti 334.941	Ti	858.86	ug/L	40498.03	873.97	847.22	855.39
Tl 190.794	Tl	-2.79	ug/L	-12.02	-4.87	0.18	-3.66
V 292.401	V	498.86	ug/L	1626.78	505.72	496.7	494.17
Zn 213.857	Zn	1210.24	ug/L	6613.96	1232.29	1193.92	1204.52



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**Sample: 30484604006 3024****Analysis Time: 5/3/2022 12:34:34 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20070.69	1.05	1.05	1.05
Tb 360.044	360 Tb RAD	1.02	Ratio	3995.15	1.01	1.02	1.01
Ag 328.068	Ag	-2.5	ug/L	-1098.45	-2.57	-2.68	-2.23
Al 396.152	Al	308352.43	ug/L	1011563.72	308026.79	306980.07	310050.43
As 188.980	As	175.09	ug/L	67.45	192.47	159.07	173.73
B 249.678	B	78.44	ug/L	-122.84	80.18	75.61	79.53
Ba 233.527	Ba	1244.61	ug/L	11366.76	1245.81	1240.87	1247.15
Be 234.861	Be	4.23	ug/L	257.76	3.94	3.93	4.81
Ca 315.887	Ca	15123.36	ug/L	20071.57	15105.6	15055.08	15209.41
Cd 214.439	Cd	-1.33	ug/L	21.47	-1.72	-1.08	-1.2
Co 228.615	Co	220.92	ug/L	440.37	220.07	219.61	223.07
Cr 267.716	Cr	380.36	ug/L	1582.31	380.72	380.44	379.9
Cu 327.395	Cu	288.77	ug/L	1715.8	287.04	288.12	291.14
Fe 261.187	Fe	490125.57	ug/L	507065.89	489339.01	488111.15	492926.55
K 766.491	K	30474.07	ug/L	43620.13	30474.17	30328.28	30619.76
Li 670.783	Li	552.29	ug/L	12503.73	553.41	548.1	555.34
Mg 279.078	Mg	64099.11	ug/L	23793.55	64009.42	63872.81	64415.11
Mn 257.610	Mn	2991.8	ug/L	114732.95	2985.72	2983.49	3006.19
Mo 204.598	Mo	11.95	ug/L	29.38	13.69	12.47	9.68
Na 589.592	Na	7107.19	ug/L	65518.99	7096.05	7082.71	7142.81
Ni 231.604	Ni	389.12	ug/L	206.85	389.11	394.61	383.66
P 213.618	P	4025.23	ug/L	1051.04	4023.52	4012.9	4039.27
Pb 220.353	Pb	321.47	ug/L	327.01	329.11	319.19	316.11
S 181.972	S	2156.78	ug/L	8.35	2572.83	2182.68	1714.81
Sb 206.834	Sb	4.46	ug/L	24.49	15.02	-5.36	3.72
Se 196.026	Se	39.38	ug/L	-14.16	39.67	41.27	37.19
Sn 189.925	Sn	25.29	ug/L	4.33	-23.14	52.42	46.58
Sr 421.552	Sr	158.91	ug/L	53927.23	158.55	158.17	160.02
Ti 334.941	Ti	1092.99	ug/L	51044.06	1084.8	1090.56	1103.59
Tl 190.794	Tl	-5.62	ug/L	-13.97	-9.66	-1.04	-6.17
V 292.401	V	520.28	ug/L	1706.86	519.1	516.13	525.59
Zn 213.857	Zn	1117.92	ug/L	6115.36	1117.69	1111.38	1124.69

## Agilent 5110 ICP-OES Report

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**Sample: 30484604007\_3024****Analysis Time: 5/3/2022 12:36:53 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	20029.94	1.04	1.05	1.04
Tb 360.044	360 Tb RAD	1.01	Ratio	3959.95	1.01	1.01	1.01
Ag 328.068	Ag	-3.37	ug/L	-1096.76	-3.16	-3.43	-3.52
Al 396.152	Al	311176.04	ug/L	1020769.09	309968.29	311450.02	312109.81
As 188.980	As	233.4	ug/L	89.37	234.52	236.91	228.76
B 249.678	B	109.73	ug/L	-151.34	112	108.82	108.36
Ba 233.527	Ba	1541.03	ug/L	14077.14	1536.2	1541.04	1545.86
Be 234.861	Be	5.26	ug/L	323.77	4.3	4.91	6.59
Ca 315.887	Ca	62924.89	ug/L	83731.18	63045.91	62617.37	63111.39
Cd 214.439	Cd	-1.91	ug/L	27.42	-1.43	-1.86	-2.44
Co 228.615	Co	274.17	ug/L	545.17	275.8	272.93	273.79
Cr 267.716	Cr	425.93	ug/L	1774.73	428.77	423.27	425.76
Cu 327.395	Cu	409.71	ug/L	2533.68	412.8	406.54	409.79
Fe 261.187	Fe	632393.2	ug/L	654253.25	631570.7	631698.37	633910.54
K 766.491	K	48647.63	ug/L	69361.66	48657.68	48550.73	48734.48
Li 670.783	Li	771.2	ug/L	16252.18	770.48	767.57	775.56
Mg 279.078	Mg	129844.14	ug/L	48261.4	129643.45	129606.32	130282.66
Mn 257.610	Mn	8649.22	ug/L	331302.32	8638.18	8644.04	8665.43
Mo 204.598	Mo	14.38	ug/L	35.89	15.9	11.68	15.56
Na 589.592	Na	2297.9	ug/L	22303.46	2292.83	2296.23	2304.63
Ni 231.604	Ni	679.84	ug/L	361.72	667.22	689.55	682.73
P 213.618	P	6836.99	ug/L	1788.95	6812.27	6836.67	6862.03
Pb 220.353	Pb	294.46	ug/L	303.79	297.33	285.9	300.13
S 181.972	S	680.4	ug/L	3.2	377.7	398.38	1265.1
Sb 206.834	Sb	-4.53	ug/L	23.5	6.23	-12	-7.83
Se 196.026	Se	47.11	ug/L	-19.72	57.2	40.63	43.49
Sn 189.925	Sn	44.69	ug/L	5.5	97.88	9.41	26.79
Sr 421.552	Sr	395.79	ug/L	134264.96	395.96	394.78	396.63
Ti 334.941	Ti	796.03	ug/L	37657	791.76	784.54	811.8
Tl 190.794	Tl	-7	ug/L	-16.16	-0.46	-6	-14.53
V 292.401	V	531.01	ug/L	1711.2	530.99	530.04	532.01
Zn 213.857	Zn	1439.02	ug/L	7887.21	1437.05	1435.44	1444.57

## Agilent 5110 ICP-OES Report

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**Sample: 30484604008 3024****Analysis Time: 5/3/2022 12:39:12 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20185.58	1.05	1.05	1.06
Tb 360.044	360 Tb RAD	1.03	Ratio	4038.15	1.03	1.03	1.03
Ag 328.068	Ag	-2.82	ug/L	-1080.25	-2.94	-2.67	-2.85
Al 396.152	Al	280311.58	ug/L	919277.45	279245.2	279446.98	282242.57
As 188.980	As	139.38	ug/L	52.84	148.03	137.61	132.51
B 249.678	B	143.16	ug/L	35.55	141.48	144.7	143.31
Ba 233.527	Ba	1510.75	ug/L	13800.72	1511.27	1509.98	1510.99
Be 234.861	Be	6.96	ug/L	384.22	6.17	8.14	6.57
Ca 315.887	Ca	217243.04	ug/L	289254.82	218079.75	216203.37	217446.01
Cd 214.439	Cd	-0.23	ug/L	27.55	-0.12	-0.29	-0.27
Co 228.615	Co	228.31	ug/L	453.69	226.69	228.71	229.51
Cr 267.716	Cr	368.05	ug/L	1526.41	368.77	365.24	370.14
Cu 327.395	Cu	347.61	ug/L	2115.89	348.27	345.77	348.81
Fe 261.187	Fe	505750.64	ug/L	523240.55	505743.96	504462.85	507045.12
K 766.491	K	46925.57	ug/L	66937.89	47046.82	46793.56	46936.32
Li 670.783	Li	653	ug/L	14233.41	655.09	652.84	651.09
Mg 279.078	Mg	148446.53	ug/L	55212.43	148560.7	148175.38	148603.51
Mn 257.610	Mn	8032.77	ug/L	307656.72	8044.07	8007.32	8046.91
Mo 204.598	Mo	9.46	ug/L	24.79	9.46	5.86	13.07
Na 589.592	Na	2445.64	ug/L	23630.61	2454.1	2437.6	2445.21
Ni 231.604	Ni	528.28	ug/L	278.54	531.76	527.19	525.9
P 213.618	P	5810.98	ug/L	1519.82	5801.52	5816.26	5815.15
Pb 220.353	Pb	279.25	ug/L	288.68	284.3	276.48	276.96
S 181.972	S	2015.2	ug/L	7.83	2191.18	1965.29	1889.13
Sb 206.834	Sb	-5.1	ug/L	19.14	-3.44	-5.75	-6.11
Se 196.026	Se	43.7	ug/L	-14.91	27.5	59.66	43.93
Sn 189.925	Sn	38.23	ug/L	4.66	59.28	-11.01	66.43
Sr 421.552	Sr	626.51	ug/L	212901.47	628.02	624.16	627.34
Ti 334.941	Ti	914.07	ug/L	42934.81	919.71	910.36	912.13
Tl 190.794	Tl	-3.07	ug/L	-11.02	-5.41	-6.18	2.38
V 292.401	V	450.02	ug/L	1462.49	449.95	444.83	455.27
Zn 213.857	Zn	1206.76	ug/L	6618.31	1208.79	1200.47	1211.02

## Agilent 5110 ICP-OES Report

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**Sample: 30484604009\_3024****Analysis Time: 5/3/2022 12:41:30 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20208.72	1.06	1.06	1.05
Tb 360.044	360 Tb RAD	1.03	Ratio	4034.55	1.03	1.04	1.02
Ag 328.068	Ag	-3.04	ug/L	-1088.48	-2.81	-2.86	-3.46
Al 396.152	Al	297594.37	ug/L	975952.64	297241.15	294765.89	300776.07
As 188.980	As	142.68	ug/L	53.94	151.03	142.21	134.79
B 249.678	B	141.02	ug/L	7.82	143.38	136.48	143.21
Ba 233.527	Ba	1629.2	ug/L	14882.37	1631.72	1606.96	1648.92
Be 234.861	Be	7.57	ug/L	415.48	7.9	6.14	8.67
Ca 315.887	Ca	234405.35	ug/L	312108.67	235225.86	231017.67	236972.5
Cd 214.439	Cd	-0.67	ug/L	27.57	1.53	-1.97	-1.59
Co 228.615	Co	245.41	ug/L	487.45	246.82	242.31	247.09
Cr 267.716	Cr	380.34	ug/L	1578.09	383.68	373.03	384.3
Cu 327.395	Cu	347.09	ug/L	2113.82	346.57	342.15	352.54
Fe 261.187	Fe	531010.15	ug/L	549373.49	531761.18	522636.07	538633.19
K 766.491	K	48602.35	ug/L	69311	48651.32	47922.03	49233.69
Li 670.783	Li	693.36	ug/L	14925.66	695.54	681.62	702.92
Mg 279.078	Mg	158650.84	ug/L	59009.33	158718.35	156482.66	160751.51
Mn 257.610	Mn	8267.91	ug/L	316669.7	8274.3	8145.83	8383.6
Mo 204.598	Mo	7.46	ug/L	22.08	10.63	5.46	6.28
Na 589.592	Na	2486.88	ug/L	24121.65	2495.51	2448.95	2516.2
Ni 231.604	Ni	557.33	ug/L	293.89	557.89	548.94	565.17
P 213.618	P	6092.09	ug/L	1593.58	6110.13	5989.27	6176.87
Pb 220.353	Pb	284.01	ug/L	293.69	290.92	268.51	292.58
S 181.972	S	2158.82	ug/L	8.32	2278.03	1537.29	2661.13
Sb 206.834	Sb	-6.62	ug/L	19.09	-13.01	-3.55	-3.3
Se 196.026	Se	49.64	ug/L	-14.49	59.09	50.68	39.14
Sn 189.925	Sn	-22.93	ug/L	-0.15	-22.47	-13.6	-32.73
Sr 421.552	Sr	681.35	ug/L	231524.16	682.08	671.22	690.75
Ti 334.941	Ti	926.21	ug/L	43478.59	929.4	913.26	935.96
Tl 190.794	Tl	6.41	ug/L	-5.7	8.91	7.78	2.53
V 292.401	V	474.62	ug/L	1543.17	475.7	465.65	482.51
Zn 213.857	Zn	1262.31	ug/L	6925.92	1263.86	1243.07	1280.01

## Agilent 5110 ICP-OES Report

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**Sample: 30484488001\_3024****Analysis Time: 5/3/2022 12:43:48 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.97	Ratio	18532.94	0.96	0.97	0.97
Tb 360.044	360 Tb RAD	0.96	Ratio	3779.59	0.95	0.96	0.97
Ag 328.068	Ag	0.07	ug/L	-1032.77	0.17	0.08	-0.03
Al 396.152	Al	149859.55	ug/L	487964.41	150587.09	150546.08	148445.49
As 188.980	As	82.16	ug/L	31.69	83.57	86.77	76.13
B 249.678	B	34.29	ug/L	-98.53	30.18	37.06	35.64
Ba 233.527	Ba	895.63	ug/L	8246.69	904.83	896.65	885.42
Be 234.861	Be	1.11	ug/L	99.33	1.82	0.83	0.68
Ca 315.887	Ca	2302741.16	ug/L	3066705.11	2318953.29	2319849.95	2269420.24
Cd 214.439	Cd	-1.09	ug/L	22.38	-2.78	0.89	-1.39
Co 228.615	Co	72.3	ug/L	136.92	71.18	75.48	70.24
Cr 267.716	Cr	141.51	ug/L	524.07	143.79	139.99	140.74
Cu 327.395	Cu	206.76	ug/L	1203.5	209.2	205.31	205.77
Fe 261.187	Fe	240251.45	ug/L	248669.25	242334.07	240544.35	237875.92
K 766.491	K	35255.81	ug/L	50476.69	35580.65	35351.3	34835.49
Li 670.783	Li	264.66	ug/L	7581.78	271.29	263.25	259.43
Mg 279.078	Mg	1018343.34	ug/L	379319.24	1026691.76	1019386.13	1008952.14
Mn 257.610	Mn	2844.03	ug/L	109054.73	2872.61	2846.41	2813.07
Mo 204.598	Mo	4.96	ug/L	16.74	4.76	2.87	7.26
Na 589.592	Na	2587.7	ug/L	24654.81	2613.15	2595.63	2554.31
Ni 231.604	Ni	204.56	ug/L	79.3	202.66	207.65	203.39
P 213.618	P	2245.34	ug/L	576.82	2236.53	2263.03	2236.45
Pb 220.353	Pb	419.34	ug/L	446.12	419.91	421.9	416.22
S 181.972	S	15872	ug/L	55.68	15886.9	15881.05	15848.07
Sb 206.834	Sb	-3.01	ug/L	17.23	1.87	-5.8	-5.1
Se 196.026	Se	45.2	ug/L	-13.66	54.7	40.84	40.05
Sn 189.925	Sn	53.11	ug/L	-0.97	-0.68	59.88	100.12
Sr 421.552	Sr	1303.13	ug/L	450757.12	1315.68	1304.58	1289.12
Ti 334.941	Ti	949.13	ug/L	43971.5	952.44	954.3	940.66
Tl 190.794	Tl	-10.79	ug/L	1.34	-11.09	-3.12	-18.17
V 292.401	V	228.14	ug/L	857.44	226.08	228.13	230.19
Zn 213.857	Zn	1281.78	ug/L	7077.44	1295.08	1280.95	1269.31

## Agilent 5110 ICP-OES Report

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**Sample: 2427762\_3024****Analysis Time: 5/3/2022 12:46:08 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.96	Ratio	18442.57	0.97	0.96	0.96
Tb 360.044	360 Tb RAD	0.97	Ratio	3797.26	0.97	0.96	0.96
Ag 328.068	Ag	549.21	ug/L	19772.95	548.32	549.43	549.88
Al 396.152	Al	144422.01	ug/L	470570.79	143901.57	144523.76	144840.71
As 188.980	As	1723.95	ug/L	680.21	1729.9	1725.76	1716.18
B 249.678	B	1887.95	ug/L	5223.27	1876.1	1890.41	1897.35
Ba 233.527	Ba	2561.11	ug/L	23425.43	2547.91	2565.42	2570
Be 234.861	Be	447.38	ug/L	20013.09	447.1	450.87	444.16
Ca 315.887	Ca	2204030.24	ug/L	2935259.35	2208790.75	2205432.02	2197867.94
Cd 214.439	Cd	779.68	ug/L	2473.81	779.93	781.39	777.72
Co 228.615	Co	1663.76	ug/L	3279.02	1658.55	1661.81	1670.92
Cr 267.716	Cr	1842.98	ug/L	7667.36	1842.83	1840.9	1845.21
Cu 327.395	Cu	1987.42	ug/L	13155.21	1981.74	1986.9	1993.62
Fe 261.187	Fe	227932.65	ug/L	235920.79	227207.83	228229.51	228360.6
K 766.491	K	53231.41	ug/L	75829.57	53100.43	53173.72	53420.09
Li 670.783	Li	2368.09	ug/L	43749.02	2355.34	2366.36	2382.55
Mg 279.078	Mg	977088.14	ug/L	363953.96	973997.74	978745.89	978520.78
Mn 257.610	Mn	4406.83	ug/L	168966.73	4385.21	4413.24	4422.03
Mo 204.598	Mo	1816.37	ug/L	3340.01	1807.78	1812.85	1828.48
Na 589.592	Na	21876.83	ug/L	200793.9	21790.1	21911.09	21929.29
Ni 231.604	Ni	1801.68	ug/L	928.59	1799.99	1825.48	1779.58
P 213.618	P	38429.38	ug/L	10077.87	38242.88	38601.88	38443.38
Pb 220.353	Pb	2168.2	ug/L	2186.86	2162.86	2176.24	2165.5
S 181.972	S	17531.65	ug/L	61.14	15941.67	18563.97	18089.32
Sb 206.834	Sb	1816.49	ug/L	1450.35	1822.88	1815.52	1811.07
Se 196.026	Se	1672.74	ug/L	568.5	1673.39	1664.1	1680.72
Sn 189.925	Sn	1744.13	ug/L	130.03	1756.3	1745.01	1731.09
Sr 421.552	Sr	3032.56	ug/L	1035143.22	3027.17	3037.93	3032.59
Ti 334.941	Ti	2675.17	ug/L	121774.77	2680.59	2668.63	2676.3
Tl 190.794	Tl	1620.89	ug/L	965.15	1609.4	1622.43	1630.86
V 292.401	V	1989.81	ug/L	6999.92	1982.67	1994.44	1992.33
Zn 213.857	Zn	2953.83	ug/L	15912.28	2940.51	2958.5	2962.5

## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: 2424777\_3024****Analysis Time: 5/3/2022 12:48:26 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.95	Ratio	18302.28	0.96	0.96	0.95
Tb 360.044	360 Tb RAD	0.96	Ratio	3785.85	0.95	0.96	0.97
Ag 328.068	Ag	592.78	ug/L	21426.24	594.62	593.22	590.5
Al 396.152	Al	243442.64	ug/L	795509.62	245528.95	242550.75	242248.21
As 188.980	As	1673.61	ug/L	660.05	1671.93	1682.97	1665.94
B 249.678	B	1987.22	ug/L	5485.56	2010.01	1980.96	1970.69
Ba 233.527	Ba	2520.47	ug/L	23054.3	2546.31	2515.13	2499.96
Be 234.861	Be	426.38	ug/L	19082.21	430.54	426.25	422.34
Ca 315.887	Ca	2136845.34	ug/L	2845767.87	2176090.5	2117942.53	2116502.98
Cd 214.439	Cd	739.53	ug/L	2348.89	748.64	736.15	733.79
Co 228.615	Co	1605.17	ug/L	3166.54	1618.64	1603.21	1593.66
Cr 267.716	Cr	1813.37	ug/L	7545.23	1832.13	1803.06	1804.93
Cu 327.395	Cu	1884.61	ug/L	12465.62	1905.34	1875.23	1873.25
Fe 261.187	Fe	255804.78	ug/L	264757.95	258454.55	255023.71	253936.09
K 766.491	K	52266.13	ug/L	74451.31	52897.58	52037.19	51863.64
Li 670.783	Li	2521.07	ug/L	46380.82	2551.77	2511.87	2499.58
Mg 279.078	Mg	1007993.52	ug/L	375459.5	1018401.23	1004583.21	1000996.1
Mn 257.610	Mn	4133.52	ug/L	158529.11	4173.58	4127.15	4099.83
Mo 204.598	Mo	1919.03	ug/L	3532.26	1920.31	1916.09	1920.69
Na 589.592	Na	20872.42	ug/L	191669.11	21128.51	20789.22	20699.55
Ni 231.604	Ni	1748.36	ug/L	901.32	1763.69	1749.89	1731.52
P 213.618	P	36497.91	ug/L	9569.2	36871.6	36284.25	36337.88
Pb 220.353	Pb	2181.14	ug/L	2197.84	2187.87	2183.97	2171.59
S 181.972	S	43341.49	ug/L	149.14	43296.87	43149.72	43577.89
Sb 206.834	Sb	1122.19	ug/L	901.87	1119.9	1124.84	1121.82
Se 196.026	Se	1558.97	ug/L	525.85	1566.14	1568.98	1541.8
Sn 189.925	Sn	1658.11	ug/L	123.49	1674.78	1653.31	1646.22
Sr 421.552	Sr	2871.67	ug/L	980506.19	2902.81	2860.03	2852.17
Ti 334.941	Ti	3233.42	ug/L	146937.03	3266.76	3221.51	3212
Tl 190.794	Tl	1534.03	ug/L	912.44	1535.78	1521.66	1544.64
V 292.401	V	2008.69	ug/L	7058.73	2024.36	2005.29	1996.42
Zn 213.857	Zn	3435.73	ug/L	18461.25	3474.53	3426.26	3406.4

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCV****Analysis Time: 5/3/2022 12:50:45 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.11	Ratio	21350.63	1.12	1.11	1.12
Tb 360.044	360 Tb RAD	1.05	Ratio	4131.91	1.06	1.05	1.05
Ag 328.068	Ag	1013.38	ug/L	37682.46	1013.4	1015.96	1010.78
Al 396.152	Al	9975.24	ug/L	33089.91	9921.37	10090.74	9913.63
As 188.980	As	1843.4	ug/L	729.26	1838.67	1844.56	1846.99
B 249.678	B	2107.73	ug/L	6041.43	2109.69	2116.44	2097.08
Ba 233.527	Ba	2108.71	ug/L	19223.39	2101.65	2122.77	2101.72
Be 234.861	Be	1983.83	ug/L	88539.12	1976.78	1992.72	1982.01
Ca 315.887	Ca	10138.24	ug/L	13482.7	10120.2	10206.01	10088.51
Cd 214.439	Cd	2054.2	ug/L	6454.3	2050.37	2066.8	2045.44
Co 228.615	Co	2083.35	ug/L	4110.89	2074.43	2092.87	2082.74
Cr 267.716	Cr	2053.28	ug/L	8595.61	2051.47	2064.2	2044.17
Cu 327.395	Cu	1966.66	ug/L	12961.51	1963.27	1977.97	1958.75
Fe 261.187	Fe	10103.3	ug/L	10461.14	10058.89	10167.29	10083.72
K 766.491	K	9851.7	ug/L	14300.18	9808.08	9911.35	9835.66
Li 670.783	Li	2153.41	ug/L	40059.43	2142.96	2169.25	2148.01
Mg 279.078	Mg	10286.18	ug/L	3822.56	10279.29	10319.07	10260.19
Mn 257.610	Mn	2087.5	ug/L	80027.29	2090.38	2095.55	2076.56
Mo 204.598	Mo	1997.51	ug/L	3656.76	2001.32	2005.11	1986.11
Na 589.592	Na	9538.72	ug/L	88353.43	9515.03	9599.82	9501.3
Ni 231.604	Ni	2095.07	ug/L	1111.1	2091.5	2094.78	2098.94
P 213.618	P	2014.26	ug/L	492.51	1993.94	2045.91	2002.94
Pb 220.353	Pb	2161.75	ug/L	2158.72	2152.53	2173.23	2159.51
S 181.972	S	11706.49	ug/L	40.67	11061.8	12294.27	11763.4
Sb 206.834	Sb	1972.58	ug/L	1558.82	1965.89	1981.78	1970.07
Se 196.026	Se	1872.38	ug/L	666.46	1861.95	1891.99	1863.18
Sn 189.925	Sn	1954.63	ug/L	153.82	1976.87	1952.7	1934.32
Sr 421.552	Sr	2017.31	ug/L	682177.65	2014.35	2027.67	2009.92
Ti 334.941	Ti	2022.69	ug/L	92946.88	2015.12	2044.33	2008.61
Tl 190.794	Tl	2024.85	ug/L	1193.49	2018.29	2035.68	2020.58
V 292.401	V	2021.12	ug/L	7036.94	2013.59	2039.37	2010.4
Zn 213.857	Zn	2008.83	ug/L	10643.18	2001.91	2020.5	2004.06



## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCB****Analysis Time: 5/3/2022 12:53:04 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.11	Ratio	21239.67	1.11	1.11	1.11
Tb 360.044	360 Tb RAD	1.06	Ratio	4163.94	1.06	1.05	1.06
Ag 328.068	Ag	-0.14	ug/L	-1006.18	0.09	-0.3	-0.19
Al 396.152	Al	-2.2	ug/L	-5.2	-7.83	-1.64	2.88
As 188.980	As	-3.4	ug/L	0.14	-2.82	-0.67	-6.72
B 249.678	B	-0.22	ug/L	9.28	-1.57	1.27	-0.37
Ba 233.527	Ba	0.32	ug/L	2.07	0.58	0.04	0.35
Be 234.861	Be	0.04	ug/L	5.83	0.04	-0.03	0.11
Ca 315.887	Ca	12.15	ug/L	-3.5	17.85	5.1	13.51
Cd 214.439	Cd	-0.32	ug/L	2	0.21	-0.09	-1.07
Co 228.615	Co	2.46	ug/L	3.41	4.39	0.82	2.16
Cr 267.716	Cr	0.81	ug/L	-18.1	1.34	0.88	0.21
Cu 327.395	Cu	3.6	ug/L	-218.57	3.12	3.41	4.26
Fe 261.187	Fe	4.93	ug/L	11.89	8.13	4.37	2.29
K 766.491	K	10.44	ug/L	515.64	10.38	11.35	9.59
Li 670.783	Li	52.01	ug/L	3940.52	48.13	55.04	52.86
Mg 279.078	Mg	7.01	ug/L	-6.95	2.12	17.89	1.03
Mn 257.610	Mn	0.06	ug/L	8.1	0.22	0.05	-0.11
Mo 204.598	Mo	0.63	ug/L	-8.22	-2.02	1.69	2.22
Na 589.592	Na	0.71	ug/L	-6.08	-0.54	-1.14	3.81
Ni 231.604	Ni	0.37	ug/L	-1.09	3.64	-2.3	-0.24
P 213.618	P	0.54	ug/L	-1.41	-2.98	-5.05	9.65
Pb 220.353	Pb	-0.04	ug/L	5.51	-2.1	-0.9	2.88
S 181.972	S	-540.2	ug/L	-0.85	-59.46	-898.49	-662.64
Sb 206.834	Sb	0.81	ug/L	3.31	-3.18	6.11	-0.49
Se 196.026	Se	1.42	ug/L	-0.37	-5.16	2.42	7
Sn 189.925	Sn	-11.93	ug/L	1.83	-19.22	4.52	-21.07
Sr 421.552	Sr	0.06	ug/L	-20.91	0.08	0.11	-0.01
Ti 334.941	Ti	0.31	ug/L	1814.62	0.24	0.71	-0.01
Tl 190.794	Tl	5.4	ug/L	-0.28	9.26	1.59	5.35
V 292.401	V	0.16	ug/L	-12.13	1.86	-2.22	0.84
Zn 213.857	Zn	0.25	ug/L	2.5	-0.12	0.51	0.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2424763\_3024****Analysis Time: 5/3/2022 12:55:23 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20361.62	1.06	1.06	1.06
Tb 360.044	360 Tb RAD	1.03	Ratio	4051.93	1.03	1.03	1.03
Ag 328.068	Ag	108.11	ug/L	3087.3	108.42	108.4	107.51
Al 396.152	Al	47485.79	ug/L	155120.47	47381.69	47428.8	47646.88
As 188.980	As	332.21	ug/L	132.16	323.53	331.31	341.79
B 249.678	B	402.5	ug/L	1119.63	398.8	404.41	404.28
Ba 233.527	Ba	535.1	ug/L	4893.58	534.14	535.24	535.92
Be 234.861	Be	85.85	ug/L	3845.53	85.62	86.14	85.8
Ca 315.887	Ca	464711.11	ug/L	618869.57	460049.16	463067.58	471016.6
Cd 214.439	Cd	164.54	ug/L	524.52	164.27	163.21	166.14
Co 228.615	Co	349.73	ug/L	688.63	345.9	351.86	351.42
Cr 267.716	Cr	387.83	ug/L	1596.79	386.46	385.95	391.08
Cu 327.395	Cu	377.05	ug/L	2300.37	373.85	377.52	379.77
Fe 261.187	Fe	54829.28	ug/L	56752.48	54844.35	54694.83	54948.66
K 766.491	K	9981.33	ug/L	14620.17	9950.08	9989.32	10004.61
Li 670.783	Li	524.59	ug/L	12062.82	523.11	523.57	527.09
Mg 279.078	Mg	202964.57	ug/L	75593.64	202786.02	202595.48	203512.23
Mn 257.610	Mn	884.33	ug/L	33917.47	882.56	888.15	882.29
Mo 204.598	Mo	395.78	ug/L	720.99	398.33	395.16	393.86
Na 589.592	Na	3983.8	ug/L	36632.1	3974.79	3980.87	3995.74
Ni 231.604	Ni	377.66	ug/L	193.71	368.98	386.34	377.65
P 213.618	P	7457.63	ug/L	1954.08	7418.07	7452.61	7502.19
Pb 220.353	Pb	457.8	ug/L	465.69	462.77	455.83	454.79
S 181.972	S	8271.52	ug/L	29.27	8201.37	8450.58	8162.6
Sb 206.834	Sb	223.36	ug/L	181.84	232.74	213.22	224.12
Se 196.026	Se	345.12	ug/L	116.29	350.95	351.49	332.92
Sn 189.925	Sn	357.65	ug/L	28.85	332.68	360.6	379.67
Sr 421.552	Sr	583.19	ug/L	199174.06	582.16	583.08	584.34
Ti 334.941	Ti	667.58	ug/L	31763.42	663.99	666.33	672.42
Tl 190.794	Tl	326.77	ug/L	191.73	327.43	330.28	322.59
V 292.401	V	426.5	ug/L	1489.23	423.45	426.37	429.66
Zn 213.857	Zn	710.97	ug/L	3821.32	708.05	712.69	712.19

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2424778\_3024****Analysis Time: 5/3/2022 12:57:42 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.95	Ratio	18125.39	0.94	0.95	0.95
Tb 360.044	360 Tb RAD	0.96	Ratio	3793.31	0.97	0.97	0.95
Ag 328.068	Ag	611.37	ug/L	22138.38	612.74	611.91	609.44
Al 396.152	Al	283395.93	ug/L	927023.91	280999.28	281946.09	287242.4
As 188.980	As	1805.28	ug/L	711.6	1806.04	1808.13	1801.67
B 249.678	B	2055.78	ug/L	5637.02	2045.45	2040.17	2081.73
Ba 233.527	Ba	2642.59	ug/L	24162.06	2620.17	2624.97	2682.63
Be 234.861	Be	458.23	ug/L	20511.76	454.84	453.28	466.57
Ca 315.887	Ca	1868664.93	ug/L	2488604.75	1850035.47	1854122.32	1901837
Cd 214.439	Cd	799	ug/L	2537.37	798.21	793.88	804.91
Co 228.615	Co	1748.94	ug/L	3451.94	1740.39	1729.97	1776.47
Cr 267.716	Cr	1979.22	ug/L	8249	1962.84	1967.07	2007.75
Cu 327.395	Cu	2107.92	ug/L	13961.41	2090.79	2093.99	2138.98
Fe 261.187	Fe	312896.16	ug/L	323814.48	310111.43	311180.16	317396.89
K 766.491	K	54555.17	ug/L	77678.65	54144.93	54128.24	55392.33
Li 670.783	Li	2627.81	ug/L	48203.63	2608.22	2607.76	2667.45
Mg 279.078	Mg	971180.41	ug/L	361731.62	962102.98	965630.25	985808.01
Mn 257.610	Mn	4469.75	ug/L	171422.54	4426.59	4450.06	4532.59
Mo 204.598	Mo	1990.92	ug/L	3665.38	2002.93	1987.93	1981.9
Na 589.592	Na	22699.09	ug/L	208276.94	22548.12	22549.08	23000.08
Ni 231.604	Ni	1880.63	ug/L	975.8	1863.85	1856.21	1921.83
P 213.618	P	39778.74	ug/L	10430.84	39485.84	39513.09	40337.28
Pb 220.353	Pb	2285.95	ug/L	2300.21	2286.94	2293.55	2277.34
S 181.972	S	14123.95	ug/L	49.51	14595.93	13534.37	14241.54
Sb 206.834	Sb	1039.22	ug/L	838.34	1048.69	1038.97	1029.98
Se 196.026	Se	1654.59	ug/L	557.8	1658.43	1683.52	1621.8
Sn 189.925	Sn	1658.65	ug/L	124.24	1726.29	1586.26	1663.39
Sr 421.552	Sr	2980.42	ug/L	1016112.18	2963.7	2960.71	3016.84
Ti 334.941	Ti	3294.62	ug/L	149765.22	3248.15	3275	3360.71
Tl 190.794	Tl	1662.31	ug/L	985.32	1654.65	1663.95	1668.35
V 292.401	V	2113.96	ug/L	7399.9	2104.67	2098.61	2138.58
Zn 213.857	Zn	3606.63	ug/L	19371.11	3575.2	3585.96	3658.73

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484488002\_3024****Analysis Time: 5/3/2022 1:00:00 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.99	Ratio	18962.07	0.99	0.99	0.99
Tb 360.044	360 Tb RAD	0.99	Ratio	3898.02	0.99	1	0.99
Ag 328.068	Ag	-0.62	ug/L	-1012.66	-0.73	0.16	-1.29
Al 396.152	Al	188230.88	ug/L	615635.7	188448.95	186928.15	189315.54
As 188.980	As	113.59	ug/L	43.19	113.57	110.66	116.54
B 249.678	B	51.62	ug/L	-148.36	51.59	52.54	50.74
Ba 233.527	Ba	1112.75	ug/L	10198.25	1113.26	1108.53	1116.46
Be 234.861	Be	1.55	ug/L	134.09	1.58	1.65	1.41
Ca 315.887	Ca	1210983.82	ug/L	1612717.69	1210806.85	1188812.15	1233332.44
Cd 214.439	Cd	6.38	ug/L	47.56	7.12	3.21	8.79
Co 228.615	Co	345.74	ug/L	681.12	345.54	345.74	345.93
Cr 267.716	Cr	156.94	ug/L	617.33	155.98	155.38	159.46
Cu 327.395	Cu	271.6	ug/L	1619.78	270.29	270.83	273.69
Fe 261.187	Fe	376785.97	ug/L	389883.4	376295.18	375373.81	378688.91
K 766.491	K	53265.89	ug/L	75973.18	53269.69	53023.71	53504.26
Li 670.783	Li	297.35	ug/L	8111	296.31	293.69	302.05
Mg 279.078	Mg	762878.56	ug/L	284117.53	762529.13	759555.33	766551.2
Mn 257.610	Mn	7877.44	ug/L	301697.46	7874.69	7844.07	7913.56
Mo 204.598	Mo	7	ug/L	19.56	4.47	8.33	8.2
Na 589.592	Na	3925.03	ug/L	36793.77	3921.72	3910.94	3942.42
Ni 231.604	Ni	360.28	ug/L	178.35	346.07	353.12	381.66
P 213.618	P	2953.56	ug/L	765.2	2956.72	2966.57	2937.4
Pb 220.353	Pb	394.26	ug/L	413.63	387.84	401.69	393.25
S 181.972	S	15781.62	ug/L	54.95	16311.77	15521.96	15511.14
Sb 206.834	Sb	-4.96	ug/L	16.95	0.13	-5.06	-9.95
Se 196.026	Se	53.98	ug/L	-11.77	36.59	57.84	67.53
Sn 189.925	Sn	48.44	ug/L	1.86	90.53	-48.17	102.97
Sr 421.552	Sr	447.51	ug/L	156581.48	447.39	445.31	449.84
Ti 334.941	Ti	744.75	ug/L	35047.94	742.25	745.08	746.92
Tl 190.794	Tl	-9.9	ug/L	-7.62	-11.04	-20.46	1.8
V 292.401	V	158.13	ug/L	525.13	155.94	155.75	162.7
Zn 213.857	Zn	5110.62	ug/L	27223.66	5111.32	5085.02	5135.51

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484488003\_3024****Analysis Time: 5/3/2022 1:02:18 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20171.13	1.05	1.05	1.05
Tb 360.044	360 Tb RAD	1.03	Ratio	4042.5	1.03	1.03	1.03
Ag 328.068	Ag	-2.47	ug/L	-1098.6	-3.05	-2.19	-2.15
Al 396.152	Al	297347.82	ug/L	975454.19	296812.74	297283.51	297947.21
As 188.980	As	142.03	ug/L	54.65	139.85	143.42	142.81
B 249.678	B	13	ug/L	-318.05	14.02	11.59	13.38
Ba 233.527	Ba	1050.51	ug/L	9597.27	1047.84	1051.95	1051.73
Be 234.861	Be	2.83	ug/L	196.07	2.81	2.92	2.76
Ca 315.887	Ca	18123.87	ug/L	24067.85	18125.46	18155.44	18090.69
Cd 214.439	Cd	-2.12	ug/L	19.43	-1.38	-2.42	-2.57
Co 228.615	Co	129.56	ug/L	260.46	129.33	128.88	130.48
Cr 267.716	Cr	267.73	ug/L	1109.59	266.85	269.94	266.4
Cu 327.395	Cu	364.96	ug/L	2227.66	363.4	365.37	366.1
Fe 261.187	Fe	496327.89	ug/L	513480.8	498346.59	494669.33	495967.75
K 766.491	K	32939.09	ug/L	47121.2	32925.52	32986.66	32905.09
Li 670.783	Li	463.25	ug/L	10972.32	460.83	464.04	464.9
Mg 279.078	Mg	46533.1	ug/L	17248.58	46476.41	46647.32	46475.58
Mn 257.610	Mn	1611.27	ug/L	61908.62	1605.58	1619.19	1609.04
Mo 204.598	Mo	6.89	ug/L	19.9	9.73	5.11	5.82
Na 589.592	Na	1189.5	ug/L	11789.07	1191.12	1191.47	1185.9
Ni 231.604	Ni	278.11	ug/L	147.75	277.48	286.49	270.36
P 213.618	P	3370.4	ug/L	877.77	3327.34	3406.94	3376.91
Pb 220.353	Pb	242.29	ug/L	248.1	234.26	245.52	247.08
S 181.972	S	1093.12	ug/L	4.74	939.29	780.96	1559.11
Sb 206.834	Sb	1.66	ug/L	21.43	-1.19	-0.7	6.86
Se 196.026	Se	55.63	ug/L	-8.92	52.92	44.45	69.51
Sn 189.925	Sn	27.28	ug/L	4.5	39.41	6.54	35.88
Sr 421.552	Sr	85.06	ug/L	28964.61	84.93	85.19	85.05
Ti 334.941	Ti	1129.73	ug/L	52695.11	1125.05	1129.18	1134.96
Tl 190.794	Tl	-11.29	ug/L	-17.8	-8.7	-9.85	-15.34
V 292.401	V	374.04	ug/L	1192.23	372.6	375.52	374
Zn 213.857	Zn	532.71	ug/L	3033.08	533	531.94	533.19

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484488004 3024****Analysis Time: 5/3/2022 1:04:36 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20112.44	1.04	1.05	1.06
Tb 360.044	360 Tb RAD	1.02	Ratio	4029.96	1.03	1.03	1.02
Ag 328.068	Ag	-2.44	ug/L	-1095.98	-2.82	-2.18	-2.32
Al 396.152	Al	333729.95	ug/L	1094796.12	333302.04	331495.09	336392.73
As 188.980	As	128.4	ug/L	49.11	123.8	134.26	127.14
B 249.678	B	48.58	ug/L	-193.85	49.06	49.27	47.4
Ba 233.527	Ba	1320.75	ug/L	12060.58	1313.61	1312.46	1336.19
Be 234.861	Be	1.01	ug/L	112.28	0.72	1	1.31
Ca 315.887	Ca	28298.16	ug/L	37613.06	28151.97	28121.38	28621.12
Cd 214.439	Cd	-3.06	ug/L	15.2	-5.81	-1.67	-1.7
Co 228.615	Co	124.32	ug/L	252.77	120.48	124.29	128.18
Cr 267.716	Cr	373.04	ug/L	1550.91	373.65	368.02	377.44
Cu 327.395	Cu	221.39	ug/L	1263.38	221.02	218.98	224.16
Fe 261.187	Fe	470458.06	ug/L	486718.08	469067.77	466953.59	475352.82
K 766.491	K	29038.91	ug/L	41580.83	29008.58	28770.66	29337.5
Li 670.783	Li	468.39	ug/L	11064.36	464.67	464.7	475.79
Mg 279.078	Mg	47334.26	ug/L	17551.91	47143.12	47012.77	47846.89
Mn 257.610	Mn	2898.54	ug/L	111154.73	2890.87	2881.2	2923.55
Mo 204.598	Mo	13.35	ug/L	32.73	7.58	18.27	14.19
Na 589.592	Na	2154.83	ug/L	20787.37	2148.17	2135.48	2180.85
Ni 231.604	Ni	223.19	ug/L	118.16	231.41	214.62	223.54
P 213.618	P	2511.6	ug/L	652.95	2522.8	2469.18	2542.81
Pb 220.353	Pb	254.19	ug/L	259.07	259.62	250.67	252.28
S 181.972	S	586.4	ug/L	3.03	880.99	591.16	287.05
Sb 206.834	Sb	2.76	ug/L	21.88	13.43	0.7	-5.85
Se 196.026	Se	51.99	ug/L	-8.67	53.93	57.73	44.3
Sn 189.925	Sn	29	ug/L	4.63	56.27	7.5	23.24
Sr 421.552	Sr	127.64	ug/L	43408.71	127.3	126.65	128.97
Ti 334.941	Ti	1944.7	ug/L	89404.12	1940.43	1932.92	1960.75
Tl 190.794	Tl	-4.56	ug/L	-13.66	-9.38	1.97	-6.27
V 292.401	V	532.3	ug/L	1755.51	529.54	531.02	536.32
Zn 213.857	Zn	599.22	ug/L	3371.18	597.83	596.3	603.52

## Agilent 5110 ICP-OES Report

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**Sample: 30484488005\_3024****Analysis Time: 5/3/2022 1:06:56 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.02	Ratio	19625.99	1.04	0.98	1.05
Tb 360.044	360 Tb RAD	1.03	Ratio	4040.58	1.03	1.02	1.03
Ag 328.068	Ag	-2.06	ug/L	-1082.81	-1.87	-2.57	-1.74
Al 396.152	Al	324159.77	ug/L	1063391.98	321506.68	327501.27	323471.37
As 188.980	As	105.87	ug/L	40.61	112.83	105.77	99.02
B 249.678	B	32.93	ug/L	-188.81	33.31	31.93	33.54
Ba 233.527	Ba	1132.57	ug/L	10342.2	1125.34	1141.27	1131.1
Be 234.861	Be	1.3	ug/L	117.1	1.91	0.81	1.18
Ca 315.887	Ca	30175.69	ug/L	40115.2	29806.88	30515.01	30205.2
Cd 214.439	Cd	-0.24	ug/L	20.89	-2.06	2.34	-1.01
Co 228.615	Co	99.83	ug/L	204.46	101.66	100.15	97.68
Cr 267.716	Cr	342.47	ug/L	1421.64	340.21	345.1	342.09
Cu 327.395	Cu	197.15	ug/L	1098.41	194.44	199.87	197.13
Fe 261.187	Fe	404082.36	ug/L	418050.2	400529.33	408217.47	403500.28
K 766.491	K	29680.66	ug/L	42500.05	29439.73	29979.57	29622.69
Li 670.783	Li	428.9	ug/L	10391.23	422.99	437.76	425.96
Mg 279.078	Mg	48627.77	ug/L	18043.71	48219.01	49072.3	48592.01
Mn 257.610	Mn	2059.32	ug/L	79008.6	2038.36	2078.16	2061.44
Mo 204.598	Mo	15.37	ug/L	35.38	15.95	16.92	13.26
Na 589.592	Na	2298.61	ug/L	21906.37	2276.28	2316.59	2302.94
Ni 231.604	Ni	208	ug/L	109.82	199.93	214.27	209.79
P 213.618	P	2070.81	ug/L	537.6	2058.94	2079.14	2074.35
Pb 220.353	Pb	224.07	ug/L	228.24	221.4	240.56	210.24
S 181.972	S	1060.05	ug/L	4.68	800.49	1006.63	1373.01
Sb 206.834	Sb	-2.03	ug/L	15.62	-5.45	-6.02	5.38
Se 196.026	Se	33.1	ug/L	-11.9	32.4	32.7	34.21
Sn 189.925	Sn	15.33	ug/L	3.62	4.84	2.33	38.83
Sr 421.552	Sr	99.02	ug/L	33721.26	98.18	99.98	98.9
Ti 334.941	Ti	1967.35	ug/L	90423.54	1945.22	1991.51	1965.31
Tl 190.794	Tl	-8.13	ug/L	-14.85	-8.57	-4.73	-11.09
V 292.401	V	533.31	ug/L	1774.63	528.46	540.82	530.66
Zn 213.857	Zn	576.36	ug/L	3221.89	573.36	581.29	574.43

## Agilent 5110 ICP-OES Report

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**Sample: 30484488006\_3024****Analysis Time: 5/3/2022 1:09:15 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.07	Ratio	20447.35	1.06	1.07	1.08
Tb 360.044	360 Tb RAD	1.04	Ratio	4079.2	1.03	1.03	1.04
Ag 328.068	Ag	-2.14	ug/L	-1084.65	-3.07	-1.73	-1.63
Al 396.152	Al	226290.55	ug/L	742344.11	227320.03	226830.54	224721.09
As 188.980	As	113.26	ug/L	43.96	114.63	111.67	113.48
B 249.678	B	17.07	ug/L	-212.57	18.86	17.57	14.79
Ba 233.527	Ba	1262.4	ug/L	11524.82	1265.82	1267.11	1254.28
Be 234.861	Be	1.87	ug/L	136.51	1.67	0.61	3.33
Ca 315.887	Ca	26745.22	ug/L	35561.9	26924.36	26797.1	26514.19
Cd 214.439	Cd	-2.1	ug/L	13.65	-3.12	-1.69	-1.47
Co 228.615	Co	117.05	ug/L	234.42	120.43	115.87	114.85
Cr 267.716	Cr	226.95	ug/L	936.24	227.42	226.9	226.54
Cu 327.395	Cu	248.79	ug/L	1442.86	249.41	249.35	247.61
Fe 261.187	Fe	374556.02	ug/L	387502.5	375550	375631.08	372486.99
K 766.491	K	33374.1	ug/L	47753.54	33520.06	33500.71	33101.52
Li 670.783	Li	327.82	ug/L	8652.97	329.75	328.78	324.93
Mg 279.078	Mg	35860.55	ug/L	13292.75	35999.19	35886.29	35696.18
Mn 257.610	Mn	1653.98	ug/L	63480.92	1661.97	1657.92	1642.06
Mo 204.598	Mo	7.3	ug/L	16.6	3.85	11.47	6.58
Na 589.592	Na	1179.82	ug/L	11898.69	1185.23	1181.15	1173.07
Ni 231.604	Ni	197.62	ug/L	104.41	192.6	201.54	198.7
P 213.618	P	3370.92	ug/L	880.19	3414.03	3356.87	3341.86
Pb 220.353	Pb	467.56	ug/L	472.35	466.02	479.39	457.26
S 181.972	S	1353.84	ug/L	5.61	647.81	1798.27	1615.44
Sb 206.834	Sb	-2.33	ug/L	13.96	-2.36	-0.72	-3.9
Se 196.026	Se	39.56	ug/L	-7.54	50.58	34.73	33.36
Sn 189.925	Sn	42.28	ug/L	5.69	52.9	26.74	47.21
Sr 421.552	Sr	92.15	ug/L	31358.23	92.53	92.34	91.57
Ti 334.941	Ti	1086.49	ug/L	50742.55	1092.56	1090.11	1076.79
Tl 190.794	Tl	-8.9	ug/L	-14.41	-14.54	-3.71	-8.45
V 292.401	V	273.91	ug/L	869.54	276.73	274.43	270.57
Zn 213.857	Zn	642.05	ug/L	3552.29	643.54	644.64	637.97



## Agilent 5110 ICP-OES Report

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**Sample: 30484494001\_3024****Analysis Time: 5/3/2022 1:11:34 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.01	Ratio	19408.62	1.01	1.02	1.01
Tb 360.044	360 Tb RAD	1.01	Ratio	3958.34	1	1.01	1.01
Ag 328.068	Ag	-5.84	ug/L	-1218.99	-5.75	-5.73	-6.03
Al 396.152	Al	591960.73	ug/L	1941374.63	592318.73	587698.78	595864.68
As 188.980	As	183.57	ug/L	68.51	186.06	180.41	184.24
B 249.678	B	102.18	ug/L	-214.83	99.52	105.67	101.35
Ba 233.527	Ba	1035.35	ug/L	9477.82	1038.58	1029.75	1037.72
Be 234.861	Be	20.04	ug/L	998.59	21.02	20.33	18.76
Ca 315.887	Ca	374611.07	ug/L	498786.83	376306.25	371231.45	376295.51
Cd 214.439	Cd	3.94	ug/L	49.88	4.71	3.25	3.85
Co 228.615	Co	323.95	ug/L	656.12	323.37	319.76	328.73
Cr 267.716	Cr	850.83	ug/L	3553.37	852.93	851.43	848.14
Cu 327.395	Cu	715.47	ug/L	4598.04	716	710.75	719.65
Fe 261.187	Fe	667137.51	ug/L	690218.78	669462.08	663018.31	668932.14
K 766.491	K	45485.42	ug/L	64838.99	45574.47	45207.15	45674.63
Li 670.783	Li	2390.08	ug/L	44126.99	2399.73	2374.19	2396.32
Mg 279.078	Mg	329881.59	ug/L	122768.44	330604.8	328212.36	330827.6
Mn 257.610	Mn	6025.64	ug/L	230952.89	6054.93	5989.16	6032.83
Mo 204.598	Mo	21.9	ug/L	61.82	22.3	22.73	20.68
Na 589.592	Na	1328.36	ug/L	13118.59	1328.84	1322.66	1333.58
Ni 231.604	Ni	586.86	ug/L	308.5	589.74	594.12	576.73
P 213.618	P	7846.86	ug/L	2049.02	7867.78	7790.69	7882.1
Pb 220.353	Pb	1201.71	ug/L	1205.59	1196.79	1213.83	1194.52
S 181.972	S	4265.51	ug/L	15.72	3592.9	4930.6	4273.02
Sb 206.834	Sb	7.26	ug/L	36.87	1.84	8.98	10.96
Se 196.026	Se	79.25	ug/L	-15.17	82.99	74.75	80.01
Sn 189.925	Sn	120.27	ug/L	10.31	110.44	149.95	100.42
Sr 421.552	Sr	364.61	ug/L	125098.11	366.18	362.37	365.29
Ti 334.941	Ti	4018.17	ug/L	182727.08	4030.06	4000.49	4023.97
Tl 190.794	Tl	0.01	ug/L	-13.42	-7.08	8.2	-1.07
V 292.401	V	1245.17	ug/L	4228.41	1245.41	1239.3	1250.78
Zn 213.857	Zn	19296.23	ug/L	102025.25	19439.52	19067.91	19381.25

## Agilent 5110 ICP-OES Report

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**Sample: 30484494002\_3024****Analysis Time: 5/3/2022 1:13:54 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20245.82	1.06	1.05	1.06
Tb 360.044	360 Tb RAD	1.02	Ratio	4020.27	1.02	1.02	1.02
Ag 328.068	Ag	-6.22	ug/L	-1089.58	-6.26	-6.07	-6.33
Al 396.152	Al	388665.48	ug/L	1275024.76	389548.49	385318.38	391129.59
As 188.980	As	182.47	ug/L	67.63	181.53	181.82	184.05
B 249.678	B	23.55	ug/L	-400.93	24.46	22.12	24.09
Ba 233.527	Ba	1422.89	ug/L	12998.16	1427.54	1411.85	1429.28
Be 234.861	Be	11.51	ug/L	604.62	11.7	11.17	11.66
Ca 315.887	Ca	27240.82	ug/L	36199.05	27161.66	27346.78	27214.02
Cd 214.439	Cd	-1.72	ug/L	28.8	-2.91	-1.17	-1.08
Co 228.615	Co	527.33	ug/L	1051.37	527.21	523.16	531.61
Cr 267.716	Cr	665.45	ug/L	2779.5	663.26	662.12	670.97
Cu 327.395	Cu	323.32	ug/L	1957.12	322.91	321.88	325.16
Fe 261.187	Fe	646624.69	ug/L	668972.41	647676.6	642800.67	649396.8
K 766.491	K	28150.62	ug/L	40233.62	28142.86	28010.41	28298.58
Li 670.783	Li	1012.18	ug/L	20400.48	1013.36	1006.36	1016.81
Mg 279.078	Mg	46728.94	ug/L	17307.9	46742.95	46538.51	46905.37
Mn 257.610	Mn	33197.46	ug/L	1270676.58	33191.41	33065.1	33335.87
Mo 204.598	Mo	17.94	ug/L	44.44	15.43	19.54	18.84
Na 589.592	Na	639.74	ug/L	7205.7	627.19	628.71	663.32
Ni 231.604	Ni	512.14	ug/L	272.3	422.36	433.08	680.98
P 213.618	P	3892.56	ug/L	1013.38	3945.14	3853.83	3878.7
Pb 220.353	Pb	447.02	ug/L	457.83	453.96	447.2	439.89
S 181.972	S	4573.7	ug/L	16.3	4977.18	4318.34	4425.57
Sb 206.834	Sb	-1.85	ug/L	29.23	-7.08	-0.97	2.5
Se 196.026	Se	57.93	ug/L	-12.72	59.12	50.47	64.2
Sn 189.925	Sn	22.09	ug/L	4.21	40.99	15.56	9.71
Sr 421.552	Sr	134.04	ug/L	45622.22	134.27	133.3	134.54
Ti 334.941	Ti	2418.08	ug/L	110739.95	2410.5	2425.33	2418.42
Tl 190.794	Tl	-4.34	ug/L	-12.56	-2.01	1.9	-12.92
V 292.401	V	1026.56	ug/L	3442.15	1028.61	1020.72	1030.34
Zn 213.857	Zn	594.81	ug/L	3436.27	592.2	591.52	600.7

## Agilent 5110 ICP-OES Report

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**Sample: 30484494003 3024****Analysis Time: 5/3/2022 1:16:13 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	19935.61	1.03	1.05	1.04
Tb 360.044	360 Tb RAD	1.03	Ratio	4055.68	1.03	1.03	1.03
Ag 328.068	Ag	1.43	ug/L	-912.28	1.47	1.42	1.41
Al 396.152	Al	368844.32	ug/L	1209514.16	370722.43	367727.04	368083.48
As 188.980	As	169.51	ug/L	64.39	177.66	169.19	161.68
B 249.678	B	61.02	ug/L	-224.74	63.41	57.73	61.93
Ba 233.527	Ba	1739.86	ug/L	15894.14	1743.02	1739.23	1737.32
Be 234.861	Be	12.5	ug/L	636.57	12.88	11.41	13.22
Ca 315.887	Ca	348846.04	ug/L	464508.09	349505.67	348427.33	348605.12
Cd 214.439	Cd	0.24	ug/L	31.35	-1.39	1.56	0.56
Co 228.615	Co	254.01	ug/L	511.16	251.4	257.08	253.54
Cr 267.716	Cr	527.5	ug/L	2192.6	530.43	525.11	526.97
Cu 327.395	Cu	569.59	ug/L	3612.56	572.11	567.52	569.15
Fe 261.187	Fe	535728.88	ug/L	554249.75	536675.67	535668.08	534842.9
K 766.491	K	29960.99	ug/L	42846.08	30126.38	29863.67	29892.91
Li 670.783	Li	736.15	ug/L	15669.5	739.26	735.88	733.31
Mg 279.078	Mg	64035.91	ug/L	23769.11	64151.58	63885.4	64070.73
Mn 257.610	Mn	11906.42	ug/L	455907.81	11925.08	11890.41	11903.78
Mo 204.598	Mo	24.93	ug/L	57	25.03	23.7	26.06
Na 589.592	Na	1318.23	ug/L	13676.6	1321.48	1320.98	1312.22
Ni 231.604	Ni	350.57	ug/L	181.2	346.38	356	349.34
P 213.618	P	10864.71	ug/L	2847.65	10871.03	10836.25	10886.84
Pb 220.353	Pb	3875.8	ug/L	3872.47	3905.39	3868.64	3853.38
S 181.972	S	2861.24	ug/L	10.77	2675.98	3073.77	2833.96
Sb 206.834	Sb	27.24	ug/L	46.27	29.67	21.2	30.86
Se 196.026	Se	53.1	ug/L	-13.54	52.42	59.55	47.32
Sn 189.925	Sn	144.78	ug/L	12.78	29.25	213.52	191.57
Sr 421.552	Sr	893.26	ug/L	303683.41	894.92	893.69	891.16
Ti 334.941	Ti	3012.33	ug/L	137420.77	3018.42	3012.09	3006.48
Tl 190.794	Tl	-3.23	ug/L	-11.38	-3.67	-7.21	1.18
V 292.401	V	828.36	ug/L	2786.86	830.04	829.94	825.11
Zn 213.857	Zn	1396.85	ug/L	7639.13	1397.41	1398.24	1394.89

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**Sample: CCV****Analysis Time: 5/3/2022 1:18:32 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.11	Ratio	21315.09	1.12	1.12	1.1
Tb 360.044	360 Tb RAD	1.06	Ratio	4167.23	1.06	1.06	1.06
Ag 328.068	Ag	1021.42	ug/L	37986.81	1017.24	1016.77	1030.25
Al 396.152	Al	9909.39	ug/L	32875.42	9888.15	9881.12	9958.9
As 188.980	As	1857.09	ug/L	734.7	1835.98	1858.21	1877.06
B 249.678	B	2099.66	ug/L	6018.35	2094.01	2097.85	2107.11
Ba 233.527	Ba	2107.3	ug/L	19210.45	2110.31	2101.29	2110.29
Be 234.861	Be	1977.68	ug/L	88264.47	1970.77	1982.65	1979.62
Ca 315.887	Ca	10069.19	ug/L	13390.7	10071.27	10065.65	10070.64
Cd 214.439	Cd	2050.82	ug/L	6443.66	2049.04	2051.26	2052.16
Co 228.615	Co	2070.59	ug/L	4085.74	2074.51	2065.07	2072.19
Cr 267.716	Cr	2048	ug/L	8573.44	2049.88	2044.21	2049.92
Cu 327.395	Cu	1960.24	ug/L	12918.36	1960.17	1958.88	1961.68
Fe 261.187	Fe	10079.54	ug/L	10436.57	10100.88	10074.2	10063.53
K 766.491	K	9832.39	ug/L	14272.5	9862.67	9791.52	9842.98
Li 670.783	Li	2150.75	ug/L	40013.52	2150.17	2148.87	2153.21
Mg 279.078	Mg	10210.42	ug/L	3794.36	10231.18	10185.69	10214.38
Mn 257.610	Mn	2070.3	ug/L	79369.99	2070.74	2070.77	2069.39
Mo 204.598	Mo	2009.8	ug/L	3679.3	1996.99	2000.63	2031.77
Na 589.592	Na	9517.27	ug/L	88158.44	9512.35	9510.24	9529.23
Ni 231.604	Ni	2094.3	ug/L	1110.69	2090.21	2097.74	2094.97
P 213.618	P	1996.3	ug/L	487.75	2001.32	1995.23	1992.36
Pb 220.353	Pb	2172.51	ug/L	2169.44	2162.35	2164.71	2190.48
S 181.972	S	12267.69	ug/L	42.58	11991.05	12299.21	12512.82
Sb 206.834	Sb	1985.89	ug/L	1569.16	1976.3	1988.09	1993.28
Se 196.026	Se	1874.89	ug/L	667.36	1858.24	1875.4	1891.03
Sn 189.925	Sn	1974.32	ug/L	155.34	1961.74	1971.13	1990.09
Sr 421.552	Sr	2019.54	ug/L	682929.82	2018.19	2014.29	2026.13
Ti 334.941	Ti	2008.04	ug/L	92287.14	2005.96	2005.77	2012.39
Tl 190.794	Tl	2025.15	ug/L	1193.66	2015.46	2022.16	2037.84
V 292.401	V	2013.89	ug/L	7011.44	2013.37	2016.33	2011.97
Zn 213.857	Zn	1998.87	ug/L	10590.63	1997.82	1997.89	2000.91

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

Sample: CCB

Analysis Time: 5/3/2022 1:20:51 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.1	Ratio	21094.09	1.09	1.1	1.11
Tb 360.044	360 Tb RAD	1.06	Ratio	4188.22	1.07	1.06	1.07
Ag 328.068	Ag	0.06	ug/L	-999.04	-0.11	-0.2	0.48
Al 396.152	Al	-0.16	ug/L	1.62	-4.13	4.21	-0.56
As 188.980	As	1.96	ug/L	2.27	3.33	-2.05	4.6
B 249.678	B	-0.12	ug/L	9.61	0.2	-0.97	0.42
Ba 233.527	Ba	0.44	ug/L	3.11	0.04	1.12	0.16
Be 234.861	Be	-0.01	ug/L	3.46	0.04	0	-0.08
Ca 315.887	Ca	-1.27	ug/L	-21.36	-5.3	0.23	1.25
Cd 214.439	Cd	-1.05	ug/L	-0.3	-1.17	-0.34	-1.63
Co 228.615	Co	2.99	ug/L	4.46	3.73	2.24	3.01
Cr 267.716	Cr	0.67	ug/L	-18.71	0.38	0.57	1.06
Cu 327.395	Cu	4.38	ug/L	-213.33	4.04	4.19	4.91
Fe 261.187	Fe	1.79	ug/L	8.64	-1.1	6.73	-0.25
K 766.491	K	13.01	ug/L	519.24	27.63	26.13	-14.71
Li 670.783	Li	49.2	ug/L	3892.05	49.59	50.03	47.97
Mg 279.078	Mg	-11.46	ug/L	-13.82	-5.34	-15.63	-13.4
Mn 257.610	Mn	0.16	ug/L	12.14	0.14	0.33	0
Mo 204.598	Mo	1.97	ug/L	-5.75	2.17	1.34	2.4
Na 589.592	Na	-2.15	ug/L	-31.86	-2.97	-5.42	1.93
Ni 231.604	Ni	4.27	ug/L	0.99	2.44	6.16	4.22
P 213.618	P	-4.87	ug/L	-2.85	9.6	-16.27	-7.95
Pb 220.353	Pb	-0.82	ug/L	4.74	1.14	-2.04	-1.55
S 181.972	S	-315.44	ug/L	-0.09	-218.18	-246.9	-481.23
Sb 206.834	Sb	-0.05	ug/L	2.61	2.36	-1.89	-0.63
Se 196.026	Se	4.51	ug/L	0.74	6.53	5.09	1.92
Sn 189.925	Sn	-1.44	ug/L	2.64	4.01	-16.76	8.44
Sr 421.552	Sr	0.07	ug/L	-15.28	0.09	0.06	0.07
Ti 334.941	Ti	0.11	ug/L	1805.72	0.12	0.06	0.16
Tl 190.794	Tl	2.14	ug/L	-2.21	1.97	4.64	-0.2
V 292.401	V	1.41	ug/L	-7.75	1.72	-0.07	2.6
Zn 213.857	Zn	0.23	ug/L	2.39	0.02	0.28	0.37

## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: 30484543002\_3024****Analysis Time: 5/3/2022 1:23:10 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.09	Ratio	20912.75	1.09	1.09	1.09
Tb 360.044	360 Tb RAD	1.08	Ratio	4238.78	1.06	1.07	1.1
Ag 328.068	Ag	0.24	ug/L	-998.08	0.13	0.07	0.52
Al 396.152	Al	13458.01	ug/L	44138.24	13699.44	13529.91	13144.68
As 188.980	As	71.22	ug/L	29.7	71.7	74.17	67.8
B 249.678	B	152.02	ug/L	412.7	154.4	153.94	147.71
Ba 233.527	Ba	815.08	ug/L	7433.25	826.64	823.05	795.55
Be 234.861	Be	8.61	ug/L	394.04	8.67	8.53	8.63
Ca 315.887	Ca	27940.46	ug/L	37189.21	28375.98	28187.29	27258.11
Cd 214.439	Cd	-0.45	ug/L	4.08	-1	0.95	-1.31
Co 228.615	Co	68.45	ug/L	150.91	69.44	72.18	63.74
Cr 267.716	Cr	118.75	ug/L	476.67	120.95	119.36	115.94
Cu 327.395	Cu	271.68	ug/L	1582.6	275.05	274.19	265.8
Fe 261.187	Fe	46758.19	ug/L	48380.53	47406.73	47210.74	45657.11
K 766.491	K	3449.54	ug/L	5329.02	3523.54	3484.91	3340.17
Li 670.783	Li	79.75	ug/L	4410.99	83.98	82.23	73.04
Mg 279.078	Mg	9134.26	ug/L	3386.03	9281.97	9237.23	8883.57
Mn 257.610	Mn	277.15	ug/L	10636.04	281.07	279.94	270.43
Mo 204.598	Mo	20.02	ug/L	29.27	21.63	20.95	17.49
Na 589.592	Na	5331.95	ug/L	49016.07	5420.24	5378.56	5197.06
Ni 231.604	Ni	159.89	ug/L	82.98	157.59	158.07	164.01
P 213.618	P	959.3	ug/L	246.84	983.2	977.98	916.71
Pb 220.353	Pb	75.28	ug/L	79.95	72.93	75.59	77.31
S 181.972	S	84432.58	ug/L	288.55	84437.26	85785.04	83075.46
Sb 206.834	Sb	-1.95	ug/L	-1.21	-1.27	-4.14	-0.44
Se 196.026	Se	37.74	ug/L	9.7	32.5	35.87	44.84
Sn 189.925	Sn	88.97	ug/L	9.32	123.97	69.51	73.43
Sr 421.552	Sr	1009.61	ug/L	341498.33	1024.83	1018.52	985.49
Ti 334.941	Ti	4893.87	ug/L	222217.53	4968.55	4936.01	4777.04
Tl 190.794	Tl	-9.09	ug/L	-13.71	-9.81	-9.99	-7.48
V 292.401	V	203.97	ug/L	705.01	206.23	206.37	199.32
Zn 213.857	Zn	257.83	ug/L	1385.03	260.3	259.49	253.69

## Agilent 5110 ICP-OES Report

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Sample: 2426150\_3025

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Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.15	Ratio	21975.28	1.14	1.15	1.14
Tb 360.044	360 Tb RAD	1.07	Ratio	4189.64	1.07	1.06	1.06
Ag 328.068	Ag	-0.05	ug/L	-1003.11	0.14	-0.17	-0.12
Al 396.152	Al	51.12	ug/L	168.52	55.25	49.68	48.42
As 188.980	As	-9.05	ug/L	-2.1	-9.92	0.34	-17.57
B 249.678	B	-1.16	ug/L	6.52	-1.69	-1.74	-0.05
Ba 233.527	Ba	2.56	ug/L	22.51	2.61	2.18	2.9
Be 234.861	Be	-0.04	ug/L	2.2	0.02	-0.09	-0.06
Ca 315.887	Ca	789.76	ug/L	1032.1	777.24	805.23	786.83
Cd 214.439	Cd	0.23	ug/L	3.74	0.36	0.72	-0.39
Co 228.615	Co	0.37	ug/L	-0.68	2.17	-1.31	0.26
Cr 267.716	Cr	1.71	ug/L	-14.35	2.04	1.17	1.93
Cu 327.395	Cu	5.47	ug/L	-206.01	5.5	4.81	6.1
Fe 261.187	Fe	129.71	ug/L	141.01	130.76	135.82	122.56
K 766.491	K	53.79	ug/L	576.25	60.7	49.59	51.09
Li 670.783	Li	45.96	ug/L	3836.04	44.16	46.72	47.01
Mg 279.078	Mg	16.8	ug/L	-3.28	-1.41	35.81	16
Mn 257.610	Mn	7.03	ug/L	275.26	6.88	7.28	6.93
Mo 204.598	Mo	0.38	ug/L	-8.66	0.18	1.92	-0.94
Na 589.592	Na	142.31	ug/L	1277.34	140.16	146.37	140.4
Ni 231.604	Ni	19.84	ug/L	9.24	22.86	29.5	7.15
P 213.618	P	31.17	ug/L	6.63	43.05	17.31	33.16
Pb 220.353	Pb	-1.66	ug/L	3.91	-5.87	-1.39	2.26
S 181.972	S	12.14	ug/L	1.03	-516.25	123.52	429.16
Sb 206.834	Sb	4.19	ug/L	5.96	4.6	2.96	5.01
Se 196.026	Se	6.58	ug/L	1.46	4.68	4.04	11.03
Sn 189.925	Sn	21.72	ug/L	4.43	16.24	16.39	32.52
Sr 421.552	Sr	0.63	ug/L	175.38	0.65	0.59	0.64
Ti 334.941	Ti	2.2	ug/L	1899.71	2.14	1.96	2.51
Tl 190.794	Tl	-0.58	ug/L	-3.8	-1.14	2.46	-3.07
V 292.401	V	0.64	ug/L	-10.43	0.2	1.22	0.5
Zn 213.857	Zn	52.49	ug/L	278.29	51.8	53.29	52.38

## Agilent 5110 ICP-OES Report

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**Sample: 2426151\_3025****Analysis Time: 5/3/2022 1:27:49 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.09	Ratio	20873.49	1.09	1.09	1.09
Tb 360.044	360 Tb RAD	1.04	Ratio	4075.57	1.06	1.04	1.01
Ag 328.068	Ag	511.47	ug/L	18369.99	508.24	520.71	505.47
Al 396.152	Al	2011.28	ug/L	6860.16	1957.03	2002.36	2074.45
As 188.980	As	1644.85	ug/L	650.4	1652.13	1653.87	1628.56
B 249.678	B	2054.96	ug/L	5896.14	2006.77	2037.73	2120.38
Ba 233.527	Ba	2003.02	ug/L	18260.2	1954.78	1993.06	2061.22
Be 234.861	Be	486.72	ug/L	21726.3	474.93	484.11	501.13
Ca 315.887	Ca	39852.42	ug/L	53072.09	38901.35	39959.01	40696.89
Cd 214.439	Cd	973.39	ug/L	3060.67	950.36	966.77	1003.05
Co 228.615	Co	1997.94	ug/L	3942.26	1949.76	1992.56	2051.51
Cr 267.716	Cr	2001.87	ug/L	8379.63	1950.73	1992.49	2062.4
Cu 327.395	Cu	1955.34	ug/L	12885.77	1907.04	1944.46	2014.51
Fe 261.187	Fe	2226.01	ug/L	2312.5	2170.55	2211.44	2296.03
K 766.491	K	19477.45	ug/L	27966.37	18962.46	19373.44	20096.44
Li 670.783	Li	1608.57	ug/L	30681.08	1563.19	1600.69	1661.84
Mg 279.078	Mg	19995.82	ug/L	7440.9	19477.73	19877.33	20632.4
Mn 257.610	Mn	2031.64	ug/L	77886.82	1986.42	2024.12	2084.38
Mo 204.598	Mo	2027.32	ug/L	3711.26	2032.05	2032.21	2017.69
Na 589.592	Na	19051.12	ug/L	174323.86	18554.42	18949.89	19649.05
Ni 231.604	Ni	2025.19	ug/L	1073.66	1968.66	2020.72	2086.2
P 213.618	P	38523.95	ug/L	10111.82	37549.81	38403.4	39618.64
Pb 220.353	Pb	2024.58	ug/L	2022.18	2036.8	2027.32	2009.64
S 181.972	S	2106.53	ug/L	8	1976.04	1859.64	2483.91
Sb 206.834	Sb	1873.09	ug/L	1479.94	1889.63	1863.93	1865.71
Se 196.026	Se	1571.32	ug/L	559.19	1578.43	1568.64	1566.88
Sn 189.925	Sn	1448.63	ug/L	114.49	1407.5	1461.28	1477.11
Sr 421.552	Sr	1990.19	ug/L	673134.75	1942.53	1978.41	2049.63
Ti 334.941	Ti	2064.6	ug/L	94822.96	2017.86	2060.75	2115.2
Tl 190.794	Tl	1826.6	ug/L	1076.33	1838.53	1829.16	1812.1
V 292.401	V	1987.83	ug/L	6922.79	1933.36	1981.09	2049.04
Zn 213.857	Zn	1978.57	ug/L	10481.11	1928.31	1967.11	2040.29



## Agilent 5110 ICP-OES Report

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**Sample: 30483296001\_3025****Analysis Time: 5/3/2022 1:30:09 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.88	Ratio	16921.22	0.88	0.88	0.89
Tb 360.044	360 Tb RAD	0.87	Ratio	3421.11	0.87	0.86	0.88
Ag 328.068	Ag	40.32	ug/L	435.96	39.37	41.37	40.21
Al 396.152	Al	103759.6	ug/L	340327.05	104023.19	104499.52	102756.09
As 188.980	As	571.72	ug/L	158.66	562.14	574.46	578.54
B 249.678	B	1220.19	ug/L	-5768.52	1220.71	1198	1241.85
Ba 233.527	Ba	9185.89	ug/L	84235.41	9232.13	9261.91	9063.62
Be 234.861	Be	-17.82	ug/L	669.12	-17.92	-16.12	-19.42
Ca 315.887	Ca	551334.61	ug/L	734108.41	553394.59	555840.53	544768.7
Cd 214.439	Cd	-30.21	ug/L	495.79	-28.6	-31.1	-30.92
Co 228.615	Co	487.35	ug/L	1011.77	486.54	493.39	482.1
Cr 267.716	Cr	6264.3	ug/L	26426.01	6287.06	6316.84	6189.02
Cu 327.395	Cu	12688.73	ug/L	85344.57	12773.65	12786.56	12505.98
Fe 261.187	Fe	7040303.03	ug/L	7283444.22	7045129.4	7086972.54	6988807.15
K 766.491	K	17101.06	ug/L	23382.57	17147.77	17260.99	16894.42
Li 670.783	Li	986.28	ug/L	18694.37	990.14	995.09	973.62
Mg 279.078	Mg	35274.41	ug/L	11261.55	35307.78	35552.8	34962.65
Mn 257.610	Mn	27978.43	ug/L	1076745.35	28072.36	28121.77	27741.15
Mo 204.598	Mo	1905.4	ug/L	3640.05	1913.59	1920.04	1882.56
Na 589.592	Na	5098.84	ug/L	55176.11	5128	5141.35	5027.16
Ni 231.604	Ni	2972.39	ug/L	1618.49	2922.63	2990.27	3004.28
P 213.618	P	8031.48	ug/L	1870.86	8079.26	8121.29	7893.89
Pb 220.353	Pb	27.97	ug/L	195.84	24.57	38.65	20.7
S 181.972	S	1573383.34	ug/L	5355.97	1578748.85	1583462.97	1557938.2
Sb 206.834	Sb	-141.01	ug/L	312.12	-148.21	-128.12	-146.71
Se 196.026	Se	693.71	ug/L	-426.41	707.19	675.91	698.02
Sn 189.925	Sn	157.72	ug/L	3.21	136.15	117.98	219.02
Sr 421.552	Sr	25601.36	ug/L	8662565.89	25755.27	25750.93	25297.89
Ti 334.941	Ti	1233.84	ug/L	57124.71	1241.65	1247.55	1212.31
Tl 190.794	Tl	-13.21	ug/L	-208.94	10.07	-40.38	-9.33
V 292.401	V	568.03	ug/L	-879.86	565.14	571.09	567.85
Zn 213.857	Zn	4187.55	ug/L	27464.37	4207.2	4226.89	4128.57

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484906001\_3025****Analysis Time: 5/3/2022 1:32:27 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	19991.44	1.03	1.04	1.05
Tb 360.044	360 Tb RAD	1.01	Ratio	3989.39	1.02	1.01	1.01
Ag 328.068	Ag	-2.2	ug/L	-1052.97	-2.21	-2.02	-2.38
Al 396.152	Al	222627.4	ug/L	730213.28	219011.01	223961.81	224909.39
As 188.980	As	279.77	ug/L	107.93	288.19	283.18	267.94
B 249.678	B	63.01	ug/L	-287.92	67.35	63.77	57.91
Ba 233.527	Ba	1990.01	ug/L	18172.46	1964.68	2003.27	2002.08
Be 234.861	Be	8.72	ug/L	475.22	8.86	9.21	8.09
Ca 315.887	Ca	120663.97	ug/L	160639.89	119179.03	121328.17	121484.71
Cd 214.439	Cd	0.37	ug/L	34.91	2.32	-0.33	-0.9
Co 228.615	Co	172.97	ug/L	343.14	174.09	169	175.82
Cr 267.716	Cr	411.77	ug/L	1713.39	405.94	414.6	414.79
Cu 327.395	Cu	420.28	ug/L	2605.01	416.76	421.64	422.43
Fe 261.187	Fe	628099.19	ug/L	649806.17	620432.36	630567.31	633297.9
K 766.491	K	39048.78	ug/L	55759.13	38592.16	39205.55	39348.62
Li 670.783	Li	473.53	ug/L	11130.83	467.64	476.61	476.34
Mg 279.078	Mg	68930.26	ug/L	25573.04	68082.9	69285.37	69422.52
Mn 257.610	Mn	9065.81	ug/L	347242.15	8958.72	9110.13	9128.58
Mo 204.598	Mo	12.16	ug/L	28.7	12.93	11.44	12.1
Na 589.592	Na	1934.57	ug/L	19447.05	1911.88	1948.45	1943.36
Ni 231.604	Ni	435.29	ug/L	230.65	428.49	449.46	427.94
P 213.618	P	12546.79	ug/L	3293.27	12410.82	12608.84	12620.71
Pb 220.353	Pb	441.33	ug/L	452.07	438.08	442.11	443.8
S 181.972	S	19377.07	ug/L	66.84	18221.85	18745.79	21163.56
Sb 206.834	Sb	-9.35	ug/L	20.05	-2.59	-20.68	-4.79
Se 196.026	Se	64.93	ug/L	-12.99	76.56	48.82	69.4
Sn 189.925	Sn	3.82	ug/L	2.22	-2.54	-8.78	22.78
Sr 421.552	Sr	655.13	ug/L	222195.44	647.79	658.47	659.13
Ti 334.941	Ti	511.47	ug/L	24821.4	504.75	515.56	514.09
Tl 190.794	Tl	-6.72	ug/L	-15.46	-4.23	-8.91	-7.01
V 292.401	V	395.48	ug/L	1234.37	396.22	392.01	398.22
Zn 213.857	Zn	1609.06	ug/L	8778.78	1589.56	1611.86	1625.76

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427764\_3025****Analysis Time: 5/3/2022 1:34:47 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.07	Ratio	20545.84	1.07	1.07	1.07
Tb 360.044	360 Tb RAD	1.04	Ratio	4101.92	1.05	1.04	1.03
Ag 328.068	Ag	501.02	ug/L	18005.25	498.43	509.2	495.43
Al 396.152	Al	207729.03	ug/L	681583.32	206304.34	206740.17	210142.58
As 188.980	As	1882.88	ug/L	740.98	1892.42	1879.88	1876.34
B 249.678	B	1918.68	ug/L	5064.56	1890.77	1923.43	1941.85
Ba 233.527	Ba	3665.28	ug/L	33443.1	3627.3	3662.95	3705.58
Be 234.861	Be	448.22	ug/L	20083.71	442.44	448.77	453.45
Ca 315.887	Ca	147802.39	ug/L	196800.94	145872.94	147889.07	149645.15
Cd 214.439	Cd	891.07	ug/L	2830.55	880.49	894.47	898.26
Co 228.615	Co	1990.66	ug/L	3930.76	1967.89	1997.11	2006.99
Cr 267.716	Cr	2234.7	ug/L	9363.15	2199.84	2238.54	2265.73
Cu 327.395	Cu	2192.57	ug/L	14502.18	2162.69	2196.82	2218.2
Fe 261.187	Fe	582737.73	ug/L	602880.24	575627.87	583198.36	589386.97
K 766.491	K	55049.1	ug/L	78309.81	54268.51	55121	55757.77
Li 670.783	Li	2458.87	ug/L	45264.18	2422.76	2467.65	2486.19
Mg 279.078	Mg	82492.4	ug/L	30634.18	81397.83	82640.54	83438.84
Mn 257.610	Mn	10276.9	ug/L	393686.97	10159.2	10302.56	10368.94
Mo 204.598	Mo	1843.79	ug/L	3388.91	1851.25	1845.63	1834.49
Na 589.592	Na	20399.57	ug/L	188158.23	20114.35	20489.06	20595.29
Ni 231.604	Ni	2237.2	ug/L	1187.02	2206.51	2241.09	2263.99
P 213.618	P	47906.94	ug/L	12576.9	47332.31	48011.18	48377.35
Pb 220.353	Pb	2296.35	ug/L	2299.34	2311.04	2295.57	2282.44
S 181.972	S	19743.47	ug/L	67.93	19130.58	20175.38	19924.45
Sb 206.834	Sb	1710.36	ug/L	1374.59	1710.5	1724.45	1696.12
Se 196.026	Se	1626.64	ug/L	546.43	1597.22	1660.92	1621.79
Sn 189.925	Sn	1746.24	ug/L	136.79	1726.31	1753.32	1759.07
Sr 421.552	Sr	2499.18	ug/L	845881.96	2468.35	2503.56	2525.63
Ti 334.941	Ti	2315.19	ug/L	106093.28	2272.2	2317.93	2355.45
Tl 190.794	Tl	1722.75	ug/L	1007.6	1733.96	1719.48	1714.8
V 292.401	V	2220.08	ug/L	7611.46	2191.66	2225.61	2242.97
Zn 213.857	Zn	3316.31	ug/L	17800.95	3276.05	3320.45	3352.42

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2426152\_3025****Analysis Time: 5/3/2022 1:37:06 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20619.35	1.08	1.08	1.07
Tb 360.044	360 Tb RAD	1.05	Ratio	4111.61	1.04	1.03	1.06
Ag 328.068	Ag	522.05	ug/L	18820.13	516.75	529.89	519.51
Al 396.152	Al	374211.11	ug/L	1227679.04	375382.73	379305.56	367945.05
As 188.980	As	1775.57	ug/L	698.22	1783.51	1756.13	1787.07
B 249.678	B	2025.46	ug/L	5467.92	2029.54	2056.45	1990.41
Ba 233.527	Ba	4121.68	ug/L	37601.07	4123.42	4175.59	4066.01
Be 234.861	Be	464.05	ug/L	20778.95	464.19	470.9	457.06
Ca 315.887	Ca	176604.09	ug/L	235134.61	177006.7	179401.22	173404.34
Cd 214.439	Cd	894.55	ug/L	2835.12	894.61	906.36	882.67
Co 228.615	Co	2004.05	ug/L	3957.39	2013.96	2030	1968.19
Cr 267.716	Cr	2295.52	ug/L	9616.31	2296.93	2327.77	2261.85
Cu 327.395	Cu	2185.65	ug/L	14456.71	2186.55	2218.85	2151.56
Fe 261.187	Fe	462502.17	ug/L	478494.67	462399.11	468935.43	456171.99
K 766.491	K	82878.31	ug/L	117783.91	82923.42	84148.24	81563.27
Li 670.783	Li	2118.65	ug/L	39431.73	2119.85	2157.85	2078.26
Mg 279.078	Mg	88801.37	ug/L	33004.81	88891.69	90051.6	87460.81
Mn 257.610	Mn	14067.44	ug/L	538672.04	14097.01	14291.32	13813.98
Mo 204.598	Mo	1793.44	ug/L	3300.96	1799.93	1787.09	1793.3
Na 589.592	Na	21415.61	ug/L	197806.37	21381.98	21738.87	21125.97
Ni 231.604	Ni	2250.48	ug/L	1192.7	2243.6	2293.57	2214.27
P 213.618	P	46765.88	ug/L	12277.06	46801.14	47428.7	46067.8
Pb 220.353	Pb	2339.62	ug/L	2338.57	2348.37	2323.95	2346.54
S 181.972	S	17304.04	ug/L	59.84	17437.73	17989.5	16484.88
Sb 206.834	Sb	213.44	ug/L	192.21	212.77	215	212.56
Se 196.026	Se	1613.66	ug/L	549.08	1619.7	1608.22	1613.06
Sn 189.925	Sn	410.58	ug/L	33.57	372.94	449.28	409.52
Sr 421.552	Sr	2736.56	ug/L	926284.99	2736.9	2776.36	2696.42
Ti 334.941	Ti	2623.64	ug/L	119991.58	2631.31	2661.82	2577.8
Tl 190.794	Tl	1712.31	ug/L	1004.58	1709.74	1703.84	1723.36
V 292.401	V	2373.27	ug/L	8180.74	2373.91	2409.16	2336.76
Zn 213.857	Zn	3458.38	ug/L	18500.6	3462.76	3504.82	3407.55

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427765\_3025****Analysis Time: 5/3/2022 1:39:26 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.14	Ratio	21822.21	1.13	1.14	1.15
Tb 360.044	360 Tb RAD	1.09	Ratio	4285.77	1.11	1.08	1.08
Ag 328.068	Ag	97.66	ug/L	2707.67	98.31	98.03	96.65
Al 396.152	Al	76173.99	ug/L	249906.63	75129.47	76742.35	76650.15
As 188.980	As	373.3	ug/L	147.96	377.45	370.6	371.84
B 249.678	B	417.21	ug/L	1133.51	406.81	424.42	420.4
Ba 233.527	Ba	871.81	ug/L	7952.56	857.97	877.09	880.37
Be 234.861	Be	93.71	ug/L	4199.63	92.88	94.1	94.14
Ca 315.887	Ca	37111.85	ug/L	49396.36	36623.68	37506.87	37205.01
Cd 214.439	Cd	190.25	ug/L	605.23	187.02	190.87	192.87
Co 228.615	Co	427.98	ug/L	843.93	421.32	433.1	429.53
Cr 267.716	Cr	487.17	ug/L	2023.86	482.76	489.11	489.64
Cu 327.395	Cu	457.73	ug/L	2835.68	454.31	458.42	460.46
Fe 261.187	Fe	100310.22	ug/L	103783.94	98888.64	101054.03	100987.98
K 766.491	K	16649.46	ug/L	24059.9	16413.37	16761.52	16773.5
Li 670.783	Li	459.18	ug/L	10931.78	450.64	464.5	462.41
Mg 279.078	Mg	18396.77	ug/L	6829.92	18102.82	18537.3	18550.18
Mn 257.610	Mn	2995.58	ug/L	114709.92	2953.42	3015.75	3017.57
Mo 204.598	Mo	369.5	ug/L	672.64	371.42	371.83	365.25
Na 589.592	Na	4259.1	ug/L	39379.9	4193.06	4298.4	4285.85
Ni 231.604	Ni	486.38	ug/L	256.77	473.73	496.96	488.44
P 213.618	P	9650.61	ug/L	2532.22	9485.03	9769.62	9697.19
Pb 220.353	Pb	495.32	ug/L	499.51	496.54	500.54	488.87
S 181.972	S	3251.79	ug/L	12.04	2841.8	3213.85	3699.7
Sb 206.834	Sb	44.29	ug/L	42.13	39.24	51.68	41.95
Se 196.026	Se	345.24	ug/L	116.97	355.62	342.1	338.01
Sn 189.925	Sn	78.5	ug/L	8.62	107.23	66.87	61.39
Sr 421.552	Sr	559.83	ug/L	189466.47	551.72	564.49	563.29
Ti 334.941	Ti	543.38	ug/L	26279	535.76	547.76	546.62
Tl 190.794	Tl	357.7	ug/L	207.13	356.55	354.37	362.17
V 292.401	V	491.15	ug/L	1682.82	484.11	497.16	492.19
Zn 213.857	Zn	713.41	ug/L	3818.18	704.59	716.84	718.79

## Agilent 5110 ICP-OES Report

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**Sample: 2426153\_3025****Analysis Time: 5/3/2022 1:41:45 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.1	Ratio	21016.42	1.09	1.1	1.1
Tb 360.044	360 Tb RAD	1.07	Ratio	4192.59	1.06	1.06	1.08
Ag 328.068	Ag	503.64	ug/L	18127.6	501.44	511.93	497.56
Al 396.152	Al	388752.04	ug/L	1275397.16	391694.86	392751.44	381809.81
As 188.980	As	1719.92	ug/L	676.08	1748.17	1704.07	1707.52
B 249.678	B	1916.78	ug/L	5164.48	1931.75	1925.62	1892.96
Ba 233.527	Ba	4046.8	ug/L	36917.59	4073.88	4072.87	3993.65
Be 234.861	Be	453.27	ug/L	20296.98	456.53	455.21	448.07
Ca 315.887	Ca	157863.8	ug/L	210174.28	159300.51	157618.59	156672.31
Cd 214.439	Cd	875.9	ug/L	2776	884.15	879.33	864.22
Co 228.615	Co	1985.1	ug/L	3918.42	2006.24	1989.42	1959.66
Cr 267.716	Cr	2296.5	ug/L	9620.85	2312.46	2306.98	2270.05
Cu 327.395	Cu	2141.63	ug/L	14160.8	2155.38	2154.57	2114.95
Fe 261.187	Fe	453494.47	ug/L	469175.66	456494.78	456012.84	447975.78
K 766.491	K	83055.26	ug/L	118039.31	83685.26	83479.61	82000.9
Li 670.783	Li	2586.87	ug/L	47497.13	2606.46	2599.22	2554.92
Mg 279.078	Mg	85956.21	ug/L	31946.44	86516.51	86373.34	84978.79
Mn 257.610	Mn	14827.16	ug/L	567734.86	14930.84	14972.14	14578.5
Mo 204.598	Mo	1725.85	ug/L	3177.11	1739.79	1719.94	1717.81
Na 589.592	Na	20907.41	ug/L	193133.79	21103.84	20970.32	20648.06
Ni 231.604	Ni	2214.71	ug/L	1173.95	2245.34	2205.69	2193.11
P 213.618	P	45864.16	ug/L	12040.55	46193.47	46071.89	45327.14
Pb 220.353	Pb	2309.25	ug/L	2308.08	2320.76	2312.92	2294.08
S 181.972	S	16782.32	ug/L	58.07	16737.84	17054.61	16554.5
Sb 206.834	Sb	171.43	ug/L	159.84	171.47	166.99	175.84
Se 196.026	Se	1587.62	ug/L	540.47	1614.62	1574.72	1573.52
Sn 189.925	Sn	491.09	ug/L	39.9	478.48	534.98	459.82
Sr 421.552	Sr	2723.87	ug/L	921914.01	2741.08	2734.82	2695.7
Ti 334.941	Ti	2112.59	ug/L	96979.45	2137.53	2111.35	2088.9
Tl 190.794	Tl	1678.44	ug/L	985.22	1692.13	1664.43	1678.76
V 292.401	V	2369.97	ug/L	8170.4	2383.91	2382.55	2343.46
Zn 213.857	Zn	3426.11	ug/L	18324.35	3447.42	3441.19	3389.73

## Agilent 5110 ICP-OES Report

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**Sample: 30484190001\_3025****Analysis Time: 5/3/2022 1:44:04 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.08	Ratio	20742.81	1.1	1.08	1.07
Tb 360.044	360 Tb RAD	1.1	Ratio	4309.01	1.11	1.08	1.1
Ag 328.068	Ag	-0.22	ug/L	-970.09	-0.43	-0.16	-0.07
Al 396.152	Al	72948.71	ug/L	238702.32	72050.48	74154.91	72640.73
As 188.980	As	58.51	ug/L	22.93	67.51	55.72	52.29
B 249.678	B	350.37	ug/L	906.06	347.4	354.98	348.72
Ba 233.527	Ba	1391.93	ug/L	12708.36	1376.21	1413.19	1386.4
Be 234.861	Be	2.42	ug/L	131.12	2.54	2.36	2.36
Ca 315.887	Ca	416210.84	ug/L	554270.95	409404.08	421829.85	417398.58
Cd 214.439	Cd	5.93	ug/L	30.27	5.16	7.31	5.33
Co 228.615	Co	51.6	ug/L	100.85	50.36	51.88	52.56
Cr 267.716	Cr	239.71	ug/L	976.43	236.78	243.62	238.72
Cu 327.395	Cu	261.86	ug/L	1531.18	258.71	266.2	260.68
Fe 261.187	Fe	140670.16	ug/L	145546.52	139123.33	142718.44	140168.71
K 766.491	K	38181.5	ug/L	54588.06	37749.89	38741.54	38053.08
Li 670.783	Li	129.53	ug/L	5266.8	126.67	133.46	128.46
Mg 279.078	Mg	53310.03	ug/L	19838.68	52560.53	54168.96	53200.61
Mn 257.610	Mn	11720.29	ug/L	448583.54	11614.29	11840.21	11706.38
Mo 204.598	Mo	23.87	ug/L	39.73	22.39	24.34	24.89
Na 589.592	Na	4989.73	ug/L	46547.52	4928.6	5059.71	4980.88
Ni 231.604	Ni	156.8	ug/L	76.16	157.05	163.31	150.06
P 213.618	P	13423.69	ug/L	3529.04	13272.9	13622.85	13375.31
Pb 220.353	Pb	263.08	ug/L	273.34	258.13	271.79	259.32
S 181.972	S	21252.76	ug/L	73.39	21165.97	20867.02	21725.28
Sb 206.834	Sb	-2.92	ug/L	9.08	-4.31	-4.23	-0.24
Se 196.026	Se	24.09	ug/L	-0.63	22.87	19.83	29.56
Sn 189.925	Sn	16.41	ug/L	2.83	52.69	21.12	-24.59
Sr 421.552	Sr	1102.6	ug/L	374655.03	1088.97	1120.06	1098.78
Ti 334.941	Ti	737.4	ug/L	34920.81	726.39	744.59	741.23
Tl 190.794	Tl	-8.38	ug/L	-6.29	-6.14	-12.24	-6.77
V 292.401	V	178.32	ug/L	597.97	176.9	180.39	177.67
Zn 213.857	Zn	1046.7	ug/L	5614.2	1036.11	1060.46	1043.52

## Agilent 5110 ICP-OES Report

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**Sample: CCV****Analysis Time: 5/3/2022 1:46:23 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.16	Ratio	22155.23	1.16	1.15	1.15
Tb 360.044	360 Tb RAD	1.1	Ratio	4325.41	1.1	1.1	1.1
Ag 328.068	Ag	1004.43	ug/L	37344.16	1004.9	1009.07	999.31
Al 396.152	Al	10043.38	ug/L	33309.27	10096.16	10007.3	10026.67
As 188.980	As	1796.12	ug/L	710.49	1804.88	1794.08	1789.38
B 249.678	B	2105.66	ug/L	6035.5	2105.13	2109.73	2102.11
Ba 233.527	Ba	2102.5	ug/L	19166.76	2109.64	2100.32	2097.53
Be 234.861	Be	1975.44	ug/L	88164.59	1976.57	1977.31	1972.45
Ca 315.887	Ca	10001.34	ug/L	13300.15	10031.94	9980.99	9991.08
Cd 214.439	Cd	2041.11	ug/L	6413.16	2043.52	2042.49	2037.33
Co 228.615	Co	2068.43	ug/L	4081.55	2072.43	2070.5	2062.34
Cr 267.716	Cr	2046.57	ug/L	8567.45	2051.86	2048.33	2039.51
Cu 327.395	Cu	1984.86	ug/L	13083.77	1984.57	1988.85	1981.17
Fe 261.187	Fe	10080.03	ug/L	10437.04	10106.89	10077.37	10055.83
K 766.491	K	9876.54	ug/L	14336.49	9890.03	9907.12	9832.47
Li 670.783	Li	2163.57	ug/L	40235.02	2169.83	2163.99	2156.88
Mg 279.078	Mg	10168.41	ug/L	3778.67	10207.36	10155.86	10142.01
Mn 257.610	Mn	2078.81	ug/L	79692.62	2083.56	2077.43	2075.44
Mo 204.598	Mo	1964.78	ug/L	3596.69	1970.67	1973.95	1949.71
Na 589.592	Na	9637.02	ug/L	89235.64	9663.62	9619.74	9627.7
Ni 231.604	Ni	2095.66	ug/L	1111.41	2108.91	2089.53	2088.55
P 213.618	P	2012.5	ug/L	492.08	2029.32	2007.4	2000.79
Pb 220.353	Pb	2124.59	ug/L	2121.69	2114.76	2133.82	2125.17
S 181.972	S	11668.65	ug/L	40.54	11972.03	11563.51	11470.43
Sb 206.834	Sb	1946.81	ug/L	1538.7	1945.36	1954.22	1940.86
Se 196.026	Se	1843.51	ug/L	656.15	1848.25	1846.12	1836.16
Sn 189.925	Sn	1923.06	ug/L	151.37	1887.36	1904.88	1976.92
Sr 421.552	Sr	2047.26	ug/L	692302.76	2050.29	2045.09	2046.39
Ti 334.941	Ti	2026.29	ug/L	93108.98	2033.06	2022.32	2023.49
Tl 190.794	Tl	1997.68	ug/L	1177.42	1993.49	2013.58	1985.96
V 292.401	V	2017.14	ug/L	7023.56	2025.12	2014.59	2011.72
Zn 213.857	Zn	2003.02	ug/L	10612.56	2010.57	2000.11	1998.38



## Agilent 5110 ICP-OES Report

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Sample: CCB

Analysis Time: 5/3/2022 1:48:42 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.12	Ratio	21499.09	1.12	1.12	1.12
Tb 360.044	360 Tb RAD	1.04	Ratio	4076.52	1.03	1.04	1.04
Ag 328.068	Ag	0.19	ug/L	-993.78	-0.12	0.37	0.33
Al 396.152	Al	0.76	ug/L	4.63	-2.06	0.46	3.89
As 188.980	As	-2.08	ug/L	0.66	-6.01	1.68	-1.92
B 249.678	B	0.26	ug/L	10.74	1.91	-0.22	-0.9
Ba 233.527	Ba	0.21	ug/L	1.07	0.28	0.26	0.1
Be 234.861	Be	0.03	ug/L	5.56	-0.02	0.02	0.09
Ca 315.887	Ca	2.54	ug/L	-16.3	-0.3	1.85	6.06
Cd 214.439	Cd	-1.49	ug/L	-1.68	-0.86	-1.65	-1.95
Co 228.615	Co	2.28	ug/L	3.05	1.02	1.7	4.12
Cr 267.716	Cr	0.87	ug/L	-17.86	1.38	0.9	0.34
Cu 327.395	Cu	4.67	ug/L	-211.35	4.81	4.33	4.87
Fe 261.187	Fe	1.66	ug/L	8.49	3.04	-0.54	2.47
K 766.491	K	17.45	ug/L	525.96	21.37	10.36	20.64
Li 670.783	Li	55.29	ug/L	3997.19	55.15	55.59	55.13
Mg 279.078	Mg	3.35	ug/L	-8.31	-22.82	15.91	16.96
Mn 257.610	Mn	0.15	ug/L	11.59	0.09	0.2	0.15
Mo 204.598	Mo	1.5	ug/L	-6.61	2.77	1.4	0.34
Na 589.592	Na	-3.74	ug/L	-46.39	-4.29	-2.59	-4.33
Ni 231.604	Ni	-0.83	ug/L	-1.73	1.63	-2.43	-1.69
P 213.618	P	-2.58	ug/L	-2.23	-10.2	2.44	0.03
Pb 220.353	Pb	-1.8	ug/L	3.76	-1	-1.61	-2.79
S 181.972	S	2.7	ug/L	1	501.1	-397.42	-95.59
Sb 206.834	Sb	0.34	ug/L	2.93	-4.69	2.38	3.33
Se 196.026	Se	-0.66	ug/L	-1.1	1.63	-8.52	4.9
Sn 189.925	Sn	-34.27	ug/L	0.1	7.32	-80.47	-29.66
Sr 421.552	Sr	0.04	ug/L	-26.94	0.01	0.03	0.08
Ti 334.941	Ti	0.55	ug/L	1825.3	0.57	0.23	0.85
Tl 190.794	Tl	1.29	ug/L	-2.71	1.3	-0.69	3.27
V 292.401	V	0.99	ug/L	-9.21	-0.72	2.04	1.65
Zn 213.857	Zn	0.28	ug/L	2.57	-0.01	0.17	0.68

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484192001\_3025****Analysis Time: 5/3/2022 1:51:01 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.12	Ratio	21465.74	1.11	1.12	1.12
Tb 360.044	360 Tb RAD	1.07	Ratio	4204.56	1.07	1.07	1.07
Ag 328.068	Ag	0.11	ug/L	-988.97	0.4	-0.06	0
Al 396.152	Al	26173.62	ug/L	85565.54	26221.63	26223.2	26076.03
As 188.980	As	508.06	ug/L	199.7	510.78	508.03	505.39
B 249.678	B	92.99	ug/L	234.8	92.63	93.45	92.89
Ba 233.527	Ba	521.91	ug/L	4765.78	520.97	521.75	523.01
Be 234.861	Be	0.54	ug/L	35.31	0.44	0.46	0.71
Ca 315.887	Ca	205852.47	ug/L	274124.4	206269.38	205982.27	205305.77
Cd 214.439	Cd	4.13	ug/L	19.49	5.49	3.69	3.22
Co 228.615	Co	20.47	ug/L	39.31	19.65	22.07	19.7
Cr 267.716	Cr	1493.74	ug/L	6244.93	1486.38	1492.9	1501.94
Cu 327.395	Cu	664.77	ug/L	4227.89	665.28	664	665.02
Fe 261.187	Fe	56723.14	ug/L	58691.99	56676.5	56659.88	56833.04
K 766.491	K	28242.75	ug/L	40526.38	28253.31	28157.05	28317.87
Li 670.783	Li	79.96	ug/L	4414.23	80.16	79.02	80.71
Mg 279.078	Mg	15051.44	ug/L	5593.58	14957.81	15041.95	15154.56
Mn 257.610	Mn	3217.8	ug/L	123173.05	3214.68	3212.32	3226.39
Mo 204.598	Mo	8.61	ug/L	8.45	9.85	9	7
Na 589.592	Na	3710.27	ug/L	34093.34	3705.32	3701.7	3723.78
Ni 231.604	Ni	64.68	ug/L	30.06	60.86	66.4	66.79
P 213.618	P	4996.84	ug/L	1306.11	4995.55	5005.53	4989.44
Pb 220.353	Pb	112.76	ug/L	120.12	111.26	115.25	111.76
S 181.972	S	7355.15	ug/L	26.07	7470.91	7074.65	7519.89
Sb 206.834	Sb	-0.46	ug/L	19.4	-2.26	-1.01	1.88
Se 196.026	Se	22.28	ug/L	3.43	26.1	18.49	22.25
Sn 189.925	Sn	5.91	ug/L	2.62	42.32	21.86	-46.44
Sr 421.552	Sr	476.14	ug/L	161855.31	475.72	475.6	477.09
Ti 334.941	Ti	269.75	ug/L	13915.93	269.92	268.71	270.63
Tl 190.794	Tl	-7.24	ug/L	-6.55	-5.7	-13.52	-2.51
V 292.401	V	61.28	ug/L	191.26	63.27	60.13	60.45
Zn 213.857	Zn	455.15	ug/L	2440.64	455.95	453.55	455.96

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484660001\_3025****Analysis Time: 5/3/2022 1:53:21 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.1	Ratio	21154.65	1.13	1.05	1.13
Tb 360.044	360 Tb RAD	1.07	Ratio	4207.32	1.06	1.07	1.08
Ag 328.068	Ag	2.44	ug/L	-903.84	2.45	3.02	1.85
Al 396.152	Al	68673.63	ug/L	225273.2	68866.79	68723.13	68430.98
As 188.980	As	15.6	ug/L	6.59	16.68	6.49	23.64
B 249.678	B	104.83	ug/L	227.49	103.95	104.23	106.32
Ba 233.527	Ba	1734.14	ug/L	15817.1	1739.23	1738.56	1724.63
Be 234.861	Be	2.35	ug/L	124.4	2.52	2.33	2.21
Ca 315.887	Ca	42459.58	ug/L	56516.25	42389.14	42515.37	42474.23
Cd 214.439	Cd	1.9	ug/L	14.26	2.03	2.22	1.43
Co 228.615	Co	38.63	ug/L	74.5	37.86	38.71	39.31
Cr 267.716	Cr	134.18	ug/L	542.98	134.63	134.98	132.93
Cu 327.395	Cu	805.49	ug/L	5171.2	808.03	807.09	801.35
Fe 261.187	Fe	115553.74	ug/L	119554.05	115886.12	115698.03	115077.07
K 766.491	K	18940.26	ug/L	27322.85	18989.43	18999.32	18832.04
Li 670.783	Li	151.26	ug/L	5634.7	154.54	151.36	147.89
Mg 279.078	Mg	21305.93	ug/L	7910.94	21336.02	21350.3	21231.46
Mn 257.610	Mn	2187.38	ug/L	83766.56	2194.16	2189.67	2178.3
Mo 204.598	Mo	13.24	ug/L	18.76	14.15	14.72	10.85
Na 589.592	Na	1602.88	ug/L	16166.41	1610.49	1605.35	1592.8
Ni 231.604	Ni	139.08	ug/L	72.27	139.16	138.41	139.67
P 213.618	P	48617.45	ug/L	12797.1	48670.09	48699.54	48482.72
Pb 220.353	Pb	94.82	ug/L	100.92	91.47	92.97	100.01
S 181.972	S	31568.43	ug/L	108.51	32385.79	31009.33	31310.16
Sb 206.834	Sb	4.21	ug/L	11	6.27	2.86	3.5
Se 196.026	Se	33.06	ug/L	4.57	26.73	29.66	42.78
Sn 189.925	Sn	-7	ug/L	1.91	8.62	-20.74	-8.87
Sr 421.552	Sr	722.93	ug/L	244645.82	725.48	724.02	719.28
Ti 334.941	Ti	261.24	ug/L	13562.52	260.91	260.12	262.68
Tl 190.794	Tl	-12.03	ug/L	-11.64	-10.74	-14.53	-10.82
V 292.401	V	83.01	ug/L	255.71	83.76	82.77	82.49
Zn 213.857	Zn	1953.51	ug/L	10349.79	1956.85	1960.67	1943.01

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2416373\_3026****Analysis Time: 5/3/2022 1:55:39 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.21	Ratio	23237.65	1.21	1.22	1.21
Tb 360.044	360 Tb RAD	1.15	Ratio	4507.18	1.15	1.15	1.14
Ag 328.068	Ag	0.3	ug/L	-989.53	0.24	0.21	0.46
Al 396.152	Al	13.3	ug/L	45.69	10.5	14.01	15.39
As 188.980	As	-3.53	ug/L	0.09	-2.45	-9.63	1.49
B 249.678	B	-2.17	ug/L	3.66	-2.88	-2.42	-1.2
Ba 233.527	Ba	1.83	ug/L	15.84	1.56	1.74	2.2
Be 234.861	Be	0.02	ug/L	4.82	0.08	0.03	-0.06
Ca 315.887	Ca	195.13	ug/L	240.18	197.41	191.28	196.71
Cd 214.439	Cd	-0.8	ug/L	0.51	-0.85	-0.78	-0.76
Co 228.615	Co	0.33	ug/L	-0.78	0.12	0.89	-0.02
Cr 267.716	Cr	1.54	ug/L	-15.06	2.46	1.02	1.14
Cu 327.395	Cu	6.38	ug/L	-199.89	5.85	6.15	7.14
Fe 261.187	Fe	42.18	ug/L	50.44	39.18	45.76	41.6
K 766.491	K	243.42	ug/L	845.66	240.97	244.8	244.5
Li 670.783	Li	30.72	ug/L	3573.71	29.8	29.33	33.03
Mg 279.078	Mg	20.82	ug/L	-1.81	19.32	21.06	22.1
Mn 257.610	Mn	1.51	ug/L	63.93	1.47	1.49	1.56
Mo 204.598	Mo	3.06	ug/L	-3.75	2.88	2.99	3.32
Na 589.592	Na	200.54	ug/L	1803.52	199.05	201.22	201.36
Ni 231.604	Ni	3.74	ug/L	0.7	2.52	4.29	4.42
P 213.618	P	9.23	ug/L	0.84	-4.81	18.49	14
Pb 220.353	Pb	0.58	ug/L	6.14	-3.44	2.82	2.37
S 181.972	S	385473.49	ug/L	1314.28	383329.56	385651.42	387439.49
Sb 206.834	Sb	-0.47	ug/L	2.27	2.96	-3.84	-0.55
Se 196.026	Se	3.05	ug/L	0.21	4.16	0.21	4.78
Sn 189.925	Sn	-4.87	ug/L	2.37	2.77	-6.65	-10.71
Sr 421.552	Sr	0.76	ug/L	216.49	0.74	0.78	0.75
Ti 334.941	Ti	0.49	ug/L	1822.75	0.67	0.64	0.17
Tl 190.794	Tl	2.58	ug/L	-1.94	6.7	-1.18	2.23
V 292.401	V	0.37	ug/L	-11.43	0.49	0.06	0.57
Zn 213.857	Zn	28.66	ug/L	152.28	28.59	28.95	28.43

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30479668001\_3026****Analysis Time: 5/3/2022 1:58:01 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.32	Ratio	25233.19	1.29	1.33	1.33
Tb 360.044	360 Tb RAD	1.19	Ratio	4679.15	1.2	1.18	1.19
Ag 328.068	Ag	0.66	ug/L	-1002.66	0.78	0.46	0.73
Al 396.152	Al	112.9	ug/L	-1442.17	119.83	112.76	106.13
As 188.980	As	8.59	ug/L	5.1	7.79	4.71	13.28
B 249.678	B	23.05	ug/L	70.74	22.78	23.36	22.99
Ba 233.527	Ba	214.8	ug/L	1990.7	210.6	216.83	216.96
Be 234.861	Be	0.01	ug/L	3.89	0	0.02	0.01
Ca 315.887	Ca	1173983.49	ug/L	1563469.2	1160438.95	1164610.32	1196901.21
Cd 214.439	Cd	-1.05	ug/L	4.72	-0.57	-2.12	-0.46
Co 228.615	Co	20.89	ug/L	32.59	21.25	21.25	20.17
Cr 267.716	Cr	1.53	ug/L	-43.72	3.22	1.17	0.19
Cu 327.395	Cu	14.83	ug/L	-115.29	14.52	14.14	15.85
Fe 261.187	Fe	2.13	ug/L	25.92	-3.78	2.16	8
K 766.491	K	3648.17	ug/L	5681.08	3606.22	3695.3	3643
Li 670.783	Li	23.4	ug/L	3482.78	23.76	23.81	22.62
Mg 279.078	Mg	20043.57	ug/L	7482.25	19738.52	20179.66	20212.52
Mn 257.610	Mn	826.58	ug/L	31669.44	811.15	834.12	834.45
Mo 204.598	Mo	2.84	ug/L	-0.74	2.82	2.51	3.2
Na 589.592	Na	1407.65	ug/L	13103.49	1388.43	1425.76	1408.76
Ni 231.604	Ni	55.57	ug/L	10.01	63.32	51.69	51.69
P 213.618	P	18.93	ug/L	-0.2	30.44	16.22	10.14
Pb 220.353	Pb	-12	ug/L	2.03	-14.82	-12.43	-8.75
S 181.972	S	422304.57	ug/L	1440.15	413164.84	427167.15	426581.7
Sb 206.834	Sb	-8.72	ug/L	0.34	-4.69	-5.45	-16.01
Se 196.026	Se	22.86	ug/L	2.61	30.64	14.37	23.59
Sn 189.925	Sn	11.89	ug/L	0.89	15.69	8.11	11.88
Sr 421.552	Sr	3668.21	ug/L	1245397.12	3615	3722.64	3667
Ti 334.941	Ti	0.19	ug/L	1527.43	0.42	0.64	-0.49
Tl 190.794	Tl	-5.05	ug/L	3.18	-4.05	-1.66	-9.46
V 292.401	V	-2.82	ug/L	23.07	-4.2	-0.13	-4.14
Zn 213.857	Zn	-14.35	ug/L	12.53	-14.05	-14.27	-14.73

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30475328005\_2910x100****Analysis Time: 5/3/2022 2:10:58 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.95	Ratio	18136.39	0.94	0.95	0.95
Tb 360.044	360 Tb RAD	0.91	Ratio	3573.02	0.91	0.91	0.91
Ag 328.068	Ag	-0.74	ug/L	-1029.35	-0.8	-0.54	-0.87
Al 396.152	Al	1916.77	ug/L	6285.08	1906.7	1922.52	1921.08
As 188.980	As	1.65	ug/L	2.1	3.06	-0.29	2.17
B 249.678	B	-0.64	ug/L	5.05	-1.34	1.31	-1.91
Ba 233.527	Ba	42.04	ug/L	382.74	41.38	42.88	41.87
Be 234.861	Be	0.01	ug/L	4.91	-0.03	0.14	-0.08
Ca 315.887	Ca	4158.8	ug/L	5518.62	4149.8	4156.73	4169.88
Cd 214.439	Cd	-0.14	ug/L	2.78	0.09	-0.06	-0.44
Co 228.615	Co	3.21	ug/L	5.26	1.4	5.05	3.16
Cr 267.716	Cr	13.56	ug/L	35.37	14.08	12.2	14.4
Cu 327.395	Cu	12.09	ug/L	-161.32	12.57	10.13	13.58
Fe 261.187	Fe	4538.81	ug/L	4702.51	4513.32	4540.53	4562.6
K 766.491	K	384.67	ug/L	1044.26	370.87	392.73	390.41
Li 670.783	Li	84.6	ug/L	4501.32	84.49	84.26	85.04
Mg 279.078	Mg	1479.87	ug/L	541.12	1487.74	1482.55	1469.32
Mn 257.610	Mn	20.48	ug/L	791.95	20.51	20.27	20.66
Mo 204.598	Mo	1.7	ug/L	-6.11	1.23	2.74	1.12
Na 589.592	Na	26.38	ug/L	266.88	29	22.44	27.69
Ni 231.604	Ni	5.05	ug/L	1.35	6.74	4.45	3.95
P 213.618	P	80.21	ug/L	19.4	87.94	80.86	71.82
Pb 220.353	Pb	53.77	ug/L	59.17	54.55	54.75	52.01
S 181.972	S	6818.17	ug/L	24.22	6879.87	7216.87	6357.77
Sb 206.834	Sb	1.83	ug/L	4.26	0.28	2.9	2.3
Se 196.026	Se	5.96	ug/L	1	-0.49	11.46	6.91
Sn 189.925	Sn	6.53	ug/L	3.24	6.61	8.41	4.58
Sr 421.552	Sr	9.82	ug/L	3297.37	9.87	9.78	9.79
Ti 334.941	Ti	108.89	ug/L	6704.19	108.07	108.85	109.74
Tl 190.794	Tl	-2.67	ug/L	-5.17	-2.21	2.62	-8.42
V 292.401	V	7.87	ug/L	14.39	7.9	8.13	7.58
Zn 213.857	Zn	35.66	ug/L	191.3	35.29	35.56	36.14

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30483425001\_2910x100****Analysis Time: 5/3/2022 2:13:17 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.96	Ratio	18490.58	0.96	0.97	0.97
Tb 360.044	360 Tb RAD	0.91	Ratio	3588.65	0.91	0.92	0.91
Ag 328.068	Ag	-0.32	ug/L	-1012.22	-0.53	-0.37	-0.06
Al 396.152	Al	215.34	ug/L	710.23	210.26	218.02	217.73
As 188.980	As	-1.15	ug/L	0.58	6.19	-1.58	-8.06
B 249.678	B	-6.66	ug/L	-71.17	-6.41	-6.57	-7.01
Ba 233.527	Ba	42.08	ug/L	385.9	41.03	41.96	43.23
Be 234.861	Be	-0.11	ug/L	8.75	-0.25	0.02	-0.12
Ca 315.887	Ca	1098.73	ug/L	1442.8	1096.22	1093.97	1106.02
Cd 214.439	Cd	-1.62	ug/L	1.83	-1.04	-1.4	-2.42
Co 228.615	Co	4.99	ug/L	8.81	2	7.65	5.33
Cr 267.716	Cr	30.56	ug/L	107.83	30.15	31.26	30.28
Cu 327.395	Cu	40.26	ug/L	30.15	40.27	40.46	40.05
Fe 261.187	Fe	87027.24	ug/L	90039.42	86828.01	86753.77	87499.95
K 766.491	K	103.47	ug/L	638.52	120.7	94.63	95.07
Li 670.783	Li	78.43	ug/L	4386.84	79.98	76.01	79.3
Mg 279.078	Mg	185.21	ug/L	46.95	172.77	199.93	182.92
Mn 257.610	Mn	459.92	ug/L	17645.47	460.34	457.43	461.99
Mo 204.598	Mo	1.79	ug/L	-5.1	3.36	1.12	0.89
Na 589.592	Na	71.66	ug/L	677.04	68.53	73.46	72.98
Ni 231.604	Ni	7.66	ug/L	3.11	1.85	11.81	9.33
P 213.618	P	32.28	ug/L	5.94	40.05	24.56	32.23
Pb 220.353	Pb	80	ug/L	86.4	82.67	73.21	84.1
S 181.972	S	-128.14	ug/L	0.51	-155.51	-168.64	-60.29
Sb 206.834	Sb	-1.88	ug/L	3.97	-0.98	-0.95	-3.71
Se 196.026	Se	11.05	ug/L	-1.37	15.05	9.79	8.29
Sn 189.925	Sn	-6.53	ug/L	2.18	-8.72	-14.55	3.68
Sr 421.552	Sr	4.64	ug/L	1552.52	4.65	4.66	4.62
Ti 334.941	Ti	15.3	ug/L	2488.47	15.36	14.86	15.66
Tl 190.794	Tl	2.17	ug/L	-3.51	1.32	4.52	0.65
V 292.401	V	3.02	ug/L	-21.14	4.5	2.67	1.88
Zn 213.857	Zn	705.26	ug/L	3752.38	706.17	701.14	708.45

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30481174005\_2800x100****Analysis Time: 5/3/2022 2:15:36 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.97	Ratio	18678.05	0.98	0.99	0.95
Tb 360.044	360 Tb RAD	0.91	Ratio	3595.06	0.91	0.92	0.91
Ag 328.068	Ag	0.1	ug/L	-997.65	0.15	0.02	0.12
Al 396.152	Al	3250.22	ug/L	10664.35	3272.66	3239.14	3238.85
As 188.980	As	0.17	ug/L	1.51	-7.37	3.1	4.78
B 249.678	B	-2.56	ug/L	-2.64	-2.07	-3.44	-2.18
Ba 233.527	Ba	19.9	ug/L	180.83	19.86	20.72	19.11
Be 234.861	Be	0.01	ug/L	5.64	-0.04	-0.07	0.15
Ca 315.887	Ca	472.43	ug/L	608.94	473.45	472.08	471.74
Cd 214.439	Cd	-0.97	ug/L	0.29	-0.84	-0.53	-1.53
Co 228.615	Co	1.15	ug/L	0.88	1.28	1.88	0.29
Cr 267.716	Cr	5.2	ug/L	0.42	4.24	5.16	6.21
Cu 327.395	Cu	14.53	ug/L	-144.9	13.14	15.34	15.1
Fe 261.187	Fe	7391.85	ug/L	7653.97	7429.7	7368.39	7377.46
K 766.491	K	385.55	ug/L	1046.57	379.38	380.24	397.03
Li 670.783	Li	78.34	ug/L	4393.39	83.95	76.21	74.86
Mg 279.078	Mg	481.81	ug/L	168.84	496.5	477.57	471.35
Mn 257.610	Mn	24.29	ug/L	939.13	24.33	24.25	24.3
Mo 204.598	Mo	1.72	ug/L	-6.02	2.85	2	0.29
Na 589.592	Na	6.12	ug/L	61.96	6.31	6.54	5.49
Ni 231.604	Ni	7.05	ug/L	2.48	-3.33	9.8	14.68
P 213.618	P	33.72	ug/L	7.13	41.11	40.35	19.7
Pb 220.353	Pb	4760.2	ug/L	4749.54	4744.92	4698.31	4837.38
S 181.972	S	-151.67	ug/L	0.47	-477.37	7.73	14.61
Sb 206.834	Sb	8.77	ug/L	9.85	8.16	8.72	9.44
Se 196.026	Se	1.21	ug/L	-0.83	18.55	-4.06	-10.86
Sn 189.925	Sn	-32.58	ug/L	0.22	-61.23	-11.45	-25.05
Sr 421.552	Sr	3.64	ug/L	1194.73	3.66	3.6	3.66
Ti 334.941	Ti	8.48	ug/L	2182.7	8.53	8.32	8.59
Tl 190.794	Tl	0.42	ug/L	-3.33	-4.49	3.72	2.02
V 292.401	V	8.48	ug/L	15.45	9.22	8.19	8.01
Zn 213.857	Zn	17.41	ug/L	96.16	18.66	16.85	16.7



## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30483041001\_2855x100****Analysis Time: 5/3/2022 2:17:55 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.99	Ratio	19065.11	1	0.99	0.99
Tb 360.044	360 Tb RAD	0.87	Ratio	3424.89	0.88	0.82	0.9
Ag 328.068	Ag	-0.11	ug/L	-1005.88	0.19	0.02	-0.55
Al 396.152	Al	2282.58	ug/L	7477.76	2234.57	2433.23	2179.93
As 188.980	As	-3.08	ug/L	0.26	-9.94	-8.27	8.97
B 249.678	B	5.82	ug/L	26.64	5.91	7.42	4.12
Ba 233.527	Ba	23.35	ug/L	212.28	22.29	26.38	21.39
Be 234.861	Be	0.06	ug/L	6.88	0.12	-0.01	0.07
Ca 315.887	Ca	8532.37	ug/L	11343.25	8387.29	9065.29	8144.51
Cd 214.439	Cd	-0.76	ug/L	0.63	0.7	-2	-0.99
Co 228.615	Co	2.36	ug/L	3.15	1.94	1.61	3.53
Cr 267.716	Cr	-0.78	ug/L	-24.95	-1.2	-2.08	0.94
Cu 327.395	Cu	6.48	ug/L	-198.98	4.87	7.38	7.2
Fe 261.187	Fe	24.97	ug/L	32.93	25.21	28.74	20.97
K 766.491	K	1020.18	ug/L	1947.53	969.27	1123.65	967.63
Li 670.783	Li	85.14	ug/L	4511.53	79.3	101.62	74.52
Mg 279.078	Mg	2337.47	ug/L	861.3	2297.77	2481.89	2232.75
Mn 257.610	Mn	8.53	ug/L	332.65	8.34	9	8.25
Mo 204.598	Mo	1.78	ug/L	-6	3.18	1.32	0.83
Na 589.592	Na	28137.46	ug/L	254596.61	27622.3	29919.49	26870.6
Ni 231.604	Ni	2.03	ug/L	-0.33	0.2	8.83	-2.96
P 213.618	P	15.13	ug/L	2.34	-0.03	30.52	14.92
Pb 220.353	Pb	-2.49	ug/L	3.1	-4.1	-4.48	1.11
S 181.972	S	7620.1	ug/L	26.96	7275.08	8066.38	7518.85
Sb 206.834	Sb	1.09	ug/L	3.56	-2	6.59	-1.32
Se 196.026	Se	6.55	ug/L	1.43	1.63	6.79	11.22
Sn 189.925	Sn	-12.76	ug/L	1.74	-62.95	33.67	-8.99
Sr 421.552	Sr	125.45	ug/L	42418.48	122.78	133.64	119.93
Ti 334.941	Ti	0.49	ug/L	1820.85	0.29	0.2	0.99
Tl 190.794	Tl	-1.9	ug/L	-4.52	3.12	-8.24	-0.58
V 292.401	V	0.75	ug/L	-9.65	2.55	-2.59	2.27
Zn 213.857	Zn	10.49	ug/L	57.09	9.71	11.58	10.2

## Agilent 5110 ICP-OES Report

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**Sample: 30480605001\_2719x10****Analysis Time: 5/3/2022 2:20:15 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.94	Ratio	17994.54	0.94	0.94	0.94
Tb 360.044	360 Tb RAD	0.9	Ratio	3522.54	0.9	0.89	0.9
Ag 328.068	Ag	0.08	ug/L	-1000.03	0.34	-0.4	0.31
Al 396.152	Al	12882.81	ug/L	42171.01	12852.43	12963.96	12832.04
As 188.980	As	2.18	ug/L	2.33	6.14	-1.01	1.41
B 249.678	B	8.63	ug/L	33.88	5.33	11.73	8.83
Ba 233.527	Ba	37.64	ug/L	344.1	37	38.16	37.78
Be 234.861	Be	0.01	ug/L	4.73	-0.02	-0.01	0.05
Ca 315.887	Ca	61333.92	ug/L	81661.73	61209.09	61816.81	60975.87
Cd 214.439	Cd	-0.55	ug/L	1.56	-1.65	0.05	-0.03
Co 228.615	Co	-1.27	ug/L	-4.26	-4.61	-0.52	1.33
Cr 267.716	Cr	3.45	ug/L	-8.4	3.89	1.92	4.55
Cu 327.395	Cu	39.44	ug/L	23.78	38.96	40.85	38.52
Fe 261.187	Fe	886.42	ug/L	924.87	884.89	892.71	881.66
K 766.491	K	2752.21	ug/L	4403.03	2741.59	2775.13	2739.91
Li 670.783	Li	75.87	ug/L	4353.43	77.48	77.73	72.41
Mg 279.078	Mg	2122.32	ug/L	782.16	2135.19	2100.92	2130.86
Mn 257.610	Mn	83.55	ug/L	3205.32	83.3	83.85	83.49
Mo 204.598	Mo	1.12	ug/L	-6.69	0.08	2.18	1.11
Na 589.592	Na	669.2	ug/L	6088.07	668.43	669.91	669.27
Ni 231.604	Ni	0.09	ug/L	-2.19	-0.15	0.29	0.12
P 213.618	P	16858.08	ug/L	4439.39	16780.49	16964.29	16829.45
Pb 220.353	Pb	9.83	ug/L	15.58	13.62	5.55	10.33
S 181.972	S	2421.3	ug/L	9.27	2876.25	2364.89	2022.77
Sb 206.834	Sb	2.93	ug/L	5.33	2.74	2.79	3.28
Se 196.026	Se	7.6	ug/L	1.53	9.05	10.46	3.29
Sn 189.925	Sn	-4.45	ug/L	2.27	-19.79	8.38	-1.95
Sr 421.552	Sr	114.32	ug/L	38876.09	113.83	115.26	113.87
Ti 334.941	Ti	4.52	ug/L	1990.47	4.11	4.8	4.65
Tl 190.794	Tl	-1.48	ug/L	-3.82	-6.53	-1.24	3.33
V 292.401	V	4.11	ug/L	3.99	4.86	1.76	5.71
Zn 213.857	Zn	100.43	ug/L	535.36	99.51	101.48	100.29

## Agilent 5110 ICP-OES Report

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**Sample: CCV****Analysis Time: 5/3/2022 2:22:33 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.97	Ratio	18642.56	0.97	0.96	0.99
Tb 360.044	360 Tb RAD	0.91	Ratio	3582.06	0.91	0.91	0.91
Ag 328.068	Ag	1024.65	ug/L	38111.79	1027.81	1039.95	1006.19
Al 396.152	Al	10085.77	ug/L	33459.31	10130.61	9957.8	10168.89
As 188.980	As	1899.9	ug/L	751.64	1915.07	1906.22	1878.4
B 249.678	B	2124.24	ug/L	6088.98	2121.85	2118.16	2132.73
Ba 233.527	Ba	2137.11	ug/L	19482.17	2132.72	2134.38	2144.22
Be 234.861	Be	2023.26	ug/L	90298.52	2020.7	2007.67	2041.41
Ca 315.887	Ca	10384.96	ug/L	13811.63	10361.96	10371.15	10421.76
Cd 214.439	Cd	2113.19	ug/L	6639.52	2112.28	2107.4	2119.89
Co 228.615	Co	2142.58	ug/L	4227.77	2139.05	2138.99	2149.7
Cr 267.716	Cr	2085.68	ug/L	8731.52	2080.77	2076.75	2099.51
Cu 327.395	Cu	1993.23	ug/L	13139.85	1986.98	1989.42	2003.27
Fe 261.187	Fe	10317.57	ug/L	10682.87	10303.87	10290.88	10357.97
K 766.491	K	10173.39	ug/L	14752.82	10080.37	10198.42	10241.4
Li 670.783	Li	2114.28	ug/L	39384.14	2109.82	2108.14	2124.9
Mg 279.078	Mg	10496.62	ug/L	3901.02	10462.53	10476.59	10550.75
Mn 257.610	Mn	2089.45	ug/L	80105.05	2086.9	2065.01	2116.45
Mo 204.598	Mo	2043.25	ug/L	3740.69	2045.43	2073.2	2011.13
Na 589.592	Na	9902.54	ug/L	91665.82	9887.22	9883.03	9937.37
Ni 231.604	Ni	2148.96	ug/L	1139.72	2144.33	2139.33	2163.24
P 213.618	P	2070.6	ug/L	507.34	2058.99	2055.51	2097.31
Pb 220.353	Pb	2181.97	ug/L	2178.83	2185.55	2220.79	2139.57
S 181.972	S	10741.06	ug/L	37.38	10397.56	11248.15	10577.48
Sb 206.834	Sb	2008.45	ug/L	1586.9	2015.49	2035.61	1974.27
Se 196.026	Se	1895.93	ug/L	674.84	1896.49	1914.6	1876.68
Sn 189.925	Sn	2008.77	ug/L	158	1984.07	2021.27	2020.96
Sr 421.552	Sr	2037.11	ug/L	688871.5	2033.16	2032.53	2045.64
Ti 334.941	Ti	2045.97	ug/L	93996.28	2047.62	2017.89	2072.41
Tl 190.794	Tl	2072.4	ug/L	1221.6	2073.41	2102.93	2040.86
V 292.401	V	2045.97	ug/L	7123.43	2042.64	2043.39	2051.9
Zn 213.857	Zn	2067.08	ug/L	10951.19	2067.1	2055.95	2078.19

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

Sample: CCB

Analysis Time: 5/3/2022 2:24:53 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1	Ratio	19113.13	0.99	1	1
Tb 360.044	360 Tb RAD	0.9	Ratio	3553.56	0.91	0.9	0.9
Ag 328.068	Ag	0.2	ug/L	-993.33	0.31	0.52	-0.22
Al 396.152	Al	-1.6	ug/L	-3.35	-3.35	0.34	-1.78
As 188.980	As	2.36	ug/L	2.42	-4.71	7.31	4.48
B 249.678	B	1.36	ug/L	13.83	1.98	2.98	-0.89
Ba 233.527	Ba	-0.45	ug/L	-4.99	-0.83	0.33	-0.85
Be 234.861	Be	0.09	ug/L	8.03	0.11	0.11	0.05
Ca 315.887	Ca	-1.44	ug/L	-21.6	1.39	-4.73	-0.97
Cd 214.439	Cd	-0.68	ug/L	0.85	0.35	-0.92	-1.47
Co 228.615	Co	0.81	ug/L	0.15	3.64	-2.4	1.19
Cr 267.716	Cr	-0.36	ug/L	-23.02	-1.69	1.02	-0.41
Cu 327.395	Cu	1.61	ug/L	-231.88	2.45	-0.67	3.05
Fe 261.187	Fe	1.77	ug/L	8.61	2.62	1.78	0.91
K 766.491	K	79.51	ug/L	613.96	99.58	50.09	88.86
Li 670.783	Li	70.79	ug/L	4264.25	70.57	72.88	68.93
Mg 279.078	Mg	-19.02	ug/L	-16.65	-34.86	5.01	-27.2
Mn 257.610	Mn	-0.01	ug/L	5.32	-0.07	-0.08	0.12
Mo 204.598	Mo	0.05	ug/L	-9.27	0.64	0.14	-0.62
Na 589.592	Na	-2.99	ug/L	-40.29	-8.09	-0.23	-0.64
Ni 231.604	Ni	1.65	ug/L	-0.41	2.83	-0.41	2.52
P 213.618	P	5.56	ug/L	-0.09	-8.98	17.16	8.5
Pb 220.353	Pb	1.26	ug/L	6.81	7.15	-1.41	-1.96
S 181.972	S	-3.43	ug/L	0.98	220.69	-128.56	-102.4
Sb 206.834	Sb	1	ug/L	3.46	-4.68	5.94	1.72
Se 196.026	Se	8.17	ug/L	2.06	15.56	6.63	2.32
Sn 189.925	Sn	-26.25	ug/L	0.72	-25.81	-12.43	-40.51
Sr 421.552	Sr	0.03	ug/L	-29.51	0	0.05	0.05
Ti 334.941	Ti	-0.05	ug/L	1798.17	-0.18	0.04	-0.02
Tl 190.794	Tl	0.81	ug/L	-2.99	-3.14	2.26	3.32
V 292.401	V	0.71	ug/L	-10.2	1.17	1.14	-0.19
Zn 213.857	Zn	0.1	ug/L	1.64	-0.04	-0.2	0.54

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427569\_3037****Analysis Time: 5/3/2022 2:27:12 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.98	Ratio	18841.21	0.98	0.99	0.98
Tb 360.044	360 Tb RAD	0.91	Ratio	3588.25	0.91	0.92	0.91
Ag 328.068	Ag	-0.28	ug/L	-1011.38	-0.07	-0.67	-0.09
Al 396.152	Al	36.74	ug/L	121.98	40.37	31.49	38.36
As 188.980	As	1.3	ug/L	2	8.49	-0.96	-3.64
B 249.678	B	-1.64	ug/L	5.09	-3.73	-1.82	0.62
Ba 233.527	Ba	1.83	ug/L	15.86	1.22	2.07	2.22
Be 234.861	Be	-0.03	ug/L	2.83	-0.03	-0.05	-0.01
Ca 315.887	Ca	345.56	ug/L	440.5	346.81	340.06	349.81
Cd 214.439	Cd	-1.36	ug/L	-1.26	-0.31	-2.28	-1.5
Co 228.615	Co	0.35	ug/L	-0.72	0.95	0.24	-0.13
Cr 267.716	Cr	1.32	ug/L	-15.95	0.4	1.2	2.37
Cu 327.395	Cu	8.49	ug/L	-185.72	9.78	6.64	9.05
Fe 261.187	Fe	152.35	ug/L	164.42	149.74	149.66	157.65
K 766.491	K	131.19	ug/L	686.33	167.22	108.6	117.75
Li 670.783	Li	66.63	ug/L	4192.04	66.08	65.89	67.91
Mg 279.078	Mg	13.2	ug/L	-4.65	37.5	7.95	-5.86
Mn 257.610	Mn	3.8	ug/L	151.53	3.92	3.61	3.87
Mo 204.598	Mo	-0.03	ug/L	-9.42	-0.13	-1.16	1.2
Na 589.592	Na	99.05	ug/L	885.27	98.37	97.97	100.82
Ni 231.604	Ni	4.52	ug/L	1.11	2.98	9.19	1.4
P 213.618	P	17.89	ug/L	3.08	24.08	21.99	7.61
Pb 220.353	Pb	1.85	ug/L	7.41	2.39	3.89	-0.72
S 181.972	S	-8.83	ug/L	0.96	115.18	-437.26	295.59
Sb 206.834	Sb	6.06	ug/L	7.45	0.93	9.69	7.56
Se 196.026	Se	12.13	ug/L	3.45	11.99	17.42	6.98
Sn 189.925	Sn	22.77	ug/L	4.51	28.26	12.28	27.77
Sr 421.552	Sr	0.58	ug/L	157.9	0.6	0.58	0.56
Ti 334.941	Ti	1.27	ug/L	1857.65	1.66	1.44	0.7
Tl 190.794	Tl	-5.82	ug/L	-6.9	-7.96	-1	-8.49
V 292.401	V	-0.59	ug/L	-14.77	-1.39	-0.03	-0.35
Zn 213.857	Zn	44.67	ug/L	236.74	44.79	44.35	44.85

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427570\_3037****Analysis Time: 5/3/2022 2:29:31 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.97	Ratio	18554.09	0.96	0.97	0.97
Tb 360.044	360 Tb RAD	0.89	Ratio	3517.28	0.89	0.9	0.89
Ag 328.068	Ag	496.49	ug/L	17801.97	497.81	495.26	496.4
Al 396.152	Al	3773.02	ug/L	12635.16	3783.12	3742.87	3793.08
As 188.980	As	1740.78	ug/L	688.37	1737.21	1748.22	1736.92
B 249.678	B	2013.54	ug/L	5778.17	2017.93	1996.11	2026.58
Ba 233.527	Ba	2061.39	ug/L	18792.53	2067.59	2040.52	2076.07
Be 234.861	Be	502.48	ug/L	22429.6	504.39	498.63	504.43
Ca 315.887	Ca	41972.17	ug/L	55895.39	42006.15	41450.05	42460.29
Cd 214.439	Cd	1010.93	ug/L	3178.55	1017.91	997.92	1016.96
Co 228.615	Co	2094.83	ug/L	4133.13	2104.89	2072.09	2107.5
Cr 267.716	Cr	2066.88	ug/L	8652.5	2077.09	2045.91	2077.64
Cu 327.395	Cu	1985.33	ug/L	13087.25	1988.26	1969.82	1997.91
Fe 261.187	Fe	2212.8	ug/L	2298.97	2217.38	2194.58	2226.44
K 766.491	K	20247.82	ug/L	29053.75	20260.57	20105.38	20377.51
Li 670.783	Li	1693.88	ug/L	32147.94	1697.91	1680.65	1703.06
Mg 279.078	Mg	20823.58	ug/L	7749.39	20924.89	20606.08	20939.77
Mn 257.610	Mn	2089.14	ug/L	80086.33	2092	2064.49	2110.92
Mo 204.598	Mo	2001.56	ug/L	3664.04	2008.25	1995.52	2000.91
Na 589.592	Na	21065.66	ug/L	192599.44	21128.25	20912.32	21156.41
Ni 231.604	Ni	2097.11	ug/L	1111.85	2102.74	2091.8	2096.79
P 213.618	P	40222.04	ug/L	10559.61	40428.77	39822.68	40414.66
Pb 220.353	Pb	2060.12	ug/L	2057.57	2055.97	2056.86	2067.52
S 181.972	S	1602.73	ug/L	6.27	1328.27	1228.28	2251.65
Sb 206.834	Sb	1853	ug/L	1464.72	1848.88	1848.9	1861.23
Se 196.026	Se	1632.42	ug/L	580.98	1625.52	1636.23	1635.52
Sn 189.925	Sn	1612.24	ug/L	127.15	1634.02	1590.76	1611.94
Sr 421.552	Sr	2017.58	ug/L	682404.94	2028.43	1999.32	2025
Ti 334.941	Ti	2028.57	ug/L	93201.23	2025.51	2006.6	2053.6
Tl 190.794	Tl	1906.09	ug/L	1123.46	1914.34	1898.63	1905.29
V 292.401	V	2040.44	ug/L	7107.51	2045.72	2026.27	2049.33
Zn 213.857	Zn	2181.33	ug/L	11551.02	2188.13	2164.56	2191.29

## Agilent 5110 ICP-OES Report

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**Sample: 30470762001\_3037****Analysis Time: 5/3/2022 2:31:50 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.9	Ratio	17288.11	0.89	0.9	0.91
Tb 360.044	360 Tb RAD	0.86	Ratio	3389.26	0.86	0.87	0.85
Ag 328.068	Ag	2.23	ug/L	-1003.24	2.36	1.79	2.55
Al 396.152	Al	9255.75	ug/L	24802.88	9172.93	9281.92	9312.4
As 188.980	As	3.42	ug/L	3.44	7.59	-5.56	8.23
B 249.678	B	1322.8	ug/L	3776.44	1313.08	1315.72	1339.61
Ba 233.527	Ba	42.45	ug/L	486.86	40.46	42.49	44.41
Be 234.861	Be	0.4	ug/L	19.36	0.53	0.27	0.38
Ca 315.887	Ca	3433490.33	ug/L	4572635.14	3446170.96	3384774.55	3469525.49
Cd 214.439	Cd	-2.07	ug/L	11.99	-3.21	-1.78	-1.21
Co 228.615	Co	7.25	ug/L	-7.54	8.61	4.2	8.94
Cr 267.716	Cr	121.58	ug/L	401.18	121.4	119.44	123.9
Cu 327.395	Cu	22.49	ug/L	-6.24	20.2	20.99	26.29
Fe 261.187	Fe	3901.56	ug/L	4090.62	3882.88	3862.8	3959
K 766.491	K	13336.82	ug/L	19438.03	13246.99	13233.7	13529.76
Li 670.783	Li	195.83	ug/L	6528.61	197.06	191.48	198.97
Mg 279.078	Mg	13612.46	ug/L	5138.99	13586.79	13419.91	13830.7
Mn 257.610	Mn	665.39	ug/L	25570.52	662.42	659.19	674.56
Mo 204.598	Mo	13.24	ug/L	25.66	13.56	14.49	11.68
Na 589.592	Na	85377.38	ug/L	773046.14	84910.35	84400.21	86821.57
Ni 231.604	Ni	87.47	ug/L	-10.92	86.84	86.39	89.17
P 213.618	P	13695.82	ug/L	3596.06	13580.58	13596.77	13910.12
Pb 220.353	Pb	-24.69	ug/L	5.98	-21.86	-31.21	-21.01
S 181.972	S	406326	ug/L	1386.55	403657.16	401387.3	413933.53
Sb 206.834	Sb	6.97	ug/L	22.85	16.03	-2.62	7.51
Se 196.026	Se	42.16	ug/L	-0.35	42.79	35.35	48.33
Sn 189.925	Sn	70.26	ug/L	-0.18	125.78	120.6	-35.61
Sr 421.552	Sr	27684.69	ug/L	9377120.24	27533.82	27509.69	28010.56
Ti 334.941	Ti	281.71	ug/L	13629.03	279.64	279.67	285.84
Tl 190.794	Tl	-35.85	ug/L	4.35	-29.59	-34.19	-43.78
V 292.401	V	-10.65	ug/L	87.35	-10.52	-10.56	-10.88
Zn 213.857	Zn	287211.37	ug/L	1513450.2	289929.2	282040.77	289664.13

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427571\_3037****Analysis Time: 5/3/2022 2:34:10 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.89	Ratio	17053.72	0.89	0.89	0.89
Tb 360.044	360 Tb RAD	0.89	Ratio	3488.44	0.88	0.9	0.89
Ag 328.068	Ag	1.92	ug/L	-1008.36	2.03	1.69	2.05
Al 396.152	Al	6353.83	ug/L	15729.1	6387.11	6335.02	6339.37
As 188.980	As	15.6	ug/L	8.22	26.56	6.36	13.87
B 249.678	B	1134.99	ug/L	3240.55	1140.54	1118.74	1145.69
Ba 233.527	Ba	37.21	ug/L	430.93	38.63	37.17	35.82
Be 234.861	Be	0.31	ug/L	15.55	0.29	0.26	0.38
Ca 315.887	Ca	3186954.14	ug/L	4244303.43	3242200.24	3134136.23	3184525.96
Cd 214.439	Cd	-4.21	ug/L	4.03	-3.16	-7.24	-2.23
Co 228.615	Co	5.47	ug/L	-9.41	6.9	3.21	6.3
Cr 267.716	Cr	117.95	ug/L	392.96	121.99	112.24	119.63
Cu 327.395	Cu	14.05	ug/L	-69.8	13.67	15.44	13.05
Fe 261.187	Fe	3536.77	ug/L	3709.49	3561.31	3493.82	3555.18
K 766.491	K	12824.82	ug/L	18709.67	12943.21	12657.15	12874.11
Li 670.783	Li	176.55	ug/L	6187.25	177.63	171.78	180.24
Mg 279.078	Mg	13241.83	ug/L	4994.69	13403.68	13051.91	13269.9
Mn 257.610	Mn	597.36	ug/L	22959.22	602.44	590.14	599.5
Mo 204.598	Mo	15.53	ug/L	28.94	14.09	14.02	18.5
Na 589.592	Na	79074.39	ug/L	715969.62	79736.54	78109.17	79377.47
Ni 231.604	Ni	84.72	ug/L	-7.88	75.09	92.95	86.11
P 213.618	P	13081.62	ug/L	3435.15	13124.14	12938.06	13182.66
Pb 220.353	Pb	-25.68	ug/L	3.03	-26.35	-25.47	-25.21
S 181.972	S	386419.63	ug/L	1318.63	387530.62	380034.94	391693.32
Sb 206.834	Sb	-0.63	ug/L	15.68	-8.88	-0.2	7.2
Se 196.026	Se	47.25	ug/L	2.64	48.74	41.77	51.25
Sn 189.925	Sn	91.14	ug/L	2.1	78.74	92.79	101.9
Sr 421.552	Sr	25623.36	ug/L	8678836.24	25798.39	25282.46	25789.23
Ti 334.941	Ti	257.79	ug/L	12620.07	260.26	254.59	258.5
Tl 190.794	Tl	-40.27	ug/L	-0.59	-34.32	-43.38	-43.11
V 292.401	V	-8.39	ug/L	84.22	-9.99	-9.01	-6.15
Zn 213.857	Zn	263087.29	ug/L	1386330.38	267713.83	259147.17	262400.87



## Agilent 5110 ICP-OES Report

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**Sample: 30481063008\_3037****Analysis Time: 5/3/2022 2:36:28 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.84	Ratio	16085.49	0.83	0.84	0.85
Tb 360.044	360 Tb RAD	0.85	Ratio	3345.62	0.85	0.85	0.86
Ag 328.068	Ag	-7.84	ug/L	-313.92	-8.51	-7.72	-7.29
Al 396.152	Al	490969.77	ug/L	1606019.99	490808.44	492548.1	489552.75
As 188.980	As	2986.69	ug/L	1103.38	3017.83	2969.25	2973
B 249.678	B	1181.81	ug/L	1698.06	1192.09	1182.89	1170.43
Ba 233.527	Ba	6012.07	ug/L	54986.22	6019.72	6018.52	5997.98
Be 234.861	Be	4.59	ug/L	494.91	1.49	3.86	8.41
Ca 315.887	Ca	3039131.79	ug/L	4047321.19	3068597.35	3022654.48	3026143.55
Cd 214.439	Cd	3.49	ug/L	141.64	4.29	0.72	5.47
Co 228.615	Co	360.24	ug/L	805.12	367.33	351.96	361.44
Cr 267.716	Cr	31652.65	ug/L	132792.89	31736.28	31685.65	31536.03
Cu 327.395	Cu	4909.36	ug/L	32879.45	4915.92	4877.92	4934.24
Fe 261.187	Fe	1928749.42	ug/L	1995438.49	1931639.82	1934484.44	1920123.98
K 766.491	K	22717.01	ug/L	31760.2	22795.51	22671.26	22684.26
Li 670.783	Li	392.1	ug/L	9480.19	395.25	389.56	391.49
Mg 279.078	Mg	361287.83	ug/L	134350.94	362572.39	361201.39	360089.7
Mn 257.610	Mn	213319.87	ug/L	8164206.93	213617.09	213786.29	212556.24
Mo 204.598	Mo	287.71	ug/L	566.05	293.33	286.28	283.52
Na 589.592	Na	9341.33	ug/L	90963.36	9393.42	9334.83	9295.73
Ni 231.604	Ni	846.6	ug/L	407.51	841.88	846.89	851.02
P 213.618	P	13856.57	ug/L	3555.1	13957.46	13863.75	13748.49
Pb 220.353	Pb	2722.41	ug/L	2798.51	2759.05	2715.19	2692.97
S 181.972	S	167012.41	ug/L	567.9	169147.57	166264.07	165625.61
Sb 206.834	Sb	-166.31	ug/L	259.01	-174.04	-162.61	-162.29
Se 196.026	Se	182	ug/L	-46.81	163.49	191.08	191.42
Sn 189.925	Sn	172.91	ug/L	6.36	156.09	203.97	158.66
Sr 421.552	Sr	6408.38	ug/L	2181063.08	6429.25	6409.61	6386.28
Ti 334.941	Ti	22199.43	ug/L	1001244.58	22352.29	22104.94	22141.07
Tl 190.794	Tl	-0.37	ug/L	-2.94	0.64	-2.58	0.82
V 292.401	V	3591.84	ug/L	12069.48	3605.69	3592.55	3577.26
Zn 213.857	Zn	58783.13	ug/L	310959.98	58953.83	58846.37	58549.17

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**Sample: 2427572\_3037****Analysis Time: 5/3/2022 2:38:48 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.86	Ratio	16466.03	0.86	0.86	0.86
Tb 360.044	360 Tb RAD	0.88	Ratio	3447.41	0.88	0.86	0.89
Ag 328.068	Ag	-6.48	ug/L	-408.75	-6.45	-6.39	-6.6
Al 396.152	Al	674910.61	ug/L	2210292.2	671253.64	680788.27	672689.91
As 188.980	As	3517.82	ug/L	1355.14	3525.7	3528.63	3499.14
B 249.678	B	1185.66	ug/L	2620.16	1177.11	1195.27	1184.61
Ba 233.527	Ba	6846.75	ug/L	62537.29	6793.97	6939.03	6807.24
Be 234.861	Be	21.73	ug/L	1121.69	21.43	21.66	22.1
Ca 315.887	Ca	2500926.01	ug/L	3330553.76	2495431.02	2524805.59	2482541.44
Cd 214.439	Cd	25.89	ug/L	150.57	23.49	30.75	23.43
Co 228.615	Co	31.54	ug/L	161.87	30.63	33.4	30.58
Cr 267.716	Cr	14806.37	ug/L	62078.55	14687.67	15016.75	14714.68
Cu 327.395	Cu	4966.05	ug/L	33211	4923.48	5035.92	4938.76
Fe 261.187	Fe	961729.25	ug/L	995035.52	957036.85	973071.89	955079.01
K 766.491	K	53746.65	ug/L	75931.47	53313.41	54524.88	53401.67
Li 670.783	Li	477.82	ug/L	11124.72	474.73	483.81	474.94
Mg 279.078	Mg	468841.26	ug/L	174576.63	465484.85	474307.46	466731.47
Mn 257.610	Mn	184105.38	ug/L	7045662.9	183217.12	186208.34	182890.67
Mo 204.598	Mo	114.17	ug/L	240.42	107.42	121.97	113.11
Na 589.592	Na	14110.52	ug/L	134802.26	14003.35	14279.94	14048.26
Ni 231.604	Ni	344.59	ug/L	145.32	338.62	358.74	336.41
P 213.618	P	21244.88	ug/L	5514.05	21085.81	21459.93	21188.89
Pb 220.353	Pb	4821.56	ug/L	4861.53	4857.85	4820.91	4785.93
S 181.972	S	103858.34	ug/L	353.49	104818.56	103807.36	102949.11
Sb 206.834	Sb	-44.55	ug/L	148.17	-46.91	-49.39	-37.36
Se 196.026	Se	113.42	ug/L	-7.9	112.5	110.8	116.97
Sn 189.925	Sn	190.26	ug/L	9.87	161.3	179.6	229.88
Sr 421.552	Sr	5518.3	ug/L	1877372.21	5454.57	5601.71	5498.62
Ti 334.941	Ti	26388.42	ug/L	1189919.79	26118.16	26703.27	26343.81
Tl 190.794	Tl	7.65	ug/L	6.75	25.92	0.74	-3.71
V 292.401	V	2244.71	ug/L	7706.09	2227.75	2283.7	2222.69
Zn 213.857	Zn	96558.94	ug/L	509412.19	95776.96	97634.24	96265.62

## Agilent 5110 ICP-OES Report

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**Sample: 30485042002\_3037****Analysis Time: 5/3/2022 2:41:06 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.96	Ratio	18456.83	0.97	0.96	0.96
Tb 360.044	360 Tb RAD	0.95	Ratio	3754.47	0.94	0.94	0.99
Ag 328.068	Ag	-1.22	ug/L	-1036.45	-0.79	-1.52	-1.34
Al 396.152	Al	167597.07	ug/L	549813.16	170355.53	171466.33	160969.35
As 188.980	As	130.09	ug/L	50.63	122.22	131.22	136.82
B 249.678	B	59.04	ug/L	-80.96	59.76	57.27	60.09
Ba 233.527	Ba	886.72	ug/L	8098	899.04	907.29	853.82
Be 234.861	Be	2.12	ug/L	144.14	1.98	2.03	2.36
Ca 315.887	Ca	12058.08	ug/L	16012.41	12234.63	12341.02	11598.6
Cd 214.439	Cd	-2.56	ug/L	11.5	-2.52	-1.92	-3.24
Co 228.615	Co	126.4	ug/L	251.94	129.83	126.67	122.7
Cr 267.716	Cr	238.35	ug/L	983.6	241.93	242.11	231.01
Cu 327.395	Cu	73.83	ug/L	266.58	75.07	75.58	70.84
Fe 261.187	Fe	368747.03	ug/L	381490.65	373943.23	377453.46	354844.41
K 766.491	K	12169.75	ug/L	17691.22	12309.95	12481.16	11718.15
Li 670.783	Li	220	ug/L	6796.72	225.18	226.84	207.97
Mg 279.078	Mg	11801.8	ug/L	4334.55	11998.33	12069.29	11337.78
Mn 257.610	Mn	4911.27	ug/L	188115.04	4980.79	5024.18	4728.83
Mo 204.598	Mo	6.29	ug/L	12.07	6.84	5.63	6.39
Na 589.592	Na	978.53	ug/L	9708.98	992.8	1001.98	940.79
Ni 231.604	Ni	127.09	ug/L	67.13	128.24	126.48	126.54
P 213.618	P	2247.45	ug/L	586.49	2279.49	2293.04	2169.82
Pb 220.353	Pb	182.61	ug/L	189.79	186.17	189.78	171.88
S 181.972	S	1672.57	ug/L	6.62	1399.74	1794.48	1823.49
Sb 206.834	Sb	3.26	ug/L	18.26	7.73	2.74	-0.69
Se 196.026	Se	44.69	ug/L	-3.98	48.68	45.68	39.72
Sn 189.925	Sn	-2.92	ug/L	2.29	-56.54	-7.79	55.58
Sr 421.552	Sr	119.79	ug/L	40627.89	121.23	123.36	114.77
Ti 334.941	Ti	756.98	ug/L	35903.64	744.24	805.6	721.1
Tl 190.794	Tl	-3.03	ug/L	-10.24	-11.51	-0.61	3.02
V 292.401	V	418.72	ug/L	1377.48	419.73	427.88	408.53
Zn 213.857	Zn	338.66	ug/L	1942.32	344.27	346.57	325.14

## Agilent 5110 ICP-OES Report

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**Sample: 2428077\_3037****Analysis Time: 5/3/2022 2:43:26 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.99	Ratio	19039.48	0.99	1.02	0.97
Tb 360.044	360 Tb RAD	0.94	Ratio	3691.2	0.92	0.97	0.92
Ag 328.068	Ag	473.09	ug/L	16927.24	475.39	461.25	482.62
Al 396.152	Al	162952.08	ug/L	534807.91	165790.3	156817.96	166247.99
As 188.980	As	1676.41	ug/L	660.84	1689.85	1646.72	1692.67
B 249.678	B	1962.33	ug/L	5380.57	1997.46	1895.09	1994.44
Ba 233.527	Ba	2747.18	ug/L	25058.96	2799.62	2648.4	2793.51
Be 234.861	Be	439.84	ug/L	19677.54	448.57	420.8	450.15
Ca 315.887	Ca	49172.72	ug/L	65457.9	50365.5	47231.75	49920.92
Cd 214.439	Cd	924.02	ug/L	2921.57	942.75	888.63	940.68
Co 228.615	Co	2019.49	ug/L	3988.69	2056.16	1943.82	2058.48
Cr 267.716	Cr	2113.74	ug/L	8853.9	2154.89	2033.13	2153.2
Cu 327.395	Cu	1898.6	ug/L	12517.67	1932.68	1830.59	1932.53
Fe 261.187	Fe	354466.71	ug/L	366719.91	361443.92	341457.75	360498.46
K 766.491	K	30520.12	ug/L	43563.68	31118.09	29383.42	31058.85
Li 670.783	Li	2178.74	ug/L	40466.63	2220.59	2092.26	2223.36
Mg 279.078	Mg	30452.31	ug/L	11285.83	31090.52	29256.26	31010.13
Mn 257.610	Mn	6594.7	ug/L	252652.97	6722.15	6351.88	6710.08
Mo 204.598	Mo	1823.33	ug/L	3346.41	1832.9	1769.98	1867.12
Na 589.592	Na	19440.56	ug/L	178568.65	19817.75	18721.17	19782.78
Ni 231.604	Ni	2005.99	ug/L	1064.4	2049.28	1920.04	2048.66
P 213.618	P	38520.28	ug/L	10110.16	39260.36	37094.92	39205.55
Pb 220.353	Pb	2000	ug/L	1999.96	2006.66	1940.27	2053.06
S 181.972	S	3964.8	ug/L	14.26	4186.37	3176.26	4531.78
Sb 206.834	Sb	1710.37	ug/L	1364.48	1722.52	1651.78	1756.83
Se 196.026	Se	1510.34	ug/L	518.95	1518.04	1472.24	1540.74
Sn 189.925	Sn	1824.8	ug/L	143.4	1740.57	1775.76	1958.06
Sr 421.552	Sr	2007.43	ug/L	679110.41	2040.34	1936.59	2045.37
Ti 334.941	Ti	2695.21	ug/L	123232.39	2700.21	2552.77	2832.66
Tl 190.794	Tl	1703.77	ug/L	998.99	1714.54	1655.54	1741.24
V 292.401	V	2270.48	ug/L	7842.43	2311.49	2189.23	2310.73
Zn 213.857	Zn	2176.96	ug/L	11673.7	2218.49	2093.87	2218.51

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427573\_3037****Analysis Time: 5/3/2022 2:45:44 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.99	Ratio	19036.81	0.99	1	1
Tb 360.044	360 Tb RAD	0.95	Ratio	3744.64	0.94	0.97	0.94
Ag 328.068	Ag	517.73	ug/L	18618.72	520.81	517.1	515.29
Al 396.152	Al	308865.16	ug/L	1013517	313469.68	301459.79	311666.02
As 188.980	As	2751.64	ug/L	1084.71	2774.65	2744.01	2736.26
B 249.678	B	2019.13	ug/L	5222.79	2042.41	1965.76	2049.23
Ba 233.527	Ba	3324.13	ug/L	30335.87	3374.35	3233.17	3364.88
Be 234.861	Be	469.73	ug/L	21065.56	475.21	453.97	480
Ca 315.887	Ca	53964.65	ug/L	71815.52	54666.71	52580.9	54646.33
Cd 214.439	Cd	982.6	ug/L	3125.77	994.07	958.48	995.25
Co 228.615	Co	2184.38	ug/L	4318.1	2218.76	2115.1	2219.27
Cr 267.716	Cr	2465.56	ug/L	10336.39	2497.88	2401.61	2497.19
Cu 327.395	Cu	2131.95	ug/L	14099.82	2158.7	2076.52	2160.62
Fe 261.187	Fe	780495.33	ug/L	807462.29	792790.54	758493.17	790202.27
K 766.491	K	51702.21	ug/L	73534.39	52484.14	50267.92	52354.58
Li 670.783	Li	2022.75	ug/L	37733.66	2052.99	1965.6	2049.66
Mg 279.078	Mg	38299.43	ug/L	14143.23	38903.78	37237.41	38757.11
Mn 257.610	Mn	7786.69	ug/L	298488.03	7886.23	7576.6	7897.24
Mo 204.598	Mo	2026.58	ug/L	3729.63	2043.39	2019.01	2017.33
Na 589.592	Na	22178.17	ug/L	203909.53	22542.93	21546.99	22444.58
Ni 231.604	Ni	2214.57	ug/L	1176.56	2236.97	2160.99	2245.77
P 213.618	P	42991.64	ug/L	11280.76	43505.77	41913.59	43555.56
Pb 220.353	Pb	2256.27	ug/L	2258.19	2275.78	2254.81	2238.21
S 181.972	S	4462.01	ug/L	15.89	4858.02	3891.05	4636.96
Sb 206.834	Sb	1369.68	ug/L	1110.2	1377.96	1366.05	1365.02
Se 196.026	Se	1702.79	ug/L	563.95	1720.78	1695.5	1692.08
Sn 189.925	Sn	1494.58	ug/L	117.55	1487.99	1441.75	1553.99
Sr 421.552	Sr	2363.09	ug/L	799522.24	2394.82	2293.22	2401.23
Ti 334.941	Ti	3403.18	ug/L	155128.38	3474.28	3295.18	3440.09
Tl 190.794	Tl	1847.55	ug/L	1077.04	1843.61	1853.24	1845.8
V 292.401	V	2839.14	ug/L	9735.77	2875.26	2761.04	2881.11
Zn 213.857	Zn	2451.11	ug/L	13310.03	2486.44	2381.94	2484.94

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2428078\_3037****Analysis Time: 5/3/2022 2:48:04 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1	Ratio	19264.11	1	1	1.01
Tb 360.044	360 Tb RAD	0.96	Ratio	3795.05	0.96	0.97	0.96
Ag 328.068	Ag	94.87	ug/L	2593.73	95.62	95.32	93.66
Al 396.152	Al	58674.02	ug/L	192537.25	58637.53	58377.36	59007.19
As 188.980	As	538.61	ug/L	213.52	540.64	539.06	536.14
B 249.678	B	407.75	ug/L	1067.85	406.99	403.4	412.85
Ba 233.527	Ba	644.36	ug/L	5879.61	644.69	642.34	646.04
Be 234.861	Be	90.27	ug/L	4051.77	89.26	89.59	91.96
Ca 315.887	Ca	10498.16	ug/L	13955.22	10483.58	10456.45	10554.46
Cd 214.439	Cd	195.3	ug/L	623.44	197.41	195.46	193.02
Co 228.615	Co	435.27	ug/L	859.15	430.12	437.54	438.17
Cr 267.716	Cr	484.18	ug/L	2012.53	484.74	481.3	486.52
Cu 327.395	Cu	414.25	ug/L	2544.1	412.32	415.58	414.86
Fe 261.187	Fe	157147.76	ug/L	162582.74	156991.56	156475.03	157976.69
K 766.491	K	9867.15	ug/L	14438.18	9855.4	9838.38	9907.68
Li 670.783	Li	427.25	ug/L	10374.38	428.05	424.43	429.27
Mg 279.078	Mg	7398.44	ug/L	2724.45	7411.41	7364.26	7419.65
Mn 257.610	Mn	1521.92	ug/L	58343.45	1521.16	1513.5	1531.09
Mo 204.598	Mo	394.48	ug/L	718.38	396.96	397.13	389.36
Na 589.592	Na	4168.22	ug/L	38332.06	4161.96	4155.22	4187.47
Ni 231.604	Ni	441.28	ug/L	233.41	439.13	441.07	443.64
P 213.618	P	8335.76	ug/L	2186.01	8380.52	8267.54	8359.23
Pb 220.353	Pb	449.71	ug/L	454.53	452.79	449.48	446.88
S 181.972	S	637.9	ug/L	3.1	790.19	873.63	249.89
Sb 206.834	Sb	271.53	ug/L	222.15	269.85	274.48	270.24
Se 196.026	Se	351.21	ug/L	116.23	355.23	355.06	343.32
Sn 189.925	Sn	293.32	ug/L	25.28	270.29	324.26	285.41
Sr 421.552	Sr	449.83	ug/L	152162.41	449.24	447.86	452.39
Ti 334.941	Ti	634.4	ug/L	30383.26	625.51	637.93	639.75
Tl 190.794	Tl	365.51	ug/L	210.38	370.23	361.75	364.55
V 292.401	V	547.09	ug/L	1865.67	545.68	544.32	551.28
Zn 213.857	Zn	478.58	ug/L	2599.06	477.41	476.02	482.3

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCV****Analysis Time: 5/3/2022 2:50:23 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.03	Ratio	19697.82	1.02	1.03	1.04
Tb 360.044	360 Tb RAD	0.98	Ratio	3842.17	0.97	0.98	0.98
Ag 328.068	Ag	1016.7	ug/L	37815.58	1029.73	1016.23	1004.14
Al 396.152	Al	10337.8	ug/L	34283.7	10399.7	10276.72	10336.99
As 188.980	As	1860.84	ug/L	736.07	1900.93	1843.68	1837.93
B 249.678	B	2173.59	ug/L	6230.08	2182.28	2176.6	2161.87
Ba 233.527	Ba	2164.6	ug/L	19732.98	2176.2	2163.75	2153.86
Be 234.861	Be	2036.82	ug/L	90903.62	2052.66	2033.59	2024.21
Ca 315.887	Ca	10390.71	ug/L	13818.97	10447.95	10378.55	10345.64
Cd 214.439	Cd	2119.31	ug/L	6658.72	2137.89	2112.62	2107.41
Co 228.615	Co	2155.11	ug/L	4252.54	2162.23	2160.78	2142.3
Cr 267.716	Cr	2111.69	ug/L	8840.74	2123.85	2110.61	2100.6
Cu 327.395	Cu	2032.24	ug/L	13401.9	2040.55	2031.07	2025.09
Fe 261.187	Fe	10446.9	ug/L	10816.64	10502.7	10458.98	10379.01
K 766.491	K	10217.14	ug/L	14814.43	10270.93	10186.08	10194.41
Li 670.783	Li	2171.64	ug/L	40371.82	2179.52	2165.91	2169.48
Mg 279.078	Mg	10522.55	ug/L	3910.64	10587.99	10480.51	10499.17
Mn 257.610	Mn	2131.26	ug/L	81703.18	2144.27	2131.8	2117.72
Mo 204.598	Mo	2010.92	ug/L	3681.37	2036.16	2009.34	1987.25
Na 589.592	Na	9995.08	ug/L	92530.69	10034	9987.78	9963.46
Ni 231.604	Ni	2158.14	ug/L	1144.59	2160.28	2181.56	2132.59
P 213.618	P	2061.34	ug/L	504.49	2059.15	2054.72	2070.15
Pb 220.353	Pb	2161.2	ug/L	2158.14	2185.09	2163.62	2134.91
S 181.972	S	11253.99	ug/L	39.12	11007.16	11480.89	11273.91
Sb 206.834	Sb	1973.6	ug/L	1559.91	2004.23	1963.72	1952.87
Se 196.026	Se	1883.1	ug/L	670.24	1898.8	1891.38	1859.1
Sn 189.925	Sn	1974.21	ug/L	155.33	1970.95	1946.88	2004.79
Sr 421.552	Sr	2082.19	ug/L	704116.62	2085.47	2082	2079.1
Ti 334.941	Ti	2077.43	ug/L	95413.6	2093.54	2071.87	2066.87
Tl 190.794	Tl	2029.82	ug/L	1196.47	2056.33	2027.52	2005.62
V 292.401	V	2073.57	ug/L	7220.57	2080.36	2072.53	2067.84
Zn 213.857	Zn	2084.39	ug/L	11042.77	2096.52	2077.11	2079.54

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCB****Analysis Time: 5/3/2022 2:52:42 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.02	Ratio	19476.52	1.01	1.02	1.02
Tb 360.044	360 Tb RAD	0.97	Ratio	3803.2	0.97	0.97	0.97
Ag 328.068	Ag	-0.06	ug/L	-1003.33	-0.51	0.36	-0.01
Al 396.152	Al	-0.05	ug/L	1.98	4.41	-6.25	1.68
As 188.980	As	-5.16	ug/L	-0.56	-16.6	2.57	-1.45
B 249.678	B	12.71	ug/L	46.23	13.82	13.81	10.5
Ba 233.527	Ba	0.94	ug/L	7.66	0.61	1.43	0.77
Be 234.861	Be	-0.03	ug/L	2.64	-0.02	-0.01	-0.07
Ca 315.887	Ca	-0.96	ug/L	-20.97	1.92	-2.4	-2.41
Cd 214.439	Cd	-0.85	ug/L	0.31	-0.56	-1.52	-0.48
Co 228.615	Co	0.44	ug/L	-0.56	1.94	-0.63	0.02
Cr 267.716	Cr	-0.09	ug/L	-21.88	-1.02	-0.2	0.96
Cu 327.395	Cu	3.13	ug/L	-221.67	2.17	3.57	3.66
Fe 261.187	Fe	3.38	ug/L	10.28	2.39	3.36	4.39
K 766.491	K	50.09	ug/L	572.1	53.09	63.76	33.42
Li 670.783	Li	57.5	ug/L	4035.21	55.92	55.97	60.61
Mg 279.078	Mg	-4.33	ug/L	-11.19	-7.19	-12.83	7.03
Mn 257.610	Mn	0.43	ug/L	22.37	0.46	0.34	0.48
Mo 204.598	Mo	1.88	ug/L	-5.92	0.73	2.61	2.29
Na 589.592	Na	-0.58	ug/L	-17.17	-0.98	-0.65	-0.13
Ni 231.604	Ni	1.19	ug/L	-0.65	-3.03	1.17	5.44
P 213.618	P	9.94	ug/L	1.05	15.41	10.64	3.76
Pb 220.353	Pb	0.35	ug/L	5.9	-1.03	6.21	-4.15
S 181.972	S	-166.94	ug/L	0.42	-73.4	-646.72	219.31
Sb 206.834	Sb	-2.32	ug/L	0.83	-3.47	-7.14	3.65
Se 196.026	Se	2.89	ug/L	0.16	2.95	1.19	4.54
Sn 189.925	Sn	-28.72	ug/L	0.53	-37.1	-24.02	-25.05
Sr 421.552	Sr	0.09	ug/L	-10.03	0.13	0.07	0.07
Ti 334.941	Ti	0.1	ug/L	1805.3	0.11	0.22	-0.02
Tl 190.794	Tl	2.89	ug/L	-1.76	-4.15	7.01	5.82
V 292.401	V	2.1	ug/L	-5.36	3.86	1.48	0.96
Zn 213.857	Zn	1.17	ug/L	7.32	0.94	2.07	0.49



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2427574\_3037****Analysis Time: 5/3/2022 2:55:00 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.98	Ratio	18757.25	0.98	0.98	0.98
Tb 360.044	360 Tb RAD	0.95	Ratio	3752.36	0.96	0.95	0.95
Ag 328.068	Ag	528.38	ug/L	19027.51	528.59	529.59	526.96
Al 396.152	Al	298128.33	ug/L	978277.58	298950.06	296445.48	298989.45
As 188.980	As	1897.1	ug/L	747.46	1898.01	1905.71	1887.59
B 249.678	B	1991.8	ug/L	5441.96	1982.9	1983.72	2008.76
Ba 233.527	Ba	3335.46	ug/L	30424.39	3322.99	3334.75	3348.64
Be 234.861	Be	485.88	ug/L	21739.43	481.62	484.29	491.73
Ca 315.887	Ca	53027.71	ug/L	70573.17	53124.63	52847.23	53111.28
Cd 214.439	Cd	994.83	ug/L	3145.38	996.34	991.93	996.23
Co 228.615	Co	2267.36	ug/L	4478.77	2254.24	2260.23	2287.61
Cr 267.716	Cr	2370.21	ug/L	9931.08	2358.9	2368.57	2383.16
Cu 327.395	Cu	2028.12	ug/L	13391.12	2023.58	2023.48	2037.28
Fe 261.187	Fe	386094.93	ug/L	399441.95	384320.89	385733.94	388229.96
K 766.491	K	50956.02	ug/L	72519.53	50830.96	50836.02	51201.09
Li 670.783	Li	1972.2	ug/L	36906.18	1960.16	1969.13	1987.31
Mg 279.078	Mg	38185.9	ug/L	14161.49	38089.1	38049.12	38419.48
Mn 257.610	Mn	7998.74	ug/L	306406.92	7944.06	7995.11	8057.06
Mo 204.598	Mo	1958.42	ug/L	3599.42	1960.24	1965.12	1949.9
Na 589.592	Na	21660.34	ug/L	199231.94	21547.95	21660.05	21773.02
Ni 231.604	Ni	2200.34	ug/L	1167.4	2206.22	2189.46	2205.34
P 213.618	P	41452.51	ug/L	10879.54	41331.92	41285.68	41739.94
Pb 220.353	Pb	2282.84	ug/L	2279.86	2286.85	2286.84	2274.83
S 181.972	S	3412.19	ug/L	12.47	3893.44	3029.8	3313.34
Sb 206.834	Sb	1371.66	ug/L	1100	1359.86	1374.89	1380.23
Se 196.026	Se	1747.26	ug/L	601.62	1765.51	1742.75	1733.51
Sn 189.925	Sn	1462.44	ug/L	115.37	1386.51	1498.9	1501.91
Sr 421.552	Sr	2330.12	ug/L	788281.46	2318.11	2326.57	2345.69
Ti 334.941	Ti	3170.37	ug/L	144644.75	3213.94	3132.13	3165.04
Tl 190.794	Tl	1902.56	ug/L	1116.36	1910.03	1905.3	1892.34
V 292.401	V	2533.28	ug/L	8755.03	2519.97	2536.44	2543.42
Zn 213.857	Zn	2369.49	ug/L	12710.34	2360.69	2362.83	2384.95

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30485094001\_3037****Analysis Time: 5/3/2022 2:57:18 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.01	Ratio	19400.22	1.02	1.01	1.01
Tb 360.044	360 Tb RAD	0.98	Ratio	3834.9	0.97	0.98	0.97
Ag 328.068	Ag	10.81	ug/L	-552	10.64	11.1	10.71
Al 396.152	Al	58848.35	ug/L	192996.72	59067.05	58249.34	59228.66
As 188.980	As	38.1	ug/L	15.08	28.06	45.18	41.06
B 249.678	B	150.17	ug/L	365.46	148.69	148.49	153.34
Ba 233.527	Ba	2245.64	ug/L	20481.67	2250.69	2222.23	2264
Be 234.861	Be	1.36	ug/L	78.5	1.21	1.77	1.09
Ca 315.887	Ca	85064.8	ug/L	113259.87	85592.79	84458.19	85143.42
Cd 214.439	Cd	4.63	ug/L	22.71	5.03	3.88	4.98
Co 228.615	Co	40.48	ug/L	78.53	42.02	38.39	41.02
Cr 267.716	Cr	200.89	ug/L	822.02	202.02	200.18	200.45
Cu 327.395	Cu	1719.3	ug/L	11308.11	1726.63	1700.2	1731.06
Fe 261.187	Fe	105463.72	ug/L	109117.26	105781.85	104558.43	106050.87
K 766.491	K	19492.06	ug/L	28082.32	19560.54	19330.77	19584.88
Li 670.783	Li	110.83	ug/L	4932.48	110.18	109.41	112.89
Mg 279.078	Mg	23326.24	ug/L	8668.69	23433.64	23091.95	23453.12
Mn 257.610	Mn	10632.1	ug/L	406913.81	10669.77	10535.45	10691.07
Mo 204.598	Mo	47.99	ug/L	81.81	46.6	49.71	47.67
Na 589.592	Na	3929.31	ug/L	37714.19	3943.98	3890.55	3953.41
Ni 231.604	Ni	136.67	ug/L	70.26	139.2	138.38	132.42
P 213.618	P	74999.1	ug/L	19737.38	75251.89	74304.95	75440.46
Pb 220.353	Pb	245.57	ug/L	253.02	240.85	247.62	248.24
S 181.972	S	50391.17	ug/L	172.54	50459.6	49472.46	51241.43
Sb 206.834	Sb	25.02	ug/L	28.19	22.39	23.79	28.88
Se 196.026	Se	35.69	ug/L	6.94	14.98	49.22	42.87
Sn 189.925	Sn	190.83	ug/L	17.12	210.07	177.5	184.93
Sr 421.552	Sr	555.02	ug/L	188041.71	557.68	549.8	557.59
Ti 334.941	Ti	455.21	ug/L	22291.6	457.17	450.77	457.69
Tl 190.794	Tl	2.04	ug/L	-1.96	7.83	1.41	-3.12
V 292.401	V	106.93	ug/L	342.36	106.95	106.43	107.41
Zn 213.857	Zn	3479.66	ug/L	18389.4	3490.67	3447.7	3500.61

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

Sample: 2424773\_3024

Analysis Time: 5/3/2022 2:59:37 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	0.99	Ratio	19010.68	0.99	0.99	1
Tb 360.044	360 Tb RAD	0.95	Ratio	3731.79	0.96	0.94	0.95
Ag 328.068	Ag	0.19	ug/L	-993.57	0.18	0.08	0.32
Al 396.152	Al	113.45	ug/L	373.09	112.25	108.07	120.03
As 188.980	As	-2.66	ug/L	0.43	-11.02	7.48	-4.45
B 249.678	B	15.1	ug/L	53.01	14.7	13.02	17.59
Ba 233.527	Ba	1.5	ug/L	12.82	1.37	1.31	1.82
Be 234.861	Be	0.02	ug/L	5.2	-0.03	0.06	0.05
Ca 315.887	Ca	634.74	ug/L	825.62	632.89	639.74	631.59
Cd 214.439	Cd	-0.64	ug/L	1.01	-0.65	-0.56	-0.7
Co 228.615	Co	-0.04	ug/L	-1.48	-0.83	-0.09	0.79
Cr 267.716	Cr	0.88	ug/L	-17.83	1.66	0.38	0.59
Cu 327.395	Cu	5.12	ug/L	-208.32	5.66	3.43	6.29
Fe 261.187	Fe	244.96	ug/L	260.24	247.23	243.64	244
K 766.491	K	190.26	ug/L	769.78	161.85	223.72	185.2
Li 670.783	Li	63.07	ug/L	4130.64	61.19	65.1	62.91
Mg 279.078	Mg	71.45	ug/L	17.07	82.38	71.62	60.36
Mn 257.610	Mn	44.01	ug/L	1690.15	44	43.69	44.34
Mo 204.598	Mo	-0.65	ug/L	-10.56	-2	-0.28	0.33
Na 589.592	Na	136.82	ug/L	1226.67	134.9	136.99	138.56
Ni 231.604	Ni	5.43	ug/L	1.59	8.13	0.88	7.28
P 213.618	P	28.23	ug/L	5.86	36.89	21.9	25.89
Pb 220.353	Pb	2.12	ug/L	7.68	-0.25	-0.17	6.76
S 181.972	S	-89.12	ug/L	0.68	-487.04	357.69	-138
Sb 206.834	Sb	5.5	ug/L	7	3.93	4.69	7.89
Se 196.026	Se	6.78	ug/L	1.54	4.3	5.53	10.52
Sn 189.925	Sn	15.75	ug/L	3.97	50.99	3.84	-7.57
Sr 421.552	Sr	0.71	ug/L	201.14	0.72	0.69	0.71
Ti 334.941	Ti	4.79	ug/L	2016.37	4.06	4.56	5.75
Tl 190.794	Tl	-1.73	ug/L	-4.49	-4.73	-1.15	0.68
V 292.401	V	-0.32	ug/L	-13.79	-0.23	0.81	-1.55
Zn 213.857	Zn	35.68	ug/L	189.37	35.35	35.79	35.9

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30484488001\_3024x10****Analysis Time: 5/3/2022 3:01:56 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.01	Ratio	19302.29	1	1.01	1.01
Tb 360.044	360 Tb RAD	0.95	Ratio	3754.25	0.96	0.95	0.95
Ag 328.068	Ag	0.04	ug/L	-1004.32	-0.16	0.54	-0.26
Al 396.152	Al	16004.67	ug/L	52064.47	15890.35	16244.42	15879.23
As 188.980	As	5.93	ug/L	3.58	4.49	8.05	5.24
B 249.678	B	9.35	ug/L	13.57	9.6	11.13	7.31
Ba 233.527	Ba	109.42	ug/L	1006.52	109.01	109.48	109.78
Be 234.861	Be	-0.07	ug/L	6.13	-0.13	-0.06	-0.02
Ca 315.887	Ca	289336.45	ug/L	385310.77	287810.09	293160.28	287038.99
Cd 214.439	Cd	-0.7	ug/L	3.44	-1.39	0.19	-0.89
Co 228.615	Co	9	ug/L	15.72	9.07	9.19	8.73
Cr 267.716	Cr	13.55	ug/L	29.47	12.93	13.45	14.28
Cu 327.395	Cu	28.72	ug/L	-42.91	30.02	27.68	28.47
Fe 261.187	Fe	29884.41	ug/L	30936.39	29778.28	30110.99	29763.97
K 766.491	K	3765.82	ug/L	5838.93	3729.06	3834.24	3734.15
Li 670.783	Li	81.61	ug/L	4448.38	80.35	83.27	81.2
Mg 279.078	Mg	115261.5	ug/L	42925.36	115005.14	115979.21	114800.15
Mn 257.610	Mn	349.37	ug/L	13399.94	348.39	353	346.72
Mo 204.598	Mo	0.16	ug/L	-7.13	0.73	-1.38	1.14
Na 589.592	Na	289.11	ug/L	2755.03	285.33	294.04	287.95
Ni 231.604	Ni	22.03	ug/L	6.97	18.95	18.18	28.97
P 213.618	P	257.98	ug/L	64.84	262.46	262.66	248.82
Pb 220.353	Pb	47.94	ug/L	56.04	46.12	42.17	55.54
S 181.972	S	1716	ug/L	6.91	1856.76	1774.93	1516.3
Sb 206.834	Sb	4.22	ug/L	7.92	2.84	14.75	-4.94
Se 196.026	Se	15.43	ug/L	1.33	23.71	16.89	5.68
Sn 189.925	Sn	27.06	ug/L	3.92	42.91	10.2	28.06
Sr 421.552	Sr	148.13	ug/L	51273.66	147.46	149.32	147.61
Ti 334.941	Ti	110.26	ug/L	6696.9	109.62	112.19	108.95
Tl 190.794	Tl	2.86	ug/L	-0.36	-0.79	1.29	8.09
V 292.401	V	33.82	ug/L	114.66	32.6	33.06	35.8
Zn 213.857	Zn	152.97	ug/L	844.76	152.61	154.61	151.68

## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 30483296001\_3025x10****Analysis Time: 5/3/2022 3:04:16 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1	Ratio	19097	0.99	1	1
Tb 360.044	360 Tb RAD	0.96	Ratio	3790.87	0.96	0.97	0.96
Ag 328.068	Ag	3.16	ug/L	-889.05	3.05	3.1	3.33
Al 396.152	Al	9926.19	ug/L	32555.26	10017.48	9774.04	9987.03
As 188.980	As	66.98	ug/L	20.85	56.76	71.44	72.75
B 249.678	B	113.72	ug/L	-588.58	108.43	119.14	113.58
Ba 233.527	Ba	1115.99	ug/L	10222.74	1126.46	1107.94	1113.57
Be 234.861	Be	-1.79	ug/L	69.64	-1.09	-1.78	-2.51
Ca 315.887	Ca	66236.16	ug/L	88179.64	66693.46	65472.26	66542.77
Cd 214.439	Cd	-3.14	ug/L	51.76	-2.68	-3.63	-3.12
Co 228.615	Co	60.34	ug/L	122.62	63.05	60.38	57.59
Cr 267.716	Cr	738.07	ug/L	3091.57	744.68	734.6	734.93
Cu 327.395	Cu	1267.97	ug/L	8309.98	1279.9	1257.86	1266.16
Fe 261.187	Fe	1208799.74	ug/L	1250551.36	1218532.83	1202155.22	1205711.16
K 766.491	K	1653.18	ug/L	2704.51	1669.79	1644.82	1644.94
Li 670.783	Li	142.36	ug/L	5362.72	144.1	139.44	143.55
Mg 279.078	Mg	3930.7	ug/L	1268.71	3953.27	3871.14	3967.68
Mn 257.610	Mn	3283.83	ug/L	126277.2	3312.68	3255.34	3283.46
Mo 204.598	Mo	219.4	ug/L	408.48	219.87	223.92	214.41
Na 589.592	Na	470.3	ug/L	5337.08	477.03	466.81	467.05
Ni 231.604	Ni	380.62	ug/L	204.82	387.89	372.51	381.45
P 213.618	P	882.69	ug/L	206.62	881.71	887.8	878.58
Pb 220.353	Pb	6.36	ug/L	28.22	11.48	-0.12	7.72
S 181.972	S	153334.8	ug/L	522.84	154130	151564.74	154309.67
Sb 206.834	Sb	1.04	ug/L	46.35	-6.7	4.04	5.78
Se 196.026	Se	90.68	ug/L	-35.57	88.53	92.21	91.31
Sn 189.925	Sn	12.55	ug/L	2.52	10.28	4.55	22.82
Sr 421.552	Sr	2668.03	ug/L	902741.53	2693.63	2650.52	2659.94
Ti 334.941	Ti	132.76	ug/L	7754.68	133.35	132.22	132.71
Tl 190.794	Tl	4.55	ug/L	-20.32	-7.22	1.24	19.63
V 292.401	V	61.36	ug/L	-83.12	59.89	60.27	63.92
Zn 213.857	Zn	462.12	ug/L	2976.97	468.64	456.57	461.16

## Agilent 5110 ICP-OES Report

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**Sample: 30484190001\_3025x10****Analysis Time: 5/3/2022 3:06:35 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20050.3	1.05	1.05	1.04
Tb 360.044	360 Tb RAD	0.98	Ratio	3842.09	0.97	0.98	0.98
Ag 328.068	Ag	-0.29	ug/L	-1007.39	-0.4	0.02	-0.48
Al 396.152	Al	7586.62	ug/L	24823.73	7587.4	7565.67	7606.8
As 188.980	As	5.72	ug/L	3.57	14.64	0.38	2.15
B 249.678	B	43.15	ug/L	122.16	41.91	41.64	45.9
Ba 233.527	Ba	155.65	ug/L	1420.24	155.16	156.24	155.56
Be 234.861	Be	0.1	ug/L	10.41	0.12	0.06	0.11
Ca 315.887	Ca	46699.27	ug/L	62172.4	46569.35	46589.3	46939.17
Cd 214.439	Cd	0.72	ug/L	6.19	1.27	0.93	-0.03
Co 228.615	Co	7.84	ug/L	14.08	7.23	7.62	8.69
Cr 267.716	Cr	25.9	ug/L	86.31	25.66	25.48	26.57
Cu 327.395	Cu	32.85	ug/L	-20.45	33.35	33.15	32.06
Fe 261.187	Fe	15940.51	ug/L	16499.06	15939.61	15892.32	15989.59
K 766.491	K	4040.49	ug/L	6224.04	4048.68	3990.95	4081.85
Li 670.783	Li	68.62	ug/L	4225.59	69.94	69.07	66.86
Mg 279.078	Mg	5883.49	ug/L	2181.07	5889.84	5887.15	5873.47
Mn 257.610	Mn	1320.46	ug/L	50544.29	1314.02	1318.42	1328.94
Mo 204.598	Mo	4.46	ug/L	-0.64	5.06	4.88	3.42
Na 589.592	Na	529.19	ug/L	4932.91	526.79	529.96	530.82
Ni 231.604	Ni	17.1	ug/L	7.16	10.17	19.29	21.85
P 213.618	P	1455.66	ug/L	381.29	1451.25	1444.82	1470.92
Pb 220.353	Pb	27.18	ug/L	33.26	26.4	22.78	32.36
S 181.972	S	1964.13	ug/L	7.68	2091.45	2283.12	1517.82
Sb 206.834	Sb	-2.6	ug/L	1.52	-2.87	-5.21	0.29
Se 196.026	Se	-0.06	ug/L	-1.78	4.58	-9.18	4.42
Sn 189.925	Sn	8.99	ug/L	3.32	-0.06	27.29	-0.25
Sr 421.552	Sr	116.73	ug/L	39633.38	116.95	116.3	116.93
Ti 334.941	Ti	79.66	ug/L	5378.57	79.72	79.17	80.1
Tl 190.794	Tl	-2.99	ug/L	-4.99	-4.3	-1.87	-2.8
V 292.401	V	22.85	ug/L	65.94	23.39	23.15	22.01
Zn 213.857	Zn	116.49	ug/L	625.47	116.1	116.41	116.97

## Agilent 5110 ICP-OES Report

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**Sample: 30479668001\_3026x10****Analysis Time: 5/3/2022 3:08:54 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.03	Ratio	19769.53	1.03	1.02	1.03
Tb 360.044	360 Tb RAD	1	Ratio	3915.66	0.99	1	1
Ag 328.068	Ag	-0.34	ug/L	-1017.01	-0.3	-0.23	-0.48
Al 396.152	Al	-136.57	ug/L	-640.05	-140.81	-133.74	-135.15
As 188.980	As	-1.85	ug/L	0.78	-3.06	-0.33	-2.17
B 249.678	B	4.86	ug/L	23.13	4.74	5.78	4.06
Ba 233.527	Ba	23.54	ug/L	217.29	23.62	23.08	23.92
Be 234.861	Be	-0.08	ug/L	0.31	-0.1	-0.08	-0.07
Ca 315.887	Ca	128517.59	ug/L	171137.63	129863.99	126833.03	128855.76
Cd 214.439	Cd	-0.28	ug/L	2.66	-1.92	0.76	0.32
Co 228.615	Co	3.25	ug/L	4.2	0.88	4.81	4.06
Cr 267.716	Cr	-1.12	ug/L	-29.28	-2.84	1.14	-1.66
Cu 327.395	Cu	5.46	ug/L	-203.09	5.24	5	6.12
Fe 261.187	Fe	10.9	ug/L	19.87	9.19	6.7	16.79
K 766.491	K	417.71	ug/L	1094.12	445.53	394.28	413.33
Li 670.783	Li	55.65	ug/L	4006.97	56.97	54.69	55.27
Mg 279.078	Mg	2158.28	ug/L	797.1	2149.16	2142.63	2183.06
Mn 257.610	Mn	92.98	ug/L	3567.65	93.93	92.25	92.75
Mo 204.598	Mo	4.62	ug/L	-0.53	2.74	6.29	4.83
Na 589.592	Na	156.25	ug/L	1442.24	157.12	156.69	154.95
Ni 231.604	Ni	-4.89	ug/L	-5.84	-1.25	2.7	-16.13
P 213.618	P	4.62	ug/L	-0.77	11.14	-8.96	11.69
Pb 220.353	Pb	-0.85	ug/L	5.61	-4.51	-0.35	2.3
S 181.972	S	41003.63	ug/L	140.73	40659.76	40504.08	41847.04
Sb 206.834	Sb	3.94	ug/L	6.23	5.18	8.91	-2.26
Se 196.026	Se	12.79	ug/L	3.19	11.97	13.59	12.8
Sn 189.925	Sn	13.34	ug/L	3.48	38.04	-10.86	12.84
Sr 421.552	Sr	403.63	ug/L	136986.6	406.17	400.93	403.79
Ti 334.941	Ti	-0.29	ug/L	1757.21	-0.13	-0.34	-0.41
Tl 190.794	Tl	-2.62	ug/L	-3.99	-3.79	-4.49	0.42
V 292.401	V	2.42	ug/L	0.6	1.11	0.51	5.65
Zn 213.857	Zn	0.35	ug/L	12.2	0.09	0.73	0.24

## Agilent 5110 ICP-OES Report

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**Sample: 30479668001\_3026x100****Analysis Time: 5/3/2022 3:11:14 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.03	Ratio	19691.52	1.03	1.03	1.03
Tb 360.044	360 Tb RAD	0.98	Ratio	3859.45	0.98	0.98	0.98
Ag 328.068	Ag	0.31	ug/L	-989.78	0.18	0.42	0.33
Al 396.152	Al	-22.22	ug/L	-90.67	-23.55	-19.64	-23.46
As 188.980	As	-5.83	ug/L	-0.82	-9.99	0.95	-8.45
B 249.678	B	3.59	ug/L	20.15	4.42	2.01	4.36
Ba 233.527	Ba	2.17	ug/L	19.23	1.77	2.34	2.39
Be 234.861	Be	0.06	ug/L	6.62	0.07	-0.02	0.12
Ca 315.887	Ca	13258.48	ug/L	17637.71	13181.13	13224.53	13369.79
Cd 214.439	Cd	-0.56	ug/L	1.3	0.15	-1.6	-0.22
Co 228.615	Co	1	ug/L	0.45	1.84	1.88	-0.74
Cr 267.716	Cr	0.33	ug/L	-20.43	1.89	0.12	-1.01
Cu 327.395	Cu	1.9	ug/L	-229.64	3.57	1.13	1.01
Fe 261.187	Fe	2.08	ug/L	9.13	1.87	3.47	0.92
K 766.491	K	62.53	ug/L	589.52	55.59	61.11	70.91
Li 670.783	Li	59.04	ug/L	4061.91	59.04	57.44	60.63
Mg 279.078	Mg	222.38	ug/L	73.56	220.25	220.3	226.58
Mn 257.610	Mn	9.8	ug/L	381.34	9.72	9.71	9.97
Mo 204.598	Mo	2.33	ug/L	-5.06	5.38	0.73	0.89
Na 589.592	Na	16.93	ug/L	144.43	17.88	14.28	18.64
Ni 231.604	Ni	-0.86	ug/L	-1.94	2.56	2.51	-7.66
P 213.618	P	3.2	ug/L	-0.75	4.42	-5.27	10.46
Pb 220.353	Pb	-3.85	ug/L	1.81	-1.84	-6.5	-3.2
S 181.972	S	4045.18	ug/L	14.78	4270.68	3989.86	3875
Sb 206.834	Sb	0.29	ug/L	2.92	1.62	1.71	-2.46
Se 196.026	Se	7.01	ug/L	1.58	16.24	0.75	4.05
Sn 189.925	Sn	2.19	ug/L	2.89	-7.15	8.86	4.85
Sr 421.552	Sr	41.61	ug/L	14083.97	41.38	41.5	41.94
Ti 334.941	Ti	0.36	ug/L	1813.9	0.25	0.22	0.63
Tl 190.794	Tl	-2.4	ug/L	-4.78	-4.13	-2.16	-0.92
V 292.401	V	0.6	ug/L	-10.11	-0.24	1.57	0.47
Zn 213.857	Zn	1.67	ug/L	10.85	2.01	1.22	1.77



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2416374\_3026x10****Analysis Time: 5/3/2022 3:13:33 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.04	Ratio	19884.79	1.04	1.03	1.04
Tb 360.044	360 Tb RAD	0.99	Ratio	3907.44	0.99	1	1
Ag 328.068	Ag	-0.04	ug/L	-1005.46	0	0.08	-0.19
Al 396.152	Al	-142.49	ug/L	-658.33	-140.76	-143.26	-143.44
As 188.980	As	0.21	ug/L	1.6	-3.02	4.06	-0.4
B 249.678	B	3.44	ug/L	19.15	3.59	2.21	4.54
Ba 233.527	Ba	22.67	ug/L	209.36	23.18	22.83	22.01
Be 234.861	Be	0.02	ug/L	5.03	-0.03	-0.02	0.11
Ca 315.887	Ca	127421.93	ug/L	169678.42	127618.1	126481.29	128166.4
Cd 214.439	Cd	-1.01	ug/L	0.35	-0.91	-1.07	-1.07
Co 228.615	Co	1.42	ug/L	0.59	2.84	0.61	0.81
Cr 267.716	Cr	-2.42	ug/L	-34.73	-1.73	-3.13	-2.4
Cu 327.395	Cu	5.39	ug/L	-203.52	4.42	5.55	6.22
Fe 261.187	Fe	4.54	ug/L	13.29	-0.36	12.11	1.88
K 766.491	K	441.85	ug/L	1128.56	450.72	431.79	443.04
Li 670.783	Li	56.24	ug/L	4017.23	56.91	53.36	58.43
Mg 279.078	Mg	2226.54	ug/L	822.52	2248.47	2234.51	2196.65
Mn 257.610	Mn	87.15	ug/L	3344.5	88	87.11	86.35
Mo 204.598	Mo	2.03	ug/L	-5.27	1.12	3.93	1.05
Na 589.592	Na	170.23	ug/L	1567.63	172.57	169.49	168.62
Ni 231.604	Ni	-1.74	ug/L	-4.15	-12.49	7.75	-0.49
P 213.618	P	2.35	ug/L	-1.35	1.65	-0.79	6.17
Pb 220.353	Pb	-4.72	ug/L	1.74	1.07	-3.05	-12.19
S 181.972	S	40292.47	ug/L	138.31	40856.77	39969.62	40051.03
Sb 206.834	Sb	-1.68	ug/L	1.79	-5.12	2.12	-2.04
Se 196.026	Se	4.38	ug/L	0.19	2.23	7.94	2.97
Sn 189.925	Sn	-32.88	ug/L	-0.09	-60.65	-1.23	-36.77
Sr 421.552	Sr	407.05	ug/L	138139.39	409.63	406.31	405.21
Ti 334.941	Ti	-0.5	ug/L	1747.89	-0.45	-0.46	-0.61
Tl 190.794	Tl	-3.1	ug/L	-4.28	-4.14	-2.82	-2.34
V 292.401	V	4.29	ug/L	7.15	5.48	5.55	1.83
Zn 213.857	Zn	0.74	ug/L	14.19	0.36	1.17	0.7

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: 2416374\_3026x100****Analysis Time: 5/3/2022 3:15:53 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.02	Ratio	19581.22	1.05	1.05	0.97
Tb 360.044	360 Tb RAD	0.99	Ratio	3884.02	0.99	0.99	0.98
Ag 328.068	Ag	-0.33	ug/L	-1013.79	-0.21	-0.35	-0.42
Al 396.152	Al	-20.7	ug/L	-85.57	-18.11	-20.29	-23.7
As 188.980	As	-1.66	ug/L	0.84	-3.33	0.01	-1.64
B 249.678	B	4.26	ug/L	22.08	6.04	4.31	2.45
Ba 233.527	Ba	2.38	ug/L	21.18	2.64	2.22	2.29
Be 234.861	Be	-0.03	ug/L	2.78	-0.03	0	-0.05
Ca 315.887	Ca	12981.22	ug/L	17268.45	12799.29	12968.27	13176.1
Cd 214.439	Cd	-1.08	ug/L	-0.35	-1.05	-1.31	-0.89
Co 228.615	Co	0.19	ug/L	-1.13	0.29	0.39	-0.1
Cr 267.716	Cr	0.45	ug/L	-19.92	-0.02	0.57	0.81
Cu 327.395	Cu	4.71	ug/L	-210.82	4.8	4	5.32
Fe 261.187	Fe	8.2	ug/L	15.46	7.93	11.05	5.62
K 766.491	K	88.08	ug/L	625.59	119.3	83.96	60.97
Li 670.783	Li	57.73	ug/L	4039.23	56.82	57.15	59.21
Mg 279.078	Mg	222.4	ug/L	73.57	230.06	216.22	220.92
Mn 257.610	Mn	9.11	ug/L	355.04	8.96	9.13	9.25
Mo 204.598	Mo	0.44	ug/L	-8.53	0.49	-0.67	1.49
Na 589.592	Na	13.66	ug/L	114.98	11.64	13.68	15.67
Ni 231.604	Ni	0.05	ug/L	-1.45	-5.11	1.76	3.5
P 213.618	P	-6.79	ug/L	-3.4	8.46	-10.15	-18.67
Pb 220.353	Pb	-1.37	ug/L	4.28	3.33	-2.88	-4.55
S 181.972	S	4058.73	ug/L	14.82	4055.1	3872.55	4248.55
Sb 206.834	Sb	-1.68	ug/L	1.37	-2.67	1.83	-4.2
Se 196.026	Se	2.49	ug/L	-0.04	-1.07	3.81	4.73
Sn 189.925	Sn	5.94	ug/L	3.18	26.11	0.4	-8.71
Sr 421.552	Sr	41.58	ug/L	14075.51	41	41.56	42.19
Ti 334.941	Ti	-0.07	ug/L	1794.59	0.06	-0.35	0.09
Tl 190.794	Tl	4.03	ug/L	-0.99	6.1	5.76	0.23
V 292.401	V	0.48	ug/L	-10.51	0.07	0.18	1.18
Zn 213.857	Zn	0.99	ug/L	7.31	0.83	1.19	0.95

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCV****Analysis Time: 5/3/2022 3:18:12 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20276.56	1.06	1.05	1.06
Tb 360.044	360 Tb RAD	1	Ratio	3920.44	1	1.01	0.98
Ag 328.068	Ag	1011.55	ug/L	37614.91	1018.52	1017.24	998.89
Al 396.152	Al	10067.61	ug/L	33391.98	9944.58	9982.75	10275.49
As 188.980	As	1816.17	ug/L	718.42	1818.87	1836.82	1792.81
B 249.678	B	2121.62	ug/L	6081.24	2119.8	2097.34	2147.73
Ba 233.527	Ba	2123.61	ug/L	19359.26	2120.84	2097.46	2152.54
Be 234.861	Be	1991.74	ug/L	88892.11	1971.34	1978.36	2025.53
Ca 315.887	Ca	10129.32	ug/L	13470.79	10104.87	10012.87	10270.22
Cd 214.439	Cd	2071.29	ug/L	6507.93	2072.05	2037.25	2104.56
Co 228.615	Co	2099.22	ug/L	4142.22	2100.62	2064.79	2132.24
Cr 267.716	Cr	2069.38	ug/L	8663.19	2064.27	2044.65	2099.22
Cu 327.395	Cu	1978.99	ug/L	13044.27	1975.09	1954.83	2007.05
Fe 261.187	Fe	10179.82	ug/L	10540.31	10146.22	10060.16	10333.06
K 766.491	K	9930.28	ug/L	14410.59	9891.68	9829.72	10069.43
Li 670.783	Li	2151.03	ug/L	40018.04	2144.47	2123.73	2184.89
Mg 279.078	Mg	10294.07	ug/L	3825.51	10251.48	10159.54	10471.19
Mn 257.610	Mn	2082.19	ug/L	79823.43	2054.57	2074.07	2117.92
Mo 204.598	Mo	1985.27	ug/L	3634.29	2001.93	1996.83	1957.06
Na 589.592	Na	9693.88	ug/L	89768.2	9671.54	9568.97	9841.13
Ni 231.604	Ni	2110.76	ug/L	1119.43	2107.07	2095.35	2129.86
P 213.618	P	2031.45	ug/L	497.19	1993.78	2025.73	2074.84
Pb 220.353	Pb	2144.46	ug/L	2141.48	2158.02	2160.6	2114.75
S 181.972	S	11080.28	ug/L	38.53	10675.73	10851.36	11713.74
Sb 206.834	Sb	1956.53	ug/L	1546.36	1968.49	1964.55	1936.56
Se 196.026	Se	1857.29	ug/L	661.05	1866.24	1867.96	1837.67
Sn 189.925	Sn	1958.46	ug/L	154.11	1971.02	1936.85	1967.5
Sr 421.552	Sr	2039.97	ug/L	689838.83	2035.22	2012.45	2072.24
Ti 334.941	Ti	2026.01	ug/L	93097.02	2000.96	2011.6	2065.48
Tl 190.794	Tl	2009.99	ug/L	1184.74	2013.5	2037.87	1978.61
V 292.401	V	2031.5	ug/L	7073.48	2026.42	2006.84	2061.23
Zn 213.857	Zn	2020.5	ug/L	10705.1	2015.45	1993.17	2052.88

## Agilent 5110 ICP-OES Report

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Sample: CCB

Analysis Time: 5/3/2022 3:20:31 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.03	Ratio	19774.6	1.03	1.03	1.04
Tb 360.044	360 Tb RAD	0.99	Ratio	3894.51	1	0.99	0.99
Ag 328.068	Ag	0.12	ug/L	-996.4	-0.03	0.02	0.38
Al 396.152	Al	-2.52	ug/L	-5.97	-7.03	2.84	-3.38
As 188.980	As	-0.71	ug/L	1.2	-7.38	5.7	-0.45
B 249.678	B	5.21	ug/L	24.9	5.89	5.33	4.4
Ba 233.527	Ba	0.53	ug/L	3.92	0.05	0.31	1.22
Be 234.861	Be	0.05	ug/L	6.24	0.02	0.03	0.1
Ca 315.887	Ca	1.07	ug/L	-18.26	-1.31	6.2	-1.69
Cd 214.439	Cd	-0.92	ug/L	0.1	-1.06	-1.11	-0.59
Co 228.615	Co	1.63	ug/L	1.77	0.68	0.74	3.46
Cr 267.716	Cr	0.99	ug/L	-17.34	1.78	-0.23	1.43
Cu 327.395	Cu	2.84	ug/L	-223.67	3.46	2.23	2.82
Fe 261.187	Fe	-1.23	ug/L	5.52	1.42	-0.88	-4.21
K 766.491	K	38.25	ug/L	555.03	20.73	51.88	42.12
Li 670.783	Li	56.42	ug/L	4016.52	55.62	58.46	55.19
Mg 279.078	Mg	10.42	ug/L	-5.66	2.36	11.37	17.52
Mn 257.610	Mn	0	ug/L	6.22	-0.08	0.09	0
Mo 204.598	Mo	2.82	ug/L	-4.2	1.85	2.46	4.15
Na 589.592	Na	-2.33	ug/L	-33.35	-1.81	-1.55	-3.63
Ni 231.604	Ni	4.84	ug/L	1.28	-2.79	5.63	11.67
P 213.618	P	3.14	ug/L	-0.75	-10.42	13.33	6.51
Pb 220.353	Pb	-1.49	ug/L	4.06	1.39	-1.99	-3.87
S 181.972	S	-1.56	ug/L	0.98	584.29	-352.27	-236.71
Sb 206.834	Sb	1.22	ug/L	3.61	1.53	-1.04	3.18
Se 196.026	Se	1.96	ug/L	-0.17	-1.68	1.06	6.48
Sn 189.925	Sn	-17.76	ug/L	1.38	-42.72	2.2	-12.77
Sr 421.552	Sr	0.06	ug/L	-20.61	0.05	0.05	0.07
Ti 334.941	Ti	0.02	ug/L	1801.75	0.12	0.23	-0.27
Tl 190.794	Tl	2.26	ug/L	-2.14	-0.94	-0.76	8.47
V 292.401	V	0.93	ug/L	-9.44	0.65	-0.02	2.17
Zn 213.857	Zn	0.13	ug/L	1.88	0.74	0.16	-0.5

## Agilent 5110 ICP-OES Report

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**Sample: Sample 97****Analysis Time: 5/3/2022 3:22:51 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	2.06	Ratio	39565.39	2.05	2.12	2.02
Tb 360.044	360 Tb RAD	2.32	Ratio	9115.33	1.99	2.37	2.6
Ag 328.068	Ag	0.38	ug/L	-986.37	0.12	0.65	0.37
Al 396.152	Al	2.07	ug/L	8.73	0.58	1.75	3.86
As 188.980	As	-5.36	ug/L	-0.64	-5.84	-0.92	-9.32
B 249.678	B	-1.16	ug/L	6.55	-0.86	-0.51	-2.11
Ba 233.527	Ba	0.1	ug/L	0.02	0.04	-0.02	0.28
Be 234.861	Be	-0.02	ug/L	3.26	0.03	-0.04	-0.05
Ca 315.887	Ca	11.02	ug/L	-5.03	10.25	8.23	14.59
Cd 214.439	Cd	-1.22	ug/L	-0.85	-1.32	-1.35	-1
Co 228.615	Co	1.5	ug/L	1.52	1.7	1.26	1.53
Cr 267.716	Cr	3.19	ug/L	-8.1	2.66	2.94	3.98
Cu 327.395	Cu	3.99	ug/L	-215.94	2.94	5.51	3.52
Fe 261.187	Fe	0.11	ug/L	6.9	1.83	-0.97	-0.54
K 766.491	K	-171.29	ug/L	257.96	-154.19	-169.07	-190.62
Li 670.783	Li	-80.5	ug/L	1658.2	-67.06	-83.15	-91.27
Mg 279.078	Mg	19.86	ug/L	-2.18	21.47	22.64	15.46
Mn 257.610	Mn	0.15	ug/L	11.52	0.16	0.11	0.18
Mo 204.598	Mo	-0.17	ug/L	-9.68	-0.37	0.23	-0.37
Na 589.592	Na	-1.85	ug/L	-29.49	-2.93	-2.28	-0.35
Ni 231.604	Ni	0.89	ug/L	-0.81	0	1.47	1.19
P 213.618	P	-0.49	ug/L	-1.67	-3.03	-3.96	5.53
Pb 220.353	Pb	-0.22	ug/L	5.33	-0.98	-0.37	0.68
S 181.972	S	-298.62	ug/L	-0.03	-353.37	-218.08	-324.42
Sb 206.834	Sb	0.78	ug/L	3.3	0.99	0.49	0.85
Se 196.026	Se	4.35	ug/L	0.68	2.47	4.08	6.5
Sn 189.925	Sn	-13.6	ug/L	1.7	-14.61	-13.16	-13.04
Sr 421.552	Sr	0.06	ug/L	-21.08	0.03	0.05	0.09
Ti 334.941	Ti	0.81	ug/L	1837.04	1.93	-1.59	2.09
Tl 190.794	Tl	-0.42	ug/L	-3.72	-2.37	0.92	0.17
V 292.401	V	1.03	ug/L	-9.11	1.2	0.61	1.27
Zn 213.857	Zn	-0.15	ug/L	0.36	-0.1	0.03	-0.39

## Agilent 5110 ICP-OES Report

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**Sample: Sample 98****Analysis Time: 5/3/2022 3:25:11 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	2.23	Ratio	42807.08	2.48	2.41	1.81
Tb 360.044	360 Tb RAD	2.04	Ratio	8022.35	2.38	1.8	1.94
Ag 328.068	Ag	0.69	ug/L	-974.61	0.56	1.08	0.43
Al 396.152	Al	0.36	ug/L	3.18	-0.21	-0.66	1.94
As 188.980	As	-4.69	ug/L	-0.38	-3.13	-2.15	-8.79
B 249.678	B	-1.25	ug/L	6.32	-1.95	-0.77	-1.03
Ba 233.527	Ba	0.07	ug/L	-0.24	0.22	0.25	-0.27
Be 234.861	Be	-0.07	ug/L	0.87	-0.08	-0.09	-0.05
Ca 315.887	Ca	14.07	ug/L	-0.97	14.65	15.51	12.03
Cd 214.439	Cd	-0.92	ug/L	0.12	-1.24	-0.52	-0.99
Co 228.615	Co	0.86	ug/L	0.27	1.18	-0.58	1.99
Cr 267.716	Cr	2.12	ug/L	-12.63	2.63	2.2	1.51
Cu 327.395	Cu	4.14	ug/L	-214.92	3.91	4.88	3.63
Fe 261.187	Fe	-3.47	ug/L	3.19	-4.46	-1.64	-4.3
K 766.491	K	-153.19	ug/L	283.78	-191.01	-136.77	-131.8
Li 670.783	Li	-65.94	ug/L	1909.09	-84.36	-52.03	-61.42
Mg 279.078	Mg	10.28	ug/L	-5.74	13.4	15.19	2.25
Mn 257.610	Mn	0.02	ug/L	6.49	-0.04	0.08	0.01
Mo 204.598	Mo	0.34	ug/L	-8.75	1.5	0.54	-1.03
Na 589.592	Na	-3.49	ug/L	-44.31	-2.83	-3.32	-4.32
Ni 231.604	Ni	1.37	ug/L	-0.56	2.87	0.85	0.39
P 213.618	P	3.12	ug/L	-0.73	2.43	5.18	1.74
Pb 220.353	Pb	-1.07	ug/L	4.49	0.08	-2.38	-0.89
S 181.972	S	-166.48	ug/L	0.42	-197.14	-174.01	-128.29
Sb 206.834	Sb	0.73	ug/L	3.26	0.55	0.54	1.09
Se 196.026	Se	1.04	ug/L	-0.5	-0.17	7.99	-4.69
Sn 189.925	Sn	-21.15	ug/L	1.11	-17.17	-17.44	-28.84
Sr 421.552	Sr	0.05	ug/L	-22.7	0.07	0.04	0.04
Ti 334.941	Ti	1.88	ug/L	1885.08	0.94	1.37	3.31
Tl 190.794	Tl	-0.74	ug/L	-3.91	-1.49	0.93	-1.64
V 292.401	V	1.53	ug/L	-7.32	1.4	1.95	1.25
Zn 213.857	Zn	-0.34	ug/L	-0.64	-0.29	-0.39	-0.35

## Agilent 5110 ICP-OES Report

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**Sample: Sample 99****Analysis Time: 5/3/2022 3:27:31 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	2.08	Ratio	39929.12	2.3	1.92	2.04
Tb 360.044	360 Tb RAD	2.04	Ratio	8013.3	2.08	1.71	2.32
Ag 328.068	Ag	0.76	ug/L	-971.81	1.06	0.59	0.65
Al 396.152	Al	-0.51	ug/L	0.24	-0.15	-0.79	-0.6
As 188.980	As	-2.69	ug/L	0.41	-3.65	-2.71	-1.72
B 249.678	B	-1.11	ug/L	6.73	-1.1	-1.26	-0.98
Ba 233.527	Ba	-0.09	ug/L	-1.7	0.03	-0.11	-0.19
Be 234.861	Be	-0.06	ug/L	1.59	-0.06	-0.04	-0.07
Ca 315.887	Ca	11.01	ug/L	-5.04	9.62	11.62	11.81
Cd 214.439	Cd	-1.11	ug/L	-0.5	-1.38	-1.13	-0.83
Co 228.615	Co	0.5	ug/L	-0.45	0.25	1.35	-0.11
Cr 267.716	Cr	2.37	ug/L	-11.57	2.9	2.13	2.08
Cu 327.395	Cu	4.1	ug/L	-215.19	3.53	4.67	4.09
Fe 261.187	Fe	-3.12	ug/L	3.55	-4.01	-2.48	-2.87
K 766.491	K	-150.84	ug/L	287.23	-153.8	-127.85	-170.87
Li 670.783	Li	-66.4	ug/L	1901.13	-69.59	-47.33	-82.28
Mg 279.078	Mg	13.35	ug/L	-4.6	20.14	12.16	7.74
Mn 257.610	Mn	0.01	ug/L	6.04	0.02	0.04	-0.05
Mo 204.598	Mo	-0.32	ug/L	-9.95	-0.1	-0.03	-0.82
Na 589.592	Na	-3.48	ug/L	-44.42	-2.45	-4.59	-3.39
Ni 231.604	Ni	0.62	ug/L	-0.96	-0.37	1.46	0.76
P 213.618	P	-4.43	ug/L	-2.71	-7.31	-6.38	0.39
Pb 220.353	Pb	-0.8	ug/L	4.75	-1.16	-1.5	0.26
S 181.972	S	-98.01	ug/L	0.66	-9.83	21.36	-305.55
Sb 206.834	Sb	2.62	ug/L	4.76	1.01	1.94	4.9
Se 196.026	Se	1.47	ug/L	-0.34	0.53	3.06	0.82
Sn 189.925	Sn	-27.35	ug/L	0.63	-25.16	-26.31	-30.58
Sr 421.552	Sr	0.05	ug/L	-24.43	0.05	0.04	0.06
Ti 334.941	Ti	0.22	ug/L	1810.58	0.28	-0.16	0.54
Tl 190.794	Tl	-1.6	ug/L	-4.42	0.06	-1.89	-2.98
V 292.401	V	1.05	ug/L	-9.01	1.72	0.52	0.92
Zn 213.857	Zn	-0.04	ug/L	0.92	0.01	-0.09	-0.04

## Agilent 5110 ICP-OES Report

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**Sample: Sample 100****Analysis Time: 5/3/2022 3:29:50 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	2.13	Ratio	40911.87	2.15	2.01	2.24
Tb 360.044	360 Tb RAD	2.31	Ratio	9089.32	2.12	2.1	2.72
Ag 328.068	Ag	0.32	ug/L	-988.71	-0.21	0.49	0.67
Al 396.152	Al	-0.89	ug/L	-0.87	0.08	-1.31	-1.44
As 188.980	As	-5.29	ug/L	-0.62	-3.95	-6.09	-5.83
B 249.678	B	-1.27	ug/L	6.23	-1.79	-1.12	-0.89
Ba 233.527	Ba	0.13	ug/L	0.3	-0.2	0.49	0.1
Be 234.861	Be	-0.04	ug/L	2.47	-0.06	-0.02	-0.04
Ca 315.887	Ca	9.48	ug/L	-7.08	13.55	9.97	4.93
Cd 214.439	Cd	-0.82	ug/L	0.43	-0.95	-0.4	-1.11
Co 228.615	Co	0.7	ug/L	-0.06	0.41	1.58	0.12
Cr 267.716	Cr	2.41	ug/L	-11.4	1.96	2.87	2.4
Cu 327.395	Cu	3.47	ug/L	-219.41	-0.62	7.25	3.79
Fe 261.187	Fe	-5.07	ug/L	1.53	-3.93	-5.13	-6.16
K 766.491	K	-163.9	ug/L	268.68	-151.61	-147.85	-192.24
Li 670.783	Li	-79.14	ug/L	1681.68	-71.19	-70.86	-95.38
Mg 279.078	Mg	15.65	ug/L	-3.75	11.71	15.6	19.63
Mn 257.610	Mn	-0.05	ug/L	3.87	-0.03	-0.01	-0.13
Mo 204.598	Mo	0.43	ug/L	-8.58	-0.23	0.62	0.89
Na 589.592	Na	-2.34	ug/L	-33.91	-2.66	-3.23	-1.14
Ni 231.604	Ni	3.53	ug/L	0.59	5.21	-0.59	5.98
P 213.618	P	-2.57	ug/L	-2.22	-11.41	-1.84	5.54
Pb 220.353	Pb	-0.29	ug/L	5.27	0.39	0.45	-1.7
S 181.972	S	-362.15	ug/L	-0.24	-269.77	-563.37	-253.32
Sb 206.834	Sb	1.73	ug/L	4.06	1.84	1.48	1.88
Se 196.026	Se	1.62	ug/L	-0.29	5.01	-0.54	0.38
Sn 189.925	Sn	-32.88	ug/L	0.21	-39.77	-15.11	-43.74
Sr 421.552	Sr	0.05	ug/L	-23.27	0.05	0.06	0.04
Ti 334.941	Ti	-0.01	ug/L	1800.17	3.32	-3.86	0.5
Tl 190.794	Tl	-0.42	ug/L	-3.72	-0.19	0.21	-1.28
V 292.401	V	0.94	ug/L	-9.43	1.64	0.72	0.46
Zn 213.857	Zn	-0.2	ug/L	0.17	-0.13	-0.33	-0.13



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCV****Analysis Time: 5/3/2022 3:32:09 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.06	Ratio	20353.02	1.09	1.05	1.04
Tb 360.044	360 Tb RAD	0.98	Ratio	3858.37	0.98	0.98	0.98
Ag 328.068	Ag	1004.76	ug/L	37357.97	978.89	1017.09	1018.3
Al 396.152	Al	10155.74	ug/L	33679.43	10132.57	10211.98	10122.67
As 188.980	As	1804.48	ug/L	713.74	1758.81	1824.18	1830.45
B 249.678	B	2129.89	ug/L	6104.95	2132.96	2128.66	2128.04
Ba 233.527	Ba	2132.27	ug/L	19438.25	2137.05	2127.94	2131.82
Be 234.861	Be	1993.99	ug/L	88992.51	2000.55	2000.11	1981.32
Ca 315.887	Ca	10196.7	ug/L	13560.54	10222.07	10188.89	10179.15
Cd 214.439	Cd	2092.24	ug/L	6573.71	2101.83	2086.59	2088.31
Co 228.615	Co	2110.91	ug/L	4165.35	2119.06	2101.23	2112.44
Cr 267.716	Cr	2082.42	ug/L	8717.91	2090.57	2074.3	2082.39
Cu 327.395	Cu	1983.53	ug/L	13074.81	1987.52	1978.49	1984.56
Fe 261.187	Fe	10212.08	ug/L	10573.66	10226.76	10201.95	10207.55
K 766.491	K	9939.9	ug/L	14424.38	9956.85	9894.25	9968.61
Li 670.783	Li	2152.75	ug/L	40048.03	2154.63	2146.26	2157.36
Mg 279.078	Mg	10347.59	ug/L	3845.43	10408.54	10338.2	10296.01
Mn 257.610	Mn	2093	ug/L	80236.14	2097.49	2098.08	2083.43
Mo 204.598	Mo	1969.96	ug/L	3606.21	1916.79	1990.11	2002.99
Na 589.592	Na	9675.65	ug/L	89611.39	9680.29	9660.82	9685.83
Ni 231.604	Ni	2146.2	ug/L	1138.25	2150.38	2137.5	2150.71
P 213.618	P	2035.56	ug/L	498.29	2058.11	2010.8	2037.77
Pb 220.353	Pb	2142.39	ug/L	2139.42	2083.82	2163.92	2179.44
S 181.972	S	10585.56	ug/L	36.85	10133.66	10430.36	11192.64
Sb 206.834	Sb	1935.19	ug/L	1529.77	1886.66	1951.09	1967.81
Se 196.026	Se	1844.28	ug/L	656.41	1775.12	1879.05	1878.68
Sn 189.925	Sn	1927.21	ug/L	151.69	1880.06	1917.82	1983.75
Sr 421.552	Sr	2038.89	ug/L	689475.11	2043.84	2034.83	2038
Ti 334.941	Ti	2042.22	ug/L	93827.14	2043.82	2056.17	2026.68
Tl 190.794	Tl	1988.61	ug/L	1172.11	1937.38	2014.11	2014.33
V 292.401	V	2039.31	ug/L	7101.11	2047.54	2035.14	2035.25
Zn 213.857	Zn	2027.07	ug/L	10740.43	2032.36	2019.34	2029.51

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-03-2022A-73IP03\_SOIL\_.esws

Report Generation Time: 7/26/2022 3:25:06 PM

**Sample: CCB****Analysis Time: 5/3/2022 3:34:29 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Tb 360.044	360 Tb AX	1.05	Ratio	20131.98	1.05	1.05	1.04
Tb 360.044	360 Tb RAD	0.99	Ratio	3887.92	1	0.99	0.98
Ag 328.068	Ag	0.13	ug/L	-996.06	0.04	-0.11	0.46
Al 396.152	Al	-2.82	ug/L	-7.17	-2.14	-2.5	-3.83
As 188.980	As	-5.08	ug/L	-0.52	0.77	-6.65	-9.35
B 249.678	B	3.92	ug/L	21.22	3.7	3.28	4.79
Ba 233.527	Ba	0.58	ug/L	4.37	0.54	0.67	0.52
Be 234.861	Be	0.03	ug/L	5.29	0	0.05	0.04
Ca 315.887	Ca	1	ug/L	-18.36	2.72	1.73	-1.46
Cd 214.439	Cd	-0.32	ug/L	1.98	-0.8	0.08	-0.25
Co 228.615	Co	1.92	ug/L	2.36	2.81	0.34	2.63
Cr 267.716	Cr	0	ug/L	-21.52	-1.65	-0.05	1.7
Cu 327.395	Cu	3.22	ug/L	-221.11	3.14	3.12	3.4
Fe 261.187	Fe	0.24	ug/L	7.04	-6.5	1.59	5.64
K 766.491	K	36.86	ug/L	552.98	50.72	37.05	22.81
Li 670.783	Li	58.12	ug/L	4045.7	54.55	56.79	63.01
Mg 279.078	Mg	4.6	ug/L	-7.83	16.15	-2.53	0.17
Mn 257.610	Mn	0.02	ug/L	6.64	0.07	-0.09	0.07
Mo 204.598	Mo	1.03	ug/L	-7.49	1.61	1.53	-0.06
Na 589.592	Na	-1.07	ug/L	-21.89	2.62	-3.4	-2.42
Ni 231.604	Ni	0.88	ug/L	-0.82	-1.54	8.78	-4.6
P 213.618	P	8.9	ug/L	0.79	5.4	14.34	6.97
Pb 220.353	Pb	-3.2	ug/L	2.36	-3.69	-2.65	-3.27
S 181.972	S	-108.28	ug/L	0.62	-198.02	346.21	-473.02
Sb 206.834	Sb	-0.31	ug/L	2.4	-3.16	0.9	1.34
Se 196.026	Se	3.68	ug/L	0.45	-2.97	9.6	4.41
Sn 189.925	Sn	2.88	ug/L	2.97	-9.53	-18.24	36.41
Sr 421.552	Sr	0.05	ug/L	-23.2	0.04	0.05	0.06
Ti 334.941	Ti	0.13	ug/L	1806.69	-0.05	0.15	0.3
Tl 190.794	Tl	0.85	ug/L	-2.96	5.81	-0.29	-2.97
V 292.401	V	1.45	ug/L	-7.59	1.65	2.4	0.3
Zn 213.857	Zn	0.37	ug/L	3.06	0.63	0.66	-0.17

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CAL0****Analysis Time: 5/11/2022 5:05:48 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y		1 Ratio	572264.1	1	1	1
Ag 328.068	Ag	0	ug/L	-1174.33	0	0	0
Al 396.152	Al	0	ug/L	336.78	0	0	0
As 188.980	As	0	ug/L	3.66	0	0	0
B 249.678	B	0	ug/L	10.38	0	0	0
Ba 233.527	Ba	0	ug/L	-3.74	0	0	0
Be 234.861	Be	0	ug/L	4.357	0	0	0
Ca 315.887	Ca	0	ug/L	72.9	0	0	0
Cd 214.439	Cd	0	ug/L	2.28	0	0	0
Co 228.615	Co	0	ug/L	7.98	0	0	0
Cr 267.716	Cr	0	ug/L	28.61	0	0	0
Cu 327.395	Cu	0	ug/L	-1669.02	0	0	0
Fe 261.187	Fe	0	ug/L	-24.95	0	0	0
K 766.491	K	0	ug/L	412.79	0	0	0
Li 670.783	Li	0	ug/L	11550.69	0	0	0
Mg 279.078	Mg	0	ug/L	34.42	0	0	0
Mn 257.610	Mn	0	ug/L	4.52	0	0	0
Mo 204.598	Mo	0	ug/L	-7.21	0	0	0
Na 589.592	Na	0	ug/L	-201.19	0	0	0
Ni 231.604	Ni	0	ug/L	4.39	0	0	0
P 213.618	P	0	ug/L	-7.14	0	0	0
Pb 220.353	Pb	0	ug/L	3.31	0	0	0
S 181.972	S	0	ug/L	1.01	0	0	0
Sb 206.834	Sb	0	ug/L	2.24	0	0	0
Se 196.026	Se	0	ug/L	1.97	0	0	0
Si 251.611	Si	0	ug/L	26.38	0	0	0
Sn 189.925	Sn	0	ug/L	2.65	0	0	0
Sr 421.552	Sr	0	ug/L	70.92	0	0	0
Ti 334.941	Ti	0	ug/L	16171.79	0	0	0
Tl 190.794	Tl	0	ug/L	-2.49	0	0	0
V 292.401	V	0	ug/L	-1.09	0	0	0
Zn 206.200	Zn	0	ug/L	-1.41	0	0	0

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CAL1****Analysis Time: 5/11/2022 5:07:47 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.98	Ratio	559130.67	0.94	0.99	0.99
Ag 328.068	Ag	2000	ug/L	80272.19	2000	2000	2000
Al 396.152	Al	20000	ug/L	487742.91	20000	20000	20000
As 188.980	As	4000	ug/L	2369.36	4000	4000	4000
B 249.678	B	4000	ug/L	33014.29	4000	4000	4000
Ba 233.527	Ba	4000	ug/L	161778.64	4000	4000	4000
Be 234.861	Be	4000	ug/L	593725.377	4000	4000	4000
Ca 315.887	Ca	20000	ug/L	106982.91	20000	20000	20000
Cd 214.439	Cd	4000	ug/L	82878.48	4000	4000	4000
Co 228.615	Co	4000	ug/L	23241.56	4000	4000	4000
Cr 267.716	Cr	4000	ug/L	144222.65	4000	4000	4000
Cu 327.395	Cu	4000	ug/L	106680.41	4000	4000	4000
Fe 261.187	Fe	20000	ug/L	35636.08	20000	20000	20000
K 766.491	K	20000	ug/L	25633.38	20000	20000	20000
Li 670.783	Li	4000	ug/L	2236127.56	4000	4000	4000
Mg 279.078	Mg	20000	ug/L	51900.43	20000	20000	20000
Mn 257.610	Mn	4000	ug/L	514259.24	4000	4000	4000
Mo 204.598	Mo	4000	ug/L	14902.77	4000	4000	4000
Na 589.592	Na	20000	ug/L	158969.93	20000	20000	20000
Ni 231.604	Ni	4000	ug/L	7921.05	4000	4000	4000
P 213.618	P	4000	ug/L	3061.31	4000	4000	4000
Pb 220.353	Pb	4000	ug/L	6257.63	4000	4000	4000
S 181.972	S	20000	ug/L	770.64	20000	20000	20000
Sb 206.834	Sb	4000	ug/L	3105.26	4000	4000	4000
Se 196.026	Se	4000	ug/L	2477.35	4000	4000	4000
Si 251.611	Si	20000	ug/L	34433.83	20000	20000	20000
Sn 189.925	Sn	4000	ug/L	4255.29	4000	4000	4000
Sr 421.552	Sr	4000	ug/L	9284536.29	4000	4000	4000
Ti 334.941	Ti	4000	ug/L	984032.72	4000	4000	4000
Tl 190.794	Tl	4000	ug/L	3860.63	4000	4000	4000
V 292.401	V	4000	ug/L	78104.94	4000	4000	4000
Zn 206.200	Zn	4000	ug/L	12614.33	4000	4000	4000

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

Sample: ICV

Analysis Time: 5/11/2022 5:09:46 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	567267.92	0.96	0.99	1.01
Ag 328.068	Ag	1012.88	ug/L	40453.21	1034.69	1014.03	999.13
Al 396.152	Al	10000.23	ug/L	246115.07	10240.86	9991.92	9854.88
As 188.980	As	2034.86	ug/L	1199.66	2075.44	2034.85	2012.25
B 249.678	B	2090.65	ug/L	17262.37	2138.45	2093.68	2060.91
Ba 233.527	Ba	2086.73	ug/L	84385.06	2139.07	2084.05	2055.47
Be 234.861	Be	2030.766	ug/L	301399.157	2079.095	2029.462	2001.042
Ca 315.887	Ca	10068.98	ug/L	53923.18	10326.43	10070.43	9915.84
Cd 214.439	Cd	2081.5	ug/L	43131.56	2123.01	2064.91	2061.92
Co 228.615	Co	2101.77	ug/L	12239.62	2150.82	2099.41	2071.93
Cr 267.716	Cr	2045.15	ug/L	73715.44	2092.85	2044.85	2015.31
Cu 327.395	Cu	1983.65	ug/L	52115.88	2029.03	1985.05	1954.52
Fe 261.187	Fe	10105.35	ug/L	17979.75	10344.49	10083.14	9971.5
K 766.491	K	9887.7	ug/L	12936.53	10163.57	9861.48	9735.37
Li 670.783	Li	1929.29	ug/L	1082453.19	1981.8	1926.84	1898.34
Mg 279.078	Mg	10195.28	ug/L	26473.73	10441.65	10188.21	10046.35
Mn 257.610	Mn	2066.66	ug/L	265818.67	2115.47	2063.79	2037.54
Mo 204.598	Mo	1962.98	ug/L	7319.51	1977.5	1967.49	1943.32
Na 589.592	Na	9948.97	ug/L	82975.14	10234.25	9927.81	9791.05
Ni 231.604	Ni	2073.99	ug/L	4109.31	2122.72	2075.89	2042.01
P 213.618	P	2061.74	ug/L	1512.25	2083.65	2051.87	2082.87
Pb 220.353	Pb	2072.44	ug/L	3238.88	2125.48	2075.47	2041.56
S 181.972	S	9910.45	ug/L	382.39	10176.81	9823.66	9784.78
Sb 206.834	Sb	2042.34	ug/L	1583.49	2090.14	2023.57	2019.56
Se 196.026	Se	2077.44	ug/L	1287.81	2115.35	2076.05	2042.8
Si 251.611	Si	10579.5	ug/L	18282.46	10818.62	10596.07	10425.5
Sn 189.925	Sn	2022.54	ug/L	2151.72	2068.83	2017.52	1997.9
Sr 421.552	Sr	2075.29	ug/L	4817137.99	2123.71	2079.73	2041.66
Ti 334.941	Ti	2016.33	ug/L	503980.29	2052.01	2022.76	1982.04
Tl 190.794	Tl	2113.42	ug/L	2038.24	2168.82	2110.64	2091.52
V 292.401	V	2028.51	ug/L	39311.64	2076.2	2028.49	2001.87
Zn 206.200	Zn	2082.92	ug/L	6568.08	2099.85	2088.9	2069.65

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: ICB****Analysis Time: 5/11/2022 5:11:45 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1	Ratio	570806.99	0.96	1.01	1.03
Ag 328.068	Ag	0.34	ug/L	-1160.52	-0.77	0.27	0.8
Al 396.152	Al	0.82	ug/L	358.64	1.11	0.54	0.54
As 188.980	As	1.36	ug/L	4.47	1.57	2.99	-1.17
B 249.678	B	1.74	ug/L	24.73	2.87	2	1.42
Ba 233.527	Ba	0.18	ug/L	3.47	0.19	0.18	0.14
Be 234.861	Be	0.09	ug/L	17.763	0.154	0.082	0.076
Ca 315.887	Ca	-2.35	ug/L	60.38	-0.8	-3.3	-2.06
Cd 214.439	Cd	0.17	ug/L	5.82	0.31	0.21	0.08
Co 228.615	Co	-0.17	ug/L	6.94	0.52	-0.53	-0.08
Cr 267.716	Cr	0.27	ug/L	38.37	0.74	0.07	0.06
Cu 327.395	Cu	0.52	ug/L	-1655.04	-2	0.97	0.95
Fe 261.187	Fe	3.08	ug/L	-19.45	0.23	4.62	2.48
K 766.491	K	26.85	ug/L	446.66	66.38	1.14	-10.38
Li 670.783	Li	-0.3	ug/L	11380.71	0.58	-0.63	-0.81
Mg 279.078	Mg	3.85	ug/L	44.41	3.8	4.51	4.95
Mn 257.610	Mn	0.15	ug/L	24.26	0.12	0.15	0.17
Mo 204.598	Mo	2.55	ug/L	2.3	1.71	1.87	3.06
Na 589.592	Na	2.15	ug/L	-183.71	4.38	5.93	3.96
Ni 231.604	Ni	0.38	ug/L	5.15	0.11	-0.35	-0.03
P 213.618	P	0.3	ug/L	-6.94	-1.14	-2.41	5.59
Pb 220.353	Pb	-0.47	ug/L	2.57	1	-0.56	-1.19
S 181.972	S	2.81	ug/L	1.12	69.11	12.44	-19.84
Sb 206.834	Sb	-1.29	ug/L	1.22	-1.19	2.59	-2.36
Se 196.026	Se	3.64	ug/L	4.23	-1.36	4.04	3.44
Si 251.611	Si	4.37	ug/L	33.96	7.46	5.57	1.91
Sn 189.925	Sn	-1.72	ug/L	0.83	-2.08	-2.26	-0.29
Sr 421.552	Sr	0.13	ug/L	381.8	0.16	0.16	0.13
Ti 334.941	Ti	-0.27	ug/L	16107.43	2.06	-0.15	-1
Tl 190.794	Tl	3.41	ug/L	0.79	1.33	0.73	6.44
V 292.401	V	0.62	ug/L	10.74	1.15	0.9	0.08
Zn 206.200	Zn	-0.08	ug/L	-1.66	-0.36	0.12	-0.35

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CRDL****Analysis Time: 5/11/2022 5:13:43 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	576084.27	0.96	1.02	1.02
Ag 328.068	Ag	5.14	ug/L	-964.88	4.41	5.41	5.25
Al 396.152	Al	21.93	ug/L	878.29	22.73	21.13	22.08
As 188.980	As	22.48	ug/L	16.95	22.28	20.06	23.9
B 249.678	B	51.42	ug/L	434.62	52.24	50.62	51.15
Ba 233.527	Ba	5.31	ug/L	211.1	5.34	5.28	5.37
Be 234.861	Be	0.993	ug/L	151.693	0.972	0.992	1.017
Ca 315.887	Ca	493.18	ug/L	2708.57	506.93	484.93	489.63
Cd 214.439	Cd	1.02	ug/L	23.45	0.88	0.99	1.06
Co 228.615	Co	4.43	ug/L	33.94	3.95	4.94	4.24
Cr 267.716	Cr	5.22	ug/L	216.66	5.4	5.34	5.05
Cu 327.395	Cu	4.89	ug/L	-1536.29	2.71	5.8	5.5
Fe 261.187	Fe	56.72	ug/L	76.18	56.45	54.83	59.73
K 766.491	K	481.04	ug/L	1019.95	492.42	443.34	497.06
Li 670.783	Li	90.4	ug/L	61814.14	93.92	88.82	89.5
Mg 279.078	Mg	505.1	ug/L	1344.33	511.75	498.35	501.43
Mn 257.610	Mn	5.28	ug/L	683.06	5.53	5.13	5.1
Mo 204.598	Mo	5.85	ug/L	14.69	5.26	6.5	6.16
Na 589.592	Na	493.2	ug/L	3733.74	501.4	485	493.29
Ni 231.604	Ni	5.74	ug/L	15.74	6.29	5.75	4.19
P 213.618	P	502.83	ug/L	378.45	516.75	501.51	497.95
Pb 220.353	Pb	9.94	ug/L	18.84	12.26	7.34	10.36
S 181.972	S	213.4	ug/L	9.22	233.21	270.49	188.8
Sb 206.834	Sb	20.66	ug/L	18.17	22.32	19.75	17.52
Se 196.026	Se	23.31	ug/L	16.4	25.57	23.96	23.04
Si 251.611	Si	187.66	ug/L	349.43	175.04	189.74	193.03
Sn 189.925	Sn	101.74	ug/L	110.8	103.86	101.48	100.36
Sr 421.552	Sr	10.51	ug/L	24469	10.77	10.37	10.46
Ti 334.941	Ti	10.27	ug/L	18655.26	12.63	9.27	9.63
Tl 190.794	Tl	9.13	ug/L	6.31	7.59	10.93	6.71
V 292.401	V	10.54	ug/L	203.99	11.09	9.89	10.72
Zn 206.200	Zn	21.34	ug/L	65.9	21.78	20.55	21.88

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

Sample: ICSA

Analysis Time: 5/11/2022 4:37:55 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.87	Ratio	497205.5	0.87	0.87	0.87
Ag 328.068	Ag	-0.73	ug/L	-1196.49	-0.77	-0.75	-0.69
Al 396.152	Al	507789.76	ug/L	12377711.29	494689.35	507703.45	513231.83
As 188.980	As	13.01	ug/L	8.71	13.93	8.24	15.14
B 249.678	B	-0.59	ug/L	-24.39	1.61	-1.07	-2.67
Ba 233.527	Ba	-3.07	ug/L	38.98	-3.36	-2.79	-3.13
Be 234.861	Be	-9.579	ug/L	-1446.131	-10.419	-9.05	-10.187
Ca 315.887	Ca	480812.57	ug/L	2571174.37	468092.13	479423.99	486920.27
Cd 214.439	Cd	-6.96	ug/L	74.74	-6.94	-6.82	-6.75
Co 228.615	Co	-9.13	ug/L	14.01	-8.67	-10.03	-8.64
Cr 267.716	Cr	-4	ug/L	92.92	-4.06	-3.85	-4.35
Cu 327.395	Cu	-3.58	ug/L	-1631.55	-3.43	-3.42	-3.65
Fe 261.187	Fe	192464.38	ug/L	343177.96	187817.71	192275.14	194458.52
K 766.491	K	-26.19	ug/L	491.36	19.17	-62.98	-24.95
Li 670.783	Li	8.04	ug/L	14432.61	7.91	8.21	7.92
Mg 279.078	Mg	524458.98	ug/L	1360127.29	508826.18	525589.45	530739.36
Mn 257.610	Mn	-7.19	ug/L	8.43	-7.12	-7.21	-7.17
Mo 204.598	Mo	-1.89	ug/L	47.28	-2.73	-3.61	-2.41
Na 589.592	Na	4.21	ug/L	-76.21	4.2	10.79	1.92
Ni 231.604	Ni	-8.47	ug/L	2.23	-7.05	-8.64	-9.55
P 213.618	P	-24.53	ug/L	-22.85	-23.64	-28.98	-19.7
Pb 220.353	Pb	-0.85	ug/L	-25.68	-1.46	1.59	1.4
S 181.972	S	87.57	ug/L	5.47	71.76	128.91	116.55
Sb 206.834	Sb	2.31	ug/L	10.82	-0.92	3.26	8.04
Se 196.026	Se	-0.39	ug/L	-16.01	-14.32	7.95	-3.14
Si 251.611	Si	-61.57	ug/L	30.4	-60.91	-63.11	-61.54
Sn 189.925	Sn	-2.86	ug/L	0.33	-3.48	-3.11	-3.94
Sr 421.552	Sr	-1.09	ug/L	11873.66	-1.22	-1.09	-1.03
Ti 334.941	Ti	-0.69	ug/L	15880.52	-0.74	-0.68	-0.61
Tl 190.794	Tl	-5.06	ug/L	-8.19	-9.05	-3.79	-3.55
V 292.401	V	-5.62	ug/L	-325.42	-5.09	-5.65	-6.8
Zn 206.200	Zn	-6.67	ug/L	-3.29	-4.55	-7.44	-6.69



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: LRVA****Analysis Time: 5/11/2022 5:30:40 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.88	Ratio	504339.95	0.82	0.9	0.9
Ag 328.068	Ag	-0.55	ug/L	-1188.62	-0.24	-0.68	-0.51
Al 396.152	Al	218547	ug/L	5327437.45	227349.71	214558.91	215688.84
As 188.980	As	12.8	ug/L	9.11	10.96	8	19.69
B 249.678	B	7.67	ug/L	29.68	5.74	8.5	10.23
Ba 233.527	Ba	-0.36	ug/L	60.53	-0.24	-0.19	-0.57
Be 234.861	Be	-4.911	ug/L	-1388.452	-4.293	-4.896	-6.28
Ca 315.887	Ca	202794.28	ug/L	1084483.31	211528.67	197520.72	199630.88
Cd 214.439	Cd	-3.45	ug/L	76.82	-3.43	-3.5	-3.35
Co 228.615	Co	-0.4	ug/L	37.04	0.67	-0.84	-1.77
Cr 267.716	Cr	5.53	ug/L	322.4	6.06	5.21	5.56
Cu 327.395	Cu	0.92	ug/L	-1578.65	0.93	0.65	1.16
Fe 261.187	Fe	204308.65	ug/L	364279.78	213640.03	199764.45	201157.35
K 766.491	K	221897.69	ug/L	280224.61	231671.49	217517.18	218518.76
Li 670.783	Li	3.42	ug/L	12728.57	5.1	2.98	2.77
Mg 279.078	Mg	213399.32	ug/L	553451.45	221354.56	209328.18	210202.85
Mn 257.610	Mn	0.92	ug/L	688.37	1.13	0.85	0.87
Mo 204.598	Mo	-2.06	ug/L	11.16	-1.22	-4.7	-1.27
Na 589.592	Na	212779.22	ug/L	1693252.72	222526.12	208550.21	209221.88
Ni 231.604	Ni	2.52	ug/L	21.13	3.71	2.75	1
P 213.618	P	209743.52	ug/L	160888.07	218616.1	204272.54	207203.69
Pb 220.353	Pb	0.56	ug/L	-7.46	1.47	1.85	-3.87
S 181.972	S	-0.43	ug/L	1.26	32.56	5.55	53.7
Sb 206.834	Sb	1.63	ug/L	9.94	-2.63	0.5	7.73
Se 196.026	Se	1.56	ug/L	-15.57	-1.95	5.71	4.18
Si 251.611	Si	-18.41	ug/L	36.06	-15.89	-16.96	-18.01
Sn 189.925	Sn	2.72	ug/L	6.26	0.99	0.9	2.67
Sr 421.552	Sr	-0.47	ug/L	4860.04	-0.4	-0.51	-0.5
Ti 334.941	Ti	0.11	ug/L	16148.02	-0.59	0.27	0.35
Tl 190.794	Tl	-0.6	ug/L	-6.93	0.72	2.96	-4.09
V 292.401	V	-3.87	ug/L	-358.7	-4.99	-3.88	-3.34
Zn 206.200	Zn	13.65	ug/L	43.24	14.02	13.34	14.34

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: LRVB****Analysis Time: 5/11/2022 5:32:39 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	567396.3	0.91	1.03	1.02
Ag 328.068	Ag	-1.75	ug/L	-1152.5	-3.11	-1.4	-0.96
Al 396.152	Al	24.74	ug/L	1259.01	52.14	25.34	13.42
As 188.980	As	47773.25	ug/L	28080.6	51690.36	45971.24	46434.88
B 249.678	B	48785.26	ug/L	402761.09	52858.38	47236.02	47382
Ba 233.527	Ba	1.36	ug/L	14.73	1.54	1.41	1.46
Be 234.861	Be	0.674	ug/L	111.383	0.76	0.613	0.673
Ca 315.887	Ca	118.37	ug/L	1530	164.35	110.48	99.25
Cd 214.439	Cd	1.81	ug/L	16.78	1.83	1.55	1.9
Co 228.615	Co	51998.53	ug/L	303655.97	55788.42	50607.12	51037.5
Cr 267.716	Cr	50389.7	ug/L	1816574.86	54530.79	48472.06	48908.3
Cu 327.395	Cu	51730.95	ug/L	1400241.89	56165.62	50254.61	49888.08
Fe 261.187	Fe	8.05	ug/L	-173.91	24.69	18.54	0.49
K 766.491	K	390.86	ug/L	448.92	458.72	411.36	367.01
Li 670.783	Li	16.26	ug/L	11886.55	18.25	15.48	15.43
Mg 279.078	Mg	30.2	ug/L	88.06	56.91	37.08	16.52
Mn 257.610	Mn	0.91	ug/L	100.96	1.17	0.76	0.84
Mo 204.598	Mo	-9.63	ug/L	-2.33	-10.29	-9.16	-8.75
Na 589.592	Na	79.22	ug/L	276.38	106.81	81.44	68.28
Ni 231.604	Ni	27.44	ug/L	60.55	30.03	23.93	29.66
P 213.618	P	-267.7	ug/L	-1442.66	-338.03	-217.38	-259.8
Pb 220.353	Pb	51826.29	ug/L	80990.09	56236.95	50026.88	50475.15
S 181.972	S	47583.58	ug/L	1831.71	51350.96	45787.35	46233.47
Sb 206.834	Sb	176.54	ug/L	542.28	228.8	162.48	154.84
Se 196.026	Se	47786.95	ug/L	29576.04	51684.46	45955.7	46420.61
Si 251.611	Si	752.3	ug/L	1342.55	640.29	743.59	800.71
Sn 189.925	Sn	49493.88	ug/L	52622.59	53350.48	47736.35	47970.08
Sr 421.552	Sr	0.87	ug/L	1864.4	0.95	0.83	0.84
Ti 334.941	Ti	8.19	ug/L	17704.08	11.46	6.57	7.23
Tl 190.794	Tl	-164.49	ug/L	137.48	-157.56	-169.9	-166.85
V 292.401	V	6.83	ug/L	-1636.03	-0.63	11.04	8.51
Zn 206.200	Zn	47824.63	ug/L	150801.13	51275.86	46392.63	47131.63

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: LRVC****Analysis Time: 5/11/2022 5:34:37 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		574927.56	0.97	1.01	1.02
Ag 328.068	Ag	8.03	ug/L	-1018.07	7.44	8.11	8.54
Al 396.152	Al	-33.68	ug/L	7395.8	-24.91	-38.04	-36.11
As 188.980	As	10.98	ug/L	8.76	9.97	12.97	8.55
B 249.678	B	42.52	ug/L	344.36	65.2	42.44	33.75
Ba 233.527	Ba	10006.36	ug/L	404642.79	10323.78	9885.92	9898.6
Be 234.861	Be	9704.969	ug/L	1440486.084	9969.82	9591.543	9628.966
Ca 315.887	Ca	-6.94	ug/L	50.59	-7.22	-6.28	-6.54
Cd 214.439	Cd	9989.04	ug/L	206950.86	10099.4	9913.76	9883.25
Co 228.615	Co	61.31	ug/L	162.19	63.12	60.16	61.29
Cr 267.716	Cr	5.62	ug/L	9.47	6.61	5.47	5.49
Cu 327.395	Cu	-0.06	ug/L	-1540.66	-1.74	0.06	0.42
Fe 261.187	Fe	0.51	ug/L	-58.88	-1.36	-1.7	2.31
K 766.491	K	-254.47	ug/L	436.79	-234.4	-264.98	-256.29
Li 670.783	Li	8399.45	ug/L	4674722.38	8673.87	8330.23	8315.17
Mg 279.078	Mg	10.24	ug/L	65.75	13.23	8.21	9.81
Mn 257.610	Mn	10020.19	ug/L	1288688.02	10161.83	9816.84	10045.73
Mo 204.598	Mo	10120.07	ug/L	37748.66	10299.27	10087.6	9940.12
Na 589.592	Na	331.69	ug/L	21632.57	411.5	298.11	310.72
Ni 231.604	Ni	10179.38	ug/L	20149.83	10325.28	10191.61	10033.4
P 213.618	P	-28.51	ug/L	-107.09	-30.14	-24.47	-30.2
Pb 220.353	Pb	-1.67	ug/L	-7.86	1.4	-2.21	0.44
S 181.972	S	22.39	ug/L	2	43	26.85	-5.41
Sb 206.834	Sb	-8.28	ug/L	-103.69	-14.08	-6.47	-4.82
Se 196.026	Se	10.91	ug/L	13.81	12.65	11.54	5.05
Si 251.611	Si	216.95	ug/L	665.11	253.97	214.24	205.62
Sn 189.925	Sn	2.18	ug/L	-4.99	1.63	4.43	1.6
Sr 421.552	Sr	2.63	ug/L	6281.18	2.72	2.6	2.61
Ti 334.941	Ti	9954.56	ug/L	2424572.18	10240.69	9819.27	9854.22
Tl 190.794	Tl	10102.85	ug/L	9692.98	10419.53	9991.62	10003.64
V 292.401	V	10001.94	ug/L	194200.62	10277.87	9883.13	9915.39
Zn 206.200	Zn	10041.83	ug/L	31676.62	10255.57	9905.38	10025.11

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CRDLB****Analysis Time: 5/11/2022 5:36:35 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	583766.85	0.98	1.04	1.04
Ag 328.068	Ag	0.28	ug/L	-1163.15	-0.78	0.63	0.61
Al 396.152	Al	6.33	ug/L	494.66	8.92	5.72	5.07
As 188.980	As	3.59	ug/L	5.78	11.25	2.76	-1.21
B 249.678	B	10.37	ug/L	95.95	14.04	9.97	9.06
Ba 233.527	Ba	0.69	ug/L	24.16	1.19	0.71	0.38
Be 234.861	Be	0.245	ug/L	40.468	0.617	0.147	0.142
Ca 315.887	Ca	21.31	ug/L	186.88	25.54	19.71	19.98
Cd 214.439	Cd	0.45	ug/L	11.55	0.79	0.33	0.24
Co 228.615	Co	1.32	ug/L	15.56	3.2	1.32	0.01
Cr 267.716	Cr	1.5	ug/L	82.64	3.3	0.66	0.9
Cu 327.395	Cu	2.72	ug/L	-1595.3	2.77	3.53	2.63
Fe 261.187	Fe	58.57	ug/L	79.46	61.44	55.45	57.95
K 766.491	K	-9.33	ug/L	401.1	-3.72	-10.7	-4.04
Li 670.783	Li	-0.65	ug/L	11186.81	0.37	-1.06	-1.02
Mg 279.078	Mg	9.64	ug/L	59.42	10.46	8.28	8.91
Mn 257.610	Mn	0.62	ug/L	84.49	0.96	0.56	0.49
Mo 204.598	Mo	5.73	ug/L	14.17	4.79	5.47	6.73
Na 589.592	Na	12.85	ug/L	-97.53	14.89	10.12	13.22
Ni 231.604	Ni	5.84	ug/L	15.95	5.24	5.23	7.55
P 213.618	P	4.71	ug/L	-3.62	5.81	2.02	8.47
Pb 220.353	Pb	1.78	ug/L	6.08	0.98	3.3	-0.26
S 181.972	S	6.3	ug/L	1.25	14.78	-43.61	-7.6
Sb 206.834	Sb	-2.12	ug/L	0.56	-2.44	-3.67	-2.34
Se 196.026	Se	6.77	ug/L	6.16	11.44	5.23	6.27
Si 251.611	Si	108.6	ug/L	213.33	121.15	105.48	102.36
Sn 189.925	Sn	0.71	ug/L	3.41	2.96	1.44	-0.54
Sr 421.552	Sr	0.04	ug/L	162.21	0.03	0.04	0.04
Ti 334.941	Ti	0.27	ug/L	16237.31	2.17	-0.76	-0.55
Tl 190.794	Tl	2.54	ug/L	-0.06	5.67	-1.95	2.2
V 292.401	V	0.86	ug/L	15.02	1.13	0.62	0.93
Zn 206.200	Zn	4.87	ug/L	13.96	7.33	4.31	3.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: RINSE****Analysis Time: 5/12/2022 7:31:50 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	612205.13	1.03	1.07	1.09
Ag 328.068	Ag	-0.09	ug/L	-1177.98	-0.77	0.03	0.38
Al 396.152	Al	-0.42	ug/L	326.27	-0.06	-0.71	-1.28
As 188.980	As	0.72	ug/L	4.09	-0.73	3.51	-0.24
B 249.678	B	-0.29	ug/L	8.03	-0.12	-0.3	-1.01
Ba 233.527	Ba	0.03	ug/L	-2.48	-0.05	0.06	0.02
Be 234.861	Be	-0.063	ug/L	-4.992	-0.104	-0.061	-0.044
Ca 315.887	Ca	-0.85	ug/L	68.38	-0.93	-0.38	-1.38
Cd 214.439	Cd	-0.04	ug/L	1.37	-0.06	-0.02	-0.06
Co 228.615	Co	-0.16	ug/L	7.03	-0.57	-0.06	-0.49
Cr 267.716	Cr	-0.18	ug/L	22.01	-0.25	-0.27	-0.06
Cu 327.395	Cu	0.49	ug/L	-1655.78	-1.06	0.68	1.47
Fe 261.187	Fe	0.44	ug/L	-24.16	-3.8	1.71	3.25
K 766.491	K	-25.04	ug/L	381.22	10.84	-33.2	-20.55
Li 670.783	Li	-2.75	ug/L	10019.78	-2.17	-2.76	-2.99
Mg 279.078	Mg	1.34	ug/L	37.89	2.72	2.21	-0.04
Mn 257.610	Mn	0	ug/L	4.53	0.02	0.07	-0.11
Mo 204.598	Mo	-0.18	ug/L	-7.87	-0.61	0.61	-0.04
Na 589.592	Na	8.12	ug/L	-136.48	8.31	5.32	8.09
Ni 231.604	Ni	1.01	ug/L	6.39	0.87	-0.64	0.85
P 213.618	P	0.01	ug/L	-7.12	-1.78	3.05	-1.7
Pb 220.353	Pb	-1.43	ug/L	1.08	-0.05	-1.03	-1.17
S 181.972	S	4.3	ug/L	1.17	10.99	31.57	3.13
Sb 206.834	Sb	-4.17	ug/L	-0.99	1.16	-1.73	-11.78
Se 196.026	Se	4.9	ug/L	5.01	4.24	7.28	5.52
Si 251.611	Si	0.01	ug/L	26.39	-2.04	0.28	2.97
Sn 189.925	Sn	-1.73	ug/L	0.81	-1.61	-2.12	-1.36
Sr 421.552	Sr	0	ug/L	74.5	0.01	0	0
Ti 334.941	Ti	0	ug/L	16170.66	2.13	-0.27	-1.14
Tl 190.794	Tl	-0.54	ug/L	-3.01	-3.79	-0.44	2.57
V 292.401	V	0.56	ug/L	9.81	0.82	0.01	0.98
Zn 206.200	Zn	0.26	ug/L	-0.58	-0.24	0	0.67

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: RINSE****Analysis Time: 5/12/2022 7:33:50 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	613272	1.04	1.07	1.08
Ag 328.068	Ag	-0.1	ug/L	-1178.6	-0.96	0.03	0.22
Al 396.152	Al	-0.33	ug/L	329.18	0.12	-0.58	-1.19
As 188.980	As	2.2	ug/L	4.96	4.42	0.32	1.07
B 249.678	B	-0.43	ug/L	6.84	-0.39	0.3	-0.52
Ba 233.527	Ba	-0.01	ug/L	-4.16	-0.1	0.03	-0.07
Be 234.861	Be	-0.055	ug/L	-3.7	-0.037	-0.062	-0.083
Ca 315.887	Ca	-1.74	ug/L	63.61	-1.45	-1.65	-2.74
Cd 214.439	Cd	0.02	ug/L	2.73	0.1	-0.04	-0.02
Co 228.615	Co	0.21	ug/L	9.17	0.56	0.07	0.11
Cr 267.716	Cr	-0.25	ug/L	19.45	-0.12	-0.17	-0.35
Cu 327.395	Cu	0.84	ug/L	-1646.26	-0.86	0.74	1.39
Fe 261.187	Fe	1.79	ug/L	-21.76	1.9	0.8	0.29
K 766.491	K	-11.04	ug/L	398.87	14.88	1.45	-45.96
Li 670.783	Li	-2.46	ug/L	10181.56	-2.03	-2.42	-2.73
Mg 279.078	Mg	0.67	ug/L	36.17	-1.92	1.23	3.03
Mn 257.610	Mn	-0.02	ug/L	1.89	-0.08	0.06	-0.07
Mo 204.598	Mo	0.22	ug/L	-6.38	0.83	0.33	-0.15
Na 589.592	Na	10.69	ug/L	-116.09	10.35	13.44	11.24
Ni 231.604	Ni	1.1	ug/L	6.56	3	1.06	-0.15
P 213.618	P	-0.8	ug/L	-7.75	4.6	-2.36	-2.71
Pb 220.353	Pb	-1.39	ug/L	1.14	-2	-0.88	-1.04
S 181.972	S	-9.06	ug/L	0.66	-20.72	1.2	8.2
Sb 206.834	Sb	1.5	ug/L	3.4	-0.6	1.62	2.26
Se 196.026	Se	1.42	ug/L	2.85	1.06	1.25	3.56
Si 251.611	Si	0.19	ug/L	26.72	0.79	-0.46	0.62
Sn 189.925	Sn	-1.98	ug/L	0.54	-1.9	-1.78	-1.5
Sr 421.552	Sr	0.01	ug/L	94.26	0.01	0.01	0.01
Ti 334.941	Ti	-0.27	ug/L	16107.4	1.23	-0.31	-1.17
Tl 190.794	Tl	-2.2	ug/L	-4.62	-3.65	-3.49	0.2
V 292.401	V	-0.14	ug/L	-3.86	-0.77	0.23	0.27
Zn 206.200	Zn	0.22	ug/L	-0.7	0.09	0.44	-0.17

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: RINSE****Analysis Time: 5/12/2022 7:35:49 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	614578.13	1.05	1.08	1.08
Ag 328.068	Ag	0.22	ug/L	-1165.54	-0.67	0.42	0.54
Al 396.152	Al	-0.37	ug/L	327.74	0.11	-0.02	-0.83
As 188.980	As	3.93	ug/L	5.99	6.49	4.51	0.2
B 249.678	B	-0.15	ug/L	9.19	0.36	-0.51	-0.2
Ba 233.527	Ba	0.04	ug/L	-2.13	0.14	0.1	-0.02
Be 234.861	Be	-0.058	ug/L	-4.048	-0.019	-0.058	-0.087
Ca 315.887	Ca	-19.15	ug/L	-29.41	-19.95	-20.05	-15.93
Cd 214.439	Cd	-0.13	ug/L	-0.41	-0.07	-0.12	-0.15
Co 228.615	Co	-0.44	ug/L	5.39	-0.92	-0.18	-0.29
Cr 267.716	Cr	-0.21	ug/L	21.23	-0.18	-0.38	0.02
Cu 327.395	Cu	0.72	ug/L	-1649.43	-0.14	0.89	1
Fe 261.187	Fe	2.04	ug/L	-21.31	0.57	3.92	0.89
K 766.491	K	-12.24	ug/L	397.36	34.63	-37.29	6.06
Li 670.783	Li	-2.64	ug/L	10083.41	-2.18	-2.78	-2.73
Mg 279.078	Mg	2.82	ug/L	41.73	3.64	4.09	1.37
Mn 257.610	Mn	-0.06	ug/L	-3.56	-0.06	-0.09	0
Mo 204.598	Mo	0.4	ug/L	-5.71	1.14	0.32	-0.33
Na 589.592	Na	10.77	ug/L	-115.4	10.89	7.4	11.04
Ni 231.604	Ni	-0.35	ug/L	3.71	0.23	-0.42	-0.25
P 213.618	P	-3.36	ug/L	-9.71	-4.58	-1.44	-2.45
Pb 220.353	Pb	-1.34	ug/L	1.21	-0.45	-3.64	-1.56
S 181.972	S	14.57	ug/L	1.57	32.35	51.9	-7.79
Sb 206.834	Sb	0.47	ug/L	2.6	-0.43	1.92	0.45
Se 196.026	Se	0.96	ug/L	2.57	-6.24	1.78	0.99
Si 251.611	Si	-0.39	ug/L	25.72	-2.01	0.12	0.02
Sn 189.925	Sn	-3.21	ug/L	-0.76	-5.3	-3.3	-1.86
Sr 421.552	Sr	0	ug/L	81.91	-0.01	0.01	0.01
Ti 334.941	Ti	-0.16	ug/L	16133.75	1.36	-0.32	-0.78
Tl 190.794	Tl	0.98	ug/L	-1.54	2.1	1.56	0.06
V 292.401	V	-0.01	ug/L	-1.35	-0.13	0.34	-0.15
Zn 206.200	Zn	0.49	ug/L	0.13	0.25	-0.06	1.61

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429386\_3170****Analysis Time: 5/11/2022 6:20:31 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	577174.84	0.96	1.02	1.02
Ag 328.068	Ag	0.17	ug/L	-1167.19	-0.5	0.24	0.46
Al 396.152	Al	2.51	ug/L	397.43	3.34	1.86	3.28
As 188.980	As	-0.3	ug/L	3.48	-0.16	4.98	-1.18
B 249.678	B	0.38	ug/L	13.56	-0.27	0.95	-0.14
Ba 233.527	Ba	0.01	ug/L	-3.52	-0.14	0.02	0.05
Be 234.861	Be	-0.06	ug/L	-4.518	-0.051	-0.044	-0.107
Ca 315.887	Ca	6.61	ug/L	108.25	6.87	7.04	6.27
Cd 214.439	Cd	0	ug/L	2.25	-0.05	0.19	-0.08
Co 228.615	Co	-0.33	ug/L	6.11	0.19	-0.37	-0.41
Cr 267.716	Cr	0.08	ug/L	31.55	-0.05	0.06	0.2
Cu 327.395	Cu	0.99	ug/L	-1642.2	-0.33	1.19	1.5
Fe 261.187	Fe	4.27	ug/L	-17.34	3.09	3.73	4.71
K 766.491	K	11.27	ug/L	426.98	3.94	16.99	8.8
Li 670.783	Li	0.01	ug/L	11556.09	1.08	-0.28	-0.22
Mg 279.078	Mg	2.5	ug/L	40.91	3.14	0.85	2.7
Mn 257.610	Mn	0.05	ug/L	11.17	0.15	0.05	0.01
Mo 204.598	Mo	-0.04	ug/L	-7.36	-0.86	0.09	0.23
Na 589.592	Na	8.38	ug/L	-134.5	1.45	16.68	5.66
Ni 231.604	Ni	0.64	ug/L	5.65	-1.53	1.76	0.99
P 213.618	P	7.15	ug/L	-1.66	3.32	7	7.8
Pb 220.353	Pb	-1.76	ug/L	0.57	0.51	-3.96	-0.2
S 181.972	S	-28.93	ug/L	-0.11	-47.19	-53.63	-36.46
Sb 206.834	Sb	-2.71	ug/L	0.15	7.2	-6.08	-5.33
Se 196.026	Se	3.79	ug/L	4.32	1.2	-0.87	6.09
Si 251.611	Si	21.51	ug/L	63.38	22.43	21.98	19.51
Sn 189.925	Sn	-1.71	ug/L	0.83	-3.53	-1.24	-0.69
Sr 421.552	Sr	0.03	ug/L	135.26	0.02	0.02	0.04
Ti 334.941	Ti	-0.06	ug/L	16157.42	1.12	-0.09	-0.58
Tl 190.794	Tl	0.45	ug/L	-2.05	0.21	-0.6	-0.77
V 292.401	V	0.28	ug/L	4.45	0.68	-0.16	0.24
Zn 206.200	Zn	1.3	ug/L	2.69	1.88	-0.32	1.66



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 6:22:30 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		569498.61	0.97	1	1
Ag 328.068	Ag	1009.56	ug/L	40317.03	1033.13	1003.81	1002.17
Al 396.152	Al	9971.7	ug/L	245417.58	10205.32	9885.09	9901.1
As 188.980	As	2016.14	ug/L	1188.58	2061.81	1987.99	2008.37
B 249.678	B	2076.25	ug/L	17143.58	2122.64	2060.41	2062.59
Ba 233.527	Ba	2073.2	ug/L	83837.55	2126.71	2054.57	2058.56
Be 234.861	Be	2016.49	ug/L	299280.11	2066.81	1997.671	2003.485
Ca 315.887	Ca	10048.33	ug/L	53812.66	10301.89	9964.43	9962.41
Cd 214.439	Cd	2060.23	ug/L	42690.73	2107.43	2030.5	2057.08
Co 228.615	Co	2089.91	ug/L	12170.88	2141.28	2069.86	2077.99
Cr 267.716	Cr	2039.86	ug/L	73525.2	2089.03	2024.15	2026.11
Cu 327.395	Cu	1977.83	ug/L	51958.01	2024.29	1965.06	1964.3
Fe 261.187	Fe	10049.94	ug/L	17880.97	10306.77	9952.04	9975.51
K 766.491	K	9846.82	ug/L	12884.74	10135.8	9748.56	9757.98
Li 670.783	Li	1931.98	ug/L	1083954.28	1988.79	1915.49	1913.07
Mg 279.078	Mg	10139.28	ug/L	26328.51	10395.2	10063.96	10060.21
Mn 257.610	Mn	2051.56	ug/L	263876.81	2101.49	2033.72	2038.5
Mo 204.598	Mo	1961.53	ug/L	7314.06	2015.06	1936.01	1959.49
Na 589.592	Na	9893.53	ug/L	82508.23	10152.02	9825.4	9797.58
Ni 231.604	Ni	2060.04	ug/L	4081.7	2111.23	2042.24	2047.69
P 213.618	P	2052.99	ug/L	1505.64	2119.97	1991.88	2091.1
Pb 220.353	Pb	2053.77	ug/L	3209.71	2108.19	2037.04	2036.61
S 181.972	S	9809.02	ug/L	378.49	9997.97	9747.01	9801.57
Sb 206.834	Sb	2032.28	ug/L	1575.71	2105.02	2004.7	2009.47
Se 196.026	Se	2050.3	ug/L	1271.01	2103.42	2036.83	2037.5
Si 251.611	Si	10367.49	ug/L	17917.68	10604.65	10276.55	10297.41
Sn 189.925	Sn	2001.35	ug/L	2129.2	2058.08	1983.33	1985.38
Sr 421.552	Sr	2066.69	ug/L	4797186.06	2118.95	2052.67	2048.64
Ti 334.941	Ti	2011.38	ug/L	502784.58	2063.9	1989.43	2000.88
Tl 190.794	Tl	2095.93	ug/L	2021.31	2157.71	2073.01	2081.84
V 292.401	V	2020.11	ug/L	39147.35	2068.68	2004.67	2006.53
Zn 206.200	Zn	2064.39	ug/L	6509.65	2117.33	2042.01	2060.79

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 6:25:14 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	575648.81	1	1.01	1.02
Ag 328.068	Ag	0.51	ug/L	-1153.56	0.1	1.03	0.51
Al 396.152	Al	1.69	ug/L	379.14	2.25	2.17	0.79
As 188.980	As	1.38	ug/L	4.48	-2.01	1.27	0.25
B 249.678	B	0.91	ug/L	17.89	1.66	-0.76	0.84
Ba 233.527	Ba	0.23	ug/L	5.47	0.42	0.35	0
Be 234.861	Be	0.174	ug/L	30.336	0.308	0.355	0.04
Ca 315.887	Ca	0.28	ug/L	74.4	3.67	0.73	-1.85
Cd 214.439	Cd	0.22	ug/L	6.91	0.43	0.37	0.1
Co 228.615	Co	0.24	ug/L	9.36	-0.86	0.62	0.12
Cr 267.716	Cr	0.15	ug/L	33.87	0.12	0.29	0.26
Cu 327.395	Cu	1.25	ug/L	-1635.25	0.39	1.8	1.62
Fe 261.187	Fe	1.44	ug/L	-22.39	5.16	2.99	0.5
K 766.491	K	20.34	ug/L	438.44	22.64	5.54	11.95
Li 670.783	Li	-0.15	ug/L	11465.49	0.09	-0.13	-0.51
Mg 279.078	Mg	2.78	ug/L	41.63	1.34	3.04	4.21
Mn 257.610	Mn	0.23	ug/L	34.29	0.41	0.46	0.05
Mo 204.598	Mo	1.58	ug/L	-1.33	2.19	2.53	1.05
Na 589.592	Na	2.08	ug/L	-184.15	3.98	2.03	3.74
Ni 231.604	Ni	-0.75	ug/L	2.9	-0.79	-0.92	-0.79
P 213.618	P	-2.31	ug/L	-8.94	-2.18	3.33	-1.43
Pb 220.353	Pb	0.45	ug/L	4.02	0.58	0.47	0.28
S 181.972	S	-10.92	ug/L	0.59	-19.89	-10.71	-10.83
Sb 206.834	Sb	-1.5	ug/L	1.07	-0.89	-5.44	-2.68
Se 196.026	Se	2.15	ug/L	3.3	2.83	7	1.8
Si 251.611	Si	1.57	ug/L	29.12	3.79	2.42	1.89
Sn 189.925	Sn	-0.64	ug/L	1.98	-1.17	-0.13	-0.09
Sr 421.552	Sr	0.25	ug/L	652.6	0.46	0.42	0.06
Ti 334.941	Ti	-0.69	ug/L	16005.66	0.48	-1.28	-1.7
Tl 190.794	Tl	0.31	ug/L	-2.2	-0.24	-0.11	0.72
V 292.401	V	0.29	ug/L	4.39	0.56	-0.26	0.39
Zn 206.200	Zn	0.7	ug/L	0.81	0.77	0.64	-0.32

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429387\_3170****Analysis Time: 5/11/2022 6:27:12 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	569194.68	0.98	1	1
Ag 328.068	Ag	520.25	ug/L	19982.11	515.93	518.34	523.05
Al 396.152	Al	2123.78	ug/L	53885.93	2113.91	2102.76	2134.58
As 188.980	As	2022.43	ug/L	1192.16	2006.19	2023.48	2034.58
B 249.678	B	2107.98	ug/L	17408.89	2087.54	2103.56	2121
Ba 233.527	Ba	2067.84	ug/L	83621.54	2053.21	2059.08	2077.62
Be 234.861	Be	520.354	ug/L	77228.343	516.208	518.324	523.101
Ca 315.887	Ca	42433.79	ug/L	226942.15	42165.6	42294.16	42624.67
Cd 214.439	Cd	1038.52	ug/L	21516.78	1029.17	1034.37	1044.81
Co 228.615	Co	2124.47	ug/L	12379.36	2107.27	2119.34	2135.05
Cr 267.716	Cr	2085.59	ug/L	75170.11	2070.27	2076.66	2095.81
Cu 327.395	Cu	2075.49	ug/L	54603.83	2053.62	2055.08	2090.2
Fe 261.187	Fe	2119.75	ug/L	3741.36	2108.49	2107.41	2126.18
K 766.491	K	20925.57	ug/L	26863.67	20825.56	20907.48	20988.77
Li 670.783	Li	2098.19	ug/L	1176379.24	2087.29	2090.89	2107.44
Mg 279.078	Mg	21111.25	ug/L	54782.79	21019.49	20955.6	21141.94
Mn 257.610	Mn	2105.44	ug/L	270783.37	2097.39	2082.36	2115.43
Mo 204.598	Mo	2029.28	ug/L	7565.84	2010.48	2011.03	2048.86
Na 589.592	Na	20842.73	ug/L	169641.71	20711.9	20763.39	20938.3
Ni 231.604	Ni	2089.07	ug/L	4139.12	2076.59	2078.59	2099.75
P 213.618	P	41930.65	ug/L	32093.81	41849.08	41529.23	41939.32
Pb 220.353	Pb	2048.26	ug/L	3202.31	2032.38	2038.38	2053.88
S 181.972	S	2041.06	ug/L	79.61	2038.83	1989.35	2149.15
Sb 206.834	Sb	2070.17	ug/L	1604.74	2049.08	2061.56	2086.41
Se 196.026	Se	2030.71	ug/L	1259.59	2016.53	2022.01	2038.88
Si 251.611	Si	10672.52	ug/L	18443.35	10488.64	10632.31	10756.91
Sn 189.925	Sn	2080.74	ug/L	2212.67	2064.15	2070.87	2088.73
Sr 421.552	Sr	2094.52	ug/L	4862912.31	2081.38	2082.13	2103.53
Ti 334.941	Ti	2076.88	ug/L	518623.97	2052.79	2065.16	2091.29
Tl 190.794	Tl	2008.47	ug/L	1936.89	1967.5	1993.15	2025.09
V 292.401	V	2085.52	ug/L	40426.79	2069.29	2076.52	2096.14
Zn 206.200	Zn	2071.27	ug/L	6532.95	2046.21	2046.59	2104.98

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483571001\_3170****Analysis Time: 5/11/2022 6:29:10 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1	Ratio	571250.55	0.99	1	1
Ag 328.068	Ag	-0.18	ug/L	-1180.93	-0.09	-0.38	-0.07
Al 396.152	Al	139.55	ug/L	3869.03	137.17	138.97	141.28
As 188.980	As	1.18	ug/L	4.39	2.46	-0.23	1.1
B 249.678	B	17.26	ug/L	152.43	18.65	17.8	17.2
Ba 233.527	Ba	51.92	ug/L	2098.99	51.37	51.44	52.27
Be 234.861	Be	0.186	ug/L	28.031	0.162	0.2	0.19
Ca 315.887	Ca	27762.18	ug/L	148476.11	27261.76	27803.4	27989.53
Cd 214.439	Cd	0.17	ug/L	6.05	0.16	0.11	0.28
Co 228.615	Co	11.71	ug/L	76.71	11.46	11.51	11.57
Cr 267.716	Cr	0.41	ug/L	31.26	0.41	0.57	0.46
Cu 327.395	Cu	1.54	ug/L	-1626.97	1.39	1.98	1.34
Fe 261.187	Fe	810.02	ug/L	1419.53	798.24	805.75	820.29
K 766.491	K	2815.13	ug/L	3970.09	2795.92	2819.01	2849.57
Li 670.783	Li	21.02	ug/L	23187.51	20.96	20.87	21.07
Mg 279.078	Mg	9385.34	ug/L	24373.96	9179.4	9335.48	9508.19
Mn 257.610	Mn	708.99	ug/L	91155.66	698.41	707.07	715.67
Mo 204.598	Mo	1.22	ug/L	-2.49	-0.19	2.03	2
Na 589.592	Na	62524.65	ug/L	497507.77	62072.83	62286.48	62863.31
Ni 231.604	Ni	29.95	ug/L	63.79	27.78	30.56	29.08
P 213.618	P	8.29	ug/L	-0.52	11.04	4.79	9.8
Pb 220.353	Pb	-1.25	ug/L	1.58	-0.51	-1.61	-0.06
S 181.972	S	22473.02	ug/L	865.87	22177.93	22380.48	22708.55
Sb 206.834	Sb	1.35	ug/L	3.24	1.16	2.73	-3.5
Se 196.026	Se	4.37	ug/L	4.83	9.94	0.9	6.2
Si 251.611	Si	4540.49	ug/L	7839.02	4414.77	4536.57	4615.09
Sn 189.925	Sn	-0.45	ug/L	2.15	0.13	-1.64	0.32
Sr 421.552	Sr	200.19	ug/L	465521.84	197.93	199.16	201.7
Ti 334.941	Ti	0.09	ug/L	16184.55	0.75	-0.24	-0.13
Tl 190.794	Tl	0.09	ug/L	-1.23	0.69	-1.51	0.2
V 292.401	V	1.07	ug/L	18.45	1.54	0.99	0.75
Zn 206.200	Zn	37.93	ug/L	119.31	36.16	37.82	38.2

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429466\_3170****Analysis Time: 5/11/2022 6:31:09 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.97	Ratio	556738.97	0.94	0.98	0.99
Ag 328.068	Ag	523.09	ug/L	20097.54	536.86	515.34	518.23
Al 396.152	Al	2284.94	ug/L	57964.81	2354.84	2249.76	2258.56
As 188.980	As	2056.62	ug/L	1212.63	2108.43	2026.69	2036.55
B 249.678	B	2148.49	ug/L	17742.54	2204.92	2116.94	2127.25
Ba 233.527	Ba	2112.74	ug/L	85439.89	2167.93	2081.12	2090.97
Be 234.861	Be	524.297	ug/L	77809.428	537.894	516.265	519.077
Ca 315.887	Ca	69948.37	ug/L	374021.08	72156.74	68614.83	69148.8
Cd 214.439	Cd	1028.84	ug/L	21316.57	1058.03	1013.53	1018.16
Co 228.615	Co	2111.06	ug/L	12299.78	2166.08	2079.17	2092.12
Cr 267.716	Cr	2069.55	ug/L	74580.06	2125.41	2035.58	2048.1
Cu 327.395	Cu	2077.22	ug/L	54650.68	2136.74	2051.02	2054.28
Fe 261.187	Fe	2917.61	ug/L	5164.32	2996.06	2868.58	2894.19
K 766.491	K	24489.14	ug/L	31364.71	25270.81	24073.94	24242.14
Li 670.783	Li	2242.82	ug/L	1256762.8	2305.04	2208.3	2215.89
Mg 279.078	Mg	30419.08	ug/L	78921.37	31145.38	30025.61	29971.73
Mn 257.610	Mn	2780.37	ug/L	357556.51	2858.05	2738.35	2753.57
Mo 204.598	Mo	2055.91	ug/L	7665.16	2135.46	2007.32	2016.87
Na 589.592	Na	84364.5	ug/L	675273.19	86861.29	83234.77	83396
Ni 231.604	Ni	2081.12	ug/L	4123.5	2137.6	2045.61	2061.93
P 213.618	P	42512.03	ug/L	32539.84	43380.01	41760.35	42177.94
Pb 220.353	Pb	2024.85	ug/L	3165.91	2084.73	1986.24	2010.87
S 181.972	S	24698.74	ug/L	951.58	25505.53	24327.65	24271.78
Sb 206.834	Sb	2106.93	ug/L	1632.42	2174.9	2070.05	2083.12
Se 196.026	Se	2034.91	ug/L	1262.33	2095.09	1999.9	2016.28
Si 251.611	Si	15374.39	ug/L	26534.18	15708.71	15106.84	15262.98
Sn 189.925	Sn	2097.29	ug/L	2230.24	2160.96	2052.3	2070.94
Sr 421.552	Sr	2280.01	ug/L	5294252.59	2344.3	2245.73	2256.85
Ti 334.941	Ti	2087.93	ug/L	521287.32	2158.52	2044.24	2073.34
Tl 190.794	Tl	1987.32	ug/L	1917.31	2020.71	1942.08	1977.35
V 292.401	V	2098.57	ug/L	40678.31	2154.2	2063.99	2077.8
Zn 206.200	Zn	2096.72	ug/L	6614.38	2170.08	2051.21	2070.43

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429467\_3170****Analysis Time: 5/11/2022 6:33:07 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	564272.94	0.98	0.98	1
Ag 328.068	Ag	519.84	ug/L	19965.94	512.1	519.84	519.99
Al 396.152	Al	2268.3	ug/L	57537.03	2218.87	2266.34	2282.9
As 188.980	As	2049.92	ug/L	1208.64	2015.73	2045.46	2051.23
B 249.678	B	2131.25	ug/L	17600.29	2098.81	2131.45	2132.74
Ba 233.527	Ba	2092.83	ug/L	84635.04	2059.73	2094.06	2096.87
Be 234.861	Be	518.691	ug/L	76977.518	509.922	519.187	519.251
Ca 315.887	Ca	69202.82	ug/L	370035.37	68072.07	69130.7	69390.03
Cd 214.439	Cd	1018.64	ug/L	21105.39	1003.46	1017.65	1019.14
Co 228.615	Co	2089.1	ug/L	12173.22	2056.12	2088.65	2092.13
Cr 267.716	Cr	2047.38	ug/L	73781.5	2014.08	2047.47	2049.73
Cu 327.395	Cu	2061.26	ug/L	54218.05	2014.12	2061.83	2072.4
Fe 261.187	Fe	2893.39	ug/L	5121.18	2843.29	2899.69	2892.58
K 766.491	K	24272.87	ug/L	31091.27	23972.65	24308.32	24283.19
Li 670.783	Li	2216.94	ug/L	1242388.59	2184.04	2219.4	2216.27
Mg 279.078	Mg	30204.58	ug/L	78365.08	29490.9	30266.51	30246.73
Mn 257.610	Mn	2753.44	ug/L	354094.16	2704.44	2745.67	2765.06
Mo 204.598	Mo	2034.07	ug/L	7583.7	1987.39	2023.86	2045.85
Na 589.592	Na	83745.53	ug/L	670308.85	82534.09	83909.89	83791.29
Ni 231.604	Ni	2069.18	ug/L	4099.87	2037.73	2070.53	2074.3
P 213.618	P	42204.63	ug/L	32304.59	41493.89	42410.75	42200.9
Pb 220.353	Pb	2005.72	ug/L	3136.05	1975.95	2001.79	2012.97
S 181.972	S	24524.05	ug/L	944.86	24251.24	24498.33	24484.9
Sb 206.834	Sb	2083.17	ug/L	1614.29	2043.4	2083.73	2083.34
Se 196.026	Se	2018.36	ug/L	1252.08	1986.09	2027.24	2028.14
Si 251.611	Si	15325.25	ug/L	26449.04	15047.89	15319.3	15350.63
Sn 189.925	Sn	2075.04	ug/L	2206.59	2039.61	2070.86	2080.98
Sr 421.552	Sr	2260.78	ug/L	5249583.17	2225.08	2264.48	2263.96
Ti 334.941	Ti	2070.28	ug/L	517018.16	2027.23	2049.4	2097.97
Tl 190.794	Tl	1963.77	ug/L	1894.56	1912.36	1957.56	1970.94
V 292.401	V	2077.98	ug/L	40279.14	2041.33	2079.6	2083.8
Zn 206.200	Zn	2061.64	ug/L	6503.7	2017.44	2037.52	2085.67

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483706001\_3170****Analysis Time: 5/11/2022 6:35:06 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	596638.64	1.03	1.05	1.05
Ag 328.068	Ag	0.62	ug/L	-1145.57	0.3	0.73	0.7
Al 396.152	Al	9.12	ug/L	706.17	9.01	8.16	9.9
As 188.980	As	7.7	ug/L	8.18	9.29	8.52	8.51
B 249.678	B	26.64	ug/L	230.32	27.57	26.82	26.73
Ba 233.527	Ba	1255.95	ug/L	50794.08	1255.9	1257.89	1252.4
Be 234.861	Be	0.058	ug/L	11.003	0.128	0.084	0.031
Ca 315.887	Ca	996.88	ug/L	5401.84	1005.51	989.19	998.73
Cd 214.439	Cd	0.14	ug/L	5.2	0.49	0.06	-0.09
Co 228.615	Co	7.25	ug/L	7.87	7	7.53	7.16
Cr 267.716	Cr	1.28	ug/L	74.37	1.64	1.36	1.17
Cu 327.395	Cu	4.87	ug/L	-1535.07	4.66	5.06	4.92
Fe 261.187	Fe	396.4	ug/L	681.97	397.86	393.02	396.89
K 766.491	K	28.74	ug/L	452.69	48.14	23.98	19.71
Li 670.783	Li	24.19	ug/L	24845.79	24.71	24.02	24.01
Mg 279.078	Mg	114.64	ug/L	331.68	117.32	117.21	112.86
Mn 257.610	Mn	6.38	ug/L	825.04	6.62	6.38	6.46
Mo 204.598	Mo	1.79	ug/L	-0.29	1.72	2.02	1.84
Na 589.592	Na	3643.66	ug/L	31196.47	3656.22	3619.28	3642.94
Ni 231.604	Ni	1.75	ug/L	7.8	-0.35	2.46	1.53
P 213.618	P	101.74	ug/L	70.87	102.44	107.53	97.34
Pb 220.353	Pb	0.97	ug/L	4.98	0.69	-0.47	1.27
S 181.972	S	620.89	ug/L	24.92	571.84	663.54	706.31
Sb 206.834	Sb	0.69	ug/L	2.81	2.32	-0.03	2.39
Se 196.026	Se	7.03	ug/L	6.34	9.44	-1.4	13.16
Si 251.611	Si	129.06	ug/L	248.73	142.73	131.34	123.34
Sn 189.925	Sn	-1.12	ug/L	1.48	-0.83	0.62	-2.79
Sr 421.552	Sr	340.81	ug/L	791171.02	340.59	339.01	341.47
Ti 334.941	Ti	0.79	ug/L	16351.69	1.8	0.42	0.53
Tl 190.794	Tl	1.57	ug/L	-0.88	2.2	4.83	-0.15
V 292.401	V	0.61	ug/L	10.04	1	0.54	0.19
Zn 206.200	Zn	17.81	ug/L	54.79	17.85	18.12	17.69

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483708001\_3170****Analysis Time: 5/11/2022 6:37:05 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.83	Ratio	474534.47	0.79	0.84	0.84
Ag 328.068	Ag	-22.51	ug/L	-1120.02	-21.83	-22.08	-22.99
Al 396.152	Al	-1493.43	ug/L	4477.09	-1491.47	-1492.94	-1500.67
As 188.980	As	36.55	ug/L	16.38	32.56	40.49	36.73
B 249.678	B	308.93	ug/L	2543.1	316.81	302.78	306.62
Ba 233.527	Ba	341026.1	ug/L	13793061.64	353447.67	335486.68	336523.77
Be 234.861	Be	-2.651	ug/L	-1787.758	-2.974	-2.544	-2.534
Ca 315.887	Ca	438316.61	ug/L	2343101.05	449935.41	431474.26	434635.22
Cd 214.439	Cd	-0.34	ug/L	76.65	-0.43	-0.4	-0.3
Co 228.615	Co	2058.82	ug/L	513.55	2058.96	2058.78	2061.48
Cr 267.716	Cr	15.82	ug/L	488.31	16.21	15.62	15.97
Cu 327.395	Cu	-12.59	ug/L	-1484.56	-12.03	-13	-13.19
Fe 261.187	Fe	246392.46	ug/L	439336.98	252502.25	242026.59	244151.83
K 766.491	K	10385.15	ug/L	14475.28	10726.73	10236.62	10243.79
Li 670.783	Li	21640.33	ug/L	12004093.44	22295.22	21328.1	21401.46
Mg 279.078	Mg	43313.67	ug/L	112359.03	44411.62	42587.29	42906.19
Mn 257.610	Mn	3418.96	ug/L	439962.67	3499.91	3363.19	3390.47
Mo 204.598	Mo	-3.96	ug/L	44.02	-4.36	-3.79	-4.69
Na 589.592	Na	2390267.24	ug/L	19674400.56	2459663.21	2352734.34	2367027.03
Ni 231.604	Ni	12.67	ug/L	26.01	11.99	11.95	13.44
P 213.618	P	5040.66	ug/L	3878.75	5122.36	4915.76	5049.68
Pb 220.353	Pb	-33.33	ug/L	-5.88	-35.29	-36.87	-31.09
S 181.972	S	12960.7	ug/L	505.05	13248.54	12737.56	12779.48
Sb 206.834	Sb	-3.17	ug/L	14.15	-5.97	-7.81	3.59
Se 196.026	Se	-18.74	ug/L	-19.43	-23.38	-24.25	-13.05
Si 251.611	Si	1799.98	ug/L	3200.27	1841.27	1774.53	1785.44
Sn 189.925	Sn	-9.02	ug/L	-1.09	-13.1	-9.22	-8.83
Sr 421.552	Sr	####	ug/L	####	####	####	####
Ti 334.941	Ti	11.6	ug/L	15977.52	11.34	11.62	11.85
Tl 190.794	Tl	-32.8	ug/L	-8.6	-37.38	-28.77	-34.03
V 292.401	V	-0.93	ug/L	-440.03	-2.13	-0.71	-0.22
Zn 206.200	Zn	8541.62	ug/L	26945.98	8719.87	8415.18	8491.39



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

Sample: 30483708001 3170X10

Analysis Time: 5/11/2022 6:39:03 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.96	Ratio	549903.21	0.93	0.97	0.97
Ag 328.068	Ag	-5.24	ug/L	-1169.31	-5.58	-5.06	-5.35
Al 396.152	Al	-325.4	ug/L	1335.46	-322.63	-325.15	-327.07
As 188.980	As	7.66	ug/L	6.39	4.2	9.11	7.32
B 249.678	B	31.07	ug/L	271.77	31.77	30.28	31.08
Ba 233.527	Ba	77307.97	ug/L	3126769.62	79487.86	77231.79	76460.91
Be 234.861	Be	-0.476	ug/L	-200.94	-0.588	-0.439	-0.438
Ca 315.887	Ca	49209.41	ug/L	263124.86	50475.11	48893.65	48871.46
Cd 214.439	Cd	0.22	ug/L	9.21	0.19	0.09	0.36
Co 228.615	Co	458.17	ug/L	66.89	458.9	458.48	458.2
Cr 267.716	Cr	1.8	ug/L	72.77	2.01	1.43	1.69
Cu 327.395	Cu	-3.44	ug/L	-1644.31	-4.61	-3.59	-3.1
Fe 261.187	Fe	27247.11	ug/L	48565.69	28021.45	27141.02	26951.09
K 766.491	K	732.78	ug/L	1560.29	772.51	738.59	739.92
Li 670.783	Li	2371.92	ug/L	1321084.84	2442.81	2361.76	2349.35
Mg 279.078	Mg	4671.43	ug/L	12146.99	4810.91	4647.28	4627.21
Mn 257.610	Mn	359.77	ug/L	46296.33	370.64	357.99	355.6
Mo 204.598	Mo	-2.14	ug/L	-0.56	-2.2	-2.06	-1.7
Na 589.592	Na	261059.95	ug/L	2225147.72	268204.7	260077.7	258499.2
Ni 231.604	Ni	1.75	ug/L	5.41	2.67	0.93	0.32
P 213.618	P	504.91	ug/L	384.82	519.31	495.43	500.67
Pb 220.353	Pb	-9.88	ug/L	-2.55	-5.77	-9.45	-15.35
S 181.972	S	1181.04	ug/L	47.62	1286.61	1152.55	1115.82
Sb 206.834	Sb	1.91	ug/L	6.03	1.83	1.82	5.3
Se 196.026	Se	-3.67	ug/L	0.5	-6.72	-4.12	1.57
Si 251.611	Si	172.03	ug/L	339.6	180.65	169.95	168.7
Sn 189.925	Sn	-3.78	ug/L	-0.1	-3.35	-4.47	-4
Sr 421.552	Sr	####	ug/L	####	####	####	####
Ti 334.941	Ti	2.56	ug/L	16124.84	3.86	2.28	2.08
Tl 190.794	Tl	-5.65	ug/L	-1.47	-8.51	-3.67	-5.12
V 292.401	V	0.38	ug/L	-34.17	0.07	0.47	0.08
Zn 206.200	Zn	995.99	ug/L	3141.35	1027.26	992.6	984.31

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483708001 3170X100****Analysis Time: 5/11/2022 6:41:00 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	579409.35	0.95	1.04	1.03
Ag 328.068	Ag	-0.6	ug/L	-1174.67	-1.45	0.03	-0.58
Al 396.152	Al	-34.44	ug/L	478.76	-34.12	-32.6	-35.98
As 188.980	As	0.59	ug/L	3.81	2.2	-2.02	-2.47
B 249.678	B	3.38	ug/L	38.91	3.26	3.37	3.47
Ba 233.527	Ba	8520.45	ug/L	344611.66	8947.1	8302.91	8442.74
Be 234.861	Be	-0.08	ug/L	-20.352	-0.116	-0.075	-0.081
Ca 315.887	Ca	4754.13	ug/L	25486.43	4981.49	4608.3	4690.82
Cd 214.439	Cd	0.19	ug/L	6.32	0.08	0.17	0.35
Co 228.615	Co	49.67	ug/L	9.6	49.04	49.64	50.51
Cr 267.716	Cr	0.22	ug/L	34.2	0.25	0.33	-0.08
Cu 327.395	Cu	0.09	ug/L	-1653.72	-2.21	1.57	0.59
Fe 261.187	Fe	2671.44	ug/L	4739.21	2793.07	2601.04	2640.77
K 766.491	K	81.06	ug/L	539.68	103.73	46.19	99.02
Li 670.783	Li	197.8	ug/L	120499.54	208.91	192.3	195.03
Mg 279.078	Mg	466.27	ug/L	1243.39	486.64	453.75	459.75
Mn 257.610	Mn	35.49	ug/L	4571.54	37.15	34.62	35.06
Mo 204.598	Mo	-0.02	ug/L	-5.66	-0.34	0.89	-0.19
Na 589.592	Na	25272.34	ug/L	217207.47	26554.75	24564.29	24970.25
Ni 231.604	Ni	-0.26	ug/L	3.59	0.31	-1.26	-0.44
P 213.618	P	51.05	ug/L	32.54	48.62	51.63	53.78
Pb 220.353	Pb	-0.02	ug/L	4.34	0.86	0.57	0.42
S 181.972	S	83.8	ug/L	4.36	132.98	66.48	37.65
Sb 206.834	Sb	0.8	ug/L	3.11	3.87	-0.49	1.98
Se 196.026	Se	0.93	ug/L	2.67	1.41	3.99	4.17
Si 251.611	Si	17.49	ug/L	58.38	21.09	14.61	18.06
Sn 189.925	Sn	-0.87	ug/L	1.87	-1.52	-0.2	-0.51
Sr 421.552	Sr	2259.24	ug/L	5244234.63	2364.43	2201.93	2233.26
Ti 334.941	Ti	0.29	ug/L	16168.75	2.74	-0.95	-0.39
Tl 190.794	Tl	-0.3	ug/L	-2.07	0.23	-2.75	3.56
V 292.401	V	0.25	ug/L	-0.07	0.49	0.24	0.02
Zn 206.200	Zn	100.98	ug/L	317.25	104.73	99	100.14

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483715001\_3170****Analysis Time: 5/11/2022 6:42:59 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	594159.75	1.03	1.02	1.06
Ag 328.068	Ag	0.57	ug/L	-1151.11	0.39	1.17	0.67
Al 396.152	Al	7.18	ug/L	517.73	7.11	7.23	7.35
As 188.980	As	5.9	ug/L	7.15	7.19	7.5	4.31
B 249.678	B	22.74	ug/L	197.98	22.01	23.49	22.6
Ba 233.527	Ba	44.58	ug/L	1799.16	45.71	44.22	41.95
Be 234.861	Be	-0.067	ug/L	-5.635	-0.08	-0.067	-0.031
Ca 315.887	Ca	135.21	ug/L	795.72	134.31	136.3	133.53
Cd 214.439	Cd	0.01	ug/L	2.46	-0.08	0	-0.02
Co 228.615	Co	0	ug/L	6.49	-0.09	-0.89	0.15
Cr 267.716	Cr	0.47	ug/L	45.59	0.45	0.59	0.48
Cu 327.395	Cu	5.29	ug/L	-1525.69	4.72	6.26	5.71
Fe 261.187	Fe	44.56	ug/L	54.51	42.59	46.27	45.87
K 766.491	K	1.81	ug/L	415.15	-12.72	43.2	-27.8
Li 670.783	Li	-2.2	ug/L	10320.04	-2.13	-1.8	-2.48
Mg 279.078	Mg	16.45	ug/L	77.09	15.65	16.43	15.01
Mn 257.610	Mn	1.01	ug/L	134.69	1	1.06	0.98
Mo 204.598	Mo	0.48	ug/L	-5.42	1.51	0.57	0.4
Na 589.592	Na	209.14	ug/L	1548.48	210.51	211.96	202.78
Ni 231.604	Ni	0.85	ug/L	6.07	1.53	0.26	0.17
P 213.618	P	94.44	ug/L	65.2	95.43	99.33	88.74
Pb 220.353	Pb	0.18	ug/L	3.6	1.29	-0.35	-1.21
S 181.972	S	704.29	ug/L	28.11	736.79	713.4	648
Sb 206.834	Sb	-1.34	ug/L	1.2	2.79	0.11	-4.76
Se 196.026	Se	9.38	ug/L	7.78	10.16	11.99	5.32
Si 251.611	Si	88.56	ug/L	178.77	85.86	90.22	88.01
Sn 189.925	Sn	-1.39	ug/L	1.17	-0.23	-3.93	-1.21
Sr 421.552	Sr	15.22	ug/L	35393.35	15.23	15.2	14.82
Ti 334.941	Ti	-0.17	ug/L	16130.43	0.63	-1.11	-0.53
Tl 190.794	Tl	-1.12	ug/L	-3.57	0.07	1.03	-0.47
V 292.401	V	0.58	ug/L	10.04	0.57	0.05	0.53
Zn 206.200	Zn	8.21	ug/L	24.47	8.05	7.87	7.95

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484195001\_3170****Analysis Time: 5/11/2022 6:44:57 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	586713.63	1.02	1.03	1.03
Ag 328.068	Ag	0.17	ug/L	-1170.09	0.23	0.18	-0.17
Al 396.152	Al	56.04	ug/L	1833.13	55.46	56.31	55.89
As 188.980	As	2.81	ug/L	5.32	2.16	0.04	4.05
B 249.678	B	10.64	ug/L	98.11	10.96	9.97	10.66
Ba 233.527	Ba	36.78	ug/L	1483.62	35.27	36.34	37.42
Be 234.861	Be	-0.056	ug/L	-5.146	-0.068	-0.08	-0.069
Ca 315.887	Ca	10239.27	ug/L	54807.18	10036.68	10191.33	10337.34
Cd 214.439	Cd	0.23	ug/L	7.04	0.41	0.32	0.02
Co 228.615	Co	0.11	ug/L	5.57	0.23	-0.13	0.25
Cr 267.716	Cr	0.22	ug/L	35.76	0.34	0.2	0.23
Cu 327.395	Cu	123.71	ug/L	1682.03	121.86	123.68	124.9
Fe 261.187	Fe	244.57	ug/L	410.81	238.89	248.37	247.55
K 766.491	K	386.74	ug/L	902	406.4	357.13	398.28
Li 670.783	Li	-0.07	ug/L	11468.38	-0.02	-0.04	-0.11
Mg 279.078	Mg	1752.06	ug/L	4578.24	1699.27	1754.06	1765.4
Mn 257.610	Mn	57.81	ug/L	7442.98	56.73	57.63	58.41
Mo 204.598	Mo	127.21	ug/L	467	124.63	126.26	128.11
Na 589.592	Na	9390.41	ug/L	74606.12	9227.46	9355.99	9488.64
Ni 231.604	Ni	2.75	ug/L	9.87	4.04	2.21	1.44
P 213.618	P	136.5	ug/L	93.68	131.53	133.13	137.68
Pb 220.353	Pb	2.05	ug/L	6.46	1.79	-1.23	3.31
S 181.972	S	3661.69	ug/L	141.93	3656.32	3646.25	3733.42
Sb 206.834	Sb	1.51	ug/L	2.42	0.76	-2.04	4.96
Se 196.026	Se	0.92	ug/L	2.54	-0.49	5.17	-2.76
Si 251.611	Si	851.39	ug/L	1493.71	836.08	848.28	862.66
Sn 189.925	Sn	-1.76	ug/L	0.8	-2.72	-0.82	-1.93
Sr 421.552	Sr	19.65	ug/L	45962.53	19.07	19.49	19.9
Ti 334.941	Ti	-0.39	ug/L	16071.6	-0.24	-0.64	-0.28
Tl 190.794	Tl	0.6	ug/L	-2.29	-1	1.46	1.89
V 292.401	V	0.42	ug/L	-8.92	0.71	0.23	0.54
Zn 206.200	Zn	295.68	ug/L	931.6	290.95	294.32	298.08

## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: CCV****Analysis Time: 5/11/2022 6:46:56 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		573470.42	0.96	1.02	1.01
Ag 328.068	Ag	1009.81	ug/L	40327.7	1042.13	993.87	1002.62
Al 396.152	Al	9968.67	ug/L	245333.14	10296.98	9798.03	9888.59
As 188.980	As	2004.41	ug/L	1181.59	2065.8	1984.74	1983.6
B 249.678	B	2076.95	ug/L	17149.44	2139.65	2046.67	2059.09
Ba 233.527	Ba	2086	ug/L	84355.74	2155.06	2051.11	2067.34
Be 234.861	Be	2014.789	ug/L	299027.657	2079.28	1979.72	1998.44
Ca 315.887	Ca	10025.89	ug/L	53692.67	10359.2	9858.55	9954.1
Cd 214.439	Cd	2032.8	ug/L	42122.56	2129.76	1968.87	2041.57
Co 228.615	Co	2090.2	ug/L	12173.08	2163.03	2056.73	2072.82
Cr 267.716	Cr	2038.65	ug/L	73481.39	2106.28	2003.04	2021.52
Cu 327.395	Cu	1980.19	ug/L	52021.9	2044.3	1948.31	1964.87
Fe 261.187	Fe	10085.58	ug/L	17944.49	10420.44	9907.35	10008.86
K 766.491	K	9836.79	ug/L	12871.89	10219.34	9652.14	9731.2
Li 670.783	Li	1926.58	ug/L	1080954.46	1999.48	1889.09	1912.67
Mg 279.078	Mg	10130.25	ug/L	26305.08	10466.25	9956.53	10046.78
Mn 257.610	Mn	2058.29	ug/L	264741.48	2127.71	2023.22	2039.07
Mo 204.598	Mo	1938.57	ug/L	7228.47	1997.19	1906.79	1945.4
Na 589.592	Na	9964.28	ug/L	83095.59	10327.58	9799.8	9878.27
Ni 231.604	Ni	2050.74	ug/L	4063.3	2114.16	2018.92	2035.71
P 213.618	P	2059.18	ug/L	1510.5	2112.93	2042.26	2077.51
Pb 220.353	Pb	2052.91	ug/L	3208.38	2120.13	2018.47	2031.63
S 181.972	S	9850.44	ug/L	380.08	10129.71	9690.28	9748.25
Sb 206.834	Sb	2029.02	ug/L	1573.47	2088.91	2000.16	2012.87
Se 196.026	Se	2051.03	ug/L	1271.46	2119.58	2012.91	2032.16
Si 251.611	Si	10456.66	ug/L	18070.73	10761.18	10265.23	10393.46
Sn 189.925	Sn	2000.3	ug/L	2128.08	2072.58	1967.04	1977.38
Sr 421.552	Sr	2069.43	ug/L	4803552.81	2143.29	2032.16	2051.01
Ti 334.941	Ti	2012.79	ug/L	503126.98	2087.37	1969.83	1993.39
Tl 190.794	Tl	2100.78	ug/L	2026.06	2171.77	2077.89	2078
V 292.401	V	2022.59	ug/L	39197.5	2091.34	1988.7	2004.33
Zn 206.200	Zn	2055.27	ug/L	6480.83	2125.7	2028.03	2044.37

## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: CCB****Analysis Time: 5/11/2022 6:48:55 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	577306.56	0.97	1.03	1.02
Ag 328.068	Ag	0.33	ug/L	-1160.74	-0.46	0.71	0.65
Al 396.152	Al	0.46	ug/L	349.45	1.58	0.2	-0.57
As 188.980	As	-0.92	ug/L	3.12	-0.02	-1.64	-2.69
B 249.678	B	1.73	ug/L	24.64	4.07	1.72	0.01
Ba 233.527	Ba	3.59	ug/L	141.36	1.86	3.76	4.38
Be 234.861	Be	-0.02	ug/L	1.365	-0.018	-0.028	-0.024
Ca 315.887	Ca	-0.38	ug/L	70.88	-3.71	0.43	1.46
Cd 214.439	Cd	0.02	ug/L	2.62	0.08	0.04	-0.01
Co 228.615	Co	0.06	ug/L	8.15	1.44	-0.63	-0.32
Cr 267.716	Cr	-0.09	ug/L	25.43	-0.2	0.24	-0.06
Cu 327.395	Cu	0.38	ug/L	-1658.77	-1.39	1.46	0.87
Fe 261.187	Fe	1.82	ug/L	-21.7	3.28	1.85	2.19
K 766.491	K	-1.28	ug/L	411.18	-22.47	35.88	-3.68
Li 670.783	Li	0.13	ug/L	11620.63	0.96	-0.29	-0.07
Mg 279.078	Mg	1.94	ug/L	39.45	-2.83	4.35	3.56
Mn 257.610	Mn	0.05	ug/L	11.1	0.1	0.08	0.06
Mo 204.598	Mo	2.18	ug/L	0.93	2.7	2.66	1.71
Na 589.592	Na	25.42	ug/L	8.04	23.61	20.78	28.58
Ni 231.604	Ni	0.59	ug/L	5.56	1.15	0.42	-0.11
P 213.618	P	-4.63	ug/L	-10.7	-3.31	-9.45	-1.45
Pb 220.353	Pb	-0.87	ug/L	1.94	0.24	2.36	-0.77
S 181.972	S	20.1	ug/L	1.78	74.12	25.83	-11.43
Sb 206.834	Sb	-0.58	ug/L	1.78	1.03	-4.09	2.44
Se 196.026	Se	1.43	ug/L	2.86	-3.26	-0.12	5.01
Si 251.611	Si	3.85	ug/L	33.03	8.36	4.49	0.73
Sn 189.925	Sn	-3.54	ug/L	-1.11	-3.31	-1.8	-3.7
Sr 421.552	Sr	0.97	ug/L	2320.89	0.57	0.99	1.11
Ti 334.941	Ti	-0.15	ug/L	16136.08	1.7	-0.87	-0.74
Tl 190.794	Tl	0.68	ug/L	-1.84	2.21	0.54	-2.66
V 292.401	V	0.62	ug/L	10.83	0.67	0.8	0.84
Zn 206.200	Zn	0.54	ug/L	0.28	0.38	1.25	-0.48

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484208001\_3170****Analysis Time: 5/11/2022 6:50:53 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.98	Ratio	560266.68	0.97	0.98	0.98
Ag 328.068	Ag	-0.64	ug/L	-1200.06	-0.63	-0.93	-0.35
Al 396.152	Al	48.26	ug/L	3107.42	50.44	49.4	50.5
As 188.980	As	4.65	ug/L	6.84	5.4	6.36	2.68
B 249.678	B	179.33	ug/L	1492.5	176.74	176.4	182.15
Ba 233.527	Ba	27.11	ug/L	1124.11	27.98	26.91	27.04
Be 234.861	Be	-0.097	ug/L	-11.724	-0.081	-0.075	-0.122
Ca 315.887	Ca	344827.44	ug/L	1843347.69	340127.09	342290.69	349791.24
Cd 214.439	Cd	0.06	ug/L	3.73	0	-0.06	0.08
Co 228.615	Co	-4.58	ug/L	6.9	-4.72	-5.11	-4.48
Cr 267.716	Cr	-0.19	ug/L	22.25	-0.31	-0.19	-0.07
Cu 327.395	Cu	2.78	ug/L	-1603.34	2.9	2.54	2.66
Fe 261.187	Fe	94.5	ug/L	140.72	94.99	91.52	97.79
K 766.491	K	54876.19	ug/L	69684.2	54441.27	54739.1	55125.29
Li 670.783	Li	87.83	ug/L	60158.27	87.18	87.57	88.15
Mg 279.078	Mg	50550.31	ug/L	131131.31	49893.31	50522.48	50911.15
Mn 257.610	Mn	77.6	ug/L	9981.92	76.2	76.57	78.62
Mo 204.598	Mo	3.58	ug/L	6.33	3.07	4.11	2.71
Na 589.592	Na	37705.06	ug/L	299976.27	37354.84	37633.78	37919.09
Ni 231.604	Ni	2.02	ug/L	8.91	-0.76	3.96	2.77
P 213.618	P	7.6	ug/L	1.66	9.46	5.37	11.95
Pb 220.353	Pb	-3.98	ug/L	-2.02	-1.49	-3.71	-5.41
S 181.972	S	362680.23	ug/L	13957.94	358261.31	362278.4	364615.62
Sb 206.834	Sb	5.11	ug/L	5.67	7.31	6.95	4.89
Se 196.026	Se	5.87	ug/L	5.6	5.03	7.41	5.04
Si 251.611	Si	1021.59	ug/L	1790.16	999.67	1023.27	1034.46
Sn 189.925	Sn	-2.89	ug/L	-0.8	-3.14	-1.69	-1.02
Sr 421.552	Sr	1451.31	ug/L	3378850.82	1436	1447.76	1459.92
Ti 334.941	Ti	0.1	ug/L	16108.13	-0.02	0.1	0.11
Tl 190.794	Tl	-1.48	ug/L	-3.18	-3.28	-1	2.64
V 292.401	V	1.68	ug/L	31.69	1.75	1.27	1.99
Zn 206.200	Zn	4.13	ug/L	25.01	4.03	4.32	3.94

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484208002\_3170****Analysis Time: 5/11/2022 6:52:51 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	567717.87	0.98	0.99	0.99
Ag 328.068	Ag	-0.49	ug/L	-1194.08	-0.32	-0.77	-0.29
Al 396.152	Al	88.4	ug/L	4001.51	87.2	88.92	90.23
As 188.980	As	4.17	ug/L	6.54	6.86	7.41	2.17
B 249.678	B	100.25	ug/L	839.67	99.51	101.08	100.63
Ba 233.527	Ba	13.24	ug/L	561.62	12.79	13.2	13.4
Be 234.861	Be	-0.173	ug/L	-26.211	-0.17	-0.262	-0.164
Ca 315.887	Ca	327237.26	ug/L	1749319.68	320856.21	326995.87	331277.02
Cd 214.439	Cd	-0.02	ug/L	2.31	-0.05	-0.07	0.07
Co 228.615	Co	-0.78	ug/L	28.1	-0.76	-0.88	-0.32
Cr 267.716	Cr	-0.26	ug/L	16.24	-0.32	-0.4	-0.34
Cu 327.395	Cu	1.29	ug/L	-1642.96	1.3	0.74	1.56
Fe 261.187	Fe	799.92	ug/L	1398.25	788	803.97	802.22
K 766.491	K	18629.26	ug/L	23970.85	18399.64	18682.63	18738.71
Li 670.783	Li	110.93	ug/L	73018.55	109.65	111	111.77
Mg 279.078	Mg	40775.05	ug/L	105780.92	40179.51	40814.23	41070.11
Mn 257.610	Mn	257.54	ug/L	33116.19	252.45	258.85	260.4
Mo 204.598	Mo	0.53	ug/L	-5	0.12	1.08	-0.73
Na 589.592	Na	34667.82	ug/L	275775.3	34127.96	34724.84	34931.73
Ni 231.604	Ni	11	ug/L	26.61	12.34	10.12	9.05
P 213.618	P	2.15	ug/L	-2.66	3.58	-3.53	1.25
Pb 220.353	Pb	-3.4	ug/L	-1.17	-2.98	-2.49	-2.42
S 181.972	S	342588.62	ug/L	13184.77	337184.4	342915.05	345513.91
Sb 206.834	Sb	1.05	ug/L	2.62	-1.68	0.2	2.18
Se 196.026	Se	-1.26	ug/L	1.19	1.54	1.19	-3.51
Si 251.611	Si	2495.42	ug/L	4325.21	2461.74	2490.53	2542.64
Sn 189.925	Sn	-0.72	ug/L	1.53	-1.89	-4	2.74
Sr 421.552	Sr	1945.79	ug/L	4526093.82	1917.17	1948.26	1961.57
Ti 334.941	Ti	-0.3	ug/L	16015.16	-0.45	-0.24	-0.3
Tl 190.794	Tl	-4.54	ug/L	-5.94	-5.4	-6.16	-4.29
V 292.401	V	1.17	ug/L	20.91	1.22	1.01	1.39
Zn 206.200	Zn	1.79	ug/L	16.81	1.61	2.02	1.49



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484222001\_3170****Analysis Time: 5/11/2022 6:54:50 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	563846.6	0.98	0.98	0.99
Ag 328.068	Ag	-0.69	ug/L	-1202.09	-0.61	-0.66	-0.87
Al 396.152	Al	286.89	ug/L	8294.65	282.34	289.16	287.67
As 188.980	As	6.87	ug/L	7.98	9.28	5.88	6.1
B 249.678	B	84.77	ug/L	711.1	81.73	85.35	85.92
Ba 233.527	Ba	37.93	ug/L	1548.74	35.61	39.92	38.6
Be 234.861	Be	0.078	ug/L	14.578	0.077	0.101	0.08
Ca 315.887	Ca	210103.33	ug/L	1123180.76	205134.41	210186.81	213005.37
Cd 214.439	Cd	-0.01	ug/L	2.16	0	0.03	-0.06
Co 228.615	Co	0.27	ug/L	23.8	-0.16	0.48	0.22
Cr 267.716	Cr	0.43	ug/L	36.23	0.31	0.55	0.71
Cu 327.395	Cu	4.64	ug/L	-1548.56	4.82	4.46	4.55
Fe 261.187	Fe	228.12	ug/L	379.6	226.24	231.74	225.71
K 766.491	K	152359.55	ug/L	192584.24	150526.26	152487.32	153014.66
Li 670.783	Li	264.55	ug/L	158525.35	260.69	264.68	266.08
Mg 279.078	Mg	21295.73	ug/L	55263.59	21050.32	20753.78	21567.72
Mn 257.610	Mn	498.89	ug/L	64145.57	489.48	501.1	500.9
Mo 204.598	Mo	15.56	ug/L	50.94	14.81	13.96	15.33
Na 589.592	Na	37404.02	ug/L	297582.12	36889.52	37458.26	37574.32
Ni 231.604	Ni	7.61	ug/L	19.67	7.46	7.29	7.77
P 213.618	P	17.25	ug/L	7.66	13.99	16.45	17.02
Pb 220.353	Pb	-1.55	ug/L	1.43	-0.95	-1.48	-2.37
S 181.972	S	255665.17	ug/L	9839.68	251349.52	255829.19	257477.47
Sb 206.834	Sb	4.35	ug/L	5.24	-2.89	5.74	4.98
Se 196.026	Se	3.11	ug/L	4.02	8.26	0.52	-0.26
Si 251.611	Si	4655.03	ug/L	8038.89	4567.53	4655.54	4683.63
Sn 189.925	Sn	-1.62	ug/L	0.7	-3.35	-3.24	-1.19
Sr 421.552	Sr	862.25	ug/L	2007511.49	848.35	862.87	867.47
Ti 334.941	Ti	0.62	ug/L	16268.09	0.52	0.62	0.76
Tl 190.794	Tl	-1.64	ug/L	-3.06	0.91	-1.86	-2.3
V 292.401	V	3.97	ug/L	74.24	3.65	3.95	4.46
Zn 206.200	Zn	7.23	ug/L	29.29	6.17	7.22	6.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484222004 3170X10****Analysis Time: 5/11/2022 6:56:48 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	583228.81	0.97	1.04	1.04
Ag 328.068	Ag	-0.18	ug/L	-1181.75	-1.26	0.37	0.01
Al 396.152	Al	34.6	ug/L	1267.88	37.26	33.28	34.08
As 188.980	As	3	ug/L	5.46	4.59	-1.66	2.15
B 249.678	B	6.45	ug/L	63.73	6.74	6.42	5.79
Ba 233.527	Ba	5.62	ug/L	225.28	6.08	5.55	5.42
Be 234.861	Be	-0.063	ug/L	-5.279	-0.085	-0.055	-0.117
Ca 315.887	Ca	18935.42	ug/L	101292.22	19833.11	18711.2	18792.46
Cd 214.439	Cd	0.04	ug/L	3.22	0.16	-0.11	-0.04
Co 228.615	Co	-0.45	ug/L	6.47	-0.59	-0.76	-0.07
Cr 267.716	Cr	-0.11	ug/L	23.96	-0.26	-0.12	-0.22
Cu 327.395	Cu	0.52	ug/L	-1655.43	-1.6	0.8	1.51
Fe 261.187	Fe	33.22	ug/L	34.09	36.34	34.11	30.77
K 766.491	K	21212.2	ug/L	27165.66	22283.99	20945.86	20860.09
Li 670.783	Li	42.11	ug/L	34954.39	45.41	41.21	41.03
Mg 279.078	Mg	1760.63	ug/L	4600.53	1848	1725.64	1740.73
Mn 257.610	Mn	51.74	ug/L	6656.33	53.74	50.94	51.22
Mo 204.598	Mo	5.12	ug/L	11.9	6.16	5.75	3.99
Na 589.592	Na	6286.26	ug/L	49841.73	6594.06	6217.88	6189.09
Ni 231.604	Ni	0.81	ug/L	6	-0.53	0.6	-0.14
P 213.618	P	3.87	ug/L	-4.06	4.24	8.9	0.88
Pb 220.353	Pb	-1.37	ug/L	1.22	-1.39	1.26	-1.69
S 181.972	S	25346.14	ug/L	976.39	26497.88	25013.06	25068.02
Sb 206.834	Sb	-0.09	ug/L	2.11	-2.4	2.2	-0.07
Se 196.026	Se	2.9	ug/L	3.78	2.36	8.58	-0.82
Si 251.611	Si	625.34	ug/L	1102.64	653.84	622.15	617.84
Sn 189.925	Sn	-1.46	ug/L	1.09	-3.1	0.49	-1.33
Sr 421.552	Sr	112.09	ug/L	260773.41	117.69	110.72	110.26
Ti 334.941	Ti	0.23	ug/L	16222.29	2.5	-0.39	-0.59
Tl 190.794	Tl	-1.83	ug/L	-4.18	0.67	-4.47	-4.01
V 292.401	V	1.11	ug/L	20	1.45	0.52	1.63
Zn 206.200	Zn	3.92	ug/L	11.64	3.74	3.79	3.71

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484222005\_3170****Analysis Time: 5/11/2022 6:58:47 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	564457.67	0.94	1	1
Ag 328.068	Ag	0.04	ug/L	-1166.93	-0.1	-0.06	-0.13
Al 396.152	Al	33.41	ug/L	1920.01	33.96	32.6	31.39
As 188.980	As	9.77	ug/L	9.69	6.72	6.12	16.14
B 249.678	B	59.19	ug/L	495.49	59.33	57.89	59.17
Ba 233.527	Ba	28.53	ug/L	1166.32	29.15	28.15	28.39
Be 234.861	Be	-0.093	ug/L	-41.251	-0.062	-0.11	-0.184
Ca 315.887	Ca	165652.39	ug/L	885567.99	168034.81	163423.21	167008.8
Cd 214.439	Cd	0.01	ug/L	4.87	0.06	-0.05	0.1
Co 228.615	Co	16.18	ug/L	116.11	16.13	16.56	16.15
Cr 267.716	Cr	-0.18	ug/L	-84.15	-0.68	-0.17	-0.01
Cu 327.395	Cu	1.32	ug/L	-1631.62	1.12	1.16	1.71
Fe 261.187	Fe	6207.16	ug/L	11043.27	6304.48	6121.1	6217.72
K 766.491	K	15494.34	ug/L	19992.47	15824.73	15300.71	15457.69
Li 670.783	Li	66.31	ug/L	48161.14	68.32	65.14	66.22
Mg 279.078	Mg	44991.6	ug/L	116714.72	45678.92	44243.82	45434.16
Mn 257.610	Mn	6134.63	ug/L	788703.93	6229.27	6064.85	6131.96
Mo 204.598	Mo	1.18	ug/L	-2.32	1.26	0.74	1.08
Na 589.592	Na	37052.23	ug/L	294759.26	37736.53	36660.77	37024.6
Ni 231.604	Ni	2.38	ug/L	9.73	2.91	1.65	0.72
P 213.618	P	8.23	ug/L	0.81	8.01	10.48	8.44
Pb 220.353	Pb	-3.89	ug/L	-1.11	-4.48	-3.58	-4.74
S 181.972	S	135594.39	ug/L	5219.36	137709.11	133904.88	135606.75
Sb 206.834	Sb	0.36	ug/L	2.35	0.14	1.88	-0.29
Se 196.026	Se	-3.02	ug/L	1.48	-4.48	-3.11	1.22
Si 251.611	Si	7987.94	ug/L	13777.27	8082.57	7877.33	8058.75
Sn 189.925	Sn	-0.77	ug/L	1.66	-1.18	-0.38	-0.19
Sr 421.552	Sr	1738.64	ug/L	4040471.94	1763.86	1714.03	1742.87
Ti 334.941	Ti	-0.48	ug/L	16007.63	-0.55	-0.38	-0.4
Tl 190.794	Tl	-8.58	ug/L	-1.38	-7.14	-8.65	-8.96
V 292.401	V	0.92	ug/L	5.2	0.49	1.26	1.02
Zn 206.200	Zn	0.89	ug/L	7.91	0.91	1.37	0.2

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484222007\_3170X10****Analysis Time: 5/11/2022 7:00:45 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	586906.11	0.99	1.04	1.04
Ag 328.068	Ag	-0.19	ug/L	-1181.88	-0.66	-0.14	-0.09
Al 396.152	Al	15.34	ug/L	886.6	16.52	15.79	14.91
As 188.980	As	4.73	ug/L	6.5	4.15	6.27	5.34
B 249.678	B	7.31	ug/L	71.02	8.42	7.28	7.34
Ba 233.527	Ba	3.48	ug/L	140.52	3.52	3.52	3.43
Be 234.861	Be	-0.086	ug/L	-8.583	-0.097	-0.084	-0.076
Ca 315.887	Ca	38961.55	ug/L	208341.88	39898.91	38557.95	38662.59
Cd 214.439	Cd	-0.02	ug/L	1.81	-0.05	0	-0.01
Co 228.615	Co	-0.4	ug/L	8.37	-0.55	-0.42	0.35
Cr 267.716	Cr	-0.36	ug/L	15.54	-0.3	0.05	-0.39
Cu 327.395	Cu	0.82	ug/L	-1647.91	-0.4	1.11	1.61
Fe 261.187	Fe	4.95	ug/L	-16.59	3.89	7.79	3.99
K 766.491	K	12844.51	ug/L	16617.45	13186.97	12699.08	12723.64
Li 670.783	Li	62.82	ug/L	46463.09	65.06	61.99	61.92
Mg 279.078	Mg	3026.83	ug/L	7884.43	3091.36	3004.85	2983.49
Mn 257.610	Mn	10.52	ug/L	1357.19	11.05	10.49	10.39
Mo 204.598	Mo	0.88	ug/L	-3.93	0.06	0.86	1.09
Na 589.592	Na	5867.3	ug/L	46506.02	6014.51	5803.09	5820.45
Ni 231.604	Ni	-0.37	ug/L	3.68	-1.06	0.09	-0.45
P 213.618	P	0.44	ug/L	-6.5	1.43	0.99	-0.86
Pb 220.353	Pb	-1.52	ug/L	1.01	-0.01	-1.18	-1.47
S 181.972	S	39895.14	ug/L	1536.28	40685.07	39656.97	39583.2
Sb 206.834	Sb	1.67	ug/L	3.49	-1.67	3.33	2.62
Se 196.026	Se	3.12	ug/L	3.9	4.64	6.06	-0.65
Si 251.611	Si	601.86	ug/L	1062.41	617.25	596.28	598.06
Sn 189.925	Sn	-3	ug/L	-0.58	-4.47	-2.19	-0.66
Sr 421.552	Sr	207.2	ug/L	482119.27	212.13	204.91	205.38
Ti 334.941	Ti	-0.63	ug/L	16010.4	0.75	-0.98	-1.17
Tl 190.794	Tl	0.98	ug/L	-1.48	-0.94	1.71	-3.16
V 292.401	V	0.63	ug/L	11.14	0.4	0.68	0.52
Zn 206.200	Zn	3.94	ug/L	12.46	4.73	3.36	3.85

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484099001\_3170****Analysis Time: 5/11/2022 7:02:44 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.98	Ratio	559197.59	0.98	0.98	0.97
Ag 328.068	Ag	-0.92	ug/L	-1210.94	-0.79	-1.21	-0.97
Al 396.152	Al	61.15	ug/L	2874.37	55.71	66	58.64
As 188.980	As	29.91	ug/L	21.57	31	32.04	26.27
B 249.678	B	140.27	ug/L	1168.38	137.57	140.39	141.69
Ba 233.527	Ba	240.89	ug/L	9763.33	234.7	241.96	241.62
Be 234.861	Be	-0.028	ug/L	-5.313	-0.01	-0.037	-0.031
Ca 315.887	Ca	223028.62	ug/L	1192271.22	218807.89	223148.69	225609.71
Cd 214.439	Cd	-0.01	ug/L	2.46	-0.09	0.18	-0.11
Co 228.615	Co	-2.43	ug/L	5.34	-2.71	-3	-2.7
Cr 267.716	Cr	12.12	ug/L	469.33	11.61	12.47	12.15
Cu 327.395	Cu	32.26	ug/L	-800.97	31.77	32.54	32.23
Fe 261.187	Fe	606.73	ug/L	1060.64	597.11	608.1	609.08
K 766.491	K	32865.48	ug/L	41919.1	32392.3	32831.29	33127.58
Li 670.783	Li	111.91	ug/L	73556.69	109.82	111.85	112.95
Mg 279.078	Mg	128563.84	ug/L	333442.13	125278.27	129589.78	128944.35
Mn 257.610	Mn	60.14	ug/L	7737.94	58.98	60.25	60.64
Mo 204.598	Mo	1.26	ug/L	-1.93	0.51	2.02	0.85
Na 589.592	Na	206600.52	ug/L	1644531.55	203185.96	206898.61	208216.09
Ni 231.604	Ni	8.28	ug/L	22.08	8.74	8.1	6.74
P 213.618	P	2869.19	ug/L	2195.54	2796.84	2853.69	2885.84
Pb 220.353	Pb	-3.86	ug/L	-1.53	-4.4	-4.55	-2.82
S 181.972	S	455589.76	ug/L	17533.11	446988.89	455694.66	460190.57
Sb 206.834	Sb	3.6	ug/L	4.4	8.75	-0.36	0.18
Se 196.026	Se	6.57	ug/L	5.97	-1.81	5	11.34
Si 251.611	Si	18069.89	ug/L	31120.6	17645.27	18112.02	18217.92
Sn 189.925	Sn	-1.81	ug/L	0.49	-2.41	0.02	-6.18
Sr 421.552	Sr	2922.4	ug/L	6789762.09	2867.23	2927.66	2941.89
Ti 334.941	Ti	0.61	ug/L	16261.47	0.54	0.42	0.72
Tl 190.794	Tl	-0.98	ug/L	-2.4	-2.6	0.11	0.34
V 292.401	V	3.35	ug/L	64.73	3.58	2.93	3.36
Zn 206.200	Zn	43.09	ug/L	144.49	41.16	44.34	43.04

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484127001\_3170****Analysis Time: 5/11/2022 7:04:43 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	584241.65	1.02	1.02	1.02
Ag 328.068	Ag	-0.22	ug/L	-1183.49	-0.34	-0.01	-0.27
Al 396.152	Al	166.3	ug/L	4772.09	163.66	165.43	167.33
As 188.980	As	3.06	ug/L	5.55	7.8	2.45	-1.36
B 249.678	B	60.52	ug/L	510.17	59.71	60.66	60.66
Ba 233.527	Ba	50	ug/L	2025.61	48.71	49.89	50.68
Be 234.861	Be	-0.086	ug/L	-11.044	-0.115	-0.063	-0.085
Ca 315.887	Ca	80419.54	ug/L	429955.81	78588.85	80421.57	81040.64
Cd 214.439	Cd	0.05	ug/L	3.56	0.2	-0.05	0.05
Co 228.615	Co	-0.65	ug/L	8.35	-0.43	-1.26	0.35
Cr 267.716	Cr	3	ug/L	136.38	2.75	3.12	3.14
Cu 327.395	Cu	18.71	ug/L	-1164.27	18.32	18.68	19.19
Fe 261.187	Fe	565.14	ug/L	982.04	554.4	562.64	568.51
K 766.491	K	1934.13	ug/L	2867.97	1890.6	1962.86	1968.11
Li 670.783	Li	6.82	ug/L	15276.49	6.62	6.76	6.91
Mg 279.078	Mg	11964.11	ug/L	31062.06	11852.42	11852.35	12362.09
Mn 257.610	Mn	56.82	ug/L	7311.73	55.7	56.68	57.37
Mo 204.598	Mo	20.79	ug/L	70.36	19.78	22.23	19.55
Na 589.592	Na	21549.52	ug/L	171408.58	21198.38	21536.41	21703.8
Ni 231.604	Ni	4.73	ug/L	13.89	3.23	3.96	4.28
P 213.618	P	710.71	ug/L	538.15	703.64	699.69	721.52
Pb 220.353	Pb	-0.88	ug/L	2.13	0.56	0.4	-3.65
S 181.972	S	17163.86	ug/L	661.6	16843.24	17124.12	17308.13
Sb 206.834	Sb	-0.52	ug/L	1.61	0.64	4.32	-2.69
Se 196.026	Se	6.14	ug/L	5.74	12.85	-0.13	4.64
Si 251.611	Si	6483.4	ug/L	11182.1	6332.92	6423.11	6620.7
Sn 189.925	Sn	-2.05	ug/L	0.39	-1.28	-2.84	-2.16
Sr 421.552	Sr	175.93	ug/L	410745.47	172.87	175.43	177.4
Ti 334.941	Ti	0.44	ug/L	16256.92	0.48	0.42	0.4
Tl 190.794	Tl	-1.81	ug/L	-4.1	-3.19	-7.16	0.87
V 292.401	V	2.06	ug/L	36.01	1.96	1.65	2.18
Zn 206.200	Zn	77.36	ug/L	245.62	75.5	75.98	79.13

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429468\_3170****Analysis Time: 5/11/2022 7:06:41 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	565846.9	0.98	0.99	0.99
Ag 328.068	Ag	535.43	ug/L	20599.53	533.98	533.9	538.53
Al 396.152	Al	2362.06	ug/L	60160.78	2350.08	2361.96	2366.79
As 188.980	As	2111.79	ug/L	1245.03	2091.77	2110.34	2119.98
B 249.678	B	2247.09	ug/L	18557.05	2234.73	2240.1	2260.46
Ba 233.527	Ba	2376.42	ug/L	96109.18	2367.7	2370.07	2389.38
Be 234.861	Be	531.8	ug/L	78923.801	529.346	529.962	535.548
Ca 315.887	Ca	125461.94	ug/L	670768.67	125233.28	125273.75	126501.82
Cd 214.439	Cd	1035.55	ug/L	21455.57	1032.2	1032.29	1041.78
Co 228.615	Co	2099.34	ug/L	12229.75	2086.61	2094.09	2114.06
Cr 267.716	Cr	2106.78	ug/L	75933.23	2096.07	2099.21	2121.11
Cu 327.395	Cu	2123.4	ug/L	55900.24	2113.52	2123.8	2122.81
Fe 261.187	Fe	2811.44	ug/L	4973.83	2799.43	2806.59	2825.41
K 766.491	K	23857.16	ug/L	30578.46	23799.55	23821.74	23977.66
Li 670.783	Li	2232.02	ug/L	1250688.15	2228.54	2220.82	2246.27
Mg 279.078	Mg	33669.76	ug/L	87351.94	33605.68	33519.42	33756.16
Mn 257.610	Mn	2176.67	ug/L	279944.72	2167.54	2170.86	2189.74
Mo 204.598	Mo	2106.51	ug/L	7853.8	2104.62	2095.34	2142.82
Na 589.592	Na	43633.54	ug/L	351625.36	43547.67	43507.08	43802.85
Ni 231.604	Ni	2060.68	ug/L	4083.05	2049.07	2058.46	2072.22
P 213.618	P	43960.54	ug/L	33650	43988.37	43707.28	44005.24
Pb 220.353	Pb	2054.46	ug/L	3212.19	2051.06	2048.74	2060.74
S 181.972	S	19608.64	ug/L	755.75	19535.7	19587.86	19688.28
Sb 206.834	Sb	2149.43	ug/L	1665.54	2130.25	2150.7	2172.15
Se 196.026	Se	2064.58	ug/L	1280.52	2057.02	2057.49	2076.06
Si 251.611	Si	17662.42	ug/L	30471.97	17511.42	17565.7	17809.35
Sn 189.925	Sn	2118.94	ug/L	2253.14	2112.6	2117.24	2131.39
Sr 421.552	Sr	2352.38	ug/L	5463839.66	2345.25	2344.39	2364.26
Ti 334.941	Ti	2131.82	ug/L	531893.67	2131.33	2139.07	2149.54
Tl 190.794	Tl	2019.84	ug/L	1947.48	1996.3	2009.12	2039.22
V 292.401	V	2132.32	ug/L	41329.82	2124.3	2123.98	2147.01
Zn 206.200	Zn	2121.26	ug/L	6693.82	2108.26	2108.27	2141.54

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429469\_3170****Analysis Time: 5/11/2022 7:08:40 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1	Ratio	571741.55	0.99	1	1
Ag 328.068	Ag	518.75	ug/L	19921.04	511.88	518	524.36
Al 396.152	Al	2294.97	ug/L	58423.49	2267.91	2291.8	2325.49
As 188.980	As	2052.51	ug/L	1210.11	2031.7	2055.45	2074.96
B 249.678	B	2184.71	ug/L	18042.36	2155.45	2186.93	2204.05
Ba 233.527	Ba	2081.64	ug/L	84187.32	2056.15	2080.21	2103.76
Be 234.861	Be	517.5	ug/L	76802.18	510.422	516.753	523.625
Ca 315.887	Ca	123524.5	ug/L	660410.82	122203.34	123299.46	124752.27
Cd 214.439	Cd	1008.25	ug/L	20890.02	995.79	1007.63	1018.7
Co 228.615	Co	2036.96	ug/L	11875.46	2009	2035.91	2063.03
Cr 267.716	Cr	2050.31	ug/L	73898.76	2021.97	2049.03	2073.87
Cu 327.395	Cu	2055.66	ug/L	54063.25	2034.55	2063.07	2072.21
Fe 261.187	Fe	2665.67	ug/L	4714.25	2628.98	2664.62	2692.25
K 766.491	K	23263.9	ug/L	29827.63	23082.6	23260.1	23488.29
Li 670.783	Li	2175.94	ug/L	1219592.06	2150.97	2175.24	2196.49
Mg 279.078	Mg	32906.9	ug/L	85373.59	32330.09	33044.82	33416.23
Mn 257.610	Mn	2117.05	ug/L	272275.41	2087.86	2114.94	2140.86
Mo 204.598	Mo	2015.48	ug/L	7514.21	1998.22	2025.48	2076.18
Na 589.592	Na	42239.13	ug/L	339963.76	41765.84	42326.4	42620.79
Ni 231.604	Ni	2003.68	ug/L	3970.24	1975.3	2002.76	2024.44
P 213.618	P	42776.02	ug/L	32743.65	42193.7	42826.9	43634.59
Pb 220.353	Pb	1997.29	ug/L	3122.91	1972.04	1998.79	2018.78
S 181.972	S	19318.2	ug/L	744.57	19098.03	19304.86	19489.06
Sb 206.834	Sb	2071.06	ug/L	1605.29	2037.11	2060.9	2090.25
Se 196.026	Se	2009.45	ug/L	1246.38	1989.08	2017.7	2020.15
Si 251.611	Si	17528.89	ug/L	30239.94	17250.51	17506.17	17726.98
Sn 189.925	Sn	2072.24	ug/L	2203.56	2037.76	2075.14	2099.42
Sr 421.552	Sr	2233.68	ug/L	5188268.22	2206.06	2233.83	2252.62
Ti 334.941	Ti	2053.65	ug/L	512983.38	2008.63	2039.86	2075.13
Tl 190.794	Tl	1955.17	ug/L	1885.18	1900.29	1951.39	1987.64
V 292.401	V	2074.78	ug/L	40217.7	2047.63	2072.49	2098.01
Zn 206.200	Zn	2035.26	ug/L	6422.47	2022.96	2048.48	2100.89



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 7:10:38 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	580172.14	0.95	1.04	1.03
Ag 328.068	Ag	1021.06	ug/L	40789.94	1079.03	994.23	1004.94
Al 396.152	Al	10085.88	ug/L	248225.73	10664.24	9809.4	9925.35
As 188.980	As	2029.67	ug/L	1196.35	2140.37	1975.73	2003.32
B 249.678	B	2104.36	ug/L	17375.67	2222.21	2051.04	2071.71
Ba 233.527	Ba	2106.23	ug/L	85173.58	2227.65	2051.18	2073.35
Be 234.861	Be	2038.118	ug/L	302489.979	2153.434	1986.069	2004.363
Ca 315.887	Ca	10149.34	ug/L	54352.89	10746.87	9869.02	9993.32
Cd 214.439	Cd	2051.47	ug/L	42509.4	2157.74	1999.93	2002.99
Co 228.615	Co	2115.47	ug/L	12320.96	2237.42	2061.98	2078.33
Cr 267.716	Cr	2059.89	ug/L	74246.49	2176.28	2005.33	2024.95
Cu 327.395	Cu	2002.91	ug/L	52637.99	2114.68	1949.9	1970.91
Fe 261.187	Fe	10238.32	ug/L	18216.55	10817.58	9961.24	10076.79
K 766.491	K	9970.42	ug/L	13041.34	10580.44	9725.6	9789.79
Li 670.783	Li	1985.57	ug/L	1113728.42	2104.16	1933.26	1951.58
Mg 279.078	Mg	10280.87	ug/L	26695.68	10869.78	10029.65	10111.98
Mn 257.610	Mn	2091.75	ug/L	269045.01	2211.57	2035.82	2057.17
Mo 204.598	Mo	1982.47	ug/L	7392.22	2097.81	1936.25	1958.51
Na 589.592	Na	10083.73	ug/L	84085.17	10681.54	9831.17	9888.4
Ni 231.604	Ni	2082.97	ug/L	4127.09	2198.95	2031.47	2052.86
P 213.618	P	2077.36	ug/L	1523.61	2203.86	2015.43	2043.86
Pb 220.353	Pb	2083.94	ug/L	3256.82	2205.44	2027.19	2050.73
S 181.972	S	10075.33	ug/L	388.74	10572.47	9819.85	9842.99
Sb 206.834	Sb	2055.48	ug/L	1594.02	2174.44	1998.15	2020.82
Se 196.026	Se	2090.31	ug/L	1295.77	2217.91	2036.4	2060.97
Si 251.611	Si	10683.65	ug/L	18462.3	11285.58	10395.67	10511.95
Sn 189.925	Sn	2028.49	ug/L	2158.03	2145.02	1978.02	1994.19
Sr 421.552	Sr	2090.93	ug/L	4853439.73	2211.52	2036.11	2057.3
Ti 334.941	Ti	2047.5	ug/L	511524.41	2159.79	2004.12	2013.57
Tl 190.794	Tl	2128.93	ug/L	2053.15	2258.04	2071.78	2090.72
V 292.401	V	2045.09	ug/L	39630.44	2161.84	1988.96	2012.3
Zn 206.200	Zn	2082.09	ug/L	6565.45	2192.78	2026.29	2059.49

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 7:12:38 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	587228.8	1	1.03	1.04
Ag 328.068	Ag	0.32	ug/L	-1161.54	-0.61	0.6	0.34
Al 396.152	Al	0.69	ug/L	354.73	1.12	0.15	0.01
As 188.980	As	1.26	ug/L	4.41	1.74	0.44	-0.29
B 249.678	B	3.03	ug/L	35.36	3.92	4.03	2.34
Ba 233.527	Ba	0.39	ug/L	12.21	0.47	0.35	0.38
Be 234.861	Be	0.016	ug/L	6.81	0.064	0.027	-0.034
Ca 315.887	Ca	8.73	ug/L	119.58	7.45	9.19	9.33
Cd 214.439	Cd	0.09	ug/L	4.07	0.05	0.14	0.12
Co 228.615	Co	0.37	ug/L	10.08	0.18	0.45	-0.26
Cr 267.716	Cr	0.05	ug/L	30.53	0.09	-0.02	0.24
Cu 327.395	Cu	0.68	ug/L	-1650.6	-1.05	1.03	1.48
Fe 261.187	Fe	1.8	ug/L	-21.74	0.65	-2.22	6.62
K 766.491	K	19.72	ug/L	437.66	60.97	1.12	8.38
Li 670.783	Li	-0.05	ug/L	11520.96	0.61	-0.17	-0.29
Mg 279.078	Mg	4.61	ug/L	46.38	4.34	2.83	6.86
Mn 257.610	Mn	0.17	ug/L	26.51	0.33	0.07	0.2
Mo 204.598	Mo	1.8	ug/L	-0.52	1.02	2	1.62
Na 589.592	Na	18.95	ug/L	-49.56	21.99	15.88	18.9
Ni 231.604	Ni	1.64	ug/L	7.64	1.68	2.1	-0.14
P 213.618	P	-1.05	ug/L	-7.97	-2.11	-3.37	3.57
Pb 220.353	Pb	-1.14	ug/L	1.53	-2.33	0.86	-1.59
S 181.972	S	-7.77	ug/L	0.71	-10.25	-17.61	-0.19
Sb 206.834	Sb	-0.78	ug/L	1.62	4.84	-3.45	-0.65
Se 196.026	Se	7.93	ug/L	6.88	8.1	12.45	7.42
Si 251.611	Si	8.65	ug/L	41.3	16.27	7.61	5.02
Sn 189.925	Sn	-1.95	ug/L	0.58	-1.69	-1.4	-1.96
Sr 421.552	Sr	0.26	ug/L	666.28	0.34	0.22	0.23
Ti 334.941	Ti	-0.11	ug/L	16145.55	1.67	-0.29	-1.05
Tl 190.794	Tl	-0.79	ug/L	-3.26	-2.34	2.74	-1.59
V 292.401	V	0.3	ug/L	4.62	0.28	0.63	0.76
Zn 206.200	Zn	0.34	ug/L	-0.33	0.49	-0.38	1.04

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069001\_3150X100****Analysis Time: 5/11/2022 7:14:36 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	593936.9	0.99	1.06	1.05
Ag 328.068	Ag	0.15	ug/L	-1167.66	-1.05	0.36	0.75
Al 396.152	Al	13.77	ug/L	691.7	16.11	14.36	11.1
As 188.980	As	1.06	ug/L	4.3	2.99	-0.75	1.88
B 249.678	B	1.54	ug/L	22.81	2.83	0.47	1.5
Ba 233.527	Ba	0.67	ug/L	23.95	0.78	0.52	0.62
Be 234.861	Be	0.006	ug/L	1.824	-0.025	-0.094	-0.038
Ca 315.887	Ca	3952.24	ug/L	21199.78	4143.42	3861.07	3905.46
Cd 214.439	Cd	0.09	ug/L	4.47	-0.02	0.06	0.17
Co 228.615	Co	7.03	ug/L	49.25	6.9	6.54	6.91
Cr 267.716	Cr	0.01	ug/L	22.88	-0.02	0.26	-0.27
Cu 327.395	Cu	0.81	ug/L	-1646.78	-1.67	2.03	1.4
Fe 261.187	Fe	680.15	ug/L	1187.91	718.38	663.29	671.24
K 766.491	K	51.77	ug/L	479.43	86.22	38.22	19.37
Li 670.783	Li	-1.96	ug/L	10447.57	-1	-2.46	-2.15
Mg 279.078	Mg	2640.93	ug/L	6883.28	2776.6	2590.78	2598.54
Mn 257.610	Mn	361.62	ug/L	46496.68	378.77	353.37	357.36
Mo 204.598	Mo	1.34	ug/L	-2.14	1.25	1.52	0.59
Na 589.592	Na	98.94	ug/L	588.15	103.68	99.85	93.4
Ni 231.604	Ni	11.23	ug/L	26.67	13.19	9.76	10.2
P 213.618	P	1.89	ug/L	-5.66	6.23	1.99	1.42
Pb 220.353	Pb	0.05	ug/L	3.46	-1.18	-1.21	-0.6
S 181.972	S	7158.78	ug/L	276.51	7553.36	6905.2	7107.91
Sb 206.834	Sb	0.22	ug/L	2.41	2.37	0.55	-1.12
Se 196.026	Se	4.03	ug/L	4.52	2.63	4.64	6.53
Si 251.611	Si	66.33	ug/L	140.95	67.39	64.63	66.67
Sn 189.925	Sn	-1.43	ug/L	1.13	-1.33	-1.79	-1.46
Sr 421.552	Sr	8.76	ug/L	20510.83	9.2	8.58	8.66
Ti 334.941	Ti	-0.35	ug/L	16084.72	2.33	-1.5	-1.06
Tl 190.794	Tl	0.21	ug/L	-1.72	1.95	0.65	-0.88
V 292.401	V	0.4	ug/L	5.46	0.34	0.67	0.39
Zn 206.200	Zn	14.43	ug/L	44.25	14.82	14.01	14.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069002\_3150X100****Analysis Time: 5/11/2022 7:16:34 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	587513.43	0.97	1.04	1.04
Ag 328.068	Ag	0	ug/L	-1173.99	-1.19	0.65	0.08
Al 396.152	Al	5.15	ug/L	482.59	4.9	3.59	5.9
As 188.980	As	3.26	ug/L	5.6	5.72	2.45	4.14
B 249.678	B	0.93	ug/L	18	0.67	0.3	2.27
Ba 233.527	Ba	0.51	ug/L	17.42	0.45	0.54	0.48
Be 234.861	Be	-0.022	ug/L	0.985	-0.038	-0.017	-0.002
Ca 315.887	Ca	4316.39	ug/L	23146.25	4448.57	4242.48	4302.92
Cd 214.439	Cd	0.07	ug/L	3.83	0.04	0.09	0.14
Co 228.615	Co	2.75	ug/L	24.35	2.14	2.95	3.24
Cr 267.716	Cr	-0.02	ug/L	24.95	0.26	-0.18	-0.05
Cu 327.395	Cu	0.47	ug/L	-1656.07	-1.98	1.47	1.27
Fe 261.187	Fe	10.17	ug/L	-6.7	9.12	10.79	9.63
K 766.491	K	83.67	ug/L	519.88	96.66	57.3	107.47
Li 670.783	Li	-1.82	ug/L	10528.77	-0.81	-2.18	-2.12
Mg 279.078	Mg	3103.72	ug/L	8083.4	3208.06	3036.24	3106.87
Mn 257.610	Mn	179.54	ug/L	23087.17	183.74	176.88	178.52
Mo 204.598	Mo	0.38	ug/L	-5.74	0.67	0.23	0.2
Na 589.592	Na	95.99	ug/L	564.37	97.87	96.35	92.59
Ni 231.604	Ni	9.04	ug/L	22.3	11.22	8.84	8.73
P 213.618	P	-1.5	ug/L	-8.24	2.86	-5.49	1.68
Pb 220.353	Pb	-0.34	ug/L	2.84	-0.04	-3.71	-0.68
S 181.972	S	7598.2	ug/L	293.41	7994.47	7492.34	7461.52
Sb 206.834	Sb	0.56	ug/L	2.65	2.23	-0.01	2.28
Se 196.026	Se	3.21	ug/L	4.01	-1.6	7.05	-1.81
Si 251.611	Si	68.81	ug/L	145.09	72.47	68.16	68.5
Sn 189.925	Sn	-0.98	ug/L	1.61	-3.58	-0.19	-0.99
Sr 421.552	Sr	9.81	ug/L	22975.18	10.13	9.65	9.78
Ti 334.941	Ti	0	ug/L	16171.45	2.6	-0.82	-0.78
Tl 190.794	Tl	-1.86	ug/L	-3.98	-3.33	-2.18	0.66
V 292.401	V	0.41	ug/L	6.68	1.03	0.29	0.09
Zn 206.200	Zn	16.13	ug/L	49.65	15.65	15.67	17.01

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069004\_3150X100****Analysis Time: 5/11/2022 7:18:33 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	586804.37	0.97	1.05	1.03
Ag 328.068	Ag	0.14	ug/L	-1168.7	-0.95	0.95	-0.21
Al 396.152	Al	33.05	ug/L	1147.49	35.89	32.07	32.85
As 188.980	As	0.57	ug/L	4	-1.46	0.4	2.44
B 249.678	B	0.46	ug/L	14.03	0.34	0.33	0.29
Ba 233.527	Ba	0.59	ug/L	20.39	0.37	0.48	0.69
Be 234.861	Be	-0.051	ug/L	-4.657	-0.059	-0.052	-0.048
Ca 315.887	Ca	1126.35	ug/L	6094	1182.39	1101.81	1118.73
Cd 214.439	Cd	-0.04	ug/L	1.67	-0.08	-0.07	-0.05
Co 228.615	Co	3.27	ug/L	27.08	3.72	3.42	2.84
Cr 267.716	Cr	0.08	ug/L	29.42	0.18	0.21	0.06
Cu 327.395	Cu	0.51	ug/L	-1655.14	-2.07	1.25	0.57
Fe 261.187	Fe	341.03	ug/L	583.15	352.75	335.66	338.4
K 766.491	K	22.42	ug/L	441.38	47.77	41.09	0.74
Li 670.783	Li	-1.11	ug/L	10928.66	0.05	-1.51	-1.29
Mg 279.078	Mg	546.8	ug/L	1452.5	567.06	536.34	545.33
Mn 257.610	Mn	132.51	ug/L	17041.46	139.37	129.41	131.5
Mo 204.598	Mo	0.54	ug/L	-5.16	0.05	0.43	1.12
Na 589.592	Na	39.51	ug/L	114.53	36.06	45.74	38.42
Ni 231.604	Ni	0.75	ug/L	5.9	1.3	2.07	-1.1
P 213.618	P	-1.43	ug/L	-8.23	-6.58	-0.68	-2.18
Pb 220.353	Pb	-1.53	ug/L	0.94	-1.6	-2.37	-0.74
S 181.972	S	1960.6	ug/L	76.46	2094.31	1904.03	1904.27
Sb 206.834	Sb	2.1	ug/L	3.88	4.74	-0.77	1.81
Se 196.026	Se	4.47	ug/L	4.75	5.78	2.57	4.7
Si 251.611	Si	44.66	ug/L	103.35	48.26	43.5	43.22
Sn 189.925	Sn	-1.92	ug/L	0.62	-0.29	-3.33	-0.55
Sr 421.552	Sr	2.82	ug/L	6638.4	2.93	2.75	2.8
Ti 334.941	Ti	-0.15	ug/L	16134.92	2.59	-1.14	-0.48
Tl 190.794	Tl	0.62	ug/L	-1.68	-0.73	3.45	-0.22
V 292.401	V	0.52	ug/L	8.49	0.83	0.76	0.14
Zn 206.200	Zn	7.59	ug/L	22.56	7.45	8.75	6.57

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484454001\_3205X100****Analysis Time: 5/11/2022 7:20:31 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	593650.59	1.03	1.04	1.04
Ag 328.068	Ag	0.1	ug/L	-1170.25	0.01	-0.24	0.37
Al 396.152	Al	11.39	ug/L	656.61	12.78	11.23	11.13
As 188.980	As	-0.05	ug/L	3.64	-2.35	-2.1	-0.38
B 249.678	B	298.03	ug/L	2469.4	304.98	296.66	302
Ba 233.527	Ba	1.83	ug/L	71.33	1.68	1.89	2.05
Be 234.861	Be	-0.047	ug/L	-2.93	-0.038	-0.055	-0.06
Ca 315.887	Ca	8295.31	ug/L	44415.37	8615.92	8391.28	8291.83
Cd 214.439	Cd	0.05	ug/L	3.25	0	0.14	0.07
Co 228.615	Co	-0.19	ug/L	7.52	0.4	-0.11	-1.01
Cr 267.716	Cr	-0.09	ug/L	25.79	0	-0.14	-0.26
Cu 327.395	Cu	1.2	ug/L	-1636.74	1.1	1.26	1.03
Fe 261.187	Fe	6.38	ug/L	-13.04	5.18	7.72	6.03
K 766.491	K	1133.25	ug/L	1845.37	1227.99	1115.78	1115
Li 670.783	Li	5.48	ug/L	14583.33	6.01	5.34	5.42
Mg 279.078	Mg	11828.9	ug/L	30710.44	12375.04	12179.01	11719.4
Mn 257.610	Mn	3	ug/L	390.45	3.13	3	3
Mo 204.598	Mo	7.02	ug/L	18.99	7.4	7.07	6.53
Na 589.592	Na	5140.79	ug/L	40716.77	5343.76	5214.59	5111.68
Ni 231.604	Ni	-0.58	ug/L	3.36	0.78	0.15	-1.21
P 213.618	P	-2.71	ug/L	-9.16	-1.96	-4.9	-5.91
Pb 220.353	Pb	-2.84	ug/L	-1.05	-2.37	-4.92	-2.27
S 181.972	S	22315.24	ug/L	859.74	23140.73	22672.76	22106.58
Sb 206.834	Sb	1.49	ug/L	3.29	3.29	3.6	0.25
Se 196.026	Se	2.58	ug/L	3.56	5.79	4.7	7.28
Si 251.611	Si	85.96	ug/L	174.89	94.87	85	82.55
Sn 189.925	Sn	-1.26	ug/L	1.3	-1.99	0.55	-0.63
Sr 421.552	Sr	20.06	ug/L	46878.59	20.87	20.37	19.96
Ti 334.941	Ti	-0.88	ug/L	15956.38	-0.59	-0.99	-0.99
Tl 190.794	Tl	-0.68	ug/L	-3.1	-2.9	3.52	0.39
V 292.401	V	0.76	ug/L	12.97	0.73	0.98	0.66
Zn 206.200	Zn	3.64	ug/L	10.55	3.74	4.01	3.48

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2432093\_3247****Analysis Time: 5/11/2022 7:22:30 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	596439.58	1.01	1.05	1.05
Ag 328.068	Ag	0.48	ug/L	-1154.65	-0.29	0.71	0.97
Al 396.152	Al	2.88	ug/L	406.71	2.81	2.49	2.41
As 188.980	As	1.37	ug/L	4.47	0.58	0.72	-1
B 249.678	B	0.62	ug/L	15.48	1.14	0.68	0.55
Ba 233.527	Ba	0.38	ug/L	11.77	0.41	0.36	0.36
Be 234.861	Be	-0.087	ug/L	-8.502	-0.078	-0.086	-0.092
Ca 315.887	Ca	9.65	ug/L	124.47	8.74	8.49	10.12
Cd 214.439	Cd	-0.07	ug/L	0.82	-0.05	-0.15	0.06
Co 228.615	Co	-0.28	ug/L	6.38	-0.61	-0.03	0.09
Cr 267.716	Cr	0.18	ug/L	35.06	0.06	0.32	0.35
Cu 327.395	Cu	1.45	ug/L	-1629.86	-0.17	2.07	1.88
Fe 261.187	Fe	2.59	ug/L	-20.33	2.53	1.94	5.1
K 766.491	K	-11.85	ug/L	397.81	12.73	-46.55	9.89
Li 670.783	Li	-0.88	ug/L	11064.19	-0.21	-0.99	-1.1
Mg 279.078	Mg	2.64	ug/L	41.27	4.05	1.46	2.91
Mn 257.610	Mn	0	ug/L	4.72	-0.03	-0.03	0.03
Mo 204.598	Mo	0.09	ug/L	-6.86	0.87	0.35	-0.33
Na 589.592	Na	23.09	ug/L	-16.71	26.2	16.86	24.29
Ni 231.604	Ni	1.04	ug/L	6.45	4.28	0.55	0.13
P 213.618	P	6.46	ug/L	-2.2	1.21	5	11.35
Pb 220.353	Pb	-1.11	ug/L	1.58	-1.9	-0.32	-1.64
S 181.972	S	-11.02	ug/L	0.58	12.7	34.78	-46.76
Sb 206.834	Sb	1.34	ug/L	3.29	6.13	0.39	0.48
Se 196.026	Se	-0.1	ug/L	1.91	-5.45	7.4	-2.71
Si 251.611	Si	29.31	ug/L	76.8	31.05	25.64	29.35
Sn 189.925	Sn	-2.42	ug/L	0.08	-3.43	-2.36	-2.04
Sr 421.552	Sr	0.15	ug/L	424.46	0.14	0.15	0.15
Ti 334.941	Ti	-0.33	ug/L	16093.12	1.08	-0.63	-0.92
Tl 190.794	Tl	-0.82	ug/L	-3.28	6.79	-1.87	-5.71
V 292.401	V	0.3	ug/L	4.84	-0.01	0.24	0.62
Zn 206.200	Zn	0.98	ug/L	1.67	0.89	1.04	1.18

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2432094\_3247****Analysis Time: 5/11/2022 7:24:28 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	578102.93	0.98	1.02	1.02
Ag 328.068	Ag	511.34	ug/L	19619.93	519.96	505.14	511.33
Al 396.152	Al	2086.49	ug/L	52950.69	2105.98	2059.94	2082.71
As 188.980	As	2000.07	ug/L	1178.93	2024.95	1970.48	2003.84
B 249.678	B	2069.18	ug/L	17088.73	2094	2045.06	2070.93
Ba 233.527	Ba	2042.09	ug/L	82580.21	2074.07	2017.29	2040.62
Be 234.861	Be	513.763	ug/L	76249.946	521.81	507.299	513.489
Ca 315.887	Ca	41805.75	ug/L	223584.43	42424.04	41266.19	41774.51
Cd 214.439	Cd	1022.94	ug/L	21194.13	1038.61	1012.2	1022.39
Co 228.615	Co	2097.6	ug/L	12223.5	2132.59	2071.41	2094.66
Cr 267.716	Cr	2051.93	ug/L	73957.37	2080.89	2026.25	2052.04
Cu 327.395	Cu	2034.51	ug/L	53493.19	2059.65	2013.92	2024.94
Fe 261.187	Fe	2099.32	ug/L	3705.03	2129.93	2076.62	2100.49
K 766.491	K	20639.11	ug/L	26501.8	21018.28	20390.04	20615.52
Li 670.783	Li	2057.27	ug/L	1153650.08	2092.22	2031.42	2054.99
Mg 279.078	Mg	20772.39	ug/L	53904.01	20984.94	20453.65	20745.21
Mn 257.610	Mn	2072.46	ug/L	266541.67	2100.71	2044.22	2063.52
Mo 204.598	Mo	1998.75	ug/L	7451.92	2017.69	1967.05	2006.17
Na 589.592	Na	20597.33	ug/L	167639.27	21001	20328.59	20547.49
Ni 231.604	Ni	2067.61	ug/L	4096.65	2105.07	2039.77	2066.26
P 213.618	P	41462.41	ug/L	31735.85	42144.45	41033.81	41164.45
Pb 220.353	Pb	2019.88	ug/L	3157.99	2045.64	1998.16	2019.39
S 181.972	S	2029.42	ug/L	79.17	2017.22	1999.71	2070.13
Sb 206.834	Sb	2030.12	ug/L	1574.01	2059.56	2005.32	2023.5
Se 196.026	Se	2016.47	ug/L	1250.76	2037.74	1993.09	2020.44
Si 251.611	Si	10629.81	ug/L	18369.02	10733.84	10499.64	10649.06
Sn 189.925	Sn	2055.36	ug/L	2185.72	2088.03	2034.43	2050.17
Sr 421.552	Sr	2065.92	ug/L	4796498.97	2102.53	2043.21	2059.77
Ti 334.941	Ti	2038.16	ug/L	509257.88	2072.97	1999.81	2052.01
Tl 190.794	Tl	1985.68	ug/L	1914.92	1987.99	1956.16	1994.19
V 292.401	V	2053.08	ug/L	39796.44	2083.64	2030.21	2052.34
Zn 206.200	Zn	2036.54	ug/L	6423.35	2067.2	1990.74	2052.66



## Agilent 5110 ICP-OES Report

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**Sample: 30485069016 3247****Analysis Time: 5/11/2022 7:26:26 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600278.38	1.04	1.05	1.05
Ag 328.068	Ag	0.39	ug/L	-1158.16	0.21	0.8	0.39
Al 396.152	Al	232.13	ug/L	6063.12	231.53	233.17	233.39
As 188.980	As	2.63	ug/L	5.23	0.76	4.51	0.72
B 249.678	B	8.71	ug/L	82.3	9.2	8.56	7.98
Ba 233.527	Ba	49.3	ug/L	1991.92	50.53	49.04	49.1
Be 234.861	Be	0.135	ug/L	24.316	0.173	0.12	0.081
Ca 315.887	Ca	13929.84	ug/L	74535.18	13964.96	13950.34	14041.17
Cd 214.439	Cd	0	ug/L	2.35	0.08	0.01	-0.02
Co 228.615	Co	-0.28	ug/L	5.9	-0.86	-0.07	-0.27
Cr 267.716	Cr	0.32	ug/L	40.03	0.41	0.25	0.24
Cu 327.395	Cu	2.4	ug/L	-1604.1	2.36	2.43	2.22
Fe 261.187	Fe	75.6	ug/L	110.13	73.54	79.36	79
K 766.491	K	1694.74	ug/L	2554.01	1728.22	1681.55	1712.32
Li 670.783	Li	1.04	ug/L	12106.82	1.27	0.89	1.05
Mg 279.078	Mg	8719.43	ug/L	22646.71	8728.39	8722.41	8787.03
Mn 257.610	Mn	23.94	ug/L	3082.51	23.96	24.12	24.07
Mo 204.598	Mo	2.18	ug/L	1.01	2	2.11	1.75
Na 589.592	Na	1011.03	ug/L	7941.28	1007.03	1010.92	1018.66
Ni 231.604	Ni	5.8	ug/L	15.96	5.98	6.58	4.4
P 213.618	P	6.73	ug/L	-1.87	10.15	10.35	3.77
Pb 220.353	Pb	-1.41	ug/L	1.18	0.13	-1.01	-1.39
S 181.972	S	20192.65	ug/L	778.07	19977.77	20337.7	20230.35
Sb 206.834	Sb	-1.31	ug/L	1.16	-0.15	-6.04	0.1
Se 196.026	Se	3.84	ug/L	4.35	0.81	4.06	2.24
Si 251.611	Si	2818.48	ug/L	4875.79	2826.75	2802.19	2849.01
Sn 189.925	Sn	-1.09	ug/L	1.48	-1.22	-0.35	-2.03
Sr 421.552	Sr	66.53	ug/L	154892.11	66.53	66.7	66.8
Ti 334.941	Ti	0.37	ug/L	16257.33	0.55	0.34	0.37
Tl 190.794	Tl	0.4	ug/L	-2.01	0.06	0.99	-0.21
V 292.401	V	0.5	ug/L	8.58	-0.25	0.66	0.81
Zn 206.200	Zn	23.7	ug/L	73.96	23.43	24.26	24.21

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2432125\_3247****Analysis Time: 5/11/2022 7:28:25 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		573183.07	1.02	0.96	1.01
Ag 328.068	Ag	517.82	ug/L	19882.81	503.42	545.21	511
Al 396.152	Al	2541.71	ug/L	64167.66	2474.1	2686.53	2508.62
As 188.980	As	2070.95	ug/L	1220.66	2022.29	2179.49	2038.99
B 249.678	B	2119.65	ug/L	17505.33	2059.32	2230.66	2093.33
Ba 233.527	Ba	2154.06	ug/L	87110.23	2098.93	2269	2127.37
Be 234.861	Be	533.249	ug/L	79142.202	518.859	561.882	527.226
Ca 315.887	Ca	56095.01	ug/L	299969.3	54534.53	59105.6	55418.37
Cd 214.439	Cd	1041.74	ug/L	21583.68	1014.37	1096.89	1028.85
Co 228.615	Co	2156.16	ug/L	12564.23	2096.8	2275.08	2129.05
Cr 267.716	Cr	2124.53	ug/L	76573.06	2068.46	2237.94	2099.16
Cu 327.395	Cu	2105.53	ug/L	55418.45	2045.49	2221.72	2084.83
Fe 261.187	Fe	2268.34	ug/L	4006.3	2206.24	2389.77	2240.31
K 766.491	K	22863.45	ug/L	29312.54	22296.07	24090.26	22498.86
Li 670.783	Li	2139.63	ug/L	1199368.18	2079.94	2255.64	2115.78
Mg 279.078	Mg	29976.87	ug/L	77774.18	29219.64	31500.1	29700.48
Mn 257.610	Mn	2175.82	ug/L	279833.58	2113.53	2301.3	2144.47
Mo 204.598	Mo	2061.48	ug/L	7686.07	1971.29	2192.51	2052.35
Na 589.592	Na	22089.33	ug/L	179729.64	21551.21	23254.1	21762.14
Ni 231.604	Ni	2121.11	ug/L	4202.61	2063.37	2231.04	2097.96
P 213.618	P	42623.89	ug/L	32624.83	41411.1	45059.84	42026.18
Pb 220.353	Pb	2055.57	ug/L	3213.74	2000.96	2161.93	2027.55
S 181.972	S	22577.14	ug/L	869.9	22001.53	23667.56	22371.93
Sb 206.834	Sb	2112.23	ug/L	1637.43	2042.3	2225.12	2095.45
Se 196.026	Se	2050.23	ug/L	1271.68	1992.79	2172.96	2017.7
Si 251.611	Si	13849.46	ug/L	23910.41	13422.34	14569.39	13704.29
Sn 189.925	Sn	2125.94	ug/L	2260.66	2068.15	2238.62	2100.5
Sr 421.552	Sr	2196.41	ug/L	5099817.55	2141.35	2313.33	2167.37
Ti 334.941	Ti	2111.17	ug/L	526917.13	2036.69	2233.39	2105.93
Tl 190.794	Tl	2022.12	ug/L	1950.11	1942.56	2121.93	2002.2
V 292.401	V	2126.16	ug/L	41214.73	2067.3	2239.32	2099.68
Zn 206.200	Zn	2102.08	ug/L	6630.72	2027.37	2222.07	2086.83

## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: 2432126\_3247****Analysis Time: 5/11/2022 7:30:23 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	577406.88	1.01	1.01	1.01
Ag 328.068	Ag	533.92	ug/L	20534.72	528.33	535.47	537.33
Al 396.152	Al	2816.67	ug/L	71102.83	2821.45	2823.75	2831.3
As 188.980	As	2271.77	ug/L	1338.18	2259.1	2292.22	2274.24
B 249.678	B	2278.58	ug/L	18817.69	2257.03	2286.48	2295.53
Ba 233.527	Ba	2426.36	ug/L	98122.34	2414.25	2439.34	2440.65
Be 234.861	Be	604.789	ug/L	89759.052	602.285	608.21	608.228
Ca 315.887	Ca	62991.38	ug/L	336839.33	62757.8	63425.48	63349.03
Cd 214.439	Cd	1137.91	ug/L	23575.97	1130.18	1142.02	1144.87
Co 228.615	Co	2444.35	ug/L	14245.48	2433.38	2460.23	2457.34
Cr 267.716	Cr	2443.55	ug/L	88067.56	2438.06	2459.33	2454.63
Cu 327.395	Cu	2390.4	ug/L	63141.87	2388.36	2394.97	2414.7
Fe 261.187	Fe	2577.45	ug/L	4555.53	2568.68	2588.42	2596.21
K 766.491	K	24379.87	ug/L	31233.53	24259.67	24470.9	24511.02
Li 670.783	Li	2366.13	ug/L	1325057.48	2349.13	2379.42	2380.9
Mg 279.078	Mg	33919.31	ug/L	87998.19	33904.94	34009.6	34070.24
Mn 257.610	Mn	2456.29	ug/L	315903.46	2451.39	2468.76	2475.16
Mo 204.598	Mo	2314.74	ug/L	8631.31	2287.79	2322.36	2344.31
Na 589.592	Na	23989.25	ug/L	195372.49	23830.38	24119.5	24085.93
Ni 231.604	Ni	2400.85	ug/L	4756.29	2386.74	2416.49	2412.16
P 213.618	P	47062.44	ug/L	36021.06	46554.97	47325	47422.59
Pb 220.353	Pb	2241.27	ug/L	3503.64	2228.77	2253.3	2250.94
S 181.972	S	23287.63	ug/L	897.25	23171.7	23325.67	23425.24
Sb 206.834	Sb	2309.41	ug/L	1790.66	2286.85	2323.81	2323.69
Se 196.026	Se	2197.72	ug/L	1363.08	2186.29	2202.99	2212.93
Si 251.611	Si	14912.14	ug/L	25745.93	14745.29	14973.28	15041.4
Sn 189.925	Sn	2381.39	ug/L	2531.95	2371.28	2401.98	2391.91
Sr 421.552	Sr	2475.48	ug/L	5747755.14	2460.53	2490.82	2491.07
Ti 334.941	Ti	2400.24	ug/L	596853.74	2385.62	2414.81	2404.74
Tl 190.794	Tl	2127.26	ug/L	2051.71	2072.74	2138.85	2151.75
V 292.401	V	2402	ug/L	46561.2	2389.33	2414.62	2417.66
Zn 206.200	Zn	2367.33	ug/L	7467.56	2346.44	2362.96	2401.9

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069017\_3247****Analysis Time: 5/11/2022 7:32:22 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		569878.75	0.99	1	1
Ag 328.068	Ag	-0.05	ug/L	-1169.19	-0.1	-0.27	0.11
Al 396.152	Al	1116.54	ug/L	28651.2	1126.38	1127.86	1113.14
As 188.980	As	4.38	ug/L	6.65	6.49	8	0.52
B 249.678	B	17.94	ug/L	155.8	18.79	18.94	16.68
Ba 233.527	Ba	21.83	ug/L	904.78	22.14	22.09	21.75
Be 234.861	Be	0.552	ug/L	83.905	0.554	0.548	0.545
Ca 315.887	Ca	238178.93	ug/L	1273261.92	238447.07	237437.29	241438.61
Cd 214.439	Cd	0.27	ug/L	7.97	0.16	0.32	0.33
Co 228.615	Co	115.87	ug/L	702.94	116.23	116.27	116.29
Cr 267.716	Cr	0.14	ug/L	-96.72	0.19	0.28	0.14
Cu 327.395	Cu	3.94	ug/L	-1560.26	4.49	3.77	4.2
Fe 261.187	Fe	88.89	ug/L	138.29	90.72	89.68	87.72
K 766.491	K	4542.8	ug/L	6216.59	4486.03	4572.96	4582.79
Li 670.783	Li	38.63	ug/L	32613.49	38.75	38.77	38.88
Mg 279.078	Mg	138151.13	ug/L	358306.55	137486.83	139551.27	139131.77
Mn 257.610	Mn	7666.75	ug/L	985672.43	7646.48	7628.65	7800.39
Mo 204.598	Mo	1.1	ug/L	-1.79	0.12	1.15	1.69
Na 589.592	Na	3722.83	ug/L	29502.87	3702.39	3741.82	3739.21
Ni 231.604	Ni	130.9	ug/L	264.74	130.38	133.45	130.86
P 213.618	P	2.8	ug/L	-2.12	-1.96	3.04	3.15
Pb 220.353	Pb	-0.29	ug/L	5.37	1.75	-3.69	-0.89
S 181.972	S	321923.33	ug/L	12389.77	319100.05	322713.86	323855.88
Sb 206.834	Sb	2.18	ug/L	3.11	7.82	-4.74	7.69
Se 196.026	Se	1.31	ug/L	5.12	6.23	-1.28	0.78
Si 251.611	Si	3591.91	ug/L	6220.2	3573.9	3577.77	3655.98
Sn 189.925	Sn	-1.49	ug/L	0.82	-1.12	-2.5	-0.27
Sr 421.552	Sr	742.66	ug/L	1730809.86	742.79	749.32	744.84
Ti 334.941	Ti	-0.12	ug/L	16071.82	-0.28	-0.08	-0.12
Tl 190.794	Tl	-8.17	ug/L	2.6	-7.07	-9.98	-5.61
V 292.401	V	1.44	ug/L	24.9	1.19	1.45	1.72
Zn 206.200	Zn	67.32	ug/L	221.75	67.84	67.32	67.54

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

Sample: CCV

Analysis Time: 5/11/2022 7:34:22 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	576563	0.99	1.01	1.01
Ag 328.068	Ag	1011.33	ug/L	40389.46	1014.26	1007.41	1007.33
Al 396.152	Al	9969.84	ug/L	245370.23	10007.42	9914.9	9939.77
As 188.980	As	2003.52	ug/L	1181.03	1995.16	2007.93	2000.47
B 249.678	B	2081.76	ug/L	17189.09	2087.97	2071.54	2078.1
Ba 233.527	Ba	2076.89	ug/L	83987.17	2086.97	2066.19	2071.86
Be 234.861	Be	2012.738	ug/L	298723.272	2020.321	2000.897	2009.23
Ca 315.887	Ca	10000.4	ug/L	53556.32	10048.3	9952.93	9977.41
Cd 214.439	Cd	2021.86	ug/L	41895.81	1970.78	2026.56	2036.45
Co 228.615	Co	2084.45	ug/L	12140.11	2092.7	2073.77	2079.22
Cr 267.716	Cr	2033.06	ug/L	73279.84	2039.43	2020.83	2028.55
Cu 327.395	Cu	1983.85	ug/L	52120.93	1990.65	1975.45	1975.58
Fe 261.187	Fe	10090.99	ug/L	17954.08	10126	10014.95	10083.58
K 766.491	K	9862.94	ug/L	12904.92	9941.53	9804.09	9799.51
Li 670.783	Li	1917.93	ug/L	1076139.91	1930.68	1907.11	1914.86
Mg 279.078	Mg	10118.43	ug/L	26274.44	10163.52	10059.61	10095.22
Mn 257.610	Mn	2065.77	ug/L	265703.24	2075.22	2053.59	2060.23
Mo 204.598	Mo	1954.39	ug/L	7287.43	1935.73	1933.54	1965.55
Na 589.592	Na	9912.13	ug/L	82663.29	9989.97	9861.97	9870.06
Ni 231.604	Ni	2052.56	ug/L	4066.91	2063.8	2034.34	2047.56
P 213.618	P	2050.66	ug/L	1503.8	2032.52	2020.3	2062.26
Pb 220.353	Pb	2047.17	ug/L	3199.39	2056.95	2032.58	2045.28
S 181.972	S	9834.45	ug/L	379.47	9846.03	9787.93	9802.85
Sb 206.834	Sb	2022.76	ug/L	1568.59	2034.77	2011.68	2018.59
Se 196.026	Se	2052.87	ug/L	1272.6	2063.21	2035.86	2040.78
Si 251.611	Si	10529.92	ug/L	18197.04	10555.48	10474.72	10518.71
Sn 189.925	Sn	1996.73	ug/L	2124.28	2004.91	1990.38	1991.51
Sr 421.552	Sr	2067.25	ug/L	4798486.85	2073.23	2056.71	2064.08
Ti 334.941	Ti	2019.5	ug/L	504749.39	2019.42	2016.03	2016.2
Tl 190.794	Tl	2090.68	ug/L	2016.21	2111.38	2068.61	2082.32
V 292.401	V	2019.88	ug/L	39142.51	2028.34	2010.64	2012.43
Zn 206.200	Zn	2048.58	ug/L	6459.74	2029.31	2021.21	2065.59

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 7:36:21 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	586098.07	1.01	1.03	1.03
Ag 328.068	Ag	0.64	ug/L	-1148.38	0.02	1.04	0.71
Al 396.152	Al	1.21	ug/L	367.19	2.3	1.34	1.32
As 188.980	As	1.34	ug/L	4.46	0.05	4.37	1.59
B 249.678	B	2.62	ug/L	32.01	5.42	2.5	1.77
Ba 233.527	Ba	0.56	ug/L	19.02	0.71	0.65	0.52
Be 234.861	Be	0.143	ug/L	25.561	0.27	0.137	0.079
Ca 315.887	Ca	8.56	ug/L	118.67	7.6	8.51	7.76
Cd 214.439	Cd	0.36	ug/L	9.64	0.4	0.45	0.32
Co 228.615	Co	0.35	ug/L	10	0.2	0.35	0.85
Cr 267.716	Cr	0.04	ug/L	30.07	0.13	0.08	0.13
Cu 327.395	Cu	1.04	ug/L	-1640.77	0.29	1.08	1.52
Fe 261.187	Fe	1.5	ug/L	-22.28	-0.04	0.17	1.87
K 766.491	K	-6.76	ug/L	404.26	-11.7	-1.73	-18.5
Li 670.783	Li	-0.3	ug/L	11385.45	0.08	-0.35	-0.39
Mg 279.078	Mg	7.22	ug/L	53.13	6.92	7.64	7.96
Mn 257.610	Mn	0.5	ug/L	68.99	0.7	0.45	0.44
Mo 204.598	Mo	2.11	ug/L	0.66	1.88	2.75	1.55
Na 589.592	Na	15.19	ug/L	-79.18	19.71	12.41	14.51
Ni 231.604	Ni	0.36	ug/L	5.1	-0.32	-0.58	2
P 213.618	P	-1.51	ug/L	-8.33	-1.03	-5.11	3.67
Pb 220.353	Pb	0.08	ug/L	3.44	0.95	0.93	-2.37
S 181.972	S	-11.78	ug/L	0.55	19.41	11.67	-61.68
Sb 206.834	Sb	-0.96	ug/L	1.49	-0.17	-2.04	-1.89
Se 196.026	Se	3.99	ug/L	4.44	9.2	0.97	-0.27
Si 251.611	Si	7.14	ug/L	38.7	10.38	8.25	3.89
Sn 189.925	Sn	-0.42	ug/L	2.21	-1.55	0.28	0.62
Sr 421.552	Sr	0.35	ug/L	882.53	0.5	0.34	0.28
Ti 334.941	Ti	-0.31	ug/L	16097.12	0.72	-0.69	-0.68
Tl 190.794	Tl	1.67	ug/L	-0.88	0.36	2.97	0.11
V 292.401	V	0.42	ug/L	6.97	0.76	0.19	0.15
Zn 206.200	Zn	0.68	ug/L	0.73	1.1	0.79	0.34

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069018 3247****Analysis Time: 5/11/2022 7:38:19 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		574904.01	1	1.01	1
Ag 328.068	Ag	-0.28	ug/L	-1182.89	0.05	-0.19	-0.41
Al 396.152	Al	960.8	ug/L	24891.52	941.22	953.13	974.23
As 188.980	As	4.53	ug/L	6.68	4.56	5.86	4.39
B 249.678	B	12.56	ug/L	113.78	13.18	12.68	13.18
Ba 233.527	Ba	9.03	ug/L	387.16	8.92	9.1	9.12
Be 234.861	Be	1.538	ug/L	231.637	1.506	1.542	1.547
Ca 315.887	Ca	247688.43	ug/L	1324092.3	242920.58	249246.02	249092.92
Cd 214.439	Cd	0.52	ug/L	13.28	0.34	0.56	0.47
Co 228.615	Co	7.95	ug/L	75.29	7.34	8.6	7.63
Cr 267.716	Cr	-0.23	ug/L	-25.19	-0.34	-0.27	0.07
Cu 327.395	Cu	3.18	ug/L	-1586.59	3.67	2.82	3.43
Fe 261.187	Fe	-0.5	ug/L	-23.13	-6.05	1.91	4.67
K 766.491	K	4095.69	ug/L	5645.75	4024.1	4092.88	4131.16
Li 670.783	Li	22.75	ug/L	23898.42	22.48	22.62	23.11
Mg 279.078	Mg	115130.34	ug/L	298605.92	113422.43	114964.8	116034.68
Mn 257.610	Mn	2843.12	ug/L	365528.83	2782.39	2862.17	2856.35
Mo 204.598	Mo	-0.32	ug/L	-7.39	-1.44	0.8	0.15
Na 589.592	Na	3461.73	ug/L	27400.95	3412.53	3459.91	3477.68
Ni 231.604	Ni	136.33	ug/L	275.32	136.12	136.57	134.4
P 213.618	P	-5.2	ug/L	-8.46	0.88	-4.34	-3.41
Pb 220.353	Pb	-3.63	ug/L	-0.75	-0.29	-5.77	-2.89
S 181.972	S	343795.33	ug/L	13231.23	338325.99	343640.12	346972.98
Sb 206.834	Sb	2.26	ug/L	3.27	3.62	5.03	-3.9
Se 196.026	Se	2.3	ug/L	4.25	4.15	0.38	-1.89
Si 251.611	Si	4029.59	ug/L	6968.37	3945.82	4037.97	4051.99
Sn 189.925	Sn	-2.01	ug/L	0.26	-1.79	-1.91	-3.54
Sr 421.552	Sr	773.11	ug/L	1801767.21	761.88	772.07	780.28
Ti 334.941	Ti	-0.61	ug/L	15958.29	-0.71	-0.62	-0.55
Tl 190.794	Tl	-5.68	ug/L	-2.84	-1.34	-9.32	-5.57
V 292.401	V	1.48	ug/L	28.3	1.79	1.51	1.38
Zn 206.200	Zn	137.57	ug/L	443.27	136.56	137.01	138.11

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069019 3247****Analysis Time: 5/11/2022 7:40:17 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	579111.05	1	1.01	1.02
Ag 328.068	Ag	-0.33	ug/L	-1183.04	-0.57	-0.45	-0.13
Al 396.152	Al	1300.06	ug/L	32548.17	1314.73	1304.83	1296.72
As 188.980	As	4.22	ug/L	6.37	6.29	4.75	-0.36
B 249.678	B	10.31	ug/L	93.3	10.55	9.02	11.12
Ba 233.527	Ba	13.18	ug/L	542.56	13.21	13.22	13.14
Be 234.861	Be	1.172	ug/L	177.486	1.157	1.211	1.154
Ca 315.887	Ca	115011.34	ug/L	614869.17	115584.82	114230.28	115142.55
Cd 214.439	Cd	0.89	ug/L	20.99	0.98	0.68	0.97
Co 228.615	Co	67.67	ug/L	412.24	69.32	66.6	67.1
Cr 267.716	Cr	-0.19	ug/L	-68.69	-0.35	-0.14	0.1
Cu 327.395	Cu	2.61	ug/L	-1595.08	2.43	2.58	2.92
Fe 261.187	Fe	133.29	ug/L	216.1	131.44	136.94	134.72
K 766.491	K	3737.88	ug/L	5168.07	3731.27	3723.37	3742.81
Li 670.783	Li	20.36	ug/L	22599.96	20.76	20.33	20.36
Mg 279.078	Mg	83462.06	ug/L	216479.22	83546.26	83459.45	84295.92
Mn 257.610	Mn	5288.54	ug/L	679920.94	5317.25	5251.39	5315.34
Mo 204.598	Mo	-0.5	ug/L	-7.91	-0.6	-1.3	0.17
Na 589.592	Na	2208.05	ug/L	17413.25	2213.52	2211.35	2207.08
Ni 231.604	Ni	175.14	ug/L	351.79	176.25	175.84	176.55
P 213.618	P	9.81	ug/L	1.94	2.52	16.73	10.49
Pb 220.353	Pb	-4.73	ug/L	-2.49	-5.9	-5.45	-6.04
S 181.972	S	185737.05	ug/L	7148.84	185578.12	185592.75	186068.89
Sb 206.834	Sb	0.54	ug/L	2.19	-0.72	-6.07	5.93
Se 196.026	Se	4.62	ug/L	6.46	2.35	2.9	9.66
Si 251.611	Si	2947.9	ug/L	5106.87	3009.8	2896.25	2949.13
Sn 189.925	Sn	-2.41	ug/L	-0.01	-1.93	-2.16	-1.46
Sr 421.552	Sr	329.57	ug/L	768356.55	330.97	330.02	329.82
Ti 334.941	Ti	0.18	ug/L	16178.33	0.73	0.27	-0.32
Tl 190.794	Tl	-6.51	ug/L	0.01	-7.61	-9.02	-6.45
V 292.401	V	1.05	ug/L	18.15	1.23	1.48	0.67
Zn 206.200	Zn	281.14	ug/L	890.74	282.88	281.58	280.55



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069020 3247****Analysis Time: 5/11/2022 7:42:16 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	577459.86	1.01	1.01	1.01
Ag 328.068	Ag	0.12	ug/L	-1161.51	0.09	0.23	0.04
Al 396.152	Al	893.35	ug/L	22887.69	885.19	908.86	899.84
As 188.980	As	4.62	ug/L	6.72	1.29	8.42	3.85
B 249.678	B	11.13	ug/L	98.62	10.68	10.93	11.41
Ba 233.527	Ba	13.81	ug/L	572.92	13.6	14.02	13.74
Be 234.861	Be	1.192	ug/L	176.459	1.184	1.211	1.176
Ca 315.887	Ca	168390.42	ug/L	900207.73	166811.59	169334.61	169671.63
Cd 214.439	Cd	0.55	ug/L	13.79	0.61	0.86	0.4
Co 228.615	Co	132.21	ug/L	792.45	131.74	132.9	133.19
Cr 267.716	Cr	0.02	ug/L	-124.07	-0.2	0.24	0.07
Cu 327.395	Cu	3.46	ug/L	-1569.75	3.72	3.63	3.02
Fe 261.187	Fe	584.04	ug/L	1020.24	579.22	585.9	590.4
K 766.491	K	3888.25	ug/L	5373.75	3846.9	3898.44	3914.27
Li 670.783	Li	40.58	ug/L	33718.38	40.31	40.78	40.81
Mg 279.078	Mg	100169.6	ug/L	259808.3	99418.62	101228.01	100757.76
Mn 257.610	Mn	8788.59	ug/L	1129900.71	8698.6	8851.53	8838.13
Mo 204.598	Mo	-0.07	ug/L	-6.11	-0.35	0.29	0.06
Na 589.592	Na	2792.74	ug/L	22075.7	2768.27	2812.35	2802.73
Ni 231.604	Ni	190.68	ug/L	382.69	190.67	193.04	190.41
P 213.618	P	-0.52	ug/L	-5.36	-7.59	2.77	11.47
Pb 220.353	Pb	-2.19	ug/L	2.29	-3.22	-3.71	-1.09
S 181.972	S	244963.56	ug/L	9428.19	241783.11	245656.82	247237.17
Sb 206.834	Sb	4.7	ug/L	5.3	5.28	4.07	3.9
Se 196.026	Se	-0.56	ug/L	4.32	0.35	-10.27	6.89
Si 251.611	Si	4653.05	ug/L	8044.59	4592.55	4667.37	4718.54
Sn 189.925	Sn	-2.69	ug/L	-0.37	-4.14	-1.19	-5.68
Sr 421.552	Sr	465.84	ug/L	1086212.22	462.6	468.51	468.67
Ti 334.941	Ti	-0.23	ug/L	16061.23	-0.31	-0.21	-0.17
Tl 190.794	Tl	-13.76	ug/L	-1.2	-14.42	-13.58	-13.75
V 292.401	V	1.18	ug/L	18.15	1.71	1	1.05
Zn 206.200	Zn	260.49	ug/L	827.85	258.49	260.46	261.24

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069021 3247****Analysis Time: 5/11/2022 7:44:14 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.98	Ratio	562019.86	0.98	0.98	0.99
Ag 328.068	Ag	-0.49	ug/L	-1194.22	-0.03	-0.14	-0.71
Al 396.152	Al	113.37	ug/L	4720.52	113.3	111.65	112.14
As 188.980	As	6.96	ug/L	8.21	3.8	9.14	6.85
B 249.678	B	17.98	ug/L	159.21	16.27	18.19	19.15
Ba 233.527	Ba	20.83	ug/L	879.59	20.73	20.9	21.11
Be 234.861	Be	0.543	ug/L	79.676	0.544	0.558	0.547
Ca 315.887	Ca	346172.29	ug/L	1850534.41	342617.1	347546.84	349531.38
Cd 214.439	Cd	0.12	ug/L	5.32	0.1	0.15	0.09
Co 228.615	Co	-3.13	ug/L	21.08	-2.79	-4.63	-3.53
Cr 267.716	Cr	-0.26	ug/L	27	-0.32	-0.39	-0.39
Cu 327.395	Cu	1.53	ug/L	-1637.11	1.66	0.84	1.6
Fe 261.187	Fe	38.91	ug/L	54.54	34.91	42.49	39.05
K 766.491	K	6587.21	ug/L	8830.39	6519.65	6580.69	6641.65
Li 670.783	Li	23.26	ug/L	24113.41	23.17	23.39	23.44
Mg 279.078	Mg	277780.68	ug/L	720408.04	274488.78	279740.59	280766.44
Mn 257.610	Mn	133.89	ug/L	17219.2	131.9	134.89	134.89
Mo 204.598	Mo	-0.65	ug/L	-8.45	-0.4	-2.46	-0.05
Na 589.592	Na	6292.33	ug/L	49965.17	6233.53	6305.14	6345.94
Ni 231.604	Ni	47.63	ug/L	101.4	48.59	44.32	47.74
P 213.618	P	-2.88	ug/L	-5.1	0.57	-1.03	-4.22
Pb 220.353	Pb	-3.4	ug/L	0.31	-1.72	-3.02	-3.21
S 181.972	S	547175.18	ug/L	21057.64	539879.68	547505.29	552146.14
Sb 206.834	Sb	-1.24	ug/L	-0.25	1.72	-7.15	-0.11
Se 196.026	Se	2.46	ug/L	3.45	-0.52	6.46	1.61
Si 251.611	Si	3410.98	ug/L	5908.45	3375.28	3417.48	3433.77
Sn 189.925	Sn	-2.93	ug/L	-0.85	-4.41	-0.7	-1.77
Sr 421.552	Sr	1036.91	ug/L	2417112.31	1032.6	1041.85	1043.56
Ti 334.941	Ti	-0.2	ug/L	16033	-0.2	-0.21	-0.15
Tl 190.794	Tl	-2.56	ug/L	-2.85	-4.46	-3.95	2.01
V 292.401	V	1.27	ug/L	27.45	1.04	1.47	1.13
Zn 206.200	Zn	122.83	ug/L	402.99	121.85	123.4	123.57

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069022\_3247****Analysis Time: 5/11/2022 7:46:13 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.98	Ratio	561533.41	0.98	0.98	0.98
Ag 328.068	Ag	-0.15	ug/L	-1176.04	-0.14	-0.2	-0.33
Al 396.152	Al	1097.83	ug/L	28618.47	1074.93	1094.25	1113.52
As 188.980	As	7.88	ug/L	8.79	3.04	7.48	8.85
B 249.678	B	17.35	ug/L	151.69	15.51	18.61	16.92
Ba 233.527	Ba	12.35	ug/L	534.94	11.96	12.54	12.51
Be 234.861	Be	1.505	ug/L	223.456	1.382	1.573	1.579
Ca 315.887	Ca	325718.02	ug/L	1741200.13	322148.02	322580.1	328160.39
Cd 214.439	Cd	0.64	ug/L	15.87	0.48	0.79	0.82
Co 228.615	Co	94.27	ug/L	586.8	92.97	94.32	96.03
Cr 267.716	Cr	-0.09	ug/L	-51.7	0.01	-0.16	-0.11
Cu 327.395	Cu	6.8	ug/L	-1487.67	6.6	6.75	6.65
Fe 261.187	Fe	9.85	ug/L	3.33	8.24	12.99	9.14
K 766.491	K	6937.34	ug/L	9274.56	6840.5	6957.36	6995.7
Li 670.783	Li	69.23	ug/L	49540.15	68.33	69.08	69.83
Mg 279.078	Mg	275635.12	ug/L	714844.59	272013.84	271752.44	278324.96
Mn 257.610	Mn	4930.28	ug/L	633862.63	4838.87	4896.73	4933.54
Mo 204.598	Mo	-1.16	ug/L	-9.54	-0.51	-1.95	-2.51
Na 589.592	Na	6131.16	ug/L	48663.92	6056.77	6139.13	6160.47
Ni 231.604	Ni	236.1	ug/L	474.33	234.71	236.7	235.18
P 213.618	P	-3.05	ug/L	-5.29	-7.5	-12.15	4.12
Pb 220.353	Pb	-4.44	ug/L	-0.59	-5.1	-4.1	-4.99
S 181.972	S	565486.03	ug/L	21762.45	557651.74	564876.06	569147.72
Sb 206.834	Sb	2.97	ug/L	3.03	3.59	1	4.03
Se 196.026	Se	11.32	ug/L	10.43	10.94	13.18	5.76
Si 251.611	Si	4409.23	ug/L	7629.76	4320.18	4412.12	4454.15
Sn 189.925	Sn	-2.23	ug/L	-0.05	-4.16	-1.08	-0.92
Sr 421.552	Sr	918.54	ug/L	2141727.37	906.85	917.96	924.91
Ti 334.941	Ti	-0.53	ug/L	15952.18	-0.76	-0.66	-0.32
Tl 190.794	Tl	-9.07	ug/L	-1.57	-7.99	-7.01	-11.24
V 292.401	V	1.99	ug/L	39.41	1.82	1.98	2.76
Zn 206.200	Zn	276.15	ug/L	885.81	272.4	275.91	278.26

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069023 3247****Analysis Time: 5/11/2022 7:48:11 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	577806.49	1.01	1.01	1.01
Ag 328.068	Ag	-0.38	ug/L	-1187.48	-0.23	-0.66	-0.27
Al 396.152	Al	766.25	ug/L	19977.32	763.61	771.1	771.82
As 188.980	As	0.97	ug/L	4.53	5.44	-2.63	2.35
B 249.678	B	7.91	ug/L	74.8	7.48	7.92	7.59
Ba 233.527	Ba	10.5	ug/L	445.39	10.43	10.53	10.55
Be 234.861	Be	2.278	ug/L	340.096	2.282	2.284	2.291
Ca 315.887	Ca	209941.09	ug/L	1122312.73	208325.42	209659.84	210867.18
Cd 214.439	Cd	0.41	ug/L	11.03	0.53	0.48	0.2
Co 228.615	Co	-1.17	ug/L	20.51	-1.31	-0.5	-1.45
Cr 267.716	Cr	-0.21	ug/L	-16.63	-0.17	-0.59	-0.42
Cu 327.395	Cu	3.42	ug/L	-1579.3	3.89	3.8	3.2
Fe 261.187	Fe	4.39	ug/L	-10.91	1.48	4.35	6.13
K 766.491	K	4019.83	ug/L	5552.03	4003.72	4024.99	4065.63
Li 670.783	Li	23.65	ug/L	24393.57	23.46	23.8	23.83
Mg 279.078	Mg	168263.95	ug/L	436396.75	167383.9	169030.53	169156.48
Mn 257.610	Mn	2502.79	ug/L	321774.91	2488.31	2485.67	2524.7
Mo 204.598	Mo	-0.81	ug/L	-8.97	0	-2.22	-0.69
Na 589.592	Na	3727.9	ug/L	29516.8	3695.23	3740.18	3752.17
Ni 231.604	Ni	177.17	ug/L	356.64	177.81	176.6	177.54
P 213.618	P	5.66	ug/L	-0.18	8.47	5.99	6.46
Pb 220.353	Pb	-5.69	ug/L	-3.76	-5.87	-9.53	-4.77
S 181.972	S	342985.98	ug/L	13200.03	339285.01	343309.22	344908.62
Sb 206.834	Sb	3.06	ug/L	3.69	-1.58	3.86	7.5
Se 196.026	Se	2.02	ug/L	3.96	3.52	9.37	-0.79
Si 251.611	Si	3632.97	ug/L	6286.95	3591.22	3629.34	3687.61
Sn 189.925	Sn	-1.85	ug/L	0.48	-3.19	-3.07	1.06
Sr 421.552	Sr	526.76	ug/L	1228832.76	524.68	529.27	529.14
Ti 334.941	Ti	-0.73	ug/L	15937	-0.76	-0.62	-0.84
Tl 190.794	Tl	-5.06	ug/L	-2.55	-4.05	-6.74	-7.82
V 292.401	V	1.27	ug/L	25.04	1.13	0.78	1.62
Zn 206.200	Zn	146.47	ug/L	470.72	143.91	147.22	148.57

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069024\_3247****Analysis Time: 5/11/2022 7:50:09 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		571125.68	1.01	1.01	1.01
Ag 328.068	Ag	-0.68	ug/L	-1201.6	-0.61	-0.71	-0.66
Al 396.152	Al	113.99	ug/L	4009.67	112.12	113.34	109.61
As 188.980	As	3.94	ug/L	6.24	2.41	7.81	-2.32
B 249.678	B	8.71	ug/L	82.28	8.67	9.16	7.83
Ba 233.527	Ba	7.89	ug/L	338.13	7.72	7.89	7.72
Be 234.861	Be	0.579	ug/L	87.542	0.57	0.583	0.556
Ca 315.887	Ca	196492.16	ug/L	1050420.39	190507.89	194326.9	196861.91
Cd 214.439	Cd	0.09	ug/L	4.25	0.12	-0.05	0.24
Co 228.615	Co	-3.27	ug/L	6.51	-3.84	-3.23	-3.38
Cr 267.716	Cr	-0.43	ug/L	8.3	-0.27	-0.47	-0.36
Cu 327.395	Cu	1.6	ug/L	-1630.35	1.37	1.79	1.48
Fe 261.187	Fe	-0.86	ug/L	-20.83	-1.38	0.84	-2.15
K 766.491	K	3903.83	ug/L	5398.14	3831.98	3866.7	3853.84
Li 670.783	Li	14.52	ug/L	19396.85	13.92	14.11	14.3
Mg 279.078	Mg	156539.24	ug/L	405990.5	152362.08	154899.69	155266.37
Mn 257.610	Mn	594.2	ug/L	76398.31	585.2	581.62	594.31
Mo 204.598	Mo	-0.48	ug/L	-8.19	-0.43	-1.91	0.22
Na 589.592	Na	3513.9	ug/L	27806.39	3443.94	3478.73	3487.52
Ni 231.604	Ni	81.94	ug/L	168.07	79.96	81.19	81.57
P 213.618	P	-0.68	ug/L	-5.3	-6.17	1.34	0.63
Pb 220.353	Pb	-4.51	ug/L	-2.35	-3.06	-4.6	-6.61
S 181.972	S	320274.2	ug/L	12325.94	313319.37	316128.22	318666.43
Sb 206.834	Sb	0.64	ug/L	1.88	-2.48	0.36	5.49
Se 196.026	Se	5.36	ug/L	5.43	2.92	10.44	6.31
Si 251.611	Si	3174.1	ug/L	5495.18	3075.33	3130.86	3196.8
Sn 189.925	Sn	-1.37	ug/L	1	-1.25	-1.56	-1
Sr 421.552	Sr	503.07	ug/L	1173405.04	492.95	496.74	500.55
Ti 334.941	Ti	-0.49	ug/L	16001.6	-0.72	-0.56	-0.47
Tl 190.794	Tl	-2.17	ug/L	-2.67	-3.67	-3.13	-2.82
V 292.401	V	1.34	ug/L	27.09	1.59	1.25	1.26
Zn 206.200	Zn	52.63	ug/L	173.98	52.19	50.92	51.66

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069025 3247****Analysis Time: 5/11/2022 7:52:07 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	594518.69	1.03	1.04	1.04
Ag 328.068	Ag	-0.01	ug/L	-1172.71	-0.07	-0.06	-0.22
Al 396.152	Al	3133.02	ug/L	76802.67	3105.63	3130.56	3155.21
As 188.980	As	1.09	ug/L	4.35	1.76	1.72	1.6
B 249.678	B	6.6	ug/L	64.06	7.41	7.04	5.43
Ba 233.527	Ba	29.83	ug/L	1205.99	29.61	29.73	29.88
Be 234.861	Be	1.994	ug/L	305.454	1.998	2.037	1.972
Ca 315.887	Ca	23891.79	ug/L	127792.48	23505.55	23996.87	24053.55
Cd 214.439	Cd	0.69	ug/L	17.16	0.54	0.77	0.59
Co 228.615	Co	31.49	ug/L	192.66	31.76	31.02	31.98
Cr 267.716	Cr	0.55	ug/L	16.35	0.49	1.07	0.33
Cu 327.395	Cu	8.65	ug/L	-1432.17	8.71	8.53	8.55
Fe 261.187	Fe	32.98	ug/L	34.95	28.51	35.95	32.31
K 766.491	K	1666.18	ug/L	2525.06	1668.66	1692.16	1665.68
Li 670.783	Li	10.47	ug/L	17274.54	10.41	10.45	10.61
Mg 279.078	Mg	22692.95	ug/L	58884.78	22635.69	22885.22	22689.38
Mn 257.610	Mn	1955.17	ug/L	251372.29	1949.08	1980.08	1967.81
Mo 204.598	Mo	0.26	ug/L	-5.47	-0.08	0.04	0.43
Na 589.592	Na	1124.51	ug/L	8808.89	1113.13	1127.59	1130.49
Ni 231.604	Ni	98.89	ug/L	200.31	97.09	98.21	100.67
P 213.618	P	4.27	ug/L	-3.65	0.08	13.23	0.18
Pb 220.353	Pb	0.28	ug/L	4.11	-0.92	-1.01	-2.77
S 181.972	S	52498.82	ug/L	2021.36	51972.81	52423.46	52814.11
Sb 206.834	Sb	-1.77	ug/L	0.76	-3.46	-7.02	4.29
Se 196.026	Se	2.66	ug/L	4.22	5.33	7.73	-0.98
Si 251.611	Si	3830.04	ug/L	6618.76	3787.2	3827.57	3870.09
Sn 189.925	Sn	-1.5	ug/L	1.05	-2.36	-2.12	0.35
Sr 421.552	Sr	95.44	ug/L	222277.6	94.74	95.51	95.95
Ti 334.941	Ti	-0.42	ug/L	16060.84	-0.2	-0.56	-0.55
Tl 190.794	Tl	-2.03	ug/L	-1.28	-1.19	-2.93	-1.18
V 292.401	V	0.93	ug/L	16.94	0.41	1.07	0.96
Zn 206.200	Zn	210.81	ug/L	664.7	208.29	211.45	212.62

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485069026 3247****Analysis Time: 5/11/2022 7:54:05 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598803.41	1.04	1.05	1.05
Ag 328.068	Ag	-0.01	ug/L	-1174.5	-0.21	0.14	0.07
Al 396.152	Al	31.95	ug/L	1213.75	33.41	32.95	30.56
As 188.980	As	1.98	ug/L	4.86	7.37	0.18	0.31
B 249.678	B	5.58	ug/L	56.47	5.28	5.38	6.14
Ba 233.527	Ba	30.76	ug/L	1242.74	30.99	30.96	30.71
Be 234.861	Be	-0.072	ug/L	-6.702	-0.107	-0.087	-0.042
Ca 315.887	Ca	21360.03	ug/L	114252.91	21355.26	21629.54	21327.33
Cd 214.439	Cd	-0.06	ug/L	1.1	-0.05	-0.15	-0.04
Co 228.615	Co	-0.29	ug/L	7.04	0.2	-0.83	-0.35
Cr 267.716	Cr	0	ug/L	28.91	-0.17	-0.05	0.16
Cu 327.395	Cu	1.23	ug/L	-1636.25	0.79	1.09	1.28
Fe 261.187	Fe	16.1	ug/L	4.06	17.03	15.33	17.46
K 766.491	K	1462.65	ug/L	2262.87	1447.85	1475.4	1438.79
Li 670.783	Li	-1.67	ug/L	10602.3	-1.45	-1.58	-1.79
Mg 279.078	Mg	11102.41	ug/L	28826.59	11228.31	11157.47	10984.08
Mn 257.610	Mn	5.94	ug/L	768.46	6.08	5.87	5.97
Mo 204.598	Mo	-0.38	ug/L	-8.56	-1.3	-1.12	-0.01
Na 589.592	Na	843.48	ug/L	6573.38	844.84	842.7	844.96
Ni 231.604	Ni	-0.06	ug/L	4.38	0.02	-1.43	0.42
P 213.618	P	2.3	ug/L	-5.17	0.8	7.08	1.2
Pb 220.353	Pb	-4.05	ug/L	-2.91	-6.31	-3.38	-2.53
S 181.972	S	22907.32	ug/L	882.54	22880.95	22951.63	22894.33
Sb 206.834	Sb	-1.61	ug/L	0.94	-2.52	-3.87	3.8
Se 196.026	Se	3.59	ug/L	4.19	1.42	2.59	5.59
Si 251.611	Si	1761.46	ug/L	3057.39	1764.81	1756.63	1778.44
Sn 189.925	Sn	-2.71	ug/L	-0.25	-3.31	-1.37	-4.36
Sr 421.552	Sr	99.74	ug/L	232189.71	100.32	99.94	99.67
Ti 334.941	Ti	-0.46	ug/L	16055.4	-0.08	-0.69	-0.67
Tl 190.794	Tl	-2.61	ug/L	-4.92	-3.14	-3.16	-3.37
V 292.401	V	0.56	ug/L	10.11	0.38	0.48	0.21
Zn 206.200	Zn	1.9	ug/L	5.5	2.07	2.1	1.94

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485214001\_3247****Analysis Time: 5/11/2022 7:56:04 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.9	Ratio	513445.66	0.93	0.93	0.94
Ag 328.068	Ag	-1.63	ug/L	-1241.96	-1.1	-0.39	-0.53
Al 396.152	Al	8.5	ug/L	6757.56	-1.34	-3.86	-2.3
As 188.980	As	8.36	ug/L	10.26	8.46	-3.61	12.27
B 249.678	B	122.04	ug/L	1028.07	116.41	114.26	120.97
Ba 233.527	Ba	26.69	ug/L	1191.52	25.49	25.3	25.92
Be 234.861	Be	-0.128	ug/L	-19.211	-0.046	-0.148	-0.221
Ca 315.887	Ca	1211531.73	ug/L	6476315.93	1156557.23	1162489.28	1160576.27
Cd 214.439	Cd	-0.16	ug/L	-0.66	-0.11	-0.2	-0.12
Co 228.615	Co	-15.45	ug/L	15.13	-16.54	-16.2	-14.99
Cr 267.716	Cr	2.2	ug/L	105.55	2.13	2.06	2.22
Cu 327.395	Cu	3.1	ug/L	-1622.72	4.92	5.43	5.26
Fe 261.187	Fe	640.22	ug/L	1097.3	619.42	612.34	614.62
K 766.491	K	5597.16	ug/L	7722.25	5375.18	5288.58	5372.74
Li 670.783	Li	268.06	ug/L	159776.48	256.24	255.53	256.99
Mg 279.078	Mg	57112.37	ug/L	148162.33	54772.87	54393.44	54795.33
Mn 257.610	Mn	258.7	ug/L	33269.07	247.97	247.5	247.87
Mo 204.598	Mo	86.95	ug/L	317.2	84.28	82.74	83.48
Na 589.592	Na	100374.72	ug/L	798873.56	96110.32	95836.45	96408.64
Ni 231.604	Ni	6.63	ug/L	18.13	6.74	6.35	5.38
P 213.618	P	16.8	ug/L	16.09	14.64	7.7	16.5
Pb 220.353	Pb	-5.78	ug/L	-3.18	-4.55	-6.76	-7.7
S 181.972	S	156008.31	ug/L	6006.1	149003.41	148648.95	150468.83
Sb 206.834	Sb	4.4	ug/L	3.63	3.76	5.41	-1.37
Se 196.026	Se	-1.6	ug/L	0.98	-3.34	1.85	-0.63
Si 251.611	Si	719.57	ug/L	1285.16	681.1	686.37	692.1
Sn 189.925	Sn	27.3	ug/L	30.2	22.29	24.66	28.75
Sr 421.552	Sr	2672.84	ug/L	6243308.72	2568.57	2561.97	2569.02
Ti 334.941	Ti	3.24	ug/L	16612.73	1.52	-0.05	0.8
Tl 190.794	Tl	-2.73	ug/L	-3.39	-2.79	-2.63	0.6
V 292.401	V	1.39	ug/L	14.8	0.99	0.88	1.32
Zn 206.200	Zn	-13.06	ug/L	7.27	-13.7	-11.92	-13.17



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 7:58:03 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	580445.99	0.98	1.03	1.02
Ag 328.068	Ag	1015.72	ug/L	40570.52	1046.65	1001.85	1005.62
Al 396.152	Al	10042.29	ug/L	247150.17	10350.62	9887.16	9946.58
As 188.980	As	2031.8	ug/L	1197.63	2090.38	2004.97	2009.33
B 249.678	B	2093.36	ug/L	17284.94	2153.73	2066.1	2071.79
Ba 233.527	Ba	2096.4	ug/L	84775.88	2164.5	2064.71	2074.32
Be 234.861	Be	2029.76	ug/L	301249.55	2094.269	2000.039	2007.282
Ca 315.887	Ca	10298.62	ug/L	55150.72	10668.8	10204.1	10171.23
Cd 214.439	Cd	2065.87	ug/L	42807.74	2134.86	2020.5	2078.63
Co 228.615	Co	2104.55	ug/L	12257.32	2172.07	2074.25	2082.04
Cr 267.716	Cr	2049.04	ug/L	73855.63	2112.14	2019.8	2028.73
Cu 327.395	Cu	1993.6	ug/L	52385.49	2056.77	1963.55	1973.59
Fe 261.187	Fe	10234.3	ug/L	18209.44	10546.46	10079.42	10130.27
K 766.491	K	9919.4	ug/L	12976.7	10306.64	9766.25	9800.25
Li 670.783	Li	1976.52	ug/L	1108708.57	2045.69	1945.24	1957.72
Mg 279.078	Mg	10273.11	ug/L	26675.55	10596.12	10136.12	10175.58
Mn 257.610	Mn	2089.36	ug/L	268737.76	2153.56	2058.56	2068.32
Mo 204.598	Mo	1962.46	ug/L	7317.58	2021.26	1938.07	1948.71
Na 589.592	Na	10019.34	ug/L	83553.87	10401.51	9868.56	9874.77
Ni 231.604	Ni	2077.92	ug/L	4117.1	2140.66	2050.64	2057.32
P 213.618	P	2062.14	ug/L	1512.32	2132.75	1993.74	2062.2
Pb 220.353	Pb	2076.22	ug/L	3244.79	2141.57	2045.65	2052.06
S 181.972	S	10091.72	ug/L	389.37	10410.07	10006.78	9992.62
Sb 206.834	Sb	2047.28	ug/L	1587.78	2119.11	2014.01	2020.14
Se 196.026	Se	2078.33	ug/L	1288.36	2142.96	2040.86	2067.76
Si 251.611	Si	10561.5	ug/L	18251.7	10852.58	10412.09	10460.93
Sn 189.925	Sn	2020.18	ug/L	2149.21	2090.98	1982.56	2000.74
Sr 421.552	Sr	2079.03	ug/L	4825833.85	2144.22	2046.08	2054.59
Ti 334.941	Ti	2030.45	ug/L	507398.05	2088.95	2006.99	2015.42
Tl 190.794	Tl	2116.03	ug/L	2040.75	2187.43	2083.31	2089.7
V 292.401	V	2034.59	ug/L	39427.18	2097.79	2007.16	2013.88
Zn 206.200	Zn	2078.76	ug/L	6554.94	2133.82	2051.97	2064.98

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 8:00:03 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	589125.1	0.99	1.04	1.04
Ag 328.068	Ag	0.36	ug/L	-1159.75	-0.46	0.74	0.71
Al 396.152	Al	0.61	ug/L	352.48	2.22	0.33	-0.2
As 188.980	As	1.28	ug/L	4.42	-1.28	0.27	2.63
B 249.678	B	1.64	ug/L	23.94	2.95	1.54	1.17
Ba 233.527	Ba	0.1	ug/L	0.43	0.01	0.18	0.06
Be 234.861	Be	0.073	ug/L	15.161	0.22	0.098	0.013
Ca 315.887	Ca	4.71	ug/L	98.09	10.71	3.57	2.22
Cd 214.439	Cd	0.13	ug/L	4.9	0.36	0.02	0.07
Co 228.615	Co	0.36	ug/L	10.06	0.12	0.47	0.76
Cr 267.716	Cr	0.13	ug/L	33.18	0.2	0.07	0.16
Cu 327.395	Cu	0.72	ug/L	-1649.51	-1.18	1.49	1.62
Fe 261.187	Fe	-0.16	ug/L	-25.22	1.12	0.55	1.32
K 766.491	K	34.72	ug/L	456.57	47.21	20	63.13
Li 670.783	Li	-1.03	ug/L	10978.72	-0.21	-1.29	-1.29
Mg 279.078	Mg	3.36	ug/L	43.14	6.25	1.63	3.5
Mn 257.610	Mn	0.19	ug/L	29.46	0.41	0.18	0.16
Mo 204.598	Mo	1.75	ug/L	-0.68	1.26	2.13	1.84
Na 589.592	Na	13.07	ug/L	-96.93	17.48	11.95	13.17
Ni 231.604	Ni	0.74	ug/L	5.86	-1.03	0.32	2.03
P 213.618	P	-2.26	ug/L	-8.9	-3.57	0.95	-2.23
Pb 220.353	Pb	-1.46	ug/L	1.02	-1.24	-1.94	-2.66
S 181.972	S	-15.21	ug/L	0.42	-56.33	-21.44	24.86
Sb 206.834	Sb	2.11	ug/L	3.87	0.12	-0.52	1.78
Se 196.026	Se	-0.34	ug/L	1.76	-1.18	2.44	0.5
Si 251.611	Si	3.41	ug/L	32.28	7.6	1.73	2.51
Sn 189.925	Sn	-1.41	ug/L	1.15	0.62	-1.13	-3.79
Sr 421.552	Sr	0.15	ug/L	414.29	0.33	0.14	0.06
Ti 334.941	Ti	-0.35	ug/L	16087.72	1.46	-1.18	-1.26
Tl 190.794	Tl	0.73	ug/L	-1.79	-1.49	1.67	2.25
V 292.401	V	0.27	ug/L	4.04	0.49	-0.19	0.72
Zn 206.200	Zn	0.47	ug/L	0.07	0.11	0.5	0.33

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485239002\_3247****Analysis Time: 5/11/2022 8:02:02 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	591074.09	1.03	1.04	1.04
Ag 328.068	Ag	0.15	ug/L	-1168	-0.11	0.17	0.5
Al 396.152	Al	109.59	ug/L	3141.89	108.15	110.42	110.73
As 188.980	As	0.59	ug/L	4.04	-0.03	-2.6	4.42
B 249.678	B	16.33	ug/L	145.26	15.65	16.1	15.52
Ba 233.527	Ba	55.82	ug/L	2256.55	55.2	55.51	56.65
Be 234.861	Be	-0.039	ug/L	-1.876	-0.05	-0.012	-0.05
Ca 315.887	Ca	28151.29	ug/L	150555.75	27932.53	28099.62	28308.01
Cd 214.439	Cd	0.11	ug/L	4.72	0.21	0.02	0.12
Co 228.615	Co	0.03	ug/L	8.45	0.1	-0.67	0.15
Cr 267.716	Cr	1.37	ug/L	77.93	1.58	1.19	1.26
Cu 327.395	Cu	2.36	ug/L	-1605.68	2.46	1.3	3.45
Fe 261.187	Fe	112.2	ug/L	175.04	113.78	110.59	113.84
K 766.491	K	2313.8	ug/L	3336.77	2312.61	2317.28	2308.56
Li 670.783	Li	1.51	ug/L	12361.06	1.61	1.54	1.35
Mg 279.078	Mg	6690.88	ug/L	17386.27	6638.59	6718.52	6743.4
Mn 257.610	Mn	13.44	ug/L	1732.27	13.4	13.06	13.68
Mo 204.598	Mo	3.7	ug/L	6.63	5.25	3.46	3.21
Na 589.592	Na	30912.21	ug/L	245925.84	30615.69	31048.83	31105.38
Ni 231.604	Ni	3.28	ug/L	10.94	2.78	3.88	2.6
P 213.618	P	6071.79	ug/L	4650.77	6005.14	6101.12	6093.89
Pb 220.353	Pb	-2.03	ug/L	0.22	0.31	-3.3	-4.08
S 181.972	S	13781.31	ug/L	531.37	13648.95	13841.46	13787.38
Sb 206.834	Sb	-0.57	ug/L	1.74	1	-2.04	-0.65
Se 196.026	Se	2.28	ug/L	3.38	2.26	1.99	3.26
Si 251.611	Si	2337.46	ug/L	4048.36	2303.87	2348.36	2357.09
Sn 189.925	Sn	-2.1	ug/L	0.4	-0.8	-3.86	-0.44
Sr 421.552	Sr	80.85	ug/L	188522.02	80.21	81.16	81.37
Ti 334.941	Ti	0.35	ug/L	16248.06	0.34	0.47	0.23
Tl 190.794	Tl	-0.31	ug/L	-2.72	-2.83	1.77	-1.74
V 292.401	V	0.72	ug/L	12.41	0.4	0.6	0.77
Zn 206.200	Zn	11.84	ug/L	37.01	12.44	10.59	11.55

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485320001 3247****Analysis Time: 5/11/2022 8:04:00 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.97	Ratio	556672.85	0.97	0.99	0.99
Ag 328.068	Ag	-0.49	ug/L	-1193.55	-0.78	-0.69	-0.24
Al 396.152	Al	1400.49	ug/L	34773.61	1386.88	1383.26	1386.53
As 188.980	As	9.91	ug/L	9.57	8.06	9.66	11.29
B 249.678	B	165.23	ug/L	1373.92	162.89	162.95	163.76
Ba 233.527	Ba	50.53	ug/L	2046.07	50.09	49.65	49.89
Be 234.861	Be	0.086	ug/L	15.173	0.106	0.118	0.057
Ca 315.887	Ca	66752.25	ug/L	356899.25	65856.16	65663.32	66259.09
Cd 214.439	Cd	-0.05	ug/L	1.88	-0.18	-0.17	0.05
Co 228.615	Co	-0.24	ug/L	13.17	-0.87	0.48	0.15
Cr 267.716	Cr	5.17	ug/L	213.21	5.19	5	5.15
Cu 327.395	Cu	12.94	ug/L	-1319.17	11.83	13.11	13.24
Fe 261.187	Fe	834.8	ug/L	1463.04	826.61	823.74	828.03
K 766.491	K	7760.89	ug/L	10212.97	7689.96	7659.42	7649.27
Li 670.783	Li	36.12	ug/L	31574.37	35.84	35.4	35.34
Mg 279.078	Mg	9165.31	ug/L	23803.73	9012.32	9045.86	9139.68
Mn 257.610	Mn	136.18	ug/L	17515.1	134.87	134.33	134.64
Mo 204.598	Mo	1.84	ug/L	-0.13	1.51	2.15	2.27
Na 589.592	Na	393286.19	ug/L	3129894.47	389718.89	389142.02	389479.88
Ni 231.604	Ni	1.7	ug/L	7.88	0.81	4.18	-0.16
P 213.618	P	175.53	ug/L	127.75	170.59	177.72	169.37
Pb 220.353	Pb	-1.98	ug/L	0.27	1.44	-4.95	-1.91
S 181.972	S	19746.01	ug/L	760.95	19585.18	19587.91	19413.36
Sb 206.834	Sb	2.24	ug/L	3.83	0.42	3.32	6.37
Se 196.026	Se	8.45	ug/L	7.17	8.79	-1.26	11.95
Si 251.611	Si	2974.05	ug/L	5144.84	2918.1	2997.08	2955.88
Sn 189.925	Sn	-2.3	ug/L	0.02	-1.63	-1.17	-3.64
Sr 421.552	Sr	252.11	ug/L	587151.6	249.76	249.25	248.93
Ti 334.941	Ti	88.38	ug/L	37540.32	88.22	86.91	87.46
Tl 190.794	Tl	-0.2	ug/L	-2.64	0.11	-3.43	2.21
V 292.401	V	4.25	ug/L	81.84	3.95	4.48	4.72
Zn 206.200	Zn	26.16	ug/L	83.59	25.71	26.84	25.18

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484415001\_3247****Analysis Time: 5/11/2022 8:05:59 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		573176.16	0.99	1.01	1
Ag 328.068	Ag	-0.49	ug/L	-1194.05	-0.45	-0.55	-0.27
Al 396.152	Al	26.58	ug/L	1330.59	26.68	26.72	25.83
As 188.980	As	8.39	ug/L	8.71	9.35	10.32	6.08
B 249.678	B	102.05	ug/L	852.75	102.18	101.84	102.83
Ba 233.527	Ba	109.04	ug/L	4413.47	108.04	108.53	110.49
Be 234.861	Be	-0.091	ug/L	-10.021	-0.099	-0.055	-0.051
Ca 315.887	Ca	73109.79	ug/L	390881.13	72909.18	73161.35	73742.16
Cd 214.439	Cd	0.06	ug/L	3.67	-0.07	0.05	-0.01
Co 228.615	Co	-0.48	ug/L	7.18	-0.38	-0.62	-0.37
Cr 267.716	Cr	-0.16	ug/L	23.59	-0.15	-0.09	-0.15
Cu 327.395	Cu	9.74	ug/L	-1407.02	9.15	10.01	9.51
Fe 261.187	Fe	57.14	ug/L	77.15	56.05	56.65	56.37
K 766.491	K	10760.97	ug/L	13999.96	10753.15	10757.61	10791.73
Li 670.783	Li	166.84	ug/L	104264.27	166.33	166.65	167.95
Mg 279.078	Mg	23945.58	ug/L	62133.48	24201.17	23739.53	24495.26
Mn 257.610	Mn	15.21	ug/L	1960.5	15.12	15.12	15.37
Mo 204.598	Mo	7.32	ug/L	20.19	7.64	6.97	6.46
Na 589.592	Na	140105.97	ug/L	1115058.34	139603.41	140191.27	140552.96
Ni 231.604	Ni	1.22	ug/L	7.05	1.72	1.97	1.78
P 213.618	P	3611.34	ug/L	2763.57	3563.47	3656.97	3663.95
Pb 220.353	Pb	-3.97	ug/L	-2.62	-4.66	-5.54	-3.57
S 181.972	S	14527.35	ug/L	560.14	14299.74	14449.43	14768.87
Sb 206.834	Sb	1.68	ug/L	3.32	6.65	0.09	0.04
Se 196.026	Se	-0.78	ug/L	1.48	-3.06	1.02	-0.6
Si 251.611	Si	4533.02	ug/L	7826.78	4483.03	4521.78	4603.56
Sn 189.925	Sn	-1.27	ug/L	1.23	0.1	-0.91	1.77
Sr 421.552	Sr	962.38	ug/L	2235958.18	960.81	962.99	966.33
Ti 334.941	Ti	-0.05	ug/L	16140.42	0.16	-0.11	-0.21
Tl 190.794	Tl	-0.2	ug/L	-2.48	0.06	-1.75	-1.42
V 292.401	V	1.19	ug/L	21.51	1.41	1.02	1.36
Zn 206.200	Zn	49	ug/L	156.13	49.31	47.99	49.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484438001\_3247****Analysis Time: 5/11/2022 8:07:57 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1	Ratio	572007.15	0.96	1.01	1.01
Ag 328.068	Ag	-0.4	ug/L	-1190.42	-0.83	-0.42	0.06
Al 396.152	Al	28.7	ug/L	1319.27	30.44	27.51	28.59
As 188.980	As	6.23	ug/L	7.42	9.82	6.73	4.09
B 249.678	B	222.76	ug/L	1848.84	227.26	220.42	222.26
Ba 233.527	Ba	17.31	ug/L	701.87	17.64	17.02	17.48
Be 234.861	Be	-0.096	ug/L	-10.381	-0.056	-0.116	-0.102
Ca 315.887	Ca	62451.74	ug/L	333908.71	63215.81	62077.35	62836.16
Cd 214.439	Cd	0.08	ug/L	3.89	0.11	0.1	0.04
Co 228.615	Co	-0.84	ug/L	7.2	-1.5	-1.13	-0.38
Cr 267.716	Cr	1.37	ug/L	77.97	1.36	1.52	1.35
Cu 327.395	Cu	12.08	ug/L	-1343.61	10.65	12.53	12.61
Fe 261.187	Fe	65.81	ug/L	91.71	67.18	66.26	64.37
K 766.491	K	10913.13	ug/L	14186.4	11201.21	10797.1	10849.92
Li 670.783	Li	5.33	ug/L	14473.11	6.24	4.96	5.01
Mg 279.078	Mg	5807.49	ug/L	15095.82	5905.76	5744.5	5882.18
Mn 257.610	Mn	6.29	ug/L	813.96	6.35	6.4	6.27
Mo 204.598	Mo	0.15	ug/L	-6.62	0.92	-0.99	0.74
Na 589.592	Na	96051.76	ug/L	764273.66	98543.44	94960.15	95544.39
Ni 231.604	Ni	1.71	ug/L	7.83	3.75	-0.39	0.75
P 213.618	P	3082.42	ug/L	2357.65	3116.19	3047.94	3121.12
Pb 220.353	Pb	-3.3	ug/L	-1.71	-2.61	-2.76	-2.63
S 181.972	S	11388.68	ug/L	439.34	11646.92	11290.9	11328.54
Sb 206.834	Sb	1.46	ug/L	3.31	3.29	2.2	2.07
Se 196.026	Se	2.38	ug/L	3.44	-0.9	8.78	-1.28
Si 251.611	Si	3630.39	ug/L	6273.01	3717.26	3595.57	3604.3
Sn 189.925	Sn	-2.31	ug/L	0.13	-0.71	-2.27	-2.39
Sr 421.552	Sr	290.05	ug/L	675100.55	297.72	286.77	288.69
Ti 334.941	Ti	0.58	ug/L	16297.19	2.26	0.06	-0.07
Tl 190.794	Tl	-0.52	ug/L	-2.9	0.46	1.9	-0.5
V 292.401	V	0.8	ug/L	14.34	0.69	0.37	1.21
Zn 206.200	Zn	52.65	ug/L	166.96	54.45	51.28	51.93

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484498001\_3247****Analysis Time: 5/11/2022 8:09:55 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	569207.35	0.99	0.99	0.99
Ag 328.068	Ag	0.99	ug/L	-1128.64	0.95	0.98	1.03
Al 396.152	Al	10171.29	ug/L	248655.54	10111.16	10171.64	10236.71
As 188.980	As	9.28	ug/L	9.06	4.79	12.08	7.05
B 249.678	B	452.1	ug/L	3737.22	450.02	451.28	454.18
Ba 233.527	Ba	701.26	ug/L	28368.77	698.56	701.41	704.05
Be 234.861	Be	0.03	ug/L	-38.211	-0.003	0.116	0.04
Ca 315.887	Ca	76958.92	ug/L	411473.35	76057.71	77869.39	77011.9
Cd 214.439	Cd	1.23	ug/L	35.52	1.09	1.12	1.49
Co 228.615	Co	4.87	ug/L	23.56	5.12	4.38	4.45
Cr 267.716	Cr	19.12	ug/L	675.39	18.75	19.33	19.47
Cu 327.395	Cu	286.05	ug/L	6084.78	284.35	285.44	288.07
Fe 261.187	Fe	13362.89	ug/L	23802.04	13283.07	13382.88	13417.29
K 766.491	K	57315.65	ug/L	72702.71	57152.02	57327.73	57573.9
Li 670.783	Li	18.3	ug/L	21484.75	18.22	18.43	18.47
Mg 279.078	Mg	19222.61	ug/L	49886.3	19108.72	19223.44	19265.47
Mn 257.610	Mn	2684.67	ug/L	345186.43	2659.57	2692.88	2698.4
Mo 204.598	Mo	6.35	ug/L	18.04	4.85	6.94	7.24
Na 589.592	Na	110317.87	ug/L	879120.64	109674.62	110284.85	110862.19
Ni 231.604	Ni	16.02	ug/L	36.8	15.81	17.94	14.44
P 213.618	P	12976.53	ug/L	9941.08	12645.5	13228.41	13067.99
Pb 220.353	Pb	19.12	ug/L	33.39	19.71	15.82	21.16
S 181.972	S	26603.67	ug/L	1024.98	26318.93	26564.48	26763.92
Sb 206.834	Sb	3.12	ug/L	4.93	6.29	0.61	5.85
Se 196.026	Se	4.04	ug/L	4.22	0.39	14.28	-3.66
Si 251.611	Si	16720.64	ug/L	28798.06	16604.31	16739.53	16810.97
Sn 189.925	Sn	44.1	ug/L	49.42	42.83	42.59	44.42
Sr 421.552	Sr	525.89	ug/L	1222940.74	523.39	526.27	528.83
Ti 334.941	Ti	79.86	ug/L	35464.49	79.72	81.71	79.96
Tl 190.794	Tl	-4.92	ug/L	-3.62	-5.27	-3.11	-6.31
V 292.401	V	10.87	ug/L	192.06	11.03	10.43	10.77
Zn 206.200	Zn	758.86	ug/L	2394.51	755.1	760.06	764.06

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484498004 3247****Analysis Time: 5/11/2022 8:11:53 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.98	Ratio	561548.87	0.95	0.99	0.99
Ag 328.068	Ag	-0.63	ug/L	-1199.83	-0.6	-0.71	-0.78
Al 396.152	Al	37.56	ug/L	1601.26	42.5	35.78	36.46
As 188.980	As	3.78	ug/L	5.98	2.55	4.21	5.36
B 249.678	B	483.79	ug/L	4002.55	490.45	479.57	484.93
Ba 233.527	Ba	46.03	ug/L	1865.19	47.14	46.31	45.65
Be 234.861	Be	-0.09	ug/L	-9.911	-0.071	-0.082	-0.1
Ca 315.887	Ca	76404.42	ug/L	408492.57	78285.03	76843.22	75774.6
Cd 214.439	Cd	0.01	ug/L	2.54	0.11	0.22	-0.12
Co 228.615	Co	-0.72	ug/L	8.27	0.13	-0.53	-1.34
Cr 267.716	Cr	0.46	ug/L	45.5	0.58	0.43	0.34
Cu 327.395	Cu	12.59	ug/L	-1329.99	12.93	12.62	12.74
Fe 261.187	Fe	85.8	ug/L	128.02	92.81	85.55	83.65
K 766.491	K	53421.33	ug/L	67795.68	54359.09	53094.99	53424.77
Li 670.783	Li	14.26	ug/L	19416.64	15.34	13.94	14.02
Mg 279.078	Mg	20701.69	ug/L	53721.15	20709.49	20744.93	20727.37
Mn 257.610	Mn	22.01	ug/L	2834.83	23.63	21.87	21.4
Mo 204.598	Mo	0.59	ug/L	-4.9	0.98	0.08	0.99
Na 589.592	Na	118655.45	ug/L	944223.17	120510.08	118097.16	118695.06
Ni 231.604	Ni	2.45	ug/L	9.45	3.13	1.45	3.3
P 213.618	P	3083.31	ug/L	2358.52	3106.02	3127.98	3076.06
Pb 220.353	Pb	-3.99	ug/L	-2.67	-3.32	-6.79	-4.04
S 181.972	S	22813.19	ug/L	878.99	22913.74	22666.45	22888.46
Sb 206.834	Sb	1.1	ug/L	2.94	1.69	-1.28	-3.05
Se 196.026	Se	4.18	ug/L	4.55	2.42	6.45	3.29
Si 251.611	Si	7649.73	ug/L	13188.46	7780.35	7599.79	7666.08
Sn 189.925	Sn	-1.66	ug/L	0.8	-3.16	-3.74	0.75
Sr 421.552	Sr	425.19	ug/L	989165.58	435.03	423.31	424.66
Ti 334.941	Ti	0.11	ug/L	16178.93	0.53	-0.05	0.03
Tl 190.794	Tl	-1.01	ug/L	-3.24	1.32	-3.64	-1.82
V 292.401	V	0.83	ug/L	15.16	0.8	0.26	1.51
Zn 206.200	Zn	43.36	ug/L	138.41	43.67	44.07	43.11



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484502003 3247****Analysis Time: 5/11/2022 8:13:51 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	592035.01	1.03	1.03	1.04
Ag 328.068	Ag	0.03	ug/L	-1172.99	0.06	-0.25	0.14
Al 396.152	Al	44.78	ug/L	1596.88	45.51	44.4	45.64
As 188.980	As	0.53	ug/L	4.02	-0.94	4.29	1.9
B 249.678	B	12.53	ug/L	113.95	13.06	13.14	12.09
Ba 233.527	Ba	75.12	ug/L	3037.9	75.27	74.54	76.19
Be 234.861	Be	-0.017	ug/L	1.368	-0.012	-0.02	-0.009
Ca 315.887	Ca	35879.61	ug/L	191867.32	35961.53	35871.41	36083.06
Cd 214.439	Cd	0.07	ug/L	3.86	0.05	0.19	0.02
Co 228.615	Co	0.11	ug/L	8.93	-0.42	-0.06	0.03
Cr 267.716	Cr	0.05	ug/L	30.89	0.13	-0.03	0.2
Cu 327.395	Cu	3.16	ug/L	-1584.17	3.11	2.55	4.05
Fe 261.187	Fe	54.76	ug/L	72.86	54.56	57.19	52.09
K 766.491	K	2033.9	ug/L	2986.26	2031.14	2032.46	2038.38
Li 670.783	Li	28.37	ug/L	27289.75	28.34	28.37	28.57
Mg 279.078	Mg	12838.81	ug/L	33329.78	12797.22	12898.46	12994.4
Mn 257.610	Mn	9.16	ug/L	1182.46	9.28	9.09	9.16
Mo 204.598	Mo	0.52	ug/L	-5.19	0.43	-0.16	1.11
Na 589.592	Na	8485.01	ug/L	67475.58	8491.69	8495.38	8491.18
Ni 231.604	Ni	3.42	ug/L	11.28	3.22	2.84	1.87
P 213.618	P	10.49	ug/L	1.19	13.86	12.08	12.05
Pb 220.353	Pb	-0.86	ug/L	2.12	-0.63	0.7	-1.52
S 181.972	S	20850.49	ug/L	803.41	20874.49	20808.32	21019.14
Sb 206.834	Sb	5.05	ug/L	6.07	11.66	2.81	3.26
Se 196.026	Se	9.84	ug/L	8.06	18.84	4.83	8.78
Si 251.611	Si	4691.07	ug/L	8097.69	4691.27	4667.6	4745.15
Sn 189.925	Sn	-3.02	ug/L	-0.6	-0.7	-3.12	-2.26
Sr 421.552	Sr	785.45	ug/L	1824201.35	786.45	787.53	788.01
Ti 334.941	Ti	-0.12	ug/L	16133.67	-0.09	0.01	-0.29
Tl 190.794	Tl	-1.94	ug/L	-4.24	-4.61	-2.06	-0.42
V 292.401	V	0.87	ug/L	15.94	0.9	1.1	1.1
Zn 206.200	Zn	15.12	ug/L	47.73	14.88	15.88	15.04

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484502004 3247****Analysis Time: 5/11/2022 8:15:49 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	589444.77	1.02	1.03	1.03
Ag 328.068	Ag	-0.12	ug/L	-1178.88	-0.21	-0.11	-0.01
Al 396.152	Al	55.57	ug/L	1847.85	56.39	55.79	54.29
As 188.980	As	3.04	ug/L	5.49	7.31	-0.3	2.53
B 249.678	B	11.79	ug/L	107.81	12.05	11.82	11.3
Ba 233.527	Ba	70.25	ug/L	2840.78	70.83	69.71	69.85
Be 234.861	Be	0.032	ug/L	8.227	0.064	0.015	0.026
Ca 315.887	Ca	33584.99	ug/L	179601.44	33478.07	33485.72	33746.09
Cd 214.439	Cd	0.14	ug/L	5.19	0.09	0.18	0.11
Co 228.615	Co	-0.27	ug/L	6.76	0.01	-0.22	-0.51
Cr 267.716	Cr	0.19	ug/L	35.52	0.28	0.14	0.07
Cu 327.395	Cu	4.1	ug/L	-1558.61	3.98	4.13	4.27
Fe 261.187	Fe	135.02	ug/L	215.96	137.76	133.22	133.72
K 766.491	K	1930	ug/L	2854.59	1938.49	1941.75	1903.56
Li 670.783	Li	27.3	ug/L	26695.51	27.45	27.21	27.38
Mg 279.078	Mg	12033.4	ug/L	31241.1	12006.89	12024.75	12160.26
Mn 257.610	Mn	26.35	ug/L	3392.19	26.46	26.26	26.6
Mo 204.598	Mo	-0.48	ug/L	-8.92	-1.44	-0.64	0
Na 589.592	Na	8188.25	ug/L	65104.11	8157.57	8188.48	8203.51
Ni 231.604	Ni	5.25	ug/L	14.89	5.61	5.51	3.54
P 213.618	P	10.59	ug/L	1.22	8.49	18.61	7.53
Pb 220.353	Pb	-1.98	ug/L	0.36	-2.13	-0.7	-3.88
S 181.972	S	20261.09	ug/L	780.73	19942.84	20279.68	20544.5
Sb 206.834	Sb	-1.81	ug/L	0.77	-4.37	-0.39	-0.98
Se 196.026	Se	8.15	ug/L	7.01	4.07	7.14	11.16
Si 251.611	Si	4428.5	ug/L	7645.9	4371.33	4412.54	4492.74
Sn 189.925	Sn	-2.53	ug/L	-0.07	-0.02	-2.87	-3.57
Sr 421.552	Sr	726.26	ug/L	1686748.73	722.62	725.83	730.27
Ti 334.941	Ti	0.03	ug/L	16170.12	0.18	-0.04	-0.15
Tl 190.794	Tl	-0.23	ug/L	-2.57	-1.14	-0.92	-1.64
V 292.401	V	0.77	ug/L	13.93	1.07	0.8	0.72
Zn 206.200	Zn	17.43	ug/L	54.92	17.14	16.97	17.85

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2432127\_3247****Analysis Time: 5/11/2022 8:17:47 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		574001.91	1	1	1
Ag 328.068	Ag	539.61	ug/L	20765.28	536.22	539.44	541.76
Al 396.152	Al	2714.34	ug/L	68785.5	2708.6	2731.17	2728.81
As 188.980	As	2351.25	ug/L	1384.93	2348.74	2360.5	2364.16
B 249.678	B	2342.62	ug/L	19346.34	2326.17	2350.76	2350.87
Ba 233.527	Ba	2510.87	ug/L	101541.94	2503.18	2526.48	2518
Be 234.861	Be	625.115	ug/L	92774.544	624.019	629.385	626.697
Ca 315.887	Ca	86821.97	ug/L	464226.03	86923.75	87031.83	87195.91
Cd 214.439	Cd	1159.39	ug/L	24020.9	1152.28	1164.39	1164.65
Co 228.615	Co	2481.95	ug/L	14465.81	2478.47	2496.89	2489.17
Cr 267.716	Cr	2534.37	ug/L	91340.42	2537.84	2550.96	2540.56
Cu 327.395	Cu	2458.83	ug/L	64996.09	2454.63	2477.89	2452.59
Fe 261.187	Fe	2750.29	ug/L	4863.09	2748.96	2775.46	2754.56
K 766.491	K	25157.07	ug/L	32220.24	25172.23	25201.07	25186.74
Li 670.783	Li	2468.86	ug/L	1382108.08	2465.34	2477.37	2470.7
Mg 279.078	Mg	39017.46	ug/L	101219.53	38859.78	39199.5	39303.97
Mn 257.610	Mn	2507.47	ug/L	322487.46	2506.99	2517.34	2514.53
Mo 204.598	Mo	2404.13	ug/L	8964.76	2390.56	2399.01	2436.66
Na 589.592	Na	32022.3	ug/L	259469.27	31962.59	32123.68	32084.84
Ni 231.604	Ni	2446.53	ug/L	4846.75	2442.09	2462.7	2447.88
P 213.618	P	48448.11	ug/L	37081.91	48396.52	48651.18	48320.81
Pb 220.353	Pb	2274.63	ug/L	3555.75	2263.83	2289.72	2281.64
S 181.972	S	23781.75	ug/L	916.29	23725.55	23706.7	23771.16
Sb 206.834	Sb	2371.8	ug/L	1838.81	2355.03	2390.92	2376.18
Se 196.026	Se	2248.45	ug/L	1394.49	2231.01	2252.26	2248.39
Si 251.611	Si	16958.67	ug/L	29269.37	16796.62	17016.47	17027.31
Sn 189.925	Sn	2447.2	ug/L	2601.82	2434.44	2459.39	2461.11
Sr 421.552	Sr	3259.68	ug/L	7568673.66	3261.38	3277.89	3263.87
Ti 334.941	Ti	2493.68	ug/L	619453.38	2496.33	2502.47	2503.26
Tl 190.794	Tl	2151.24	ug/L	2074.63	2109.7	2148.56	2170.85
V 292.401	V	2478.11	ug/L	48034.41	2475.97	2490.82	2482.43
Zn 206.200	Zn	2423.51	ug/L	7645.69	2395.4	2431.23	2455.67

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2432128\_3247****Analysis Time: 5/11/2022 8:19:46 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	578522.11	1	1.01	1.01
Ag 328.068	Ag	523.04	ug/L	20093.59	520.57	523.29	524.92
Al 396.152	Al	2361.7	ug/L	59961.2	2368.27	2367.17	2359.79
As 188.980	As	2150.28	ug/L	1267.12	2137	2152.61	2173.32
B 249.678	B	2189.1	ug/L	18078.89	2175.71	2192.85	2196.8
Ba 233.527	Ba	2255.81	ug/L	91226.63	2248.24	2257.93	2263.82
Be 234.861	Be	556.744	ug/L	82628.039	554.344	558.109	559.034
Ca 315.887	Ca	78139.36	ug/L	417807.83	77795.95	78105.65	78794.57
Cd 214.439	Cd	1066.95	ug/L	22105.91	1060.94	1066.32	1072.25
Co 228.615	Co	2215.61	ug/L	12913.25	2208.61	2223.52	2219.79
Cr 267.716	Cr	2233.83	ug/L	80511.37	2225.55	2238.2	2243.54
Cu 327.395	Cu	2195.79	ug/L	57864.75	2192.28	2192.55	2199.03
Fe 261.187	Fe	2414.03	ug/L	4265.21	2404.04	2413.57	2426.31
K 766.491	K	23624.51	ug/L	30279.11	23570.08	23656.45	23664.9
Li 670.783	Li	2253.33	ug/L	1262496.8	2249.29	2252.17	2265.07
Mg 279.078	Mg	34887.33	ug/L	90508.77	34758.16	34940.51	34996.77
Mn 257.610	Mn	2254.36	ug/L	289935.27	2245.03	2256.68	2263.48
Mo 204.598	Mo	2163.47	ug/L	8066.58	2150.97	2148.21	2189.76
Na 589.592	Na	29631.49	ug/L	239952.31	29521.67	29684.88	29685.64
Ni 231.604	Ni	2180.08	ug/L	4319.36	2172.78	2180.47	2184.97
P 213.618	P	44239.64	ug/L	33861.55	43950.23	44291.7	44364.03
Pb 220.353	Pb	2103.28	ug/L	3288.28	2096.67	2106.35	2106.43
S 181.972	S	22982.71	ug/L	885.53	23000.62	22957.1	23007
Sb 206.834	Sb	2186.13	ug/L	1694.85	2161	2209.61	2186.15
Se 196.026	Se	2103.22	ug/L	1304.51	2091.17	2110.16	2108.62
Si 251.611	Si	15821.46	ug/L	27306.06	15710.91	15824.84	15895.08
Sn 189.925	Sn	2215.6	ug/L	2355.86	2193.84	2224.86	2225.8
Sr 421.552	Sr	2926.92	ug/L	6796045.67	2917.42	2935.94	2935.93
Ti 334.941	Ti	2228.04	ug/L	555187.22	2210.9	2234.82	2234.16
Tl 190.794	Tl	2046.41	ug/L	1973.34	2014.69	2039.36	2065.09
V 292.401	V	2221.29	ug/L	43055.73	2212.72	2223.67	2231.52
Zn 206.200	Zn	2177.67	ug/L	6869.97	2162.1	2173.35	2199.79

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 8:21:45 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	587296.79	0.99	1.04	1.04
Ag 328.068	Ag	1012.79	ug/L	40449.7	1038.38	999.44	1001.42
Al 396.152	Al	10004.59	ug/L	246227.33	10258.34	9863.76	9890.21
As 188.980	As	2018.59	ug/L	1189.76	2080.39	1985.65	1986.36
B 249.678	B	2089.7	ug/L	17254.84	2143.12	2061.48	2065.41
Ba 233.527	Ba	2085.81	ug/L	84347.73	2144.13	2055.77	2060.43
Be 234.861	Be	2021.294	ug/L	299993.14	2076.222	1991.847	1997.471
Ca 315.887	Ca	10015.93	ug/L	53639.45	10281.55	9889.3	9904.94
Cd 214.439	Cd	2059.44	ug/L	42674.46	2117.32	2024.33	2027.27
Co 228.615	Co	2092.46	ug/L	12187.9	2150.7	2061.59	2067.57
Cr 267.716	Cr	2041.36	ug/L	73578.8	2095.99	2013.23	2017.31
Cu 327.395	Cu	1986.7	ug/L	52198.42	2037.46	1962.27	1963.62
Fe 261.187	Fe	10143.54	ug/L	18047.58	10409.97	9992.84	10037.59
K 766.491	K	9869.69	ug/L	12913.83	10188.62	9736.95	9724.27
Li 670.783	Li	1967.03	ug/L	1103439.71	2022.44	1943.87	1945.37
Mg 279.078	Mg	10185.55	ug/L	26448.46	10447.53	10042.33	10078.64
Mn 257.610	Mn	2074.38	ug/L	266811.84	2128.57	2044.32	2051.08
Mo 204.598	Mo	1961.44	ug/L	7313.74	2010.25	1924.85	1968.84
Na 589.592	Na	9977.76	ug/L	83202.79	10296.32	9826.05	9844.11
Ni 231.604	Ni	2067.52	ug/L	4096.5	2120.9	2037.99	2046.71
P 213.618	P	2079.96	ug/L	1526.12	2105.61	2077.29	2049.86
Pb 220.353	Pb	2062.81	ug/L	3223.84	2118.95	2034.97	2040.9
S 181.972	S	9904.71	ug/L	382.17	10044.48	9838.92	9811.41
Sb 206.834	Sb	2032.84	ug/L	1576.72	2092.73	1993.99	2001.11
Se 196.026	Se	2059.34	ug/L	1276.61	2103.36	2032.34	2035.6
Si 251.611	Si	10612.5	ug/L	18339.43	10876.44	10475.79	10495.06
Sn 189.925	Sn	2008.94	ug/L	2137.26	2055.66	1981.07	1989.86
Sr 421.552	Sr	2068.33	ug/L	4800980.21	2125	2035.99	2043.69
Ti 334.941	Ti	2020.4	ug/L	504967.72	2059.72	1992.07	2010.56
Tl 190.794	Tl	2102.22	ug/L	2027.34	2153.32	2075	2083.68
V 292.401	V	2025.24	ug/L	39244.08	2079.68	1996.39	2002.46
Zn 206.200	Zn	2056.59	ug/L	6485	2101.9	2027.65	2042.57

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 8:23:44 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	585580.76	0.99	1.03	1.04
Ag 328.068	Ag	0.37	ug/L	-1159.13	-0.68	0.63	1.03
Al 396.152	Al	0.01	ug/L	338.53	0.21	-0.08	-0.06
As 188.980	As	0.98	ug/L	4.24	3.48	0.28	-0.62
B 249.678	B	2.72	ug/L	32.85	4.33	2.88	1.85
Ba 233.527	Ba	0.18	ug/L	3.35	0.23	0.06	0.24
Be 234.861	Be	-0.039	ug/L	-1.273	-0.066	0.005	-0.07
Ca 315.887	Ca	0.84	ug/L	77.42	3.06	0.74	-1.3
Cd 214.439	Cd	0.12	ug/L	4.76	0.25	0.18	-0.02
Co 228.615	Co	-0.29	ug/L	6.26	-0.56	-0.16	0.13
Cr 267.716	Cr	0.09	ug/L	31.67	0.09	0.15	0.1
Cu 327.395	Cu	0.32	ug/L	-1660.49	-1.68	1.41	1.34
Fe 261.187	Fe	-0.95	ug/L	-26.64	-1.1	-3.41	2.52
K 766.491	K	-9.17	ug/L	401.24	38.87	-52.78	-13.2
Li 670.783	Li	-1.2	ug/L	10885.69	-0.49	-1.43	-1.51
Mg 279.078	Mg	2.14	ug/L	39.96	1.4	1.71	2.51
Mn 257.610	Mn	0.09	ug/L	16.44	0.12	0	0.08
Mo 204.598	Mo	2.1	ug/L	0.61	1.2	1.58	2.17
Na 589.592	Na	16.43	ug/L	-70.06	16.48	15.07	18.7
Ni 231.604	Ni	-0.15	ug/L	4.09	0.66	-0.36	-0.26
P 213.618	P	-4.71	ug/L	-10.78	-12.21	-3.39	-3.65
Pb 220.353	Pb	-1.23	ug/L	1.39	-2.12	-0.84	-1.2
S 181.972	S	16.97	ug/L	1.66	30.47	-2.91	26.84
Sb 206.834	Sb	-0.19	ug/L	2.08	-2.44	-0.99	3.36
Se 196.026	Se	3.45	ug/L	4.11	-1.2	0.92	8.01
Si 251.611	Si	7.8	ug/L	39.84	13.16	10.28	6.4
Sn 189.925	Sn	-1.92	ug/L	0.62	-2.31	-1.63	-1.66
Sr 421.552	Sr	0.04	ug/L	168.23	0.06	0.03	0.04
Ti 334.941	Ti	-0.05	ug/L	16159.01	1.87	-0.75	-1.39
Tl 190.794	Tl	1.95	ug/L	-0.62	1.58	2.95	1.33
V 292.401	V	0.29	ug/L	4.3	0.18	0.46	0.14
Zn 206.200	Zn	0.45	ug/L	0	0.98	0.2	0.86

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2431489\_3246****Analysis Time: 5/11/2022 8:25:43 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598711.53	1.01	1.06	1.05
Ag 328.068	Ag	0.55	ug/L	-1152	-0.2	0.77	0.46
Al 396.152	Al	2.45	ug/L	397.01	3.28	2.06	2.02
As 188.980	As	2.38	ug/L	5.07	0.85	5.25	2.8
B 249.678	B	1.24	ug/L	20.63	1.78	0.46	1.19
Ba 233.527	Ba	0.51	ug/L	16.69	0.53	0.54	0.52
Be 234.861	Be	0.012	ug/L	6.257	0.013	0.033	0.013
Ca 315.887	Ca	17.57	ug/L	166.82	13.81	18.41	21.98
Cd 214.439	Cd	0.12	ug/L	4.78	0.18	0.17	0.05
Co 228.615	Co	0.03	ug/L	8.13	0.67	-0.98	0.63
Cr 267.716	Cr	0.08	ug/L	31.33	0.08	0.4	0.09
Cu 327.395	Cu	0.94	ug/L	-1643.64	-0.88	1.28	1.13
Fe 261.187	Fe	3.66	ug/L	-18.43	2.61	2.86	7.15
K 766.491	K	1.34	ug/L	414.48	-11.42	-12.67	5.44
Li 670.783	Li	-1.6	ug/L	10658.78	-0.79	-1.76	-1.82
Mg 279.078	Mg	6.78	ug/L	52.01	6.94	7.74	8.23
Mn 257.610	Mn	0.26	ug/L	37.45	0.29	0.26	0.33
Mo 204.598	Mo	0.47	ug/L	-5.47	0.25	0.6	1.01
Na 589.592	Na	29.21	ug/L	32.23	26.61	33.09	29.51
Ni 231.604	Ni	1.01	ug/L	6.39	0.33	1.82	0.66
P 213.618	P	8.37	ug/L	-0.74	5.76	9.26	13.69
Pb 220.353	Pb	-1.91	ug/L	0.32	1.07	-5.1	-3.02
S 181.972	S	14.95	ug/L	1.58	5.29	9.25	25.93
Sb 206.834	Sb	-1.42	ug/L	1.14	-1.98	-1.91	-1.1
Se 196.026	Se	6.51	ug/L	6.01	11.47	2.29	0.62
Si 251.611	Si	27.23	ug/L	73.25	27.96	28.4	27.75
Sn 189.925	Sn	-2.32	ug/L	0.19	-3.6	-1.98	-1.45
Sr 421.552	Sr	0.47	ug/L	1152.49	0.51	0.57	0.46
Ti 334.941	Ti	-0.15	ug/L	16134.62	1.87	-0.88	-0.5
Tl 190.794	Tl	0.82	ug/L	-1.7	-1.93	2.19	0.99
V 292.401	V	0.19	ug/L	2.66	0.04	0.23	0.23
Zn 206.200	Zn	0.48	ug/L	0.09	1.06	0.66	0.93

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2431490\_3246****Analysis Time: 5/11/2022 8:27:41 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	578995.53	1.01	1.02	1.01
Ag 328.068	Ag	520.49	ug/L	19991.79	514.03	519.3	523.08
Al 396.152	Al	2112.36	ug/L	53614.82	2085.35	2111.24	2114.16
As 188.980	As	2028.77	ug/L	1195.77	2015.65	2019.14	2038.8
B 249.678	B	2107.9	ug/L	17408.31	2083.2	2102.66	2117.86
Ba 233.527	Ba	2073.6	ug/L	83854.32	2049.11	2069.05	2083.79
Be 234.861	Be	520.117	ug/L	77193.132	514.141	519.014	522.765
Ca 315.887	Ca	42169.19	ug/L	225527.62	41775.32	42029.19	42283.6
Cd 214.439	Cd	1040.33	ug/L	21554.31	1029.11	1037.75	1044.98
Co 228.615	Co	2126.36	ug/L	12391.22	2104.09	2117.01	2134.83
Cr 267.716	Cr	2079.96	ug/L	74966.86	2054.6	2074.47	2089.43
Cu 327.395	Cu	2064.96	ug/L	54318.77	2037.37	2065.47	2072.37
Fe 261.187	Fe	2138.77	ug/L	3775.13	2107.48	2137.16	2152.84
K 766.491	K	20854.03	ug/L	26773.85	20693.66	20798.01	20923.78
Li 670.783	Li	2088.08	ug/L	1170751.26	2069.74	2078.25	2098.6
Mg 279.078	Mg	21173.45	ug/L	54944.09	20866.01	21194.87	21257.07
Mn 257.610	Mn	2115.99	ug/L	272139.55	2086.42	2124.9	2124.6
Mo 204.598	Mo	2034.61	ug/L	7585.71	2003.74	2033.88	2057.3
Na 589.592	Na	20812.33	ug/L	169410.82	20638.85	20772.95	20852.57
Ni 231.604	Ni	2093.09	ug/L	4147.06	2069.35	2083.18	2105.4
P 213.618	P	41929.55	ug/L	32093.2	41093.08	41638.36	42260.81
Pb 220.353	Pb	2051.48	ug/L	3207.34	2027.6	2046.79	2062.87
S 181.972	S	2122.81	ug/L	82.76	2112.14	2116.57	2118.34
Sb 206.834	Sb	2065.39	ug/L	1601.27	2030.13	2072.58	2079.4
Se 196.026	Se	2041.07	ug/L	1266	2008.13	2033.89	2064.36
Si 251.611	Si	10905.76	ug/L	18844.85	10710.16	10879.55	10973.23
Sn 189.925	Sn	2101.36	ug/L	2234.58	2074.17	2094.65	2118.44
Sr 421.552	Sr	2088.86	ug/L	4849761.93	2066.77	2083.36	2099.92
Ti 334.941	Ti	2078.71	ug/L	519066.9	2046.4	2069.67	2106.56
Tl 190.794	Tl	2020.4	ug/L	1948.38	1969.24	2011.62	2041.6
V 292.401	V	2082.05	ug/L	40356.42	2059.23	2075.8	2089.29
Zn 206.200	Zn	2070.55	ug/L	6530.64	2051.17	2057.46	2077.08



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484503003 3246****Analysis Time: 5/11/2022 8:29:40 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	592465.48	1.04	1.05	1
Ag 328.068	Ag	1.24	ug/L	-1107.59	1.03	1.27	1.4
Al 396.152	Al	14.38	ug/L	800.25	14.15	13.91	14.99
As 188.980	As	4.39	ug/L	6.52	9.15	1.85	-0.52
B 249.678	B	11.05	ug/L	93.52	13.1	10.9	9.71
Ba 233.527	Ba	137.41	ug/L	5556.02	135.15	134.12	144.21
Be 234.861	Be	-0.032	ug/L	-6.344	0.014	-0.063	-0.017
Ca 315.887	Ca	17357.84	ug/L	92864.37	17052.02	17085.91	18205.9
Cd 214.439	Cd	1.58	ug/L	34.6	1.56	1.37	1.87
Co 228.615	Co	207.69	ug/L	1216.46	204.28	203.88	217.53
Cr 267.716	Cr	1.03	ug/L	-247.87	1.58	1.17	0.37
Cu 327.395	Cu	1.58	ug/L	-1607.88	1.65	1.37	1.52
Fe 261.187	Fe	639.06	ug/L	1116.92	632.15	628.67	668.35
K 766.491	K	830.81	ug/L	1483.82	841.85	774.87	892.42
Li 670.783	Li	-0.33	ug/L	10923.34	-0.39	-0.64	0.32
Mg 279.078	Mg	12461.42	ug/L	32354.24	12297.53	12217.2	13079.76
Mn 257.610	Mn	17201.48	ug/L	2211490.69	16839.55	16924.92	18050.43
Mo 204.598	Mo	1.35	ug/L	-1.25	1.71	0.9	0.56
Na 589.592	Na	2613.37	ug/L	20865.08	2577.43	2569.83	2725.55
Ni 231.604	Ni	28.84	ug/L	61.4	29.81	26.19	29.99
P 213.618	P	1.51	ug/L	-5.09	3.44	2.69	-0.98
Pb 220.353	Pb	-2.32	ug/L	2.9	-1.89	-0.97	-4.13
S 181.972	S	14423.27	ug/L	556.85	14186.44	14189.34	15059.09
Sb 206.834	Sb	0.84	ug/L	2.86	-2.31	-0.2	1.21
Se 196.026	Se	4.82	ug/L	10.41	4.68	2.97	1.48
Si 251.611	Si	1919.16	ug/L	3343.71	1872.08	1890.29	2032.42
Sn 189.925	Sn	-1.44	ug/L	1.09	-2.39	-2.56	-1.35
Sr 421.552	Sr	66.34	ug/L	154540.46	65.28	65.17	69.31
Ti 334.941	Ti	-0.49	ug/L	16028	-0.49	-0.52	-0.56
Tl 190.794	Tl	-18.46	ug/L	7.06	-17.87	-19.74	-20.19
V 292.401	V	0.7	ug/L	2.75	0.15	1.05	0.73
Zn 206.200	Zn	39.23	ug/L	123.39	38.18	38.86	41.48

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2431491\_3246****Analysis Time: 5/11/2022 8:31:38 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	578138.5	0.98	1.02	1.02
Ag 328.068	Ag	515.83	ug/L	19817.86	524.06	509.62	510.92
Al 396.152	Al	2098.68	ug/L	53372.65	2139.92	2050.78	2078.36
As 188.980	As	2014.58	ug/L	1187.8	2044.76	1987.2	1991.54
B 249.678	B	2084.03	ug/L	17203.47	2113.5	2059.07	2067.49
Ba 233.527	Ba	2171.13	ug/L	87801.05	2210.63	2138.65	2150.52
Be 234.861	Be	511.464	ug/L	75903.294	519.964	503.816	506.807
Ca 315.887	Ca	58399.88	ug/L	312292.57	59272.96	57617.71	57840.69
Cd 214.439	Cd	1009.76	ug/L	20920.53	1025.42	995.29	1001.16
Co 228.615	Co	2264.72	ug/L	13195.79	2305.55	2227.25	2247.24
Cr 267.716	Cr	2041.61	ug/L	73283.03	2073.72	2013.24	2023.5
Cu 327.395	Cu	2033.78	ug/L	53490.53	2072.18	1994.21	2014.96
Fe 261.187	Fe	2705.27	ug/L	4787.77	2757.21	2666.89	2678.24
K 766.491	K	21624.82	ug/L	27767.16	22057.49	21306.72	21393.44
Li 670.783	Li	2075.67	ug/L	1163459.72	2108.22	2047.83	2056.75
Mg 279.078	Mg	32850.03	ug/L	85228.47	33522.54	32279.6	32490.7
Mn 257.610	Mn	18437.16	ug/L	2370449.09	18756.81	18150.17	18291.14
Mo 204.598	Mo	2017.87	ug/L	7523.98	2044.17	1996.69	2004.46
Na 589.592	Na	23221.04	ug/L	188772.07	23636.21	22939.51	23017.99
Ni 231.604	Ni	2050.54	ug/L	4062.79	2094.1	2018.77	2027.95
P 213.618	P	41156.08	ug/L	31501.58	42003.78	40612.17	40589.11
Pb 220.353	Pb	1994.79	ug/L	3121.87	2034.39	1961.93	1982.99
S 181.972	S	16131.86	ug/L	622.63	16300.78	15871.34	16155.37
Sb 206.834	Sb	2049.87	ug/L	1589.03	2075.19	2029.63	2036.26
Se 196.026	Se	1970.37	ug/L	1227.49	2002.59	1939.45	1952.23
Si 251.611	Si	12520.78	ug/L	21637.75	12630.17	12357.53	12442.44
Sn 189.925	Sn	2051.99	ug/L	2182.1	2083.57	2020.56	2032.99
Sr 421.552	Sr	2126.27	ug/L	4937067.73	2168.92	2096.76	2107.18
Ti 334.941	Ti	2052.01	ug/L	512584.16	2081.58	2042.31	2047.96
Tl 190.794	Tl	1952.65	ug/L	1909.12	1964.14	1922.62	1944.34
V 292.401	V	2062.26	ug/L	39963.81	2100.38	2029.18	2039.99
Zn 206.200	Zn	2029.7	ug/L	6402.86	2057.3	2008.26	2013.47

## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: 2431492\_3246****Analysis Time: 5/11/2022 8:33:37 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	576455.29	0.98	1.02	1.02
Ag 328.068	Ag	517.41	ug/L	19882.18	527.62	509.18	514.26
Al 396.152	Al	2098.02	ug/L	53356.01	2150.95	2064	2083.81
As 188.980	As	2022.83	ug/L	1192.7	2060.36	1994.43	2008.44
B 249.678	B	2095.74	ug/L	17300.07	2138.69	2061.62	2082
Ba 233.527	Ba	2169.88	ug/L	87750.49	2219.29	2133.99	2152.38
Be 234.861	Be	513.329	ug/L	76179.95	524.39	505.074	509.689
Ca 315.887	Ca	58555.76	ug/L	313125.79	59849.43	57373.23	58150.5
Cd 214.439	Cd	1012.54	ug/L	20978.26	1034.58	995.94	1005.38
Co 228.615	Co	2264.42	ug/L	13194.11	2315.94	2224.86	2248.13
Cr 267.716	Cr	2049.46	ug/L	73568.33	2092.35	2014.39	2035.08
Cu 327.395	Cu	2033.22	ug/L	53475.4	2083.56	2000.25	2019.46
Fe 261.187	Fe	2689.26	ug/L	4759.21	2747.59	2638.46	2670.09
K 766.491	K	21710.37	ug/L	27875.04	22254.74	21367.16	21555.64
Li 670.783	Li	2090.51	ug/L	1171707.81	2137.86	2054.72	2077.68
Mg 279.078	Mg	32729.5	ug/L	84915.88	33538.16	32194.36	32534.06
Mn 257.610	Mn	18250.25	ug/L	2346419.06	18649.01	17953.26	18092.14
Mo 204.598	Mo	2022.39	ug/L	7540.85	2050.36	1972.87	2034.11
Na 589.592	Na	23320.64	ug/L	189562.23	23863.92	22891.02	23182.65
Ni 231.604	Ni	2048.84	ug/L	4059.42	2092.25	2013.62	2036.86
P 213.618	P	41185.09	ug/L	31523.8	42027.74	40384.66	41139.14
Pb 220.353	Pb	1992.47	ug/L	3118.21	2038.8	1959.08	1981.1
S 181.972	S	15988.82	ug/L	617.12	16325.16	15729.41	15957.91
Sb 206.834	Sb	2061.81	ug/L	1598.24	2105.72	2036.69	2043.72
Se 196.026	Se	1979.32	ug/L	1232.99	2028.64	1939.58	1970.9
Si 251.611	Si	12625.64	ug/L	21818.06	12842.83	12409.49	12551.19
Sn 189.925	Sn	2062.05	ug/L	2192.79	2107.53	2020.29	2051.67
Sr 421.552	Sr	2131.84	ug/L	4950008.8	2175.3	2094.34	2114.98
Ti 334.941	Ti	2055.85	ug/L	513514.45	2098.09	2007.59	2041.63
Tl 190.794	Tl	1966	ug/L	1921.79	1993.36	1928.36	1957.82
V 292.401	V	2069.19	ug/L	40099.61	2116.3	2035.45	2057.08
Zn 206.200	Zn	2038.61	ug/L	6430.94	2076.82	1990.03	2028.99

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484503004 3246****Analysis Time: 5/11/2022 8:35:35 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	596816.4	1.04	1.04	1.04
Ag 328.068	Ag	-0.29	ug/L	-1185.26	-0.4	-0.4	0.01
Al 396.152	Al	12.24	ug/L	775.33	11.93	12.41	12.49
As 188.980	As	1.56	ug/L	4.61	-1.19	0.52	3.32
B 249.678	B	29.35	ug/L	252.7	30.54	28.65	29.61
Ba 233.527	Ba	279.61	ug/L	11307.57	273.45	278.3	281.96
Be 234.861	Be	-0.06	ug/L	-5.05	-0.052	-0.041	-0.074
Ca 315.887	Ca	24156.49	ug/L	129201.34	23634.49	24337.16	24197.62
Cd 214.439	Cd	0.23	ug/L	6.95	0.39	0.29	0.01
Co 228.615	Co	0.88	ug/L	5.62	1.04	0.15	2.13
Cr 267.716	Cr	0.7	ug/L	54.26	1	0.53	0.56
Cu 327.395	Cu	1.36	ug/L	-1632.43	1.12	1.48	1.18
Fe 261.187	Fe	13.81	ug/L	-0.03	12.28	14.48	12.64
K 766.491	K	2388.33	ug/L	3431.5	2369.22	2389.48	2393.01
Li 670.783	Li	4.99	ug/L	14268.65	4.77	5.03	4.95
Mg 279.078	Mg	11568.05	ug/L	30034.17	11350.12	11643.75	11555.96
Mn 257.610	Mn	4.57	ug/L	592.76	4.83	4.64	4.5
Mo 204.598	Mo	1.14	ug/L	-2.87	0.34	1.71	0.34
Na 589.592	Na	1636.2	ug/L	13357.98	1610.35	1639.88	1639.84
Ni 231.604	Ni	1.04	ug/L	6.55	-0.7	0.83	2.39
P 213.618	P	8.92	ug/L	-0.05	9.99	2.43	4.95
Pb 220.353	Pb	-1.84	ug/L	0.58	-0.86	-2.13	-3.47
S 181.972	S	1548.62	ug/L	60.64	1479.12	1547.29	1568.19
Sb 206.834	Sb	1.02	ug/L	2.97	1.39	1.91	-1.06
Se 196.026	Se	0.89	ug/L	2.53	-3.31	5.08	-1.47
Si 251.611	Si	2321.05	ug/L	4020.22	2278.85	2299.77	2362.82
Sn 189.925	Sn	-2.71	ug/L	-0.25	-1.62	-1.02	-4.71
Sr 421.552	Sr	121.12	ug/L	281889.01	118.71	121.2	121.79
Ti 334.941	Ti	-0.31	ug/L	16089.26	-0.48	-0.13	-0.34
Tl 190.794	Tl	0.61	ug/L	-1.79	0.39	1.95	-0.24
V 292.401	V	0.81	ug/L	14.72	1.01	0.87	0.87
Zn 206.200	Zn	21.21	ug/L	66.5	21.22	20.82	20.93

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484503005 3246****Analysis Time: 5/11/2022 8:37:33 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	582147.64	1.02	1.03	1
Ag 328.068	Ag	-0.48	ug/L	-1193.85	-0.39	-0.44	-0.35
Al 396.152	Al	16.17	ug/L	1037.32	16.09	14.95	16.93
As 188.980	As	3.94	ug/L	6.07	9.63	1.74	2.31
B 249.678	B	24.8	ug/L	215.49	25.49	25.05	24.57
Ba 233.527	Ba	52.08	ug/L	2108.76	50.32	50.53	55.57
Be 234.861	Be	-0.085	ug/L	-8.494	-0.033	-0.111	-0.07
Ca 315.887	Ca	67246.12	ug/L	359536.95	65211.7	65796.29	70301.03
Cd 214.439	Cd	-0.06	ug/L	1	-0.08	-0.12	-0.03
Co 228.615	Co	-0.56	ug/L	8.12	0.13	-0.01	-1.7
Cr 267.716	Cr	1.14	ug/L	69.47	1.07	1.17	1.15
Cu 327.395	Cu	1.25	ug/L	-1636.85	0.94	1.38	1.57
Fe 261.187	Fe	2.89	ug/L	-20.15	4.15	1.23	7.32
K 766.491	K	2310.36	ug/L	3340.3	2282.69	2269.76	2387.01
Li 670.783	Li	-0.74	ug/L	11087.56	-0.75	-0.98	-0.42
Mg 279.078	Mg	12789.82	ug/L	33203.18	12528.76	12507.79	13290.65
Mn 257.610	Mn	44.76	ug/L	5758.68	43.45	44.24	46.94
Mo 204.598	Mo	-0.08	ug/L	-7.46	-1.22	0.71	-0.17
Na 589.592	Na	2680.48	ug/L	21240.15	2622.76	2643.81	2759.11
Ni 231.604	Ni	1.69	ug/L	7.86	1.07	1.62	2.29
P 213.618	P	3.29	ug/L	-4.04	5.78	1.34	0
Pb 220.353	Pb	-3.2	ug/L	-1.49	-5.61	-4.53	-0.72
S 181.972	S	22311.37	ug/L	859.67	21885.33	21956.75	22974.69
Sb 206.834	Sb	-3.36	ug/L	-0.46	-5.88	-3.79	-0.29
Se 196.026	Se	5.69	ug/L	5.5	5	6.58	1.23
Si 251.611	Si	3607.82	ug/L	6234.48	3488.08	3526.87	3820.27
Sn 189.925	Sn	-3.07	ug/L	-0.69	-1.91	-4.25	-3.97
Sr 421.552	Sr	262.84	ug/L	612065.51	257.1	258.97	270.88
Ti 334.941	Ti	-0.38	ug/L	16063.52	-0.2	-0.44	-0.82
Tl 190.794	Tl	-1.46	ug/L	-3.7	-3.65	1.34	0.91
V 292.401	V	0.8	ug/L	14.75	0.64	0.75	0.98
Zn 206.200	Zn	6.47	ug/L	21.58	7.07	5.06	7.14

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484503006 3246****Analysis Time: 5/11/2022 8:39:31 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	597114.9	1.03	1.06	1.04
Ag 328.068	Ag	0.14	ug/L	-1168.75	-0.13	0.77	-0.19
Al 396.152	Al	38.51	ug/L	1280.9	38.11	37.66	39.48
As 188.980	As	1.34	ug/L	4.45	2.68	-0.74	0.96
B 249.678	B	14.31	ug/L	128.5	14.32	14.81	14.14
Ba 233.527	Ba	0.76	ug/L	27.11	0.78	0.74	0.69
Be 234.861	Be	-0.065	ug/L	-5.19	-0.038	-0.039	-0.112
Ca 315.887	Ca	1191.32	ug/L	6441.17	1196.36	1172.72	1194.74
Cd 214.439	Cd	0.02	ug/L	2.79	0.01	0.09	0.03
Co 228.615	Co	-0.42	ug/L	5.6	0.05	-0.9	-0.29
Cr 267.716	Cr	0.71	ug/L	54.33	0.49	0.86	0.91
Cu 327.395	Cu	1.64	ug/L	-1624.61	0.7	2.36	1.89
Fe 261.187	Fe	9.72	ug/L	-7.63	4.4	12.25	9.69
K 766.491	K	78.6	ug/L	512.12	107.55	62.09	92.99
Li 670.783	Li	-1.09	ug/L	10942.82	-0.9	-1.28	-1.09
Mg 279.078	Mg	46.12	ug/L	154.03	47.75	44.86	47.05
Mn 257.610	Mn	0.68	ug/L	92.33	0.66	0.68	0.71
Mo 204.598	Mo	0.23	ug/L	-6.36	0.75	-0.44	-1.23
Na 589.592	Na	13485.52	ug/L	107125.67	13557.16	13268.04	13540.35
Ni 231.604	Ni	1.95	ug/L	8.25	2.06	3.55	-0.05
P 213.618	P	30.62	ug/L	16.34	34.6	26.05	26.05
Pb 220.353	Pb	-1.64	ug/L	0.75	-3.55	-2.37	-1.6
S 181.972	S	5534.83	ug/L	214	5508.72	5367.06	5569.1
Sb 206.834	Sb	0.42	ug/L	2.57	1.27	-0.17	2.07
Se 196.026	Se	4.46	ug/L	4.74	1.66	8.38	6.7
Si 251.611	Si	199.15	ug/L	369.02	197.52	197.6	202.72
Sn 189.925	Sn	-1.62	ug/L	0.93	-1.67	-2.41	-1.03
Sr 421.552	Sr	2.23	ug/L	5274.15	2.23	2.19	2.24
Ti 334.941	Ti	-0.27	ug/L	16106.66	0.51	-1.15	-0.34
Tl 190.794	Tl	0.01	ug/L	-2.48	2.77	0.8	-4.01
V 292.401	V	0.61	ug/L	10.85	0.77	0.41	0.72
Zn 206.200	Zn	4.25	ug/L	12.03	4.6	4.01	4.05

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484503007\_3246****Analysis Time: 5/11/2022 8:41:29 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599667.08	1.04	1.05	1.05
Ag 328.068	Ag	0.28	ug/L	-1163.14	0.37	0.03	0.32
Al 396.152	Al	65.9	ug/L	1951.48	64.28	66.48	64.88
As 188.980	As	1.13	ug/L	4.33	0.48	0.65	-0.39
B 249.678	B	15.06	ug/L	134.68	15.09	15.05	15.11
Ba 233.527	Ba	0.94	ug/L	34.52	0.84	1.04	0.96
Be 234.861	Be	-0.083	ug/L	-7.746	-0.075	-0.103	-0.056
Ca 315.887	Ca	1844.94	ug/L	9935.17	1830.52	1843.5	1842.49
Cd 214.439	Cd	0.03	ug/L	2.94	0.11	0.1	-0.02
Co 228.615	Co	0.23	ug/L	9.46	0.56	-0.53	0.61
Cr 267.716	Cr	0.94	ug/L	62.51	1.01	0.87	0.88
Cu 327.395	Cu	1.94	ug/L	-1616.56	2	2.06	2.37
Fe 261.187	Fe	11.69	ug/L	-4.13	9	10.2	13.76
K 766.491	K	87.43	ug/L	523.37	88.51	68.73	106.37
Li 670.783	Li	-1.63	ug/L	10641.72	-1.48	-1.62	-1.68
Mg 279.078	Mg	69.82	ug/L	215.51	70.51	67.78	70.89
Mn 257.610	Mn	1.17	ug/L	155.51	1.13	1.22	1.17
Mo 204.598	Mo	0.6	ug/L	-4.95	1.76	-0.34	0.73
Na 589.592	Na	21050.08	ug/L	167329.11	20932.8	21042.11	21056.75
Ni 231.604	Ni	0.54	ug/L	5.46	0.9	-0.78	1.31
P 213.618	P	45.44	ug/L	27.7	45.33	45.44	45.44
Pb 220.353	Pb	0.02	ug/L	3.34	1.03	0.26	-1.17
S 181.972	S	8750.87	ug/L	337.76	8668.27	8745.84	8718.62
Sb 206.834	Sb	1.77	ug/L	3.62	0.42	7.83	1.24
Se 196.026	Se	5.09	ug/L	5.13	7.85	5.32	-0.43
Si 251.611	Si	324.26	ug/L	584.28	319	324.67	324.94
Sn 189.925	Sn	-0.58	ug/L	2.04	-1.85	-0.56	-0.46
Sr 421.552	Sr	3.41	ug/L	8044.89	3.38	3.41	3.42
Ti 334.941	Ti	-0.59	ug/L	16028.93	-0.34	-0.56	-0.96
Tl 190.794	Tl	-1.85	ug/L	-4.27	-0.23	-0.72	-1.1
V 292.401	V	0.33	ug/L	5.29	0.77	0.49	0.22
Zn 206.200	Zn	3.13	ug/L	8.54	3.45	3.6	2.96

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484503010\_3246****Analysis Time: 5/11/2022 8:43:28 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	597287.66	0.98	1.06	1.07
Ag 328.068	Ag	0.45	ug/L	-1150.4	0.61	0.77	0.16
Al 396.152	Al	798.04	ug/L	19842.83	836.01	785.7	783.29
As 188.980	As	1.42	ug/L	4.59	-1.71	2.58	-0.03
B 249.678	B	5.71	ug/L	54.87	5	5.67	6.08
Ba 233.527	Ba	37.82	ug/L	1527.06	39.8	36.72	36.82
Be 234.861	Be	0.85	ug/L	130.994	0.876	0.868	0.832
Ca 315.887	Ca	10442.69	ug/L	55898.65	10958.2	10295.43	10217.3
Cd 214.439	Cd	1.94	ug/L	42.43	2.16	1.81	2.11
Co 228.615	Co	122.35	ug/L	720.06	127.11	120.31	120.34
Cr 267.716	Cr	0.81	ug/L	-50.2	0.99	0.78	0.69
Cu 327.395	Cu	3.7	ug/L	-1561.9	2.7	4.17	4.12
Fe 261.187	Fe	34.72	ug/L	37.78	36.83	35.49	34.77
K 766.491	K	1095.23	ug/L	1803.51	1187	1070.62	1044.74
Li 670.783	Li	6.41	ug/L	14947.14	7.98	6.01	5.82
Mg 279.078	Mg	5637.31	ug/L	14654.97	5902.64	5515.64	5515.7
Mn 257.610	Mn	5995.65	ug/L	770828.68	6193.1	5949.99	5825.31
Mo 204.598	Mo	0.22	ug/L	-5.88	-0.21	1.05	0.02
Na 589.592	Na	1025.62	ug/L	8035.91	1079.58	1011.26	1000.64
Ni 231.604	Ni	45.02	ug/L	93.48	49.22	43.15	44.53
P 213.618	P	1.88	ug/L	-5.4	7.95	2.38	0.45
Pb 220.353	Pb	-2.86	ug/L	-0.12	-4.76	-1.75	-3.79
S 181.972	S	17773.5	ug/L	685.24	18753	17480.92	17391.01
Sb 206.834	Sb	-1.96	ug/L	0.7	-3.53	-0.86	-2.48
Se 196.026	Se	2.26	ug/L	5.28	1.4	4.17	-0.91
Si 251.611	Si	3924.51	ug/L	6783.68	4089.85	3855.34	3837.73
Sn 189.925	Sn	-1.79	ug/L	0.74	-0.8	-0.91	-2.02
Sr 421.552	Sr	39.47	ug/L	91980.51	41.51	38.82	38.55
Ti 334.941	Ti	-0.8	ug/L	15966.96	-0.8	-0.86	-0.82
Tl 190.794	Tl	-10.14	ug/L	-2.51	-10.32	-8.57	-9.87
V 292.401	V	0.42	ug/L	4.17	0.36	0.27	0.32
Zn 206.200	Zn	97.76	ug/L	307.48	101.79	95.7	96.03



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

Sample: CCV

Analysis Time: 5/11/2022 8:45:26 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	584776.06	0.96	1.04	1.04
Ag 328.068	Ag	1024.9	ug/L	40946.88	1075.55	1003.11	1008.25
Al 396.152	Al	10121.68	ug/L	249102.87	10636.28	9896.81	9948.83
As 188.980	As	2049.51	ug/L	1208	2147.55	2015.92	2008.83
B 249.678	B	2110.75	ug/L	17428.51	2214.94	2063.32	2080.18
Ba 233.527	Ba	2112.95	ug/L	85445.17	2219.73	2064.98	2079.52
Be 234.861	Be	2048.55	ug/L	304038.213	2149.852	2001.667	2017.26
Ca 315.887	Ca	10166.51	ug/L	54444.71	10675.71	9961.78	9968.91
Cd 214.439	Cd	2107.31	ug/L	43666.28	2224.61	2071.58	2098.04
Co 228.615	Co	2120.32	ug/L	12349.6	2226.14	2074.08	2084.01
Cr 267.716	Cr	2065.64	ug/L	74453.63	2169.67	2017.87	2033.99
Cu 327.395	Cu	2010.76	ug/L	52850.9	2112.22	1967.41	1977.49
Fe 261.187	Fe	10291.53	ug/L	18311.32	10793.57	10045.89	10147.59
K 766.491	K	10044.1	ug/L	13134.42	10588.08	9829.44	9887.58
Li 670.783	Li	1990.98	ug/L	1116730.4	2098.45	1946.98	1953.96
Mg 279.078	Mg	10320.69	ug/L	26798.94	10839.44	10083.52	10152.19
Mn 257.610	Mn	2103.76	ug/L	270590	2207.86	2055.77	2071.59
Mo 204.598	Mo	1984.53	ug/L	7399.93	2086.38	1928.32	1964.95
Na 589.592	Na	10113.32	ug/L	84333.5	10690.57	9890.96	9921.8
Ni 231.604	Ni	2089.02	ug/L	4139.07	2198.49	2041.28	2053.47
P 213.618	P	2089.58	ug/L	1532.78	2194.34	2025.69	2031.83
Pb 220.353	Pb	2092.41	ug/L	3270.07	2196.78	2046.54	2058.81
S 181.972	S	10100.33	ug/L	389.7	10494.39	9825.44	10066.67
Sb 206.834	Sb	2060.07	ug/L	1597.75	2150.97	2009.8	2040.98
Se 196.026	Se	2093.72	ug/L	1297.89	2186.09	2047.09	2072.44
Si 251.611	Si	10674.3	ug/L	18446.32	11177.28	10428.04	10530.4
Sn 189.925	Sn	2040.51	ug/L	2170.81	2135.8	2000.66	2007.07
Sr 421.552	Sr	2099.19	ug/L	4872629.28	2202.17	2055.37	2066.75
Ti 334.941	Ti	2044.77	ug/L	510863.91	2131.4	2003.41	2011.47
Tl 190.794	Tl	2135.68	ug/L	2059.69	2239.44	2085.71	2105.47
V 292.401	V	2051.07	ug/L	39745.63	2154.29	2005.03	2020.38
Zn 206.200	Zn	2096.08	ug/L	6609.53	2196.7	2041.53	2062.06

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 8:47:26 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	595142.81	1	1.05	1.06
Ag 328.068	Ag	0.41	ug/L	-1157.74	-0.54	0.84	1.09
Al 396.152	Al	0.23	ug/L	343.53	0.98	0.87	-0.77
As 188.980	As	1.71	ug/L	4.68	0	4.69	1.34
B 249.678	B	2.27	ug/L	29.13	4.61	2.16	1.37
Ba 233.527	Ba	0.09	ug/L	0.07	0.11	0.2	-0.03
Be 234.861	Be	0.063	ug/L	13.898	0.125	0.045	0.029
Ca 315.887	Ca	1.41	ug/L	80.43	0.34	2.95	0.36
Cd 214.439	Cd	0.05	ug/L	3.34	0.12	0	-0.05
Co 228.615	Co	-0.28	ug/L	6.33	0.11	-0.31	-0.38
Cr 267.716	Cr	-0.02	ug/L	27.94	0.22	-0.13	-0.19
Cu 327.395	Cu	0.82	ug/L	-1646.86	-0.93	1.36	1.39
Fe 261.187	Fe	1.06	ug/L	-23.06	3.46	0.68	0.76
K 766.491	K	-14.94	ug/L	393.96	-19.63	-15.33	23.69
Li 670.783	Li	-1.34	ug/L	10805.84	-0.52	-1.59	-1.65
Mg 279.078	Mg	2.18	ug/L	40.09	4.04	3.19	1.35
Mn 257.610	Mn	0.41	ug/L	57.47	0.57	0.47	0.28
Mo 204.598	Mo	1.7	ug/L	-0.86	0.97	0.94	2.63
Na 589.592	Na	10.46	ug/L	-117.7	12.04	9.66	12.27
Ni 231.604	Ni	0.65	ug/L	5.68	-1.26	4.14	0.09
P 213.618	P	-4.97	ug/L	-10.98	-5.3	-0.82	-10.25
Pb 220.353	Pb	-2.56	ug/L	-0.69	-3.56	-2.87	-3.26
S 181.972	S	-6.31	ug/L	0.76	22	-54.78	32.75
Sb 206.834	Sb	0.56	ug/L	2.66	0.47	2.54	2.44
Se 196.026	Se	7.73	ug/L	6.76	9.91	8.73	4.4
Si 251.611	Si	3.74	ug/L	32.86	6.77	4.13	2.08
Sn 189.925	Sn	-0.84	ug/L	1.76	-1.57	-0.71	-0.91
Sr 421.552	Sr	0.1	ug/L	314.57	0.19	0.12	0.06
Ti 334.941	Ti	-0.15	ug/L	16135.78	2.15	-0.88	-1.33
Tl 190.794	Tl	-0.34	ug/L	-2.83	-2.16	-1.5	1.99
V 292.401	V	0.54	ug/L	9.39	0.6	0.63	0.74
Zn 206.200	Zn	0.07	ug/L	-1.18	0.11	0.32	0.22

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484503011 3246****Analysis Time: 5/11/2022 8:49:24 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	595090.46	1.04	1.04	1.04
Ag 328.068	Ag	-0.23	ug/L	-1183.31	-0.09	-0.33	-0.12
Al 396.152	Al	18.38	ug/L	1092.98	17.65	19.44	18.18
As 188.980	As	4.43	ug/L	6.36	5.01	7.62	1.94
B 249.678	B	23.61	ug/L	205.63	24.95	24.16	23.79
Ba 233.527	Ba	52.68	ug/L	2133.05	52.39	52.57	52.26
Be 234.861	Be	-0.101	ug/L	-11.079	-0.116	-0.116	-0.042
Ca 315.887	Ca	67226.36	ug/L	359431.35	66062.79	66616.25	67849.52
Cd 214.439	Cd	0.13	ug/L	4.97	0.25	0.16	0.05
Co 228.615	Co	-0.73	ug/L	7.11	-1.15	-0.6	-0.91
Cr 267.716	Cr	1.31	ug/L	75.43	1.1	1.4	1.38
Cu 327.395	Cu	1.18	ug/L	-1638.86	1.52	1.15	1.04
Fe 261.187	Fe	6.26	ug/L	-14.14	6.71	5.04	7.27
K 766.491	K	2335.59	ug/L	3372.19	2312.95	2334.24	2355.92
Li 670.783	Li	-1.32	ug/L	10765.51	-1.26	-1.42	-1.29
Mg 279.078	Mg	12961.11	ug/L	33647.37	12790.85	12790.33	13121.62
Mn 257.610	Mn	45.2	ug/L	5816.02	45.03	44.83	45.23
Mo 204.598	Mo	-0.24	ug/L	-8.04	-1.13	0.22	-1.01
Na 589.592	Na	2683.56	ug/L	21265.83	2662.07	2680.38	2693.99
Ni 231.604	Ni	1.47	ug/L	7.42	2.12	0.31	2.74
P 213.618	P	7.12	ug/L	-1.1	8.07	7.54	6.49
Pb 220.353	Pb	-1.62	ug/L	0.98	-3.28	1.98	-2.97
S 181.972	S	22526.93	ug/L	867.96	22183.03	22517.63	22682.22
Sb 206.834	Sb	-1.1	ug/L	1.29	-2.61	-2.09	6.13
Se 196.026	Se	4.37	ug/L	4.68	1.32	7.88	-0.02
Si 251.611	Si	3627	ug/L	6267.49	3565.98	3614.04	3651.34
Sn 189.925	Sn	-1.93	ug/L	0.52	-0.29	-3.07	-1.78
Sr 421.552	Sr	263.95	ug/L	614649.49	261.03	263.56	265.22
Ti 334.941	Ti	-0.53	ug/L	16025.75	-0.42	-0.55	-0.59
Tl 190.794	Tl	-0.27	ug/L	-2.54	-0.32	1.63	-1.08
V 292.401	V	1	ug/L	18.49	1.15	0.69	1.27
Zn 206.200	Zn	3	ug/L	10.65	3.04	2.88	3.2

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484845001 3246****Analysis Time: 5/11/2022 8:51:22 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	596650.85	1.03	1.04	1.05
Ag 328.068	Ag	0.72	ug/L	-1126.45	0.62	0.8	0.92
Al 396.152	Al	114639.01	ug/L	2795810.86	113535.12	114500.94	114861.87
As 188.980	As	3.34	ug/L	5.53	-0.8	6.63	7.33
B 249.678	B	183.36	ug/L	1504.23	181.54	182.95	183.43
Ba 233.527	Ba	8.55	ug/L	410.18	8.4	8.77	8.33
Be 234.861	Be	43.389	ug/L	6349.438	42.897	43.249	42.751
Ca 315.887	Ca	346377.86	ug/L	1851861.87	342921.98	345447.59	348232.5
Cd 214.439	Cd	-1.25	ug/L	26.96	-1.13	-1.43	-1.33
Co 228.615	Co	1525.86	ug/L	8913.02	1507.17	1512.23	1539.12
Cr 267.716	Cr	1.01	ug/L	-221.36	1.34	1.31	0.78
Cu 327.395	Cu	4.09	ug/L	-1493.99	4.42	3.86	4.04
Fe 261.187	Fe	57557.17	ug/L	102622.04	57031.22	57432.37	57659.42
K 766.491	K	4176.47	ug/L	5860.3	4139.63	4154.76	4194.44
Li 670.783	Li	1701.3	ug/L	955720.52	1682.04	1697.1	1707.09
Mg 279.078	Mg	415662.6	ug/L	1077982.99	408944.34	413764.41	420642.69
Mn 257.610	Mn	18819.2	ug/L	2419700.54	18635.15	18781.69	18888.84
Mo 204.598	Mo	-4.14	ug/L	2.86	-4.72	-4.97	-3.16
Na 589.592	Na	103037.88	ug/L	819900.3	101954.16	102755.09	103426.75
Ni 231.604	Ni	3932.75	ug/L	7794.74	3840.18	3917.09	3988.7
P 213.618	P	-2.86	ug/L	-3.6	4.79	-8.66	-4.66
Pb 220.353	Pb	-3.38	ug/L	-2.38	-4.81	0.21	-5.57
S 181.972	S	935643.33	ug/L	36007.25	926991.26	932882.38	936639.28
Sb 206.834	Sb	5.26	ug/L	5.92	9.04	6.21	1.7
Se 196.026	Se	-2.78	ug/L	1.35	-0.16	-0.81	-9.32
Si 251.611	Si	14881.3	ug/L	25682.86	14714.71	14846.82	14904.22
Sn 189.925	Sn	-4.46	ug/L	-1.59	-1.97	-3.81	-6
Sr 421.552	Sr	641.78	ug/L	1499981.25	635.28	641.38	643.16
Ti 334.941	Ti	-5.54	ug/L	14670.21	-5.43	-5.57	-5.53
Tl 190.794	Tl	-27.47	ug/L	9.43	-25.44	-30.84	-22.54
V 292.401	V	1.7	ug/L	-39.58	1.5	1.3	1.67
Zn 206.200	Zn	4172.41	ug/L	13175.21	4117.58	4144.69	4186.49

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484845002\_3246****Analysis Time: 5/11/2022 8:53:21 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		569521.17	0.99	0.99	1
Ag 328.068	Ag	-0.03	ug/L	-1167.52	0.1	-0.14	-0.01
Al 396.152	Al	497.47	ug/L	14323.08	498.09	496.21	496.98
As 188.980	As	8.21	ug/L	8.69	8.27	6.7	5.57
B 249.678	B	195.01	ug/L	1604.58	190.91	195.96	195.35
Ba 233.527	Ba	15.87	ug/L	688.02	15.65	16.13	15.95
Be 234.861	Be	1.158	ug/L	-86.704	1.485	1.158	0.675
Ca 315.887	Ca	389625.17	ug/L	2082819.49	383935.4	389763.81	391554.12
Cd 214.439	Cd	-0.38	ug/L	17.17	-0.19	-0.66	-0.35
Co 228.615	Co	311.23	ug/L	1855.46	304.6	313.36	309.6
Cr 267.716	Cr	-0.15	ug/L	-81.36	-0.33	-0.19	-0.12
Cu 327.395	Cu	2.28	ug/L	-1603.17	2.71	1.96	2.05
Fe 261.187	Fe	50311.73	ug/L	89694.7	49591.81	50459.11	50372.45
K 766.491	K	3965.34	ug/L	5529.97	3926.11	3996.61	3959.6
Li 670.783	Li	934.03	ug/L	530263.84	918.96	937.8	935.91
Mg 279.078	Mg	302502.43	ug/L	784522.11	298052.39	301364.52	304696.7
Mn 257.610	Mn	6792.3	ug/L	873326.06	6702.41	6812.14	6806.76
Mo 204.598	Mo	-1.68	ug/L	-9.78	-2.92	-0.64	-2.84
Na 589.592	Na	37957.32	ug/L	301969.49	37439.92	38037.1	38011.53
Ni 231.604	Ni	690.05	ug/L	1375.36	675.09	695.63	688.34
P 213.618	P	4.25	ug/L	0.25	-6.03	10.16	3.65
Pb 220.353	Pb	-4.45	ug/L	-0.18	-3.41	-6.66	-2.63
S 181.972	S	642412.05	ug/L	24722.76	633080.64	643653.05	643630.29
Sb 206.834	Sb	-0.72	ug/L	1.31	-3.95	2.92	-2.86
Se 196.026	Se	-0.32	ug/L	-0.62	-3.82	-5.25	-0.38
Si 251.611	Si	14644.37	ug/L	25240.22	14413.96	14684.14	14680.48
Sn 189.925	Sn	-2.09	ug/L	0.26	-4.39	-0.84	-1.9
Sr 421.552	Sr	1695.83	ug/L	3947849.38	1670.8	1695.5	1698.51
Ti 334.941	Ti	-0.57	ug/L	15918.01	-0.56	-0.47	-0.82
Tl 190.794	Tl	-10.5	ug/L	-0.22	-6.35	-12.83	-8.48
V 292.401	V	0.96	ug/L	-57.71	0.81	0.98	0.72
Zn 206.200	Zn	191.39	ug/L	618.88	188.47	192.61	190.4

## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: 30484845003 3246****Analysis Time: 5/11/2022 8:55:19 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	587191.04	1.02	1.03	1.03
Ag 328.068	Ag	-0.38	ug/L	-1189.06	-0.46	-0.36	-0.86
Al 396.152	Al	143.81	ug/L	4329.5	137.81	141.89	150.15
As 188.980	As	3.47	ug/L	5.85	3.35	6.94	4.38
B 249.678	B	81.38	ug/L	681.93	80.02	81.44	81.68
Ba 233.527	Ba	39.15	ug/L	1590.86	38.89	38.54	40.3
Be 234.861	Be	-0.007	ug/L	0.631	0.02	-0.034	0.001
Ca 315.887	Ca	106551.35	ug/L	569643.01	105867.33	105549.77	107934.36
Cd 214.439	Cd	0.16	ug/L	5.88	0.02	0.24	0.17
Co 228.615	Co	3.26	ug/L	34.73	2.49	3.34	3.49
Cr 267.716	Cr	-0.21	ug/L	12.76	-0.03	-0.06	-0.47
Cu 327.395	Cu	0.87	ug/L	-1647.61	1.03	0.51	0.98
Fe 261.187	Fe	338.35	ug/L	579.9	336.26	342.59	336.94
K 766.491	K	1059.84	ug/L	1778.39	1053.55	1047.07	1074.09
Li 670.783	Li	167.93	ug/L	104830.15	166.78	167.78	168.6
Mg 279.078	Mg	55670.64	ug/L	144406.68	54783.03	55230.48	56809.83
Mn 257.610	Mn	597.71	ug/L	76849.79	593.73	597.95	598.79
Mo 204.598	Mo	0.52	ug/L	-4.98	2.11	-0.01	0.24
Na 589.592	Na	13226.03	ug/L	105148.31	13127.95	13221.29	13269.11
Ni 231.604	Ni	16.25	ug/L	37.1	14.48	15.71	18.04
P 213.618	P	-2.72	ug/L	-8.09	-8.31	-2.52	0.1
Pb 220.353	Pb	-4.17	ug/L	-2.58	-6.49	-3.89	-4.21
S 181.972	S	81896.87	ug/L	3152.69	81328.81	82033.32	82478.31
Sb 206.834	Sb	0.56	ug/L	2.35	0.25	-0.16	1.31
Se 196.026	Se	2	ug/L	3.35	3.21	1.55	4.15
Si 251.611	Si	12064.85	ug/L	20786.16	11945.99	11962.13	12298.43
Sn 189.925	Sn	-2.38	ug/L	0.02	-4.32	1.56	-1.89
Sr 421.552	Sr	205.94	ug/L	481146.16	204.24	205.57	206.96
Ti 334.941	Ti	-0.31	ug/L	16068.14	-0.24	-0.39	-0.35
Tl 190.794	Tl	-1.56	ug/L	-2.68	-0.96	-1.76	0.12
V 292.401	V	0.57	ug/L	10.05	0.27	1.03	0.29
Zn 206.200	Zn	32.99	ug/L	107.32	31.52	33.84	33.28

## Agilent 5110 ICP-OES Report

Analyst:

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Sample: 30484845004 3246

Analysis Time: 5/11/2022 8:57:18 PM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.97	Ratio	555316.88	1.02	1.02	1.02
Ag 328.068	Ag	-0.5	ug/L	-1193.86	-0.46	-0.47	-0.5
Al 396.152	Al	27.28	ug/L	1564.1	23.97	19.99	29.3
As 188.980	As	4.01	ug/L	6.18	0.45	3.95	2.01
B 249.678	B	60.24	ug/L	507.67	55.72	57.5	57.03
Ba 233.527	Ba	44.33	ug/L	1801.31	41.45	41.56	41.85
Be 234.861	Be	-0.074	ug/L	-10.901	-0.082	-0.092	-0.031
Ca 315.887	Ca	123007.5	ug/L	657609.11	114573.3	115898.26	116503.25
Cd 214.439	Cd	0.06	ug/L	3.95	0.05	0.06	0.05
Co 228.615	Co	-0.4	ug/L	14.31	-0.19	-0.22	-0.55
Cr 267.716	Cr	0.16	ug/L	27.23	-0.21	0.07	0.35
Cu 327.395	Cu	0.83	ug/L	-1649.33	0.77	0.74	0.97
Fe 261.187	Fe	613.07	ug/L	1068.97	574.99	581.35	579.82
K 766.491	K	1406.94	ug/L	2217.17	1300.07	1345.24	1295.3
Li 670.783	Li	61.18	ug/L	45462.63	55.83	56.81	56.68
Mg 279.078	Mg	47176.94	ug/L	122380.16	43886.6	44767.66	44975.55
Mn 257.610	Mn	505.42	ug/L	64983.88	470.68	479.47	479.74
Mo 204.598	Mo	0.07	ug/L	-6.73	-0.12	-1.03	0.31
Na 589.592	Na	20911.29	ug/L	166324.01	19555.98	19786	19729.09
Ni 231.604	Ni	1.61	ug/L	8.07	-0.56	1.35	4.14
P 213.618	P	-0.25	ug/L	-6.11	0.21	3.78	-3.21
Pb 220.353	Pb	-5.07	ug/L	-4.03	-3.04	-6.49	-5.6
S 181.972	S	51092.79	ug/L	1967.32	47541	48574.62	48234.98
Sb 206.834	Sb	1.82	ug/L	3.37	0.53	-3.74	6.13
Se 196.026	Se	1.52	ug/L	3	-1.9	6.06	3.15
Si 251.611	Si	12465.41	ug/L	21475.07	11573.12	11836.06	11778.91
Sn 189.925	Sn	-3.77	ug/L	-1.49	-1.71	-6.83	-3.26
Sr 421.552	Sr	242.26	ug/L	565916.3	226.2	229.2	228.63
Ti 334.941	Ti	-0.24	ug/L	16082.29	-0.07	0.08	-0.42
Tl 190.794	Tl	-4.18	ug/L	-5.41	-7.38	-3.58	-5.22
V 292.401	V	1.21	ug/L	22.01	1.39	1.22	1.27
Zn 206.200	Zn	9.78	ug/L	34.57	9.39	7.77	9.57

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484851001\_3246****Analysis Time: 5/11/2022 8:59:17 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599477	1.04	1.05	1.05
Ag 328.068	Ag	0.15	ug/L	-1166.77	0.03	-0.15	0.29
Al 396.152	Al	66.83	ug/L	2034.47	65.61	67.28	67.45
As 188.980	As	0.59	ug/L	3.91	2.54	-2.94	-0.6
B 249.678	B	6.31	ug/L	58.82	6.21	5.52	6.8
Ba 233.527	Ba	169.9	ug/L	6870.15	167.98	170.24	170.75
Be 234.861	Be	-0.175	ug/L	-91.715	-0.267	-0.084	-0.208
Ca 315.887	Ca	9531.16	ug/L	51021.82	9484.8	9495.88	9551.68
Cd 214.439	Cd	-0.03	ug/L	7.87	-0.08	-0.06	0.06
Co 228.615	Co	0.73	ug/L	8.19	1.18	1.43	-0.12
Cr 267.716	Cr	0.55	ug/L	39.67	0.29	0.67	0.78
Cu 327.395	Cu	1.84	ug/L	-1617.59	1.88	1.69	2.3
Fe 261.187	Fe	14629.36	ug/L	26060.09	14522.59	14607.88	14704.79
K 766.491	K	1554.64	ug/L	2370.75	1530.64	1583.11	1559.02
Li 670.783	Li	3.35	ug/L	13367.2	3.52	3.32	3.22
Mg 279.078	Mg	3781.76	ug/L	9842.23	3747.42	3781.61	3802
Mn 257.610	Mn	554.56	ug/L	71320.64	550.89	554.43	556.76
Mo 204.598	Mo	0.02	ug/L	-6.95	-0.2	0.14	-0.16
Na 589.592	Na	1543.14	ug/L	12405.88	1533.22	1541.75	1545.92
Ni 231.604	Ni	1.34	ug/L	7.68	2.94	0.36	1.68
P 213.618	P	43.6	ug/L	26.13	36.91	44.25	45.98
Pb 220.353	Pb	0.06	ug/L	3.52	-0.1	-2.48	1.45
S 181.972	S	5259.15	ug/L	203.41	5229.38	5249.86	5243.17
Sb 206.834	Sb	-0.73	ug/L	2.06	0.29	-0.42	-1.83
Se 196.026	Se	4.35	ug/L	3.63	-1.72	6.45	5.52
Si 251.611	Si	3931.91	ug/L	6791.12	3872.06	3937.79	3987.26
Sn 189.925	Sn	-2.28	ug/L	0.27	-2.8	-0.57	-2.01
Sr 421.552	Sr	49.19	ug/L	114508.46	48.82	49.18	49.42
Ti 334.941	Ti	-0.12	ug/L	16139.34	0.05	-0.23	-0.08
Tl 190.794	Tl	-0.59	ug/L	-2.58	-1.98	-1.33	1.27
V 292.401	V	0.04	ug/L	-21.41	0.1	0.63	-0.33
Zn 206.200	Zn	697.95	ug/L	2199.61	694.51	699.65	699.88



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484851002\_3246****Analysis Time: 5/11/2022 9:01:15 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600607.49	1.04	1.05	1.05
Ag 328.068	Ag	-0.33	ug/L	-1186.14	-0.21	-0.21	-0.54
Al 396.152	Al	92.29	ug/L	2780.46	92.46	92.49	90.96
As 188.980	As	3.05	ug/L	5.48	1.98	5.92	2.44
B 249.678	B	12.68	ug/L	114.11	13.63	12.34	11.88
Ba 233.527	Ba	330.02	ug/L	13347.41	329.27	329.38	329.77
Be 234.861	Be	-0.121	ug/L	-30.862	-0.092	-0.142	-0.132
Ca 315.887	Ca	34994.29	ug/L	187135.01	34884.78	34844.39	35055.65
Cd 214.439	Cd	0.02	ug/L	4.16	0.05	-0.06	0.11
Co 228.615	Co	0.7	ug/L	3.95	0.61	0.49	0.81
Cr 267.716	Cr	-0.16	ug/L	11.51	-0.12	-0.16	-0.14
Cu 327.395	Cu	2.19	ug/L	-1609.15	1.73	2.42	2.2
Fe 261.187	Fe	3584.53	ug/L	6366.39	3567.99	3579.63	3589.97
K 766.491	K	1537.34	ug/L	2358.8	1528.67	1522.59	1537.53
Li 670.783	Li	4.19	ug/L	13801.33	4.38	4.05	4.15
Mg 279.078	Mg	6939.98	ug/L	18032.53	6910.26	6925.04	6953.77
Mn 257.610	Mn	664.47	ug/L	85435.87	662.27	662.79	664.64
Mo 204.598	Mo	0.71	ug/L	-4.42	0.43	1.54	0.88
Na 589.592	Na	1461.89	ug/L	12068.57	1462.77	1456.64	1462.21
Ni 231.604	Ni	0.88	ug/L	6.33	2.22	-0.02	1.03
P 213.618	P	9.27	ug/L	0.22	6	11.81	9.84
Pb 220.353	Pb	-1.14	ug/L	1.77	-4.32	-1.48	-0.08
S 181.972	S	844.65	ug/L	33.58	850.09	819.07	850.7
Sb 206.834	Sb	0.18	ug/L	2.42	-1.48	5.79	-1.57
Se 196.026	Se	1.35	ug/L	2.73	2.09	5.65	-3.77
Si 251.611	Si	3622	ug/L	6258.79	3606.52	3588.32	3660.19
Sn 189.925	Sn	-3.14	ug/L	-0.71	-5	-1.5	-4.67
Sr 421.552	Sr	131.76	ug/L	306884.71	131.55	131.42	131.79
Ti 334.941	Ti	0.34	ug/L	16242.84	0.82	0.27	-0.03
Tl 190.794	Tl	-2.45	ug/L	-3.87	-1.89	-2.15	-2.88
V 292.401	V	0.46	ug/L	2.56	0.85	-0.07	0.59
Zn 206.200	Zn	52.45	ug/L	165.2	51.77	52.02	53.36

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484851003 3246****Analysis Time: 5/11/2022 9:03:13 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	596955.19	1.04	1.04	1.05
Ag 328.068	Ag	-0.03	ug/L	-1173.52	-0.32	0.17	0.05
Al 396.152	Al	36	ug/L	1372.11	35.38	35.6	36.76
As 188.980	As	3.31	ug/L	5.54	-4.01	2.14	10
B 249.678	B	5.86	ug/L	54.86	6.02	5.26	5.65
Ba 233.527	Ba	216.28	ug/L	8747.78	214.79	216.82	217.54
Be 234.861	Be	-0.341	ug/L	-123.648	-0.388	-0.338	-0.354
Ca 315.887	Ca	28088.66	ug/L	150220.83	28026.17	28060.91	28241.94
Cd 214.439	Cd	-0.25	ug/L	3.98	-0.18	-0.22	-0.27
Co 228.615	Co	0.84	ug/L	8.76	0.44	0.69	1.13
Cr 267.716	Cr	0.03	ug/L	17.79	0.09	0.06	0.09
Cu 327.395	Cu	1.53	ug/L	-1626.07	1.19	1.96	1.46
Fe 261.187	Fe	16146.26	ug/L	28764.74	16013.87	16170.2	16263.18
K 766.491	K	1474.45	ug/L	2273.23	1482.69	1508.91	1428.63
Li 670.783	Li	2.73	ug/L	12997.38	2.87	2.72	2.67
Mg 279.078	Mg	7480.17	ug/L	19433.62	7419.81	7493.53	7523.58
Mn 257.610	Mn	751.16	ug/L	96599.33	744.97	751.25	756.76
Mo 204.598	Mo	0.21	ug/L	-6.18	0.31	-0.4	1.44
Na 589.592	Na	3271.5	ug/L	26252.19	3258.52	3270.76	3284.11
Ni 231.604	Ni	1.22	ug/L	7.54	3.14	1.15	0.36
P 213.618	P	8.21	ug/L	-0.88	8.15	10.69	7.83
Pb 220.353	Pb	-2.51	ug/L	-0.4	-1.26	-2.92	-4.46
S 181.972	S	171.12	ug/L	7.64	131.79	153.05	180.18
Sb 206.834	Sb	-0.67	ug/L	2.1	-3.24	3.25	-2.81
Se 196.026	Se	2.48	ug/L	2.41	4.23	4.77	-2.81
Si 251.611	Si	3070.97	ug/L	5310.46	3053.97	3041.39	3129.56
Sn 189.925	Sn	-1.14	ug/L	1.47	-1.08	0.7	-1.41
Sr 421.552	Sr	75.68	ug/L	176528.15	75.24	75.65	76.16
Ti 334.941	Ti	-0.35	ug/L	16077.5	-0.13	-0.48	-0.35
Tl 190.794	Tl	-2.68	ug/L	-4.31	0.13	-4.31	-1.58
V 292.401	V	0.72	ug/L	-10.24	0.94	0.87	0.19
Zn 206.200	Zn	41.58	ug/L	130.11	41.27	41.14	42.53

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484851004 3246****Analysis Time: 5/11/2022 9:05:11 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599270.55	1.04	1.05	1.05
Ag 328.068	Ag	-0.23	ug/L	-1177.81	-0.48	0.04	0.02
Al 396.152	Al	415.88	ug/L	10886.72	412.27	415.2	416.97
As 188.980	As	6.59	ug/L	7.55	5.59	6.41	7.78
B 249.678	B	42.48	ug/L	359.58	41.91	42.52	43.89
Ba 233.527	Ba	1662.05	ug/L	67224.12	1645.94	1660.3	1676.6
Be 234.861	Be	-0.075	ug/L	-36.086	-0.054	-0.075	-0.126
Ca 315.887	Ca	49888.91	ug/L	266754.78	49377.74	49787.66	50177.64
Cd 214.439	Cd	0.19	ug/L	8.73	0.15	0.07	0.16
Co 228.615	Co	8.83	ug/L	7.71	8.59	8.58	9.36
Cr 267.716	Cr	0.3	ug/L	22.35	0.51	0.2	0.23
Cu 327.395	Cu	2.65	ug/L	-1594.45	2.67	2.69	2.84
Fe 261.187	Fe	6222.63	ug/L	11070.49	6158.47	6207.21	6254.69
K 766.491	K	4303.35	ug/L	5853.57	4292.32	4315.63	4291.73
Li 670.783	Li	1.2	ug/L	11949.31	1.27	1.22	1.17
Mg 279.078	Mg	12092.37	ug/L	31394.5	11982.14	12067.29	12192.8
Mn 257.610	Mn	1012.5	ug/L	130184.89	1003.53	1009.78	1017.44
Mo 204.598	Mo	0.78	ug/L	-3.83	1.05	1.73	-0.35
Na 589.592	Na	12209.23	ug/L	100148.57	12142.23	12171.97	12246.54
Ni 231.604	Ni	0.87	ug/L	6.4	1.75	0.92	0.9
P 213.618	P	85.05	ug/L	58.52	84.5	85	86.31
Pb 220.353	Pb	0.75	ug/L	4.98	-0.47	1.58	0.43
S 181.972	S	460.97	ug/L	18.87	456.13	469.98	488.67
Sb 206.834	Sb	2.28	ug/L	4.11	1.45	5.01	-1.1
Se 196.026	Se	4.51	ug/L	4.62	8.02	5.82	-1.76
Si 251.611	Si	4827.43	ug/L	8333.54	4747.6	4862.77	4832.32
Sn 189.925	Sn	-2.18	ug/L	0.33	-2.04	-1.61	-1.82
Sr 421.552	Sr	749.66	ug/L	1741552.73	743.96	747.49	753.18
Ti 334.941	Ti	1.81	ug/L	16583.17	1.91	1.92	1.7
Tl 190.794	Tl	-3.04	ug/L	-3.85	-4.95	0.42	-4.87
V 292.401	V	1.96	ug/L	27.92	2.04	2.02	2.11
Zn 206.200	Zn	40.55	ug/L	128.18	40.41	40.22	41.48

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484851005 3246****Analysis Time: 5/11/2022 9:07:09 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	597491.54	1.04	1.05	1.05
Ag 328.068	Ag	0.04	ug/L	-1169.82	0.14	0.02	-0.02
Al 396.152	Al	52.65	ug/L	1891.09	53.03	51.46	53.18
As 188.980	As	1.9	ug/L	4.82	2.18	5.55	3.34
B 249.678	B	120.34	ug/L	1003.27	119.57	120.3	120.36
Ba 233.527	Ba	801.98	ug/L	32436.55	797.29	801.81	802.61
Be 234.861	Be	-0.067	ug/L	-9.163	-0.082	-0.029	-0.098
Ca 315.887	Ca	40307.88	ug/L	215538.86	40110.32	40085.53	40574.57
Cd 214.439	Cd	0.09	ug/L	4.29	0.03	0.06	0.07
Co 228.615	Co	8.88	ug/L	35.78	8.32	8.43	9.06
Cr 267.716	Cr	-0.17	ug/L	14.89	-0.26	-0.12	-0.13
Cu 327.395	Cu	1.68	ug/L	-1622.92	1.28	1.74	1.65
Fe 261.187	Fe	689.07	ug/L	1203.81	683.43	690.36	690.31
K 766.491	K	4470	ug/L	6061.05	4464.69	4484.91	4461.01
Li 670.783	Li	-0.89	ug/L	10918.22	-0.85	-0.8	-0.87
Mg 279.078	Mg	10971.41	ug/L	28487.19	10913.82	11179.07	10807.92
Mn 257.610	Mn	439.56	ug/L	56517.4	437.81	437.21	440.26
Mo 204.598	Mo	0.45	ug/L	-5.29	1.28	1.18	0.56
Na 589.592	Na	13474.03	ug/L	108570.15	13426.31	13474.46	13454.37
Ni 231.604	Ni	5.85	ug/L	16.07	7.57	7.6	4.65
P 213.618	P	14.87	ug/L	4.66	12.9	13.7	15.18
Pb 220.353	Pb	-2.22	ug/L	0.15	-0.7	-4.52	-1.96
S 181.972	S	1908.76	ug/L	74.54	1938.25	1884.2	1885.62
Sb 206.834	Sb	0.23	ug/L	2.37	-4.93	5.7	-3.97
Se 196.026	Se	3.09	ug/L	3.99	5.84	4.22	6.06
Si 251.611	Si	4568.05	ug/L	7886.53	4510.47	4560.33	4614.95
Sn 189.925	Sn	-2.13	ug/L	0.36	-2.33	-3.47	-2.16
Sr 421.552	Sr	807.71	ug/L	1876005.71	804.47	807.41	807.41
Ti 334.941	Ti	0.12	ug/L	16182.42	0.47	-0.03	-0.04
Tl 190.794	Tl	-1.29	ug/L	-2.91	1.73	-0.9	-0.43
V 292.401	V	0.42	ug/L	6.13	0.3	0.57	0.57
Zn 206.200	Zn	6.21	ug/L	19.77	6.9	6.1	6.19

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 9:09:08 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	591103.14	0.98	1.05	1.05
Ag 328.068	Ag	1023.55	ug/L	40892.43	1070.19	1004.03	1012.93
Al 396.152	Al	10115.15	ug/L	248937.98	10565.99	9912.07	10011.04
As 188.980	As	2051.21	ug/L	1208.93	2133.05	2020.62	2031.58
B 249.678	B	2113.6	ug/L	17452.11	2202.2	2076.34	2091.17
Ba 233.527	Ba	2107.01	ug/L	85205.31	2201.93	2068.36	2082.74
Be 234.861	Be	2048.559	ug/L	304039.648	2138.659	2009.815	2024.891
Ca 315.887	Ca	10201.59	ug/L	54632.27	10654.31	10005.66	10085.38
Cd 214.439	Cd	2078.15	ug/L	43062.23	2178.53	2047.13	2026.21
Co 228.615	Co	2119.86	ug/L	12347.89	2212.71	2077.38	2098.46
Cr 267.716	Cr	2067.35	ug/L	74515.33	2157.85	2027.88	2046.17
Cu 327.395	Cu	2011.89	ug/L	52881.56	2102.18	1973.91	1990.64
Fe 261.187	Fe	10244.22	ug/L	18226.92	10689.69	10053.3	10140.39
K 766.491	K	10031.44	ug/L	13118.31	10510.51	9866.63	9903.92
Li 670.783	Li	1938.16	ug/L	1087359.22	2029.06	1904.39	1910.77
Mg 279.078	Mg	10319.3	ug/L	26795.3	10790.1	10112.58	10211.03
Mn 257.610	Mn	2090.11	ug/L	268834.71	2181.71	2052.76	2066.05
Mo 204.598	Mo	1979.4	ug/L	7380.84	2072.85	1929.38	1957.41
Na 589.592	Na	10127.43	ug/L	84434.38	10620.27	9953.47	10005.46
Ni 231.604	Ni	2091.88	ug/L	4144.73	2180.35	2050.55	2068.87
P 213.618	P	2064	ug/L	1513.16	2131.65	1992.5	2069.63
Pb 220.353	Pb	2085.17	ug/L	3258.75	2174.83	2053.03	2060.67
S 181.972	S	10126.66	ug/L	390.71	10595.95	9842.88	10087.74
Sb 206.834	Sb	2065.43	ug/L	1602.15	2167.3	2015.77	2048.38
Se 196.026	Se	2090.91	ug/L	1296.14	2189.49	2049.81	2060.25
Si 251.611	Si	10662.39	ug/L	18425.66	11109.89	10460.81	10557.27
Sn 189.925	Sn	2040.97	ug/L	2171.3	2132.15	2002.57	2015.82
Sr 421.552	Sr	2096.6	ug/L	4866606.27	2189.26	2059.17	2075.88
Ti 334.941	Ti	2042.25	ug/L	510253.99	2125.34	2005.17	2024.6
Tl 190.794	Tl	2133.96	ug/L	2058.07	2232.46	2101.08	2102.51
V 292.401	V	2051.53	ug/L	39754.96	2144.56	2014.46	2028.27
Zn 206.200	Zn	2090.02	ug/L	6590.41	2187.23	2023.65	2090.75

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 9:11:07 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600118.36	1	1.08	1.05
Ag 328.068	Ag	0.23	ug/L	-1164.92	-0.67	0.58	0.23
Al 396.152	Al	0.6	ug/L	352.64	1.55	0.69	-0.2
As 188.980	As	-1.81	ug/L	2.59	-1.66	-4.39	2.27
B 249.678	B	1.55	ug/L	23.14	2.87	1.88	1.39
Ba 233.527	Ba	0.12	ug/L	1.01	0.22	0.06	0.15
Be 234.861	Be	0.034	ug/L	9.412	0.175	-0.009	-0.01
Ca 315.887	Ca	2.17	ug/L	84.52	4.74	1.72	0.92
Cd 214.439	Cd	0	ug/L	2.28	-0.06	0.02	-0.03
Co 228.615	Co	0.28	ug/L	9.56	-0.27	0.7	0.73
Cr 267.716	Cr	0.05	ug/L	30.32	0.15	-0.03	-0.28
Cu 327.395	Cu	0.75	ug/L	-1648.58	-1.51	2.31	0.91
Fe 261.187	Fe	1.85	ug/L	-21.65	3.14	3.77	1.84
K 766.491	K	-29.69	ug/L	375.35	-45.72	-19.48	-35.02
Li 670.783	Li	-1.77	ug/L	10566.52	-0.78	-2.39	-1.76
Mg 279.078	Mg	3.25	ug/L	42.86	4.31	4.89	1.1
Mn 257.610	Mn	0.15	ug/L	24.37	0.32	0.13	0.1
Mo 204.598	Mo	2.28	ug/L	1.3	2.29	2.76	2.17
Na 589.592	Na	9.31	ug/L	-126.84	9.02	11.26	7.21
Ni 231.604	Ni	-0.44	ug/L	3.52	-1.61	0.41	-0.03
P 213.618	P	-1.29	ug/L	-8.15	-1.85	-7.6	4.39
Pb 220.353	Pb	-0.6	ug/L	2.36	2.1	-2.12	-2.41
S 181.972	S	-13.17	ug/L	0.5	5.13	-4.49	-8.34
Sb 206.834	Sb	0.53	ug/L	2.64	-1.12	-1.26	4.26
Se 196.026	Se	4.18	ug/L	4.56	3.73	2.56	6.23
Si 251.611	Si	3.52	ug/L	32.48	9.06	3.65	-0.63
Sn 189.925	Sn	-1.16	ug/L	1.42	-0.97	0.62	-4.3
Sr 421.552	Sr	0.13	ug/L	364.23	0.27	0.11	0.06
Ti 334.941	Ti	-0.17	ug/L	16130.02	2.7	-1.9	-0.28
Tl 190.794	Tl	-0.74	ug/L	-3.21	0.96	-0.41	-3.97
V 292.401	V	0.42	ug/L	6.85	0.9	0.42	0.01
Zn 206.200	Zn	0.22	ug/L	-0.73	0.82	-0.27	0.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484851006 3246****Analysis Time: 5/11/2022 9:13:05 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600078.86	1.05	1.05	1.04
Ag 328.068	Ag	-0.24	ug/L	-1179.76	-0.19	-0.06	-0.47
Al 396.152	Al	166.97	ug/L	4761.02	165.85	167.32	168.87
As 188.980	As	5.22	ug/L	6.74	0.53	8.46	-0.65
B 249.678	B	79.71	ug/L	666.82	77.64	79.58	81.08
Ba 233.527	Ba	1216.14	ug/L	49188.55	1211.73	1218.79	1225.83
Be 234.861	Be	-0.153	ug/L	-47.08	-0.147	-0.161	-0.113
Ca 315.887	Ca	47925.16	ug/L	256257.33	47725.74	47991.3	48273.97
Cd 214.439	Cd	-0.03	ug/L	4.12	-0.08	0.04	-0.15
Co 228.615	Co	15.63	ug/L	61.91	15.46	15.74	15.53
Cr 267.716	Cr	0.55	ug/L	35.03	0.56	0.45	0.67
Cu 327.395	Cu	2.76	ug/L	-1592.3	2.46	3.06	2.37
Fe 261.187	Fe	5913.49	ug/L	10519.24	5903.45	5933.31	5958.07
K 766.491	K	4759.73	ug/L	6427.38	4724.93	4769.16	4777.88
Li 670.783	Li	2.95	ug/L	12986.26	3.02	2.81	3.07
Mg 279.078	Mg	12270.71	ug/L	31856.94	12235.24	12276.12	12346.95
Mn 257.610	Mn	797.99	ug/L	102605.9	794.26	800.23	804.44
Mo 204.598	Mo	2.08	ug/L	0.94	1.31	1.53	2.81
Na 589.592	Na	3527.23	ug/L	30200.23	3500.96	3532	3558.39
Ni 231.604	Ni	6.97	ug/L	18.49	7.18	7.43	5.96
P 213.618	P	29.51	ug/L	15.85	26.06	30.9	30.21
Pb 220.353	Pb	0.88	ug/L	5.1	-0.14	-2.23	2.94
S 181.972	S	632.29	ug/L	25.44	663.19	657.6	655.41
Sb 206.834	Sb	-1.01	ug/L	1.54	-2.35	1	-0.87
Se 196.026	Se	1.37	ug/L	2.61	-2.71	5.46	-1.5
Si 251.611	Si	5941.09	ug/L	10249.13	5867.48	5911.23	6023.92
Sn 189.925	Sn	-3.32	ug/L	-0.89	-4.33	-3.55	-2.08
Sr 421.552	Sr	688.93	ug/L	1600525.15	685.45	690.48	695.46
Ti 334.941	Ti	0.23	ug/L	16205.29	0.26	0.03	0.39
Tl 190.794	Tl	-2.94	ug/L	-4.05	0.25	-3.49	-3.44
V 292.401	V	0.68	ug/L	3.07	0.41	0.9	0.07
Zn 206.200	Zn	13.24	ug/L	41.97	13.57	13.02	12.78

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484851007\_3246****Analysis Time: 5/11/2022 9:15:04 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600813.48	1.05	1.05	1.05
Ag 328.068	Ag	-0.53	ug/L	-1192.38	-0.26	-0.89	-0.7
Al 396.152	Al	69.95	ug/L	2352.99	67.51	70.86	70.27
As 188.980	As	1.63	ug/L	4.63	-0.88	3.52	2.05
B 249.678	B	65.5	ug/L	550.76	64.07	66.43	65.31
Ba 233.527	Ba	1175.07	ug/L	47526.39	1158.97	1175.49	1177
Be 234.861	Be	-0.061	ug/L	-13.027	-0.068	-0.062	-0.072
Ca 315.887	Ca	39807.14	ug/L	212862.1	39154.38	39872.87	39842.55
Cd 214.439	Cd	-0.06	ug/L	1.69	0.03	-0.11	-0.05
Co 228.615	Co	5.99	ug/L	6.28	5.66	5.65	6.5
Cr 267.716	Cr	0.61	ug/L	47.5	0.56	0.23	0.83
Cu 327.395	Cu	2.01	ug/L	-1613.51	2.44	1.61	2.01
Fe 261.187	Fe	1699.14	ug/L	3004.73	1666.23	1703.97	1710.5
K 766.491	K	5111.23	ug/L	6869.62	5034.06	5112.38	5139.31
Li 670.783	Li	0.93	ug/L	11888.28	0.8	1.04	0.98
Mg 279.078	Mg	9260.71	ug/L	24050.78	8975.96	9243.76	9352.9
Mn 257.610	Mn	192.53	ug/L	24759.68	190.03	193.07	191.89
Mo 204.598	Mo	2.09	ug/L	0.86	1.98	2.37	1.66
Na 589.592	Na	10280.73	ug/L	83868.72	10122.56	10316.25	10340.18
Ni 231.604	Ni	1.3	ug/L	7.07	1.81	0.75	0.52
P 213.618	P	46.92	ug/L	29.21	40.33	47.91	48.96
Pb 220.353	Pb	-3.38	ug/L	-1.69	-2.25	-3.13	-5.65
S 181.972	S	1968.69	ug/L	76.84	1959.59	1990.84	1992.33
Sb 206.834	Sb	1.58	ug/L	3.45	6.16	3.07	-4.8
Se 196.026	Se	2.46	ug/L	3.46	3.22	3.74	3.02
Si 251.611	Si	3078.04	ug/L	5323	2999.85	3087.7	3116.47
Sn 189.925	Sn	-2.11	ug/L	0.39	-1.93	-1.98	-0.19
Sr 421.552	Sr	771.34	ug/L	1791569.09	758.53	772.01	776.87
Ti 334.941	Ti	0.11	ug/L	16179.52	-0.09	0.23	0.06
Tl 190.794	Tl	-2.1	ug/L	-4.09	-2.89	0.8	-2.66
V 292.401	V	0.71	ug/L	10.1	0.75	0.86	0.71
Zn 206.200	Zn	21.51	ug/L	67.93	21.54	21.49	21.89



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484851008 3246****Analysis Time: 5/11/2022 9:17:02 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	580277.68	1.01	1.01	1.02
Ag 328.068	Ag	-0.38	ug/L	-1188.42	-0.06	-0.73	-0.31
Al 396.152	Al	116.31	ug/L	3746.52	117.81	116.3	117.91
As 188.980	As	6.56	ug/L	7.71	9.8	3.38	-0.65
B 249.678	B	30.67	ug/L	263.4	30.18	30.44	30.4
Ba 233.527	Ba	9.71	ug/L	401.14	9.69	9.57	9.8
Be 234.861	Be	0.005	ug/L	-0.049	-0.025	-0.035	0.002
Ca 315.887	Ca	127257.18	ug/L	680326.15	125778.5	126742.78	127999.4
Cd 214.439	Cd	0.07	ug/L	4.2	0.11	0.1	0.05
Co 228.615	Co	-0.44	ug/L	15.4	-0.72	-1.45	-0.09
Cr 267.716	Cr	0.37	ug/L	18.61	0.25	0.52	0.26
Cu 327.395	Cu	0.82	ug/L	-1648.91	0.95	0.51	0.49
Fe 261.187	Fe	895.56	ug/L	1571.78	886.92	893.71	900.54
K 766.491	K	7058.71	ug/L	9342.79	7046.19	7064.77	7064.37
Li 670.783	Li	24.77	ug/L	25200.56	24.85	24.63	24.83
Mg 279.078	Mg	31190.44	ug/L	80922.6	31063.39	30790.78	31645.99
Mn 257.610	Mn	1378.47	ug/L	177226.73	1358.88	1376.88	1387.75
Mo 204.598	Mo	0.31	ug/L	-5.86	-0.27	1.3	-1.14
Na 589.592	Na	32925.3	ug/L	261872.67	32710.78	32883.12	33140.23
Ni 231.604	Ni	4.56	ug/L	13.75	2.47	4.27	3.47
P 213.618	P	26.73	ug/L	14.57	31.35	21.62	27.18
Pb 220.353	Pb	-3.07	ug/L	-0.84	-6.57	-3.18	-1.95
S 181.972	S	86785.29	ug/L	3340.86	85925.21	86822.49	87313.71
Sb 206.834	Sb	0.01	ug/L	2.04	-1.59	-0.39	-0.02
Se 196.026	Se	1.99	ug/L	3.54	-4.67	5.8	3.91
Si 251.611	Si	10857.89	ug/L	18709.79	10667.7	10800.86	11035.52
Sn 189.925	Sn	-1.43	ug/L	0.99	-2.19	1.39	-1.41
Sr 421.552	Sr	1482.81	ug/L	3445501.02	1472.01	1479.35	1491.86
Ti 334.941	Ti	0.22	ug/L	16192.46	0.29	0.14	0.33
Tl 190.794	Tl	-2.85	ug/L	-2.92	-8.46	1.16	-1.27
V 292.401	V	0.99	ug/L	16.69	0.93	0.83	1.11
Zn 206.200	Zn	8.51	ug/L	30.42	8.35	8.77	8.85

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2433188\_3245****Analysis Time: 5/11/2022 9:19:00 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	611465.57	1.04	1.08	1.07
Ag 328.068	Ag	0.48	ug/L	-1154.68	-0.45	0.47	0.87
Al 396.152	Al	1.8	ug/L	380.73	2.7	1.24	2.05
As 188.980	As	0.14	ug/L	3.74	-0.18	4.13	-2.55
B 249.678	B	0.19	ug/L	11.98	0.18	-0.11	0.18
Ba 233.527	Ba	0.02	ug/L	-2.78	-0.02	0.11	0.02
Be 234.861	Be	-0.064	ug/L	-5.223	-0.07	-0.075	-0.066
Ca 315.887	Ca	16.65	ug/L	161.94	27.29	14.52	10.46
Cd 214.439	Cd	0.1	ug/L	4.26	0.05	0.03	0.09
Co 228.615	Co	-0.44	ug/L	5.48	-1.14	0.21	0
Cr 267.716	Cr	1.04	ug/L	66.16	0.92	0.81	1.29
Cu 327.395	Cu	0.92	ug/L	-1644.16	-0.67	1.68	1.01
Fe 261.187	Fe	10.98	ug/L	-5.38	11.48	10.24	11.82
K 766.491	K	-20.13	ug/L	387.38	-25.72	-30.77	22.99
Li 670.783	Li	-1.85	ug/L	10522.12	-1.37	-1.98	-1.95
Mg 279.078	Mg	5.53	ug/L	48.76	8.88	5.61	3.98
Mn 257.610	Mn	0.24	ug/L	35.86	0.42	0.28	0.13
Mo 204.598	Mo	0.28	ug/L	-6.16	0.27	-0.07	-1.26
Na 589.592	Na	22.99	ug/L	-18.14	21.59	28.74	22.31
Ni 231.604	Ni	0.32	ug/L	5.02	-0.69	1.29	0.31
P 213.618	P	5.96	ug/L	-2.57	8.67	8.19	2.24
Pb 220.353	Pb	-0.67	ug/L	2.26	-2.29	-3.06	0.68
S 181.972	S	-6.24	ug/L	0.77	12.44	-32.08	8.94
Sb 206.834	Sb	-1.71	ug/L	0.92	-1.36	-8.45	0.86
Se 196.026	Se	2.42	ug/L	3.47	3.82	7.85	-2.23
Si 251.611	Si	22.73	ug/L	65.48	25.08	20.79	21.52
Sn 189.925	Sn	-2.21	ug/L	0.31	-2.6	-3.17	-1.57
Sr 421.552	Sr	0.17	ug/L	457.79	0.31	0.15	0.11
Ti 334.941	Ti	-0.19	ug/L	16124.75	1.4	-0.83	-0.41
Tl 190.794	Tl	0.12	ug/L	-2.38	-3.65	2.19	0.43
V 292.401	V	0.31	ug/L	5	0.25	0.36	0.01
Zn 206.200	Zn	-0.47	ug/L	-2.9	-0.44	-0.5	-0.18

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2433189\_3245****Analysis Time: 5/11/2022 9:20:59 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.98	Ratio	560088.78	1.02	0.86	1.01
Ag 328.068	Ag	541.53	ug/L	20847.39	508.1	618.21	520.89
Al 396.152	Al	2210.06	ug/L	56065.91	2057.34	2540.35	2111.09
As 188.980	As	2115.11	ug/L	1246.83	1994.14	2412.26	2036.1
B 249.678	B	2189.53	ug/L	18081.81	2051.14	2503.12	2107.16
Ba 233.527	Ba	2154.71	ug/L	87134.49	2021.92	2460.3	2073.22
Be 234.861	Be	543.738	ug/L	80698.747	510.29	620.598	523.11
Ca 315.887	Ca	44567.99	ug/L	238352.19	41854.11	51023.09	42825.05
Cd 214.439	Cd	1082.47	ug/L	22427.28	1014.89	1237.13	1040.69
Co 228.615	Co	2213.4	ug/L	12895.15	2076.69	2533.36	2125.62
Cr 267.716	Cr	2178.55	ug/L	78519.54	2041.8	2490.58	2093.93
Cu 327.395	Cu	2164.57	ug/L	57019.05	2028.8	2477.7	2079.72
Fe 261.187	Fe	2204.6	ug/L	3892.27	2072.41	2516.69	2116.08
K 766.491	K	21955.49	ug/L	28165.02	20737.47	25069.73	21049.68
Li 670.783	Li	2190.03	ug/L	1227370.08	2057.84	2504.47	2104
Mg 279.078	Mg	21992.33	ug/L	57067.77	20631.9	25179.62	21083.44
Mn 257.610	Mn	2185.96	ug/L	281138.66	2050.95	2499.28	2099.75
Mo 204.598	Mo	2120.7	ug/L	7906.96	1983.93	2407.12	2061.51
Na 589.592	Na	21866.17	ug/L	177953.36	20604.13	25033.01	20966.86
Ni 231.604	Ni	2167.13	ug/L	4293.61	2033.54	2479.06	2083.96
P 213.618	P	43444.53	ug/L	33252.32	40733.18	49656.8	41845.31
Pb 220.353	Pb	2129.61	ug/L	3329.35	1994.43	2429.86	2050.12
S 181.972	S	2191.25	ug/L	85.4	2028.96	2550.23	2066.88
Sb 206.834	Sb	2159.65	ug/L	1673.56	2025.27	2456.2	2070.05
Se 196.026	Se	2121.56	ug/L	1315.85	1997.6	2420.26	2037
Si 251.611	Si	11310.05	ug/L	19542.51	10540.09	12905.19	10915.92
Sn 189.925	Sn	2173.97	ug/L	2311.72	2041.45	2482.25	2090.08
Sr 421.552	Sr	2187.24	ug/L	5078171.54	2054.67	2494.52	2104.72
Ti 334.941	Ti	2169.58	ug/L	541049.93	2031.85	2486.27	2087.7
Tl 190.794	Tl	2106.54	ug/L	2031.61	1948.82	2398.15	2039.92
V 292.401	V	2177.75	ug/L	42216.6	2044.29	2483.96	2097.12
Zn 206.200	Zn	2165.94	ug/L	6831.63	2026.55	2454.03	2093.58

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484512001\_3245****Analysis Time: 5/11/2022 9:22:57 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	586193.7	1.02	1.02	1.02
Ag 328.068	Ag	-0.41	ug/L	-1190.57	-0.35	-0.32	-0.44
Al 396.152	Al	225.91	ug/L	6348.49	219.8	227.77	229.49
As 188.980	As	6.64	ug/L	7.71	7.58	2.8	9.92
B 249.678	B	199.57	ug/L	1657.49	198.86	200.22	199.53
Ba 233.527	Ba	48.97	ug/L	1987.42	48.44	48.98	48.62
Be 234.861	Be	0.268	ug/L	41.742	0.297	0.213	0.276
Ca 315.887	Ca	110681.37	ug/L	591720.21	109742.01	111071.28	110112.86
Cd 214.439	Cd	0.57	ug/L	14.35	0.53	0.55	0.64
Co 228.615	Co	0.61	ug/L	18.7	-0.08	0.81	1.32
Cr 267.716	Cr	1.9	ug/L	96.14	1.86	1.81	2.07
Cu 327.395	Cu	4.63	ug/L	-1546.34	4.39	4.73	4.65
Fe 261.187	Fe	360.17	ug/L	617.62	359.19	358.28	362.78
K 766.491	K	19753.55	ug/L	25348.57	19620.75	19773.52	19831.28
Li 670.783	Li	13.54	ug/L	18986.23	13.48	13.62	13.52
Mg 279.078	Mg	37232.13	ug/L	96590.04	36915	37417.83	37316.62
Mn 257.610	Mn	130.93	ug/L	16838.82	129.98	130.88	131.54
Mo 204.598	Mo	7.09	ug/L	19.4	4.8	7.74	7.03
Na 589.592	Na	58451.73	ug/L	465098.76	58038.23	58539.06	58660.67
Ni 231.604	Ni	2.83	ug/L	10.39	2.89	2.65	4.22
P 213.618	P	53.62	ug/L	34.9	52.28	53.86	53.62
Pb 220.353	Pb	-2.2	ug/L	0.29	-1.3	-3.3	-1.75
S 181.972	S	81018.5	ug/L	3118.87	80168.88	81105.68	81523.37
Sb 206.834	Sb	2.26	ug/L	3.71	-0.17	2.84	1.97
Se 196.026	Se	2.67	ug/L	3.62	-0.34	5.9	6.08
Si 251.611	Si	2519.69	ug/L	4364.11	2511.75	2525.43	2520.71
Sn 189.925	Sn	0.23	ug/L	2.77	1.63	0.85	-2.1
Sr 421.552	Sr	449.21	ug/L	1045885.62	445.71	449.58	450.87
Ti 334.941	Ti	3.24	ug/L	16926.71	3.2	3.22	3.3
Tl 190.794	Tl	1.34	ug/L	-0.71	1.71	-0.3	1.71
V 292.401	V	4.15	ug/L	79.03	3.93	4.31	4.23
Zn 206.200	Zn	14.36	ug/L	48.36	13.79	14.28	14.69

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2433190\_3245****Analysis Time: 5/11/2022 9:24:55 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	580011.04	1.01	1.01	1.01
Ag 328.068	Ag	523.92	ug/L	20131.56	516.34	524.18	526.39
Al 396.152	Al	2454.76	ug/L	62442.07	2414.42	2449.78	2471.62
As 188.980	As	2083.53	ug/L	1228.46	2041.72	2082	2106.76
B 249.678	B	2340.26	ug/L	19325.76	2300.45	2339.94	2358.16
Ba 233.527	Ba	2052.1	ug/L	82995.4	2019.91	2051.99	2063.55
Be 234.861	Be	519.568	ug/L	77109.594	510.506	519.165	522.997
Ca 315.887	Ca	151391.04	ug/L	809371.23	149357.68	151014.28	152539.38
Cd 214.439	Cd	1000.37	ug/L	20726.88	984.15	1000.78	1007.42
Co 228.615	Co	2021.79	ug/L	11790.91	1988.74	2018.99	2034.03
Cr 267.716	Cr	2041.98	ug/L	73598.67	2007.75	2041.43	2054.36
Cu 327.395	Cu	2060.18	ug/L	54184.83	2023.81	2049.62	2080.36
Fe 261.187	Fe	2439.99	ug/L	4312.89	2390.69	2439.49	2460.1
K 766.491	K	41727.91	ug/L	53120.1	41201.82	41728.39	41864.72
Li 670.783	Li	2265.82	ug/L	1269554.08	2231	2267.45	2277.59
Mg 279.078	Mg	58076.13	ug/L	150645.32	57345.06	57842.37	58566.38
Mn 257.610	Mn	2154.99	ug/L	277153.81	2115.85	2154.48	2169.4
Mo 204.598	Mo	2040.83	ug/L	7608.78	1993.12	2011.28	2082.09
Na 589.592	Na	79812.98	ug/L	638944.81	78512.04	79744.3	80196.6
Ni 231.604	Ni	1964.97	ug/L	3893.88	1932.29	1966.89	1977.63
P 213.618	P	42081.73	ug/L	32211.04	41159.92	42098.3	42472.75
Pb 220.353	Pb	1969.77	ug/L	3080.06	1931.12	1966.16	1991.08
S 181.972	S	83739	ug/L	3223.62	81914.99	84108.26	84157.25
Sb 206.834	Sb	2105.01	ug/L	1631.45	2057.8	2100.25	2122.4
Se 196.026	Se	2034.2	ug/L	1261.72	2000.29	2038.23	2038.99
Si 251.611	Si	13513.88	ug/L	23334.19	13223.73	13516.88	13604.54
Sn 189.925	Sn	2055.36	ug/L	2185.58	2020.08	2049.64	2075.8
Sr 421.552	Sr	2485.93	ug/L	5774513.65	2444.31	2488	2505.03
Ti 334.941	Ti	2064.18	ug/L	515526.47	2036.39	2042.01	2095.94
Tl 190.794	Tl	1941.95	ug/L	1872.52	1884.03	1928.67	1963.49
V 292.401	V	2074.36	ug/L	40207.93	2040.15	2072.38	2089.52
Zn 206.200	Zn	2070.37	ug/L	6534.54	2027.4	2051.69	2098.24

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2433191\_3245****Analysis Time: 5/11/2022 9:26:54 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	579783.13	1.01	1.01	1.01
Ag 328.068	Ag	523.34	ug/L	20107.41	518.18	524.06	526.81
Al 396.152	Al	2462.2	ug/L	62631.96	2448.4	2449.56	2469.34
As 188.980	As	2101.43	ug/L	1239	2078.92	2097.46	2116.34
B 249.678	B	2337.73	ug/L	19304.95	2314.68	2341.32	2350.33
Ba 233.527	Ba	2063.85	ug/L	83470.67	2045.25	2063.06	2073.55
Be 234.861	Be	522.167	ug/L	77495.396	517.4	521.698	524.846
Ca 315.887	Ca	151159.32	ug/L	808132.83	149974.81	150806.5	151977.43
Cd 214.439	Cd	1006.51	ug/L	20854.06	997.02	1007.03	1012.77
Co 228.615	Co	2034.83	ug/L	11866.33	2022.05	2033.24	2042.1
Cr 267.716	Cr	2051.81	ug/L	73952.67	2033.48	2049.88	2061.69
Cu 327.395	Cu	2069.69	ug/L	54442.7	2055.34	2058.18	2074.77
Fe 261.187	Fe	2460.96	ug/L	4350.19	2439.1	2455.24	2475.05
K 766.491	K	41739.84	ug/L	53135.38	41505.49	41714.43	41861.8
Li 670.783	Li	2261.52	ug/L	1267149.31	2245.3	2259.55	2273.64
Mg 279.078	Mg	58444.03	ug/L	151599.39	58235.28	58130.41	58552.4
Mn 257.610	Mn	2170.48	ug/L	279146.9	2150.46	2170.33	2181.91
Mo 204.598	Mo	2048.27	ug/L	7636.53	2017.71	2022.64	2075.98
Na 589.592	Na	79634.95	ug/L	637550.48	78976.21	79799.39	80055.24
Ni 231.604	Ni	1980.74	ug/L	3925.09	1958.03	1983.69	1993.92
P 213.618	P	42533.2	ug/L	32557.09	42309.42	42396.09	42610.25
Pb 220.353	Pb	1986.36	ug/L	3105.99	1965.76	1983.86	1998.96
S 181.972	S	83609.97	ug/L	3218.66	82968.35	83744.27	83916.96
Sb 206.834	Sb	2097.34	ug/L	1625.49	2075.29	2100.91	2109.64
Se 196.026	Se	2052.05	ug/L	1272.77	2036.36	2051.49	2054.96
Si 251.611	Si	13630.66	ug/L	23535.34	13439.68	13640.89	13719.71
Sn 189.925	Sn	2060.77	ug/L	2191.34	2029.64	2061.36	2067.05
Sr 421.552	Sr	2494.29	ug/L	5793912.8	2468.64	2498.86	2507.48
Ti 334.941	Ti	2070.22	ug/L	516988.31	2039.04	2070.63	2093.6
Tl 190.794	Tl	1961.28	ug/L	1891.23	1918.34	1958.84	1976.44
V 292.401	V	2085.09	ug/L	40415.54	2065.89	2082.9	2096.72
Zn 206.200	Zn	1996.59	ug/L	6301.84	1959.89	1976.78	2017.75

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484513001\_3245****Analysis Time: 5/11/2022 9:28:53 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599034	1.05	1.05	1.04
Ag 328.068	Ag	-0.3	ug/L	-1186.4	-0.34	-0.54	-0.14
Al 396.152	Al	92.89	ug/L	2794.6	91.85	93.19	94.97
As 188.980	As	4.92	ug/L	6.61	1.8	6.54	4.11
B 249.678	B	123.67	ug/L	1030.89	124.77	124.79	123.73
Ba 233.527	Ba	52.08	ug/L	2106.71	51.9	50.83	52.69
Be 234.861	Be	-0.045	ug/L	-3.837	-0.014	-0.081	-0.045
Ca 315.887	Ca	41558.84	ug/L	222225.71	40875.82	41494.74	41991.86
Cd 214.439	Cd	-0.04	ug/L	1.54	-0.15	0.05	-0.07
Co 228.615	Co	0.01	ug/L	9.52	-0.42	0.32	-0.17
Cr 267.716	Cr	0.75	ug/L	54.55	0.71	0.71	0.89
Cu 327.395	Cu	2.76	ug/L	-1595.25	2.75	2.61	2.6
Fe 261.187	Fe	259.77	ug/L	438.51	256.03	256.79	262.4
K 766.491	K	8972.94	ug/L	11738.05	8898.38	8967.75	9043.8
Li 670.783	Li	5.44	ug/L	14531.42	5.31	5.43	5.53
Mg 279.078	Mg	16216.87	ug/L	42090.21	15985.52	16086.97	16372.95
Mn 257.610	Mn	87.48	ug/L	11252.4	86.38	87.36	88.27
Mo 204.598	Mo	7.34	ug/L	20.24	6.97	8.41	6.89
Na 589.592	Na	30515.6	ug/L	242764.02	30238.06	30492.91	30702.63
Ni 231.604	Ni	1.03	ug/L	6.6	1.91	-0.64	1.58
P 213.618	P	28.37	ug/L	14.93	33.24	28.94	28.67
Pb 220.353	Pb	-1.14	ug/L	1.7	-2.37	-0.65	-1.96
S 181.972	S	21657.62	ug/L	834.48	21255.93	21708.2	21960.98
Sb 206.834	Sb	1.65	ug/L	3.38	-0.25	3.07	2.25
Se 196.026	Se	0.56	ug/L	2.32	-0.9	0.76	2.77
Si 251.611	Si	404.06	ug/L	722.79	414.72	408.45	401.56
Sn 189.925	Sn	-3	ug/L	-0.58	-2.77	-2.63	-1.72
Sr 421.552	Sr	233.37	ug/L	542925.87	230.58	233.29	235.26
Ti 334.941	Ti	1.15	ug/L	16439.19	1.13	1.08	1.05
Tl 190.794	Tl	0.3	ug/L	-1.97	3.19	-1.59	-0.93
V 292.401	V	2.31	ug/L	42.98	2.45	1.82	2.9
Zn 206.200	Zn	1.57	ug/L	5.23	1.09	2.61	1.93

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484514001\_3245****Analysis Time: 5/11/2022 9:30:51 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	596305.1	1.06	1.06	1
Ag 328.068	Ag	-0.3	ug/L	-1186.29	-0.2	-0.1	-0.47
Al 396.152	Al	62.86	ug/L	2087.01	61.61	61.86	65.06
As 188.980	As	1.42	ug/L	4.55	2.51	0.55	1.02
B 249.678	B	72.16	ug/L	606.01	70.34	71.86	74.77
Ba 233.527	Ba	29.8	ug/L	1205.61	29.13	29.41	31.16
Be 234.861	Be	-0.073	ug/L	-7.223	-0.043	-0.051	-0.059
Ca 315.887	Ca	48250.32	ug/L	257995.06	46880.33	47620.37	50783.72
Cd 214.439	Cd	0.03	ug/L	2.9	0.05	0	0.08
Co 228.615	Co	-0.15	ug/L	9.75	0.79	-0.94	-0.41
Cr 267.716	Cr	1.76	ug/L	90.82	1.83	1.65	1.97
Cu 327.395	Cu	4.63	ug/L	-1544.75	4.62	5.06	4.68
Fe 261.187	Fe	149.1	ug/L	240.58	145.02	147.67	153.88
K 766.491	K	4243.49	ug/L	5773.71	4139.93	4187.79	4446.49
Li 670.783	Li	1.15	ug/L	12154	0.7	0.79	2.09
Mg 279.078	Mg	7919.54	ug/L	20572.82	7662.79	7757.74	8360.9
Mn 257.610	Mn	95.25	ug/L	12251.09	92.26	93.88	100.05
Mo 204.598	Mo	3.26	ug/L	5.01	2.24	2.86	4.27
Na 589.592	Na	6119.22	ug/L	48562.35	5992.68	6042.86	6396.35
Ni 231.604	Ni	1.46	ug/L	7.37	0.69	3.21	1.84
P 213.618	P	61.95	ug/L	40.68	59.96	59.12	69.6
Pb 220.353	Pb	-2.15	ug/L	0.08	0.07	-5.38	-2.94
S 181.972	S	20296.63	ug/L	782.12	19729.15	20037.66	21174.24
Sb 206.834	Sb	1.14	ug/L	3.05	-2.62	9.63	-2.36
Se 196.026	Se	2.25	ug/L	3.38	-2.27	-3.06	9.48
Si 251.611	Si	1391.82	ug/L	2421.83	1355.06	1369.14	1464.3
Sn 189.925	Sn	-1.35	ug/L	1.17	-0.67	0.03	-2.11
Sr 421.552	Sr	230.31	ug/L	536000.34	224.55	227.11	241.08
Ti 334.941	Ti	0.55	ug/L	16292.41	0.63	0.44	0.56
Tl 190.794	Tl	-1.96	ug/L	-4.17	-1.8	-2.14	-1.72
V 292.401	V	1.87	ug/L	34.84	2.01	1.79	1.85
Zn 206.200	Zn	6.87	ug/L	22.05	7.15	6.16	5.99



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 9:32:50 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	588751.82	1.03	1.03	1.03
Ag 328.068	Ag	1006.23	ug/L	40180.62	1000.23	1004.05	1008
Al 396.152	Al	9913.35	ug/L	243973.59	9843.92	9881.62	9941.83
As 188.980	As	2013.4	ug/L	1186.78	2001.88	2015.27	2010.44
B 249.678	B	2075.96	ug/L	17141.4	2059.9	2070.96	2082.82
Ba 233.527	Ba	2059.02	ug/L	83264.42	2050.79	2053.9	2061.12
Be 234.861	Be	2013.125	ug/L	298780.868	2001.537	2005.773	2017.018
Ca 315.887	Ca	10170.8	ug/L	54467.15	10137.18	10155.31	10178.94
Cd 214.439	Cd	2042.18	ug/L	42316.85	2047.21	1998.34	2082.49
Co 228.615	Co	2076.81	ug/L	12097.18	2066.15	2070.38	2082.58
Cr 267.716	Cr	2034.6	ug/L	73335.88	2022.66	2029	2036.34
Cu 327.395	Cu	1973.32	ug/L	51835.55	1963.78	1966.16	1976.62
Fe 261.187	Fe	9927.9	ug/L	17663.25	9879.19	9903.35	9926.11
K 766.491	K	9867.37	ug/L	12910.19	9836.24	9828.29	9868.79
Li 670.783	Li	1923.52	ug/L	1079262.18	1914.98	1915.73	1931.92
Mg 279.078	Mg	10091.89	ug/L	26205.59	10067.12	10039.95	10110.41
Mn 257.610	Mn	2024.13	ug/L	260349.17	2016.82	2018.99	2025.62
Mo 204.598	Mo	1939.92	ug/L	7233.5	1917.63	1935.47	1970.89
Na 589.592	Na	9958.33	ug/L	82996.58	9949.6	9921.09	9923.84
Ni 231.604	Ni	2026.12	ug/L	4014.58	2020.87	2020.05	2029.43
P 213.618	P	2018.82	ug/L	1479.68	2016.44	2027.44	2026.88
Pb 220.353	Pb	2030.54	ug/L	3173.43	2031.23	2027.93	2028.96
S 181.972	S	9876.99	ug/L	381.1	9756.91	9777.59	9848.9
Sb 206.834	Sb	2021.57	ug/L	1568.1	2002.17	2031.34	2011.64
Se 196.026	Se	2055.85	ug/L	1274.44	2039.63	2053.97	2055.41
Si 251.611	Si	10535.23	ug/L	18205.62	10460.21	10503.95	10566.28
Sn 189.925	Sn	1999.44	ug/L	2127.17	1995.36	1993.64	1996.41
Sr 421.552	Sr	2057.6	ug/L	4776078.94	2049.28	2050.97	2062.17
Ti 334.941	Ti	1990.36	ug/L	497699.24	1971.78	1987.9	2006.17
Tl 190.794	Tl	2092.92	ug/L	2018.47	2088.76	2084.34	2101.02
V 292.401	V	2014.97	ug/L	39048.74	2004.05	2007.92	2019.44
Zn 206.200	Zn	2045.17	ug/L	6448.96	2033.24	2025.29	2067.85

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 9:34:49 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598560.84	1.02	1.05	1.06
Ag 328.068	Ag	0.01	ug/L	-1174.06	-0.43	-0.07	0.4
Al 396.152	Al	0.78	ug/L	357.11	2.3	1.33	0.21
As 188.980	As	1.33	ug/L	4.45	-1.32	3.85	-0.38
B 249.678	B	2.73	ug/L	32.92	4.46	2.94	2.31
Ba 233.527	Ba	0.22	ug/L	5.19	0.28	0.25	0.33
Be 234.861	Be	0.093	ug/L	18.125	0.223	0.086	0.047
Ca 315.887	Ca	-0.32	ug/L	71.17	2.68	-0.24	-0.79
Cd 214.439	Cd	0.21	ug/L	6.6	0.31	0.17	0.22
Co 228.615	Co	-0.21	ug/L	6.71	-0.61	-0.12	0.55
Cr 267.716	Cr	0.04	ug/L	29.93	0.17	-0.02	0.03
Cu 327.395	Cu	1.04	ug/L	-1640.75	-0.43	1.09	1.66
Fe 261.187	Fe	1.03	ug/L	-23.11	-0.22	4.18	2.22
K 766.491	K	3.44	ug/L	417.14	5.55	-7.89	18.36
Li 670.783	Li	-2.86	ug/L	9957.58	-2.26	-2.89	-3.17
Mg 279.078	Mg	3.52	ug/L	43.55	6.49	2.9	0.52
Mn 257.610	Mn	0.15	ug/L	23.34	0.34	0.11	0.12
Mo 204.598	Mo	2.61	ug/L	2.53	3.38	1.5	2.86
Na 589.592	Na	12.42	ug/L	-101.93	19.23	10.11	8.83
Ni 231.604	Ni	-0.66	ug/L	3.09	-0.52	-0.99	-1.47
P 213.618	P	-4.28	ug/L	-10.44	-2.16	-3.32	-4.79
Pb 220.353	Pb	0.28	ug/L	3.74	-0.91	0.37	0.41
S 181.972	S	-29.1	ug/L	-0.11	-0.25	-59.81	3.73
Sb 206.834	Sb	0.45	ug/L	2.57	-1.85	5.55	1.82
Se 196.026	Se	6.47	ug/L	5.98	9.06	1.95	9.76
Si 251.611	Si	6.98	ug/L	38.44	12.97	7.39	4.13
Sn 189.925	Sn	-0.86	ug/L	1.74	-0.92	-0.58	0.29
Sr 421.552	Sr	0.17	ug/L	457.79	0.34	0.16	0.09
Ti 334.941	Ti	0.18	ug/L	16215.49	1.87	0.22	-0.69
Tl 190.794	Tl	0.99	ug/L	-1.54	1.7	4.08	-1.5
V 292.401	V	0.55	ug/L	9.34	0.26	0.79	0.72
Zn 206.200	Zn	0.3	ug/L	-0.45	0.84	-0.37	0.58

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484515001\_3245****Analysis Time: 5/11/2022 9:36:47 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	589962.39	1.03	1.03	1.03
Ag 328.068	Ag	-0.78	ug/L	-1205.61	-0.73	-0.92	-0.63
Al 396.152	Al	25.72	ug/L	1415.2	25.17	25.26	26.2
As 188.980	As	4.77	ug/L	6.6	4.29	6.03	2.71
B 249.678	B	53.3	ug/L	450.51	53.52	52.95	54.13
Ba 233.527	Ba	40.03	ug/L	1624.64	39.55	39.95	40.53
Be 234.861	Be	-0.068	ug/L	-8.522	-0.049	-0.09	-0.052
Ca 315.887	Ca	99840.51	ug/L	533770.2	99298.39	99761.24	100557.13
Cd 214.439	Cd	0.05	ug/L	3.51	0.03	0.13	0
Co 228.615	Co	-1.17	ug/L	7.64	-1.33	-1.51	-1.23
Cr 267.716	Cr	0.24	ug/L	32.07	0.46	0.26	0.02
Cu 327.395	Cu	2.44	ug/L	-1605.2	2.25	2.36	3.18
Fe 261.187	Fe	406.81	ug/L	700.4	404.54	402.98	410.3
K 766.491	K	3239.16	ug/L	4519.72	3259.13	3195.62	3267.5
Li 670.783	Li	4.62	ug/L	14035.83	4.67	4.56	4.72
Mg 279.078	Mg	27488.23	ug/L	71321.06	26847.33	27496.33	27745.58
Mn 257.610	Mn	347.45	ug/L	44674.76	342.65	349.02	349.22
Mo 204.598	Mo	3.15	ug/L	4.65	2.26	3.52	3.23
Na 589.592	Na	10407.84	ug/L	82720.11	10305.29	10397.72	10509.31
Ni 231.604	Ni	-0.51	ug/L	3.67	-0.12	-1.35	1.34
P 213.618	P	32.08	ug/L	18.33	30.35	31.58	30.58
Pb 220.353	Pb	-2.83	ug/L	-0.72	-2.79	-2.52	-4.71
S 181.972	S	46587.19	ug/L	1793.89	46131.04	46416.69	47233.6
Sb 206.834	Sb	0.48	ug/L	2.41	-0.59	0.13	3.61
Se 196.026	Se	0.62	ug/L	2.42	4.41	5.25	1.04
Si 251.611	Si	1277.12	ug/L	2226	1267.17	1268.19	1284.79
Sn 189.925	Sn	-3.17	ug/L	-0.82	-1.02	-1.12	-5.99
Sr 421.552	Sr	320.18	ug/L	746076.05	316.46	319.58	323.2
Ti 334.941	Ti	0.39	ug/L	16241.91	0.46	0.39	0.43
Tl 190.794	Tl	-1.28	ug/L	-2.98	-2.48	-2.35	1.36
V 292.401	V	1.53	ug/L	28.05	1.66	1.23	1.73
Zn 206.200	Zn	5.19	ug/L	18.88	3.12	6.6	7.03

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484516001 3245****Analysis Time: 5/11/2022 9:38:45 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	587000.49	1.02	1.03	1.02
Ag 328.068	Ag	-0.59	ug/L	-1197.95	-0.96	-0.34	-0.3
Al 396.152	Al	261.32	ug/L	6994.25	259.47	260.57	262.39
As 188.980	As	3.73	ug/L	5.93	4.87	0.58	9.04
B 249.678	B	60.2	ug/L	507.34	58.51	61.78	60.43
Ba 233.527	Ba	111.62	ug/L	4516.48	108.62	112.09	113.43
Be 234.861	Be	0.044	ug/L	8.912	-0.149	0.16	0.049
Ca 315.887	Ca	61485.78	ug/L	328745.45	60838.99	61623.08	61603.57
Cd 214.439	Cd	0.14	ug/L	5.39	-0.03	0.13	0.34
Co 228.615	Co	-0.51	ug/L	6.01	-1.03	-0.53	-0.37
Cr 267.716	Cr	1.3	ug/L	74.05	0.99	1.25	1.64
Cu 327.395	Cu	2.95	ug/L	-1590.46	2.69	2.97	3.16
Fe 261.187	Fe	394.56	ug/L	678.52	391.79	390.41	399
K 766.491	K	1930.85	ug/L	2861.33	1929.27	1947.07	1913.94
Li 670.783	Li	1.51	ug/L	12326.29	1.47	1.44	1.69
Mg 279.078	Mg	15948.77	ug/L	41395.22	15746.18	15777.87	16141.37
Mn 257.610	Mn	111.52	ug/L	14343.65	110.27	111.53	112.27
Mo 204.598	Mo	7.13	ug/L	19.47	6.19	7.35	8.02
Na 589.592	Na	23162.65	ug/L	184361.54	22938.76	23173.25	23260.4
Ni 231.604	Ni	0.23	ug/L	5.02	-0.29	0.33	0.32
P 213.618	P	51.93	ug/L	33.15	54.49	45.59	53.33
Pb 220.353	Pb	-0.9	ug/L	2.11	-0.67	-2.28	-3.42
S 181.972	S	13903.9	ug/L	536.13	13760.17	14000.7	13942.87
Sb 206.834	Sb	-0.77	ug/L	1.49	-0.41	1.91	-2.45
Se 196.026	Se	2.87	ug/L	3.75	1.69	2.1	1.96
Si 251.611	Si	3022.67	ug/L	5228.09	2964.55	3052.6	3037.05
Sn 189.925	Sn	-1.61	ug/L	0.87	-0.85	-2.71	0.73
Sr 421.552	Sr	690.1	ug/L	1603600.32	683.75	689.49	693.62
Ti 334.941	Ti	3.37	ug/L	16970.09	3.34	3.45	3.22
Tl 190.794	Tl	-1.46	ug/L	-3.62	2.38	-4.28	-0.74
V 292.401	V	6.34	ug/L	121.56	6.16	5.82	6.84
Zn 206.200	Zn	3.76	ug/L	12.83	3.88	3.95	2.83

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484517001 3245****Analysis Time: 5/11/2022 9:40:43 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	576984.69	1.01	1	1.01
Ag 328.068	Ag	-0.46	ug/L	-1192.38	0.14	-1.04	-0.66
Al 396.152	Al	143.88	ug/L	4448.73	137.64	140.82	144.81
As 188.980	As	7.29	ug/L	8.12	9.44	8.75	6.98
B 249.678	B	103.79	ug/L	867.43	101.4	103.44	105.68
Ba 233.527	Ba	181.64	ug/L	7354.51	176.99	180.86	184.64
Be 234.861	Be	-0.064	ug/L	-7.053	-0.102	-0.054	-0.093
Ca 315.887	Ca	131061.51	ug/L	700662.21	127818.72	131150.2	132696.77
Cd 214.439	Cd	0.08	ug/L	4.04	0.04	0.22	0.03
Co 228.615	Co	-0.85	ug/L	6.81	-1.18	-1.02	0.18
Cr 267.716	Cr	0.52	ug/L	44.39	0.45	0.61	0.6
Cu 327.395	Cu	2.64	ug/L	-1600.66	4.91	1.87	2.34
Fe 261.187	Fe	241.64	ug/L	405.32	234.32	242.09	245.33
K 766.491	K	8270.1	ug/L	10869.4	8093.37	8270.46	8344.51
Li 670.783	Li	29.28	ug/L	27717.81	28.52	29.3	29.6
Mg 279.078	Mg	25499.11	ug/L	66163.04	24830.93	25512.35	26241.66
Mn 257.610	Mn	214.81	ug/L	27621.65	210.34	213.98	217.91
Mo 204.598	Mo	6.03	ug/L	15.43	5.21	6.32	5.64
Na 589.592	Na	94673.3	ug/L	753626.14	92962.5	94415.58	95683.15
Ni 231.604	Ni	1.09	ug/L	6.8	2.2	0.8	0.74
P 213.618	P	22.5	ug/L	11.2	20.64	23.18	22.65
Pb 220.353	Pb	-1.62	ug/L	1.2	-1.99	-1.85	-0.73
S 181.972	S	21519.03	ug/L	829.26	21066.79	21324.42	21823.63
Sb 206.834	Sb	-1.14	ug/L	1.11	1.72	-0.54	-0.82
Se 196.026	Se	0.26	ug/L	2.17	-5.74	5.86	4.99
Si 251.611	Si	2025.12	ug/L	3513.16	1973.49	1993.12	2078.47
Sn 189.925	Sn	-2.12	ug/L	0.27	-3.02	-2.81	-1.75
Sr 421.552	Sr	2646.08	ug/L	6145629.79	2596.89	2639.39	2673.62
Ti 334.941	Ti	1.1	ug/L	16403.56	-0.97	1.77	1.85
Tl 190.794	Tl	-2.93	ug/L	-4.75	-3.85	-3.18	-3.75
V 292.401	V	2.45	ug/L	45.9	2.21	2.19	2.65
Zn 206.200	Zn	2.26	ug/L	10.73	2.16	1.76	2.59

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484518001 3245****Analysis Time: 5/11/2022 9:42:41 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	588116.07	1.02	1.03	1.02
Ag 328.068	Ag	-0.83	ug/L	-1207.72	-0.76	-1.22	-0.5
Al 396.152	Al	77.23	ug/L	2631.39	76.57	77.27	78.73
As 188.980	As	5.16	ug/L	6.82	5.37	10.32	2.81
B 249.678	B	72.11	ug/L	605.86	71.54	71.44	73.08
Ba 233.527	Ba	129.59	ug/L	5245.8	129.5	129.79	130.15
Be 234.861	Be	-0.07	ug/L	-7.167	-0.124	-0.091	0.003
Ca 315.887	Ca	89033.18	ug/L	475999.73	88287.64	89365.06	89556.05
Cd 214.439	Cd	0.1	ug/L	4.35	-0.06	0.08	0.24
Co 228.615	Co	-0.75	ug/L	6.02	-0.55	-0.58	-1.18
Cr 267.716	Cr	0.38	ug/L	41.91	0.55	0.29	0.3
Cu 327.395	Cu	1.78	ug/L	-1622.89	1.28	2.01	1.75
Fe 261.187	Fe	141.41	ug/L	226.92	139.93	139.27	143.5
K 766.491	K	4677.35	ug/L	6330.31	4674.65	4654.03	4719.71
Li 670.783	Li	10.56	ug/L	17342.06	10.56	10.5	10.82
Mg 279.078	Mg	19666.71	ug/L	51037.29	19553.82	19564.01	19798.49
Mn 257.610	Mn	72.49	ug/L	9325.04	72.45	72.51	72.75
Mo 204.598	Mo	3.7	ug/L	6.69	4.19	4.17	2.51
Na 589.592	Na	51014.33	ug/L	406058.72	50759.26	50835.05	51413.66
Ni 231.604	Ni	0.05	ug/L	4.68	0.68	0.36	-1.56
P 213.618	P	13.96	ug/L	4.32	14.28	19.32	14.28
Pb 220.353	Pb	-2.96	ug/L	-1.04	-2.3	-6.02	-1.31
S 181.972	S	16745.2	ug/L	645.5	16705.01	16684.99	16780.43
Sb 206.834	Sb	-2.36	ug/L	0.23	-5.81	-0.23	-3.09
Se 196.026	Se	1.28	ug/L	2.77	6.08	-8.29	0.03
Si 251.611	Si	1933.43	ug/L	3354.53	1915.46	1927.45	1949.89
Sn 189.925	Sn	-2.79	ug/L	-0.4	-0.49	-1.36	-5.05
Sr 421.552	Sr	1339.34	ug/L	3111360.78	1330.22	1336.24	1350.06
Ti 334.941	Ti	1.44	ug/L	16497.7	1.52	1.41	1.54
Tl 190.794	Tl	-2.48	ug/L	-4.59	-2	-3.33	-4.81
V 292.401	V	1.91	ug/L	35.75	1.94	2.02	1.66
Zn 206.200	Zn	2.08	ug/L	8.6	0.92	2.41	1.85

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484847001\_3245****Analysis Time: 5/11/2022 9:44:40 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.96	Ratio	548515.97	0.96	0.96	0.96
Ag 328.068	Ag	-0.97	ug/L	-1211.18	-0.66	-1.27	-0.95
Al 396.152	Al	213.7	ug/L	6439.24	210.82	212.74	214.5
As 188.980	As	11738.96	ug/L	6946.51	11541.89	11759.98	11836.49
B 249.678	B	516.78	ug/L	4275.72	506.58	519.52	517.31
Ba 233.527	Ba	877.73	ug/L	35510.96	861.04	881.73	887.07
Be 234.861	Be	-0.07	ug/L	-10.682	-0.122	-0.072	-0.061
Ca 315.887	Ca	178839.74	ug/L	956062.55	174239.93	180720.61	179990.69
Cd 214.439	Cd	0.01	ug/L	2.65	-0.1	0.04	0.03
Co 228.615	Co	63.64	ug/L	360.97	63.09	63.75	63.36
Cr 267.716	Cr	17.21	ug/L	648.86	16.6	17.43	17.2
Cu 327.395	Cu	21.53	ug/L	-1087.64	21.14	21.15	22.04
Fe 261.187	Fe	772.89	ug/L	1350	761.17	773.37	778.15
K 766.491	K	11619.64	ug/L	15104.32	11455.83	11638.18	11706.4
Li 670.783	Li	235.71	ug/L	142316.9	231.99	236.28	237.5
Mg 279.078	Mg	522.88	ug/L	1392.8	509.2	525.55	517.57
Mn 257.610	Mn	3.39	ug/L	442.84	3.32	3.42	3.44
Mo 204.598	Mo	3.04	ug/L	5.66	3.56	2.58	3.4
Na 589.592	Na	829321.73	ug/L	6601702.27	814985.84	831291.06	835431.88
Ni 231.604	Ni	497.24	ug/L	988.52	485.21	496.72	497.56
P 213.618	P	20.02	ug/L	9.25	16.25	23.97	26.83
Pb 220.353	Pb	454.74	ug/L	714.8	445.99	455.41	460.07
S 181.972	S	3030.57	ug/L	117.83	2949.58	3058.3	3038.3
Sb 206.834	Sb	4.57	ug/L	5.72	0.34	5.15	6.07
Se 196.026	Se	-0.67	ug/L	1.56	1.77	-3.18	-4.21
Si 251.611	Si	1370.35	ug/L	2386.66	1347.27	1370.57	1379.41
Sn 189.925	Sn	-2.4	ug/L	0	-2.78	-5.07	3.12
Sr 421.552	Sr	3216.15	ug/L	7470196.5	3164.63	3221.87	3236.42
Ti 334.941	Ti	0.78	ug/L	16302.48	0.68	0.81	0.84
Tl 190.794	Tl	-0.44	ug/L	-2.33	-6.39	2.15	0.88
V 292.401	V	1.11	ug/L	18.52	1.2	1.31	0.74
Zn 206.200	Zn	112.99	ug/L	361.18	109.35	114.06	114.93

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484847002\_3245****Analysis Time: 5/11/2022 9:46:38 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.95	Ratio	545612.85	0.95	0.95	0.95
Ag 328.068	Ag	-1.01	ug/L	-1213.93	-0.84	-0.86	-1.29
Al 396.152	Al	98.69	ug/L	3546.34	95.92	99.62	99.92
As 188.980	As	101.64	ug/L	63.84	97.79	109.24	97.7
B 249.678	B	637.84	ug/L	5274.54	626.33	636.05	638.37
Ba 233.527	Ba	652.99	ug/L	26420.06	639.38	653.6	659.09
Be 234.861	Be	-0.116	ug/L	-17.172	-0.164	-0.107	-0.079
Ca 315.887	Ca	162080.61	ug/L	866475.46	159140.43	162697.58	162449.58
Cd 214.439	Cd	0.07	ug/L	3.9	0.14	0.1	0.1
Co 228.615	Co	17.78	ug/L	101.27	17.1	17.64	18.88
Cr 267.716	Cr	30.05	ug/L	1111.81	29.55	30.07	30.35
Cu 327.395	Cu	14.89	ug/L	-1268.6	14.73	14.46	15.21
Fe 261.187	Fe	780.37	ug/L	1363.77	764.11	783.58	784.17
K 766.491	K	15699.28	ug/L	20240.7	15421.58	15747	15782.5
Li 670.783	Li	315.4	ug/L	186760.23	309.57	315.95	318.15
Mg 279.078	Mg	498.29	ug/L	1328.77	482.34	502.78	501.72
Mn 257.610	Mn	4.21	ug/L	548.71	4.23	4	4.39
Mo 204.598	Mo	18.5	ug/L	62.12	17.5	18.6	19.55
Na 589.592	Na	1117930.92	ug/L	8898183.95	1100246.69	1121946.63	1124198.03
Ni 231.604	Ni	80.74	ug/L	164.21	79.73	81.04	80.6
P 213.618	P	8.51	ug/L	0.19	6.75	4.35	13.76
Pb 220.353	Pb	22.2	ug/L	38.35	20.8	20.53	22.26
S 181.972	S	3668.7	ug/L	142.38	3565.57	3703.72	3692.85
Sb 206.834	Sb	1.87	ug/L	3.7	3.57	4.45	0.51
Se 196.026	Se	-0.88	ug/L	1.39	-3	-6.65	3.44
Si 251.611	Si	122.46	ug/L	239.58	117.99	122.23	126.74
Sn 189.925	Sn	-3.07	ug/L	-0.76	-2.31	-4.2	-3.81
Sr 421.552	Sr	3720.43	ug/L	8640216.76	3649.69	3725.44	3750.13
Ti 334.941	Ti	0.11	ug/L	16153.36	0	0.12	0.27
Tl 190.794	Tl	-2.62	ug/L	-4.78	-2.38	-3.27	-1.86
V 292.401	V	0.7	ug/L	8.13	0.49	0.6	0.64
Zn 206.200	Zn	7.87	ug/L	29.1	8.66	7.84	7.55



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484855006 3245****Analysis Time: 5/11/2022 9:48:36 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598431.39	1.04	1.05	1.04
Ag 328.068	Ag	-0.59	ug/L	-1198.25	-0.3	-0.91	-0.6
Al 396.152	Al	421.03	ug/L	10715.01	414.48	421.3	423.92
As 188.980	As	4.36	ug/L	6.26	11.15	4.11	0.08
B 249.678	B	13.65	ug/L	123.04	14.12	13.22	12.7
Ba 233.527	Ba	70.74	ug/L	2859.9	69.87	70.54	71.37
Be 234.861	Be	-0.087	ug/L	-11.034	-0.095	-0.105	-0.069
Ca 315.887	Ca	24699.9	ug/L	132106.69	24443.75	24592.13	24868.34
Cd 214.439	Cd	-0.06	ug/L	1.44	-0.18	-0.13	0.15
Co 228.615	Co	-0.5	ug/L	4.65	-0.97	-0.38	0.63
Cr 267.716	Cr	1.22	ug/L	72.81	1.28	1.46	1.2
Cu 327.395	Cu	12.7	ug/L	-1325.37	12.85	12.43	13.06
Fe 261.187	Fe	631.64	ug/L	1101.42	623.36	625.21	641.4
K 766.491	K	20594.25	ug/L	26388.35	20440.62	20576.92	20691.9
Li 670.783	Li	1.41	ug/L	12305.57	1.35	1.47	1.42
Mg 279.078	Mg	8693.47	ug/L	22579.54	8601.52	8680.51	8803.89
Mn 257.610	Mn	9.51	ug/L	1228.27	9.22	9.65	9.47
Mo 204.598	Mo	1.08	ug/L	-3.06	1.05	1.11	1.6
Na 589.592	Na	57359.85	ug/L	456438.74	56896.65	57309.15	57637.16
Ni 231.604	Ni	2.31	ug/L	9.06	2.63	1.63	2.19
P 213.618	P	637.99	ug/L	482.2	621.41	648.19	645.9
Pb 220.353	Pb	-0.54	ug/L	2.54	-1.56	-2.42	0.83
S 181.972	S	11677.66	ug/L	450.41	11436.01	11577.89	11840.24
Sb 206.834	Sb	2.06	ug/L	3.79	4.57	-3.98	5.07
Se 196.026	Se	4.88	ug/L	4.94	16.6	-1.92	3.13
Si 251.611	Si	3671.51	ug/L	6343.45	3623.8	3656.3	3728.05
Sn 189.925	Sn	18.9	ug/L	22.73	19.78	19.38	18.38
Sr 421.552	Sr	120.86	ug/L	281284.06	119.36	120.82	121.65
Ti 334.941	Ti	-0.06	ug/L	16150.35	-0.14	-0.04	-0.07
Tl 190.794	Tl	-0.46	ug/L	-2.86	-4.27	-2.2	2.27
V 292.401	V	0.88	ug/L	15.24	1.55	0.81	0.36
Zn 206.200	Zn	235.71	ug/L	742.97	233.24	235.27	237.09

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484856006 3245****Analysis Time: 5/11/2022 9:50:35 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	575939.56	0.99	1.02	1.01
Ag 328.068	Ag	-0.32	ug/L	-1187.12	-0.46	-0.18	-0.4
Al 396.152	Al	148.05	ug/L	4042.49	150.54	151.4	145.39
As 188.980	As	2.35	ug/L	5.07	2.4	5.25	-1.01
B 249.678	B	34.26	ug/L	293.02	34.92	33.6	33.52
Ba 233.527	Ba	52.99	ug/L	2141.38	53.18	52.93	53.01
Be 234.861	Be	-0.013	ug/L	0.074	0.034	0.021	-0.037
Ca 315.887	Ca	20512.86	ug/L	109724.29	20286.88	20446.05	20672.97
Cd 214.439	Cd	0.12	ug/L	4.9	-0.03	0.31	0.07
Co 228.615	Co	-0.32	ug/L	6.02	-0.57	-0.35	-0.07
Cr 267.716	Cr	2.93	ug/L	134.12	3.15	2.7	3.12
Cu 327.395	Cu	34.28	ug/L	-740.72	34.45	34.09	34.46
Fe 261.187	Fe	495.83	ug/L	859.13	494.84	491.96	494.35
K 766.491	K	10290.67	ug/L	13393.69	10183.55	10298.26	10358.83
Li 670.783	Li	2.75	ug/L	13051.74	3.25	2.52	2.55
Mg 279.078	Mg	5154.87	ug/L	13402.84	5130.94	5070.57	5216.53
Mn 257.610	Mn	23.57	ug/L	3035.1	23.44	23.42	23.71
Mo 204.598	Mo	2.13	ug/L	0.81	1.12	2.09	2.3
Na 589.592	Na	363671.32	ug/L	2894201.21	361106.63	362334.82	365749.37
Ni 231.604	Ni	3.33	ug/L	11.04	2.41	5.28	4.33
P 213.618	P	35445.25	ug/L	27182.67	35819.68	34417.78	36376.48
Pb 220.353	Pb	-0.32	ug/L	2.87	3.87	-2.35	0.99
S 181.972	S	11593.53	ug/L	447.17	11509.69	11460.93	11658.52
Sb 206.834	Sb	0.74	ug/L	2.76	0.4	-0.56	1.74
Se 196.026	Se	6.32	ug/L	5.85	2.76	2.53	9.78
Si 251.611	Si	2676.45	ug/L	4631.41	2673.88	2648.34	2704.38
Sn 189.925	Sn	38.05	ug/L	43.08	39.49	38.08	38.8
Sr 421.552	Sr	123.81	ug/L	288013.59	123.35	123.2	124.45
Ti 334.941	Ti	2.15	ug/L	16686.52	2.47	2.18	1.93
Tl 190.794	Tl	-1.4	ug/L	-3.78	0.18	-5.48	-0.09
V 292.401	V	2.53	ug/L	47.31	2.73	2.5	2.15
Zn 206.200	Zn	73.81	ug/L	232.17	73.19	73.32	74.04

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484863001\_3245****Analysis Time: 5/11/2022 9:52:33 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	593618.99	1.04	1.04	1.03
Ag 328.068	Ag	-0.7	ug/L	-1202.57	-0.48	-0.52	-0.78
Al 396.152	Al	116.84	ug/L	3503.95	115.25	116.18	117.48
As 188.980	As	4.56	ug/L	6.44	3.25	4.22	6.98
B 249.678	B	13.4	ug/L	121.33	12.86	13.21	13.87
Ba 233.527	Ba	40.97	ug/L	1659.75	40.14	41.08	41.62
Be 234.861	Be	-0.089	ug/L	-9.951	-0.087	-0.052	-0.169
Ca 315.887	Ca	70482.7	ug/L	376838.19	70070.21	70358.15	71173.92
Cd 214.439	Cd	-0.06	ug/L	1.19	-0.07	0	-0.07
Co 228.615	Co	-0.6	ug/L	8.69	0.53	-1.2	-1.29
Cr 267.716	Cr	1	ug/L	65.26	0.92	1	0.86
Cu 327.395	Cu	2.92	ug/L	-1591.6	2.72	3.58	2.42
Fe 261.187	Fe	130.31	ug/L	207.33	129.13	130.19	132.17
K 766.491	K	15594.97	ug/L	20094.04	15477.36	15609.24	15708.76
Li 670.783	Li	4.54	ug/L	14018.93	4.46	4.52	4.59
Mg 279.078	Mg	18855.44	ug/L	48933.19	18613.63	18808.66	19045.54
Mn 257.610	Mn	13.58	ug/L	1751.44	13.13	13.48	13.98
Mo 204.598	Mo	0.63	ug/L	-4.78	1.44	0.96	0.5
Na 589.592	Na	7156.19	ug/L	56839.43	7171.77	7137.85	7181.61
Ni 231.604	Ni	-0.16	ug/L	4.26	-1.11	-0.44	0.44
P 213.618	P	123.75	ug/L	88.38	136.15	119.23	122.39
Pb 220.353	Pb	-1.35	ug/L	1.43	-2.82	0.15	-4.4
S 181.972	S	22691.66	ug/L	874.31	22426.6	22585.21	22997.42
Sb 206.834	Sb	1.77	ug/L	3.48	1.11	5.29	-0.03
Se 196.026	Se	4.93	ug/L	5.01	7.04	6.87	2.18
Si 251.611	Si	3207.04	ug/L	5545.24	3128.83	3210.71	3272.61
Sn 189.925	Sn	6.4	ug/L	9.38	5.09	6.49	6.27
Sr 421.552	Sr	363.51	ug/L	845819.52	360.09	362.37	366.66
Ti 334.941	Ti	2.89	ug/L	16852.57	2.93	2.71	3.22
Tl 190.794	Tl	0.77	ug/L	-1.56	-0.42	0.63	4
V 292.401	V	1.15	ug/L	21.42	1.19	0.92	1.26
Zn 206.200	Zn	10.68	ug/L	35.05	10.92	11.56	10.13

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484308001\_3245****Analysis Time: 5/11/2022 9:54:32 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	612200.33	1.04	1.08	1.08
Ag 328.068	Ag	0.38	ug/L	-1158.76	-0.15	0.39	0.79
Al 396.152	Al	2.91	ug/L	407.78	4.2	2.64	3.14
As 188.980	As	2.97	ug/L	5.42	0.17	3.64	2.5
B 249.678	B	0.56	ug/L	14.96	0.59	0.77	0.59
Ba 233.527	Ba	0.36	ug/L	10.99	0.37	0.37	0.44
Be 234.861	Be	-0.049	ug/L	-2.933	-0.051	-0.079	-0.052
Ca 315.887	Ca	13.31	ug/L	144.03	19.06	13.19	10.94
Cd 214.439	Cd	-0.09	ug/L	0.48	-0.17	-0.11	-0.01
Co 228.615	Co	-0.24	ug/L	6.57	-0.35	0.07	-0.35
Cr 267.716	Cr	-0.09	ug/L	25.21	-0.39	-0.09	-0.08
Cu 327.395	Cu	1.29	ug/L	-1634.11	-0.37	1.1	2.1
Fe 261.187	Fe	2.5	ug/L	-20.49	2.3	4.98	-0.65
K 766.491	K	15.29	ug/L	432.06	29.81	2.89	7.98
Li 670.783	Li	-1.97	ug/L	10457.31	-1.45	-2.15	-2.2
Mg 279.078	Mg	5.4	ug/L	48.42	5.84	3.62	6.41
Mn 257.610	Mn	0.27	ug/L	39.41	0.22	0.22	0.32
Mo 204.598	Mo	0.19	ug/L	-6.52	0.66	-0.24	0.12
Na 589.592	Na	79.81	ug/L	434.69	87.72	80.53	77.36
Ni 231.604	Ni	1.05	ug/L	6.47	3.28	3.14	-0.62
P 213.618	P	2.99	ug/L	-4.85	-0.59	-2.59	11.04
Pb 220.353	Pb	-1.47	ug/L	1.01	-2.08	-2.78	0.65
S 181.972	S	34.61	ug/L	2.34	43.81	58.91	16.05
Sb 206.834	Sb	-0.84	ug/L	1.59	-4.72	0.11	1.67
Se 196.026	Se	1.37	ug/L	2.82	-4.55	1.66	6.04
Si 251.611	Si	24.01	ug/L	67.69	24	26.36	23.49
Sn 189.925	Sn	-1.54	ug/L	1.01	-1.84	-1.29	-0.81
Sr 421.552	Sr	0.08	ug/L	254.57	0.11	0.07	0.07
Ti 334.941	Ti	-0.32	ug/L	16095.41	1.32	-0.55	-1.34
Tl 190.794	Tl	0.16	ug/L	-2.34	1.41	-0.04	0.65
V 292.401	V	0.57	ug/L	10.13	1.34	0.06	0.49
Zn 206.200	Zn	1.92	ug/L	4.65	1.56	1.72	2.14

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 9:56:31 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	584975.45	0.97	1.04	1.04
Ag 328.068	Ag	1012.04	ug/L	40419.77	1053.45	992.55	997.67
Al 396.152	Al	9978.92	ug/L	245585.16	10401.45	9780.14	9827.04
As 188.980	As	2022.17	ug/L	1191.98	2105.31	1989.01	1993.52
B 249.678	B	2085.75	ug/L	17222.1	2171.87	2044.94	2052.79
Ba 233.527	Ba	2068.18	ug/L	83634.86	2161.31	2025.89	2034.34
Be 234.861	Be	2021.887	ug/L	300081.317	2109.178	1979.823	1991.535
Ca 315.887	Ca	10164.69	ug/L	54434.58	10622.64	9968.94	9984.84
Cd 214.439	Cd	2035.38	ug/L	42176.07	2138.75	1963.09	2001.14
Co 228.615	Co	2083.5	ug/L	12135.51	2174.32	2043.02	2048.45
Cr 267.716	Cr	2043.73	ug/L	73664.62	2133.11	2000.07	2012.66
Cu 327.395	Cu	1987.23	ug/L	52212.58	2070.61	1948.41	1957.17
Fe 261.187	Fe	9988.01	ug/L	17770.39	10422.69	9786.79	9823.44
K 766.491	K	9959.01	ug/L	13025.94	10426.89	9745.63	9821.16
Li 670.783	Li	1937.17	ug/L	1086845.41	2030.98	1893.77	1904.89
Mg 279.078	Mg	10115.12	ug/L	26265.82	10543.45	9910.27	9967.39
Mn 257.610	Mn	2035.18	ug/L	261770.83	2124.59	1993.39	2002.41
Mo 204.598	Mo	1952.99	ug/L	7282.24	2031.82	1884.4	1946.19
Na 589.592	Na	10075.31	ug/L	83945.24	10564.93	9866.98	9897.49
Ni 231.604	Ni	2039.09	ug/L	4040.24	2128.9	1996.37	2007.46
P 213.618	P	2026.87	ug/L	1485.43	2103.5	1937.96	2026.2
Pb 220.353	Pb	2041.62	ug/L	3190.72	2129.49	2002.92	2011.47
S 181.972	S	9887.83	ug/L	381.52	10213.86	9679.29	9750.22
Sb 206.834	Sb	2033.81	ug/L	1577.45	2102.49	1992.73	2015.84
Se 196.026	Se	2064.86	ug/L	1280.02	2156.92	2022.61	2030.27
Si 251.611	Si	10522.1	ug/L	18183.38	10940.23	10309.02	10358.7
Sn 189.925	Sn	2000.6	ug/L	2128.41	2080.41	1960.07	1976.12
Sr 421.552	Sr	2072.24	ug/L	4810059.89	2167.67	2030.09	2031.69
Ti 334.941	Ti	2009.65	ug/L	502368.16	2078.02	1971.19	1987.68
Tl 190.794	Tl	2102.74	ug/L	2027.93	2197.25	2063.4	2071.17
V 292.401	V	2024.4	ug/L	39231.25	2113.43	1981.97	1992.63
Zn 206.200	Zn	2059.9	ug/L	6495.44	2131.76	2012.74	2037.85

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 9:58:30 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	588322.26	0.98	1.04	1.05
Ag 328.068	Ag	0.22	ug/L	-1165.3	0.03	0.35	0.12
Al 396.152	Al	0.35	ug/L	346.3	1.22	0.31	0.1
As 188.980	As	0.12	ug/L	3.73	-3.23	6.7	-2.58
B 249.678	B	2.66	ug/L	32.29	4.34	1.6	2.18
Ba 233.527	Ba	0.14	ug/L	2.05	0.2	0.18	0.07
Be 234.861	Be	-0.031	ug/L	-0.292	0.044	-0.053	-0.049
Ca 315.887	Ca	-1.51	ug/L	64.82	-1.89	-1.66	-0.81
Cd 214.439	Cd	-0.02	ug/L	1.94	0	-0.07	0.01
Co 228.615	Co	-0.17	ug/L	6.93	-0.46	0.62	-1.17
Cr 267.716	Cr	-0.15	ug/L	23.36	-0.02	-0.11	-0.2
Cu 327.395	Cu	1.08	ug/L	-1639.69	1.21	0.8	1.1
Fe 261.187	Fe	3.74	ug/L	-18.29	4.2	3.47	5.53
K 766.491	K	-4.08	ug/L	407.63	27.23	-28.59	-22.52
Li 670.783	Li	-0.64	ug/L	11194.75	0.23	-0.88	-1.04
Mg 279.078	Mg	1.13	ug/L	37.35	1.01	2.9	-0.14
Mn 257.610	Mn	0.01	ug/L	6.37	-0.03	0.03	0.04
Mo 204.598	Mo	2.55	ug/L	2.28	1.14	2.9	3.73
Na 589.592	Na	31.72	ug/L	51.58	33.27	31.21	30.76
Ni 231.604	Ni	0.1	ug/L	4.58	0.74	0.04	0.21
P 213.618	P	-3.48	ug/L	-9.83	-0.84	2.94	-6.75
Pb 220.353	Pb	1.55	ug/L	5.74	4.2	0.22	2.11
S 181.972	S	11.04	ug/L	1.43	11.37	-40.54	40.59
Sb 206.834	Sb	-1.56	ug/L	1.02	-0.6	-1.66	1.01
Se 196.026	Se	4.14	ug/L	4.53	5.74	5.96	1.75
Si 251.611	Si	4.8	ug/L	34.68	9.94	6.05	1.12
Sn 189.925	Sn	-0.65	ug/L	1.97	1.6	1.37	-3.02
Sr 421.552	Sr	0.04	ug/L	170.51	0.07	0.04	0.04
Ti 334.941	Ti	-0.6	ug/L	16025.66	-0.67	-0.52	-0.78
Tl 190.794	Tl	1.24	ug/L	-1.3	0	-0.81	1.61
V 292.401	V	0.22	ug/L	2.94	-0.52	0.72	0.22
Zn 206.200	Zn	0.29	ug/L	-0.49	0.8	-0.19	0.28

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484536001\_3245****Analysis Time: 5/11/2022 10:00:28 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.92	Ratio	526147.73	0.89	0.91	0.94
Ag 328.068	Ag	0.17	ug/L	-1132.2	-0.61	0.23	0.22
Al 396.152	Al	80633.63	ug/L	1967259.56	86491.36	80595.04	77683.97
As 188.980	As	122.23	ug/L	74.41	122.01	124.24	122.05
B 249.678	B	78593.13	ug/L	648439.91	78724.14	79557.23	77263.37
Ba 233.527	Ba	905.42	ug/L	36705.86	938.11	909.64	882.39
Be 234.861	Be	0.638	ug/L	-453.496	0.682	0.652	0.58
Ca 315.887	Ca	338169.76	ug/L	1807886.82	338755.95	342016.59	334003.03
Cd 214.439	Cd	5.62	ug/L	198.14	5.49	5.72	5.41
Co 228.615	Co	62.02	ug/L	430.06	63.04	63	60.52
Cr 267.716	Cr	215.93	ug/L	7679.96	224.05	216.52	210.3
Cu 327.395	Cu	185.39	ug/L	3393.32	185.88	187.08	182.8
Fe 261.187	Fe	124394.63	ug/L	221826.13	125955.72	125461.37	122135.89
K 766.491	K	53598.01	ug/L	68188.21	57262.77	53536.5	51717.77
Li 670.783	Li	371.42	ug/L	216617.73	379.9	373.24	364.18
Mg 279.078	Mg	922288.12	ug/L	2391814.71	927283.46	930999.09	907003.87
Mn 257.610	Mn	11012.97	ug/L	1416171.76	11093.65	11115.94	10824.47
Mo 204.598	Mo	82.58	ug/L	315.51	82.9	84.04	81.92
Na 589.592	Na	318134.66	ug/L	2533473.64	320248.77	319798.9	313073.24
Ni 231.604	Ni	325.81	ug/L	664.25	324.63	331.53	320.68
P 213.618	P	2573.93	ug/L	1967.74	2616.52	2574.71	2536.96
Pb 220.353	Pb	60.21	ug/L	100.26	58.79	57.45	64.92
S 181.972	S	602824.78	ug/L	23199.62	608452.22	607237.36	593354.65
Sb 206.834	Sb	15.16	ug/L	13.77	5.55	20.57	15.16
Se 196.026	Se	227.56	ug/L	134.33	225.28	231.81	231.65
Si 251.611	Si	97310.71	ug/L	167498.73	112713.48	95996.06	90894.52
Sn 189.925	Sn	1.64	ug/L	3.47	4.85	-0.14	2.21
Sr 421.552	Sr	1495.14	ug/L	3480284.8	1514.51	1502.34	1471.44
Ti 334.941	Ti	897.46	ug/L	233223.47	1307.04	879.66	731.14
Tl 190.794	Tl	-21.65	ug/L	-7.41	-21.84	-20.08	-24.23
V 292.401	V	183.85	ug/L	3400.41	194.74	183.98	177.51
Zn 206.200	Zn	487.7	ug/L	1557.17	492.3	493.32	478.34

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484538001\_3245****Analysis Time: 5/11/2022 10:02:26 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.78	Ratio	447621.26	0.72	0.8	0.81
Ag 328.068	Ag	2.93	ug/L	-1021.82	3.01	2.21	3.19
Al 396.152	Al	816.47	ug/L	26240.73	891.27	795.03	785.53
As 188.980	As	16.42	ug/L	15.34	20.71	20.2	15.28
B 249.678	B	383494.37	ug/L	3164168.24	408932.35	374765.68	371226.03
Ba 233.527	Ba	73.57	ug/L	3242.04	79.04	71.88	71.35
Be 234.861	Be	0.273	ug/L	-33.758	0.211	0.283	0.294
Ca 315.887	Ca	1145424.57	ug/L	6122900.42	1222354.9	1123297.01	1116080.09
Cd 214.439	Cd	-0.16	ug/L	4.06	-0.12	-0.15	-0.23
Co 228.615	Co	5.02	ug/L	229.8	7.93	4.87	4.63
Cr 267.716	Cr	4.46	ug/L	-360.18	3.33	5.16	4.8
Cu 327.395	Cu	4.19	ug/L	-1552.2	4.59	3.81	3.65
Fe 261.187	Fe	1568.55	ug/L	2995.24	1691.42	1532.82	1524.08
K 766.491	K	177933.11	ug/L	225767.73	189658.56	174640.79	173307.54
Li 670.783	Li	1167.17	ug/L	656737.13	1245.58	1144.66	1136.49
Mg 279.078	Mg	3867886.3	ug/L	10030650.74	4117759.28	3778893.45	3745469.66
Mn 257.610	Mn	36663.39	ug/L	4713612.72	39155.59	35838.59	35608.07
Mo 204.598	Mo	120.92	ug/L	460.75	130.79	119.43	115.97
Na 589.592	Na	1613111.15	ug/L	12838160.98	1719687.25	1579766.69	1570483.26
Ni 231.604	Ni	-2.12	ug/L	40.71	0.77	-5.46	0.03
P 213.618	P	146.38	ug/L	137.21	151.95	136.58	146.64
Pb 220.353	Pb	-21.85	ug/L	3.83	-22.54	-15.54	-22.4
S 181.972	S	2030117.56	ug/L	78127.13	2175234.59	1988981.89	1977015.94
Sb 206.834	Sb	31.88	ug/L	6.5	43.71	31.8	21.15
Se 196.026	Se	223.07	ug/L	151.01	239.62	199.43	225.33
Si 251.611	Si	23052.3	ug/L	39876.41	24492.9	22600.22	22493.52
Sn 189.925	Sn	-0.88	ug/L	0.37	0.08	-2.03	-2.49
Sr 421.552	Sr	5894.23	ug/L	13717463	6289.69	5766.22	5745.72
Ti 334.941	Ti	6.59	ug/L	17410.39	6.05	6.1	6.91
Tl 190.794	Tl	-67.75	ug/L	14.47	-68.08	-71.24	-66.18
V 292.401	V	5.6	ug/L	130.41	6.33	6.09	5.39
Zn 206.200	Zn	-22.52	ug/L	37.02	-23.45	-23.04	-23.59



## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: 30484538004\_3245****Analysis Time: 5/11/2022 10:04:24 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.79	Ratio	451245.38	0.73	0.8	0.81
Ag 328.068	Ag	3.25	ug/L	-1011.2	3.64	2.8	2.88
Al 396.152	Al	829.89	ug/L	26729.42	904.23	806.98	804.16
As 188.980	As	22.85	ug/L	19.15	21.31	29.61	24.96
B 249.678	B	380253.52	ug/L	3137429.44	404014.05	369101.88	373569.71
Ba 233.527	Ba	72.39	ug/L	3198	77.3	70.55	70.71
Be 234.861	Be	0.27	ug/L	-33.426	0.202	0.312	0.279
Ca 315.887	Ca	1182292.65	ug/L	6319978.24	1262215.16	1154341.12	1151698
Cd 214.439	Cd	-0.23	ug/L	2.7	-0.08	-0.34	-0.16
Co 228.615	Co	-13.36	ug/L	125.15	-11.31	-14.94	-14.76
Cr 267.716	Cr	4.68	ug/L	-308.09	4.11	5.03	4.81
Cu 327.395	Cu	4.5	ug/L	-1547.3	4.8	4.8	4.04
Fe 261.187	Fe	1566.52	ug/L	2991.36	1669.55	1527.55	1533.23
K 766.491	K	176885.48	ug/L	224452.29	188568.84	172729.71	173102.53
Li 670.783	Li	1123.34	ug/L	632394	1202.32	1096.85	1097.34
Mg 279.078	Mg	3862921.98	ug/L	10017776.76	4125449.98	3760611.2	3775789.01
Mn 257.610	Mn	34880.05	ug/L	4484340.08	37214.85	34115.91	34009.45
Mo 204.598	Mo	122.52	ug/L	466.63	128.09	121.66	119.15
Na 589.592	Na	1606707.79	ug/L	12787201.75	1708576.54	1572586.31	1571378.57
Ni 231.604	Ni	-10.91	ug/L	23.44	-11.68	-11.69	-9.13
P 213.618	P	137.55	ug/L	130.65	150.12	138.22	135.09
Pb 220.353	Pb	-20.18	ug/L	6.11	-23.68	-18.54	-21.47
S 181.972	S	2009057.02	ug/L	77316.63	2150796.9	1963783.09	1959543.54
Sb 206.834	Sb	19.84	ug/L	-2.94	12.76	21.92	17.86
Se 196.026	Se	245.06	ug/L	163.85	269.67	244.94	235.64
Si 251.611	Si	21425.99	ug/L	37077.3	22762.58	20951.38	20964.17
Sn 189.925	Sn	-1.18	ug/L	0.01	-5.61	-2.41	3.53
Sr 421.552	Sr	5915.53	ug/L	13767941.16	6309.23	5791.27	5774.39
Ti 334.941	Ti	6.17	ug/L	17301.81	5.92	6.39	6.15
Tl 190.794	Tl	-66.53	ug/L	11.98	-68.12	-67.45	-64.11
V 292.401	V	7.25	ug/L	164.05	7.76	7.08	7.46
Zn 206.200	Zn	-28.26	ug/L	20.35	-28.73	-26.88	-28.82

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484538006\_3245****Analysis Time: 5/11/2022 10:06:22 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.79	Ratio	453951.68	0.72	0.81	0.82
Ag 328.068	Ag	4.43	ug/L	-947.58	5.37	4.05	3.95
Al 396.152	Al	2624.24	ug/L	69037.19	2837.43	2544.57	2549.51
As 188.980	As	18.46	ug/L	16.36	14.21	21.5	23.28
B 249.678	B	403032.39	ug/L	3325365.35	434107.86	391917.38	391610.72
Ba 233.527	Ba	95.55	ug/L	4111.43	103.08	92.52	92.99
Be 234.861	Be	0.951	ug/L	51.072	0.974	0.944	0.927
Ca 315.887	Ca	900192.43	ug/L	4812017.47	970524.53	877582.24	874471.62
Cd 214.439	Cd	21.14	ug/L	446.08	22.6	20.86	20.41
Co 228.615	Co	161.07	ug/L	1122.09	174.72	155.76	157.15
Cr 267.716	Cr	8.96	ug/L	-446.11	7.98	9.43	9.33
Cu 327.395	Cu	19.26	ug/L	-1118.8	20.64	18.55	18.42
Fe 261.187	Fe	3925.61	ug/L	7209.7	4231.05	3814.68	3815.48
K 766.491	K	180905.74	ug/L	229506.68	194864.62	176438.29	175906.72
Li 670.783	Li	1151.26	ug/L	647482.07	1241.5	1123.95	1118.7
Mg 279.078	Mg	3972519.36	ug/L	10301994.8	4290042.14	3896513.78	3841147.42
Mn 257.610	Mn	48677.77	ug/L	6258234.56	52386.06	47317.71	47586.29
Mo 204.598	Mo	117.7	ug/L	452.23	127.07	115.9	113.64
Na 589.592	Na	1643821.54	ug/L	13082575.96	1771408.29	1599182.65	1598469.3
Ni 231.604	Ni	853.4	ug/L	1734.88	933.12	828.18	814.95
P 213.618	P	253.45	ug/L	218.04	268.44	243.97	253.28
Pb 220.353	Pb	-23.61	ug/L	3.89	-23.17	-21.13	-25.81
S 181.972	S	2101114.28	ug/L	80859.47	2270439	2048018.8	2043579.16
Sb 206.834	Sb	26.64	ug/L	2.2	32.99	26.35	17.92
Se 196.026	Se	321.25	ug/L	216	353.74	311.54	299.66
Si 251.611	Si	32188.22	ug/L	55606.28	34572.05	31334.91	31368.15
Sn 189.925	Sn	-1.47	ug/L	0.15	-3.85	-1.11	0.27
Sr 421.552	Sr	5878.11	ug/L	13671863.41	6319.95	5728.69	5718.3
Ti 334.941	Ti	22.35	ug/L	21269.82	23.33	21.97	21.88
Tl 190.794	Tl	-79.12	ug/L	25.58	-74.21	-79.4	-81.21
V 292.401	V	5.63	ug/L	122.25	5.61	5.59	5.74
Zn 206.200	Zn	232.17	ug/L	831.74	253.89	224.69	222.61

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484553001 3245****Analysis Time: 5/11/2022 10:08:20 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	587193.29	0.99	1.04	1.05
Ag 328.068	Ag	-0.37	ug/L	-1189.24	-1.31	-0.33	0.28
Al 396.152	Al	83.52	ug/L	2403.16	86.59	81.79	81.41
As 188.980	As	3.08	ug/L	5.46	0.81	0.48	5.84
B 249.678	B	1397.94	ug/L	11544.76	1634.06	1389.15	1300.89
Ba 233.527	Ba	11.51	ug/L	462.53	11.91	11.44	11.39
Be 234.861	Be	-0.04	ug/L	-3.169	-0.005	-0.069	-0.046
Ca 315.887	Ca	6290.26	ug/L	33697.6	6541.71	6223.52	6145.37
Cd 214.439	Cd	-0.02	ug/L	1.97	0.03	0.06	-0.12
Co 228.615	Co	0.2	ug/L	9.4	-0.6	0.68	-0.42
Cr 267.716	Cr	6.27	ug/L	254.7	6.52	6.2	6.13
Cu 327.395	Cu	6.38	ug/L	-1496.37	4.91	6.86	7.47
Fe 261.187	Fe	351.09	ug/L	601	360.34	349.46	346.07
K 766.491	K	1160.97	ug/L	1877.92	1231.53	1147.61	1130.21
Li 670.783	Li	-1.27	ug/L	10838.98	-0.39	-1.59	-1.73
Mg 279.078	Mg	1089.18	ug/L	2859.08	1348.83	1142.1	957.22
Mn 257.610	Mn	7.47	ug/L	966.06	10.76	8.21	5.93
Mo 204.598	Mo	2.93	ug/L	3.72	2.13	3.1	2.79
Na 589.592	Na	226455.63	ug/L	1802081.55	234112.2	223909.63	222808.58
Ni 231.604	Ni	-0.04	ug/L	4.33	-0.78	1.09	0.2
P 213.618	P	262.96	ug/L	194.46	268.16	262.51	259.66
Pb 220.353	Pb	1.69	ug/L	5.97	1.71	1.48	3.56
S 181.972	S	3805.69	ug/L	147.46	4127.76	3751.52	3659.17
Sb 206.834	Sb	-0.4	ug/L	1.96	0.7	-2.62	2.47
Se 196.026	Se	5.59	ug/L	5.4	8.63	9.1	1.3
Si 251.611	Si	7830.29	ug/L	13497.57	8098.44	7721.59	7706.75
Sn 189.925	Sn	-1.24	ug/L	1.33	-2.65	-1.24	1.06
Sr 421.552	Sr	21.13	ug/L	49291.98	22.18	20.88	20.63
Ti 334.941	Ti	1.24	ug/L	16471.36	3.56	0.34	0.05
Tl 190.794	Tl	0.35	ug/L	-2.15	0.38	-1.16	0.1
V 292.401	V	0.98	ug/L	16.94	1.06	0.47	1.53
Zn 206.200	Zn	10.99	ug/L	33.48	11.41	10.52	10.63

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484560001\_3245****Analysis Time: 5/11/2022 10:10:18 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	607928.57	1.06	1.06	1.06
Ag 328.068	Ag	-0.07	ug/L	-1177.18	0.05	-0.21	0.12
Al 396.152	Al	69.54	ug/L	2099.34	69.01	69.15	69.95
As 188.980	As	1.6	ug/L	4.62	3.94	3.31	-1
B 249.678	B	200.78	ug/L	1666.96	217.06	208.88	195.27
Ba 233.527	Ba	32.41	ug/L	1308.41	31.98	32.29	32.78
Be 234.861	Be	-0.062	ug/L	-7.248	-0.029	-0.106	-0.056
Ca 315.887	Ca	14649.6	ug/L	78382.46	14426.03	14737.57	14706.14
Cd 214.439	Cd	0	ug/L	2.6	-0.02	0.03	-0.06
Co 228.615	Co	-0.37	ug/L	5.86	0.15	-0.7	-0.92
Cr 267.716	Cr	0.33	ug/L	40.04	0.04	0.54	0.42
Cu 327.395	Cu	1.42	ug/L	-1630.85	1.44	1.66	1.22
Fe 261.187	Fe	505.73	ug/L	876.72	499.12	503.96	508.86
K 766.491	K	738.43	ug/L	1346.8	719.54	719.92	756.78
Li 670.783	Li	-1.91	ug/L	10476.52	-1.9	-1.91	-1.99
Mg 279.078	Mg	2459.82	ug/L	6413.69	2324.31	2439.85	2560.63
Mn 257.610	Mn	34.81	ug/L	4480.62	33.4	34.86	35.61
Mo 204.598	Mo	0.59	ug/L	-4.99	0.72	0.19	0.56
Na 589.592	Na	1741.46	ug/L	13722.18	1708.65	1753.81	1762.99
Ni 231.604	Ni	0.1	ug/L	4.63	-0.27	2.23	-0.87
P 213.618	P	12.88	ug/L	2.85	15.62	13.47	7.29
Pb 220.353	Pb	-0.86	ug/L	2.02	-1.76	-0.31	0.25
S 181.972	S	3809.45	ug/L	147.62	3727.14	3855.39	3846.15
Sb 206.834	Sb	-0.46	ug/L	1.88	0.57	0.12	2.9
Se 196.026	Se	7.71	ug/L	6.71	4.28	8.42	6.66
Si 251.611	Si	2369.35	ug/L	4102.84	2346.53	2373.43	2386.14
Sn 189.925	Sn	-2.68	ug/L	-0.21	-1.38	-3.71	-2.48
Sr 421.552	Sr	43.02	ug/L	100327.78	42.52	42.96	43.28
Ti 334.941	Ti	-0.15	ug/L	16132.1	-0.06	-0.07	-0.3
Tl 190.794	Tl	-1.78	ug/L	-4.15	-2.1	-2.47	-0.02
V 292.401	V	0.26	ug/L	3.22	0.12	0.13	0.34
Zn 206.200	Zn	4.31	ug/L	12.72	3.98	4.64	4.68

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484581001 3245****Analysis Time: 5/11/2022 10:12:16 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598198.24	1.04	1.05	1.04
Ag 328.068	Ag	-0.16	ug/L	-1180.77	-0.03	-0.14	-0.1
Al 396.152	Al	31.91	ug/L	1243.06	31.05	32.45	32.38
As 188.980	As	5.17	ug/L	6.75	4.05	3.05	9.02
B 249.678	B	234.34	ug/L	1944.11	244.54	235.22	231.84
Ba 233.527	Ba	29.05	ug/L	1173.72	28.88	28.99	29.23
Be 234.861	Be	-0.035	ug/L	-1.339	-0.013	-0.053	-0.046
Ca 315.887	Ca	28648.7	ug/L	153214.54	28534.22	28571.07	28731.83
Cd 214.439	Cd	0.03	ug/L	2.96	0.02	0.08	0.04
Co 228.615	Co	0.09	ug/L	9.65	0.57	-0.47	0
Cr 267.716	Cr	0.17	ug/L	34.64	0.21	0.13	0.22
Cu 327.395	Cu	5.11	ug/L	-1531.29	5.25	5.13	4.8
Fe 261.187	Fe	79.65	ug/L	116.86	76.32	79.57	82.07
K 766.491	K	4857.68	ug/L	6544.06	4868.84	4834.04	4885.89
Li 670.783	Li	-1.85	ug/L	10501.76	-1.76	-1.88	-1.84
Mg 279.078	Mg	4233.98	ug/L	11014.78	4227.15	4212.31	4290.8
Mn 257.610	Mn	11.75	ug/L	1515.71	11.82	11.94	11.76
Mo 204.598	Mo	0.57	ug/L	-5.06	0.21	0.98	0.93
Na 589.592	Na	23743.18	ug/L	188819.54	23688.69	23680.36	23846.09
Ni 231.604	Ni	2.04	ug/L	8.47	3.93	0.73	0.08
P 213.618	P	1873.72	ug/L	1430.35	1874.18	1859.71	1888.5
Pb 220.353	Pb	-0.38	ug/L	2.79	-1.15	1.19	0.49
S 181.972	S	6221.5	ug/L	240.45	6179.79	6312.75	6218.4
Sb 206.834	Sb	-0.46	ug/L	1.85	-2.89	0.56	-0.76
Se 196.026	Se	3.41	ug/L	4.08	1.1	5.43	6.03
Si 251.611	Si	248.08	ug/L	453.68	246.85	251.04	246.91
Sn 189.925	Sn	-2.15	ug/L	0.34	-3.26	-0.73	-0.71
Sr 421.552	Sr	85.24	ug/L	198725.73	84.85	85	85.81
Ti 334.941	Ti	-0.03	ug/L	16156.88	0.1	-0.32	0.05
Tl 190.794	Tl	-2.21	ug/L	-4.56	-3.88	-1.22	-0.52
V 292.401	V	0.56	ug/L	9.83	0.28	0.62	0.46
Zn 206.200	Zn	32.51	ug/L	102.19	31.83	33.53	32.49

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2433192\_3245****Analysis Time: 5/11/2022 10:14:14 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	590298.13	1.03	1.03	1.03
Ag 328.068	Ag	515.43	ug/L	19785.98	511.29	514.55	517.37
Al 396.152	Al	2123.09	ug/L	53982.85	2095.26	2132.91	2129.22
As 188.980	As	2032.36	ug/L	1197.96	2012.33	2035.47	2048.62
B 249.678	B	2303.51	ug/L	19022.47	2283.58	2304.14	2311.99
Ba 233.527	Ba	2052.8	ug/L	83015.69	2034.1	2050.23	2062.84
Be 234.861	Be	512.606	ug/L	76078.17	507.527	512.125	515.014
Ca 315.887	Ca	71089.26	ug/L	380118.73	70301.47	70929.64	71473.99
Cd 214.439	Cd	1012.35	ug/L	20974.79	1002.87	1013.09	1016.3
Co 228.615	Co	2062.12	ug/L	12019.19	2039.48	2060.01	2075.36
Cr 267.716	Cr	2047.8	ug/L	73808.71	2027.06	2042.25	2058.1
Cu 327.395	Cu	2049.89	ug/L	53908.58	2020.83	2056.99	2055.01
Fe 261.187	Fe	2160.76	ug/L	3814.21	2138.13	2161.41	2173.52
K 766.491	K	26015.75	ug/L	33286.96	25843.29	26005.37	26064.27
Li 670.783	Li	2068.28	ug/L	1159754.19	2056.77	2061.35	2075.99
Mg 279.078	Mg	24640.76	ug/L	63936.21	24291.41	24675.5	24741.83
Mn 257.610	Mn	2054.66	ug/L	264254.13	2029.22	2055.12	2062.73
Mo 204.598	Mo	2024.78	ug/L	7548.87	2002.2	2021.07	2036.65
Na 589.592	Na	44644.82	ug/L	359047.17	44180.81	44713.05	44753.68
Ni 231.604	Ni	1998.91	ug/L	3960.7	1978.06	1995.19	2008.73
P 213.618	P	43091.34	ug/L	32985.02	42843.57	43046.48	43407.34
Pb 220.353	Pb	1989.82	ug/L	3111.08	1970.77	1982.75	2005.07
S 181.972	S	8175.14	ug/L	315.7	8009.91	8228.73	8207.31
Sb 206.834	Sb	2058.15	ug/L	1595.82	2038.61	2045.4	2073.04
Se 196.026	Se	2000.93	ug/L	1241.14	1984.55	1987.9	2009.92
Si 251.611	Si	11091.02	ug/L	19163.27	10902.27	11086.98	11162.59
Sn 189.925	Sn	2054.74	ug/L	2185.05	2023.61	2065.39	2063.24
Sr 421.552	Sr	2132.52	ug/L	4951901.58	2112.51	2130.16	2144.6
Ti 334.941	Ti	2049.48	ug/L	511990.56	2030.26	2044.42	2061.27
Tl 190.794	Tl	1979.15	ug/L	1908.41	1944.93	1978.18	1988.58
V 292.401	V	2064.12	ug/L	40008.23	2044.44	2058.34	2075.79
Zn 206.200	Zn	2046.13	ug/L	6454.66	2022.38	2033.95	2073.63

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2433193\_3245****Analysis Time: 5/11/2022 10:16:13 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	577980.78	0.96	1.03	1.02
Ag 328.068	Ag	524.79	ug/L	20166.37	542.56	516.1	519.9
Al 396.152	Al	2159.81	ug/L	54913.08	2239.34	2107.77	2146.59
As 188.980	As	2060.8	ug/L	1214.81	2129.01	2014.58	2051.37
B 249.678	B	2321.1	ug/L	19167.56	2421.3	2279.72	2290.82
Ba 233.527	Ba	2091.23	ug/L	84569.81	2167.09	2053.6	2071.88
Be 234.861	Be	522.496	ug/L	77545.725	541.274	513.153	517.164
Ca 315.887	Ca	72207.83	ug/L	386098.7	74530.57	70949.73	71617.12
Cd 214.439	Cd	1028.91	ug/L	21317.88	1065.98	1009.85	1019.47
Co 228.615	Co	2098.62	ug/L	12230.3	2171.93	2061.04	2080.21
Cr 267.716	Cr	2086.19	ug/L	75191.81	2160.68	2047.24	2068.41
Cu 327.395	Cu	2087.24	ug/L	54921.26	2155.56	2038.12	2080.38
Fe 261.187	Fe	2195.34	ug/L	3875.78	2272.33	2158.69	2169.78
K 766.491	K	26407.87	ug/L	33782.54	27389.89	25998.09	26131.01
Li 670.783	Li	2108.79	ug/L	1182251.31	2184	2072.06	2087.4
Mg 279.078	Mg	25037.52	ug/L	64965.18	26021.83	24476.18	24913.76
Mn 257.610	Mn	2092.62	ug/L	269136.39	2172.19	2043.99	2074.51
Mo 204.598	Mo	2065.31	ug/L	7700.11	2122.85	2018.25	2058.46
Na 589.592	Na	45234.57	ug/L	363814.39	46966.57	44499.28	44705.98
Ni 231.604	Ni	2027.08	ug/L	4016.46	2099.35	1995.36	2007.58
P 213.618	P	43858.52	ug/L	33572.34	45433.62	42948.66	43551.67
Pb 220.353	Pb	2020.97	ug/L	3159.71	2093.54	1983.97	1999.48
S 181.972	S	8255.74	ug/L	318.8	8758.19	8108.94	8075.63
Sb 206.834	Sb	2089.36	ug/L	1619.54	2153.08	2061.68	2066.26
Se 196.026	Se	2023.1	ug/L	1254.87	2096.14	1988	2003.71
Si 251.611	Si	11321.58	ug/L	19560.98	11670.22	11132.69	11224.42
Sn 189.925	Sn	2095.19	ug/L	2228.01	2170.38	2063.57	2065.01
Sr 421.552	Sr	2174.56	ug/L	5049514.65	2252.74	2139.81	2152.34
Ti 334.941	Ti	2080.12	ug/L	519402.2	2149.45	2035.75	2072.93
Tl 190.794	Tl	2010.06	ug/L	1938.22	2055.58	1968.6	2000.73
V 292.401	V	2102.37	ug/L	40751.19	2175.35	2066.1	2081.91
Zn 206.200	Zn	2072.54	ug/L	6538.03	2139.3	2015.68	2067.47

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429657\_3244****Analysis Time: 5/11/2022 10:18:11 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	606298.95	1.02	1.07	1.07
Ag 328.068	Ag	0.1	ug/L	-1170.1	-0.58	0.71	0.1
Al 396.152	Al	3.6	ug/L	425.8	3.98	2.89	3.87
As 188.980	As	2.04	ug/L	4.86	5.37	5.6	-2.76
B 249.678	B	51.97	ug/L	439.18	60.44	52.17	49.01
Ba 233.527	Ba	0.3	ug/L	8.49	0.3	0.43	0.35
Be 234.861	Be	-0.005	ug/L	3.5	0.016	0.001	-0.038
Ca 315.887	Ca	23.12	ug/L	196.51	26.58	22.63	21.73
Cd 214.439	Cd	-0.02	ug/L	1.91	0	-0.02	-0.05
Co 228.615	Co	-0.2	ug/L	6.8	0.72	-0.62	-0.23
Cr 267.716	Cr	0.35	ug/L	41.39	0.53	0.29	0.26
Cu 327.395	Cu	1.21	ug/L	-1636.37	-0.39	1.87	1.73
Fe 261.187	Fe	6.03	ug/L	-14.2	7.78	7.76	5.13
K 766.491	K	-0.88	ug/L	411.68	7.18	-18.58	31.51
Li 670.783	Li	-1.89	ug/L	10498.73	-1.11	-2.15	-2.04
Mg 279.078	Mg	6.64	ug/L	51.63	5.39	6.22	9.87
Mn 257.610	Mn	0.32	ug/L	46.17	0.31	0.33	0.33
Mo 204.598	Mo	2.47	ug/L	2	1.67	1.88	2.53
Na 589.592	Na	57.8	ug/L	259.42	58.65	55.86	61.11
Ni 231.604	Ni	0.34	ug/L	5.07	0.62	-0.03	0.03
P 213.618	P	9.37	ug/L	0.03	7.99	7.52	13.48
Pb 220.353	Pb	-2.52	ug/L	-0.63	-4.59	-2.88	-2.21
S 181.972	S	15.51	ug/L	1.6	46.48	-4.17	15.62
Sb 206.834	Sb	2.69	ug/L	4.32	3.96	0.94	-0.6
Se 196.026	Se	3.58	ug/L	4.19	3.06	7.24	-0.31
Si 251.611	Si	36.07	ug/L	88.46	47.22	36.59	30.69
Sn 189.925	Sn	-2.97	ug/L	-0.5	-1.29	-2.92	-4.79
Sr 421.552	Sr	0.28	ug/L	719.58	0.33	0.28	0.27
Ti 334.941	Ti	0.5	ug/L	16292.08	2.04	0.13	-0.22
Tl 190.794	Tl	2.13	ug/L	-0.45	3.91	-1.28	4.16
V 292.401	V	0.45	ug/L	7.58	0.08	0.68	0.32
Zn 206.200	Zn	0.91	ug/L	1.46	1.04	1.15	0.64



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 10:20:10 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	582812.1	1	1.03	1.02
Ag 328.068	Ag	1003.74	ug/L	40079.97	1013.34	989.69	1004.6
Al 396.152	Al	9794.88	ug/L	241089.86	9888.01	9655.66	9799.79
As 188.980	As	2008.69	ug/L	1184.1	2014.08	1991.04	2018.19
B 249.678	B	2111.15	ug/L	17431.68	2131.22	2087.88	2107.67
Ba 233.527	Ba	2052.24	ug/L	82990.25	2075.33	2024.55	2050.3
Be 234.861	Be	2001.395	ug/L	297040.143	2019.946	1974.471	2000.496
Ca 315.887	Ca	10168.4	ug/L	54454.01	10297.43	10014.37	10147.83
Cd 214.439	Cd	2021.32	ug/L	41884.57	2055.25	1975.08	2046.79
Co 228.615	Co	2064.4	ug/L	12023.57	2086.06	2036.02	2062.8
Cr 267.716	Cr	2025.72	ug/L	73015.7	2045.11	1996.98	2025.75
Cu 327.395	Cu	1965.8	ug/L	51631.48	1985.09	1939.75	1966.28
Fe 261.187	Fe	9987.22	ug/L	17769.1	10071.6	9858.8	9978.77
K 766.491	K	9785.14	ug/L	12806.28	9934.91	9665.37	9773.79
Li 670.783	Li	1904.11	ug/L	1068472.93	1928.41	1881.62	1899.63
Mg 279.078	Mg	9996.47	ug/L	25958.14	10087.9	9860.19	10002.97
Mn 257.610	Mn	2028.84	ug/L	260954.69	2046.77	2000.45	2030.29
Mo 204.598	Mo	1943.34	ug/L	7246.15	1944.86	1915.52	1963.13
Na 589.592	Na	10008.13	ug/L	83380.21	10145.21	9872.83	9997.82
Ni 231.604	Ni	2004.9	ug/L	3972.57	2026.59	1977.75	2004.28
P 213.618	P	2017.67	ug/L	1478.92	2006.72	1998.17	2048.2
Pb 220.353	Pb	2018.65	ug/L	3154.86	2037.06	1996.71	2011.21
S 181.972	S	9771.84	ug/L	377.06	9882.3	9541.32	9803.78
Sb 206.834	Sb	2004.88	ug/L	1554.9	2028.84	1973.78	2012.96
Se 196.026	Se	2023.36	ug/L	1254.34	2035.79	2003.56	2022.62
Si 251.611	Si	10502.87	ug/L	18149.93	10580.38	10355.69	10508.31
Sn 189.925	Sn	1979.63	ug/L	2106.14	2002.77	1956.67	1978.25
Sr 421.552	Sr	2046.68	ug/L	4750731.16	2064.6	2017.54	2054.47
Ti 334.941	Ti	1991.42	ug/L	497956.4	2011.19	1955.96	1994.89
Tl 190.794	Tl	2089.32	ug/L	2014.94	2107.74	2070.46	2077.33
V 292.401	V	2010.06	ug/L	38952.95	2027.67	1984.21	2008.94
Zn 206.200	Zn	2030.76	ug/L	6403.53	2035.08	2002.58	2042.29

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 10:22:09 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	591806.49	1.01	1.05	1.05
Ag 328.068	Ag	0.13	ug/L	-1168.94	-0.23	0.1	0.26
Al 396.152	Al	0.76	ug/L	356.19	0.72	1.22	0.17
As 188.980	As	4.44	ug/L	6.28	4.6	3.87	4.46
B 249.678	B	32.07	ug/L	274.99	36.24	32.19	29.76
Ba 233.527	Ba	0.37	ug/L	11.15	0.61	0.22	0.38
Be 234.861	Be	0.163	ug/L	28.552	0.273	0.187	0.086
Ca 315.887	Ca	6.57	ug/L	108.07	7.8	3.94	7.27
Cd 214.439	Cd	0.23	ug/L	7.01	0.21	0.32	0.27
Co 228.615	Co	0.1	ug/L	8.53	-0.1	-1	0.49
Cr 267.716	Cr	0.09	ug/L	31.87	0.31	-0.19	0.22
Cu 327.395	Cu	0.83	ug/L	-1646.41	-0.29	1.71	1.29
Fe 261.187	Fe	3.59	ug/L	-18.54	4.31	1.83	4.12
K 766.491	K	11.34	ug/L	427.1	53.85	-15.58	-2.51
Li 670.783	Li	-1.32	ug/L	10813.85	-0.77	-1.6	-1.74
Mg 279.078	Mg	15.86	ug/L	75.54	8.63	11.97	20.11
Mn 257.610	Mn	0.51	ug/L	70.63	0.43	0.52	0.5
Mo 204.598	Mo	2.12	ug/L	0.7	1.68	1.52	3.04
Na 589.592	Na	42.68	ug/L	139.23	39.86	44.35	42.43
Ni 231.604	Ni	0.38	ug/L	5.14	-0.13	-0.03	0.66
P 213.618	P	-2.7	ug/L	-9.22	1.5	-0.18	-10.74
Pb 220.353	Pb	-1.46	ug/L	1.03	-1.2	-1.84	1.26
S 181.972	S	6.72	ug/L	1.27	-21.11	0.74	-8.57
Sb 206.834	Sb	-1.64	ug/L	0.96	4.67	-7.9	2.75
Se 196.026	Se	4.44	ug/L	4.72	4.98	4.49	4.44
Si 251.611	Si	5.03	ug/L	35.06	9.91	6.73	0.89
Sn 189.925	Sn	-1.6	ug/L	0.95	-0.62	-0.83	-2.85
Sr 421.552	Sr	0.3	ug/L	776.79	0.36	0.3	0.29
Ti 334.941	Ti	0.38	ug/L	16263.6	1.93	-0.22	-0.65
Tl 190.794	Tl	0.48	ug/L	-2.03	-2.42	1.1	1.51
V 292.401	V	0.27	ug/L	4.01	0.94	-0.05	0.52
Zn 206.200	Zn	0.72	ug/L	0.87	1.53	0.05	0.22

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429658\_3244****Analysis Time: 5/11/2022 10:24:08 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	579758.69	1	1.01	1.02
Ag 328.068	Ag	496.39	ug/L	19011.71	496.61	495.95	497.04
Al 396.152	Al	2007.97	ug/L	50979.86	2015.16	1998.21	2008.46
As 188.980	As	1933.97	ug/L	1140.11	1933.63	1928.22	1938.2
B 249.678	B	2039.49	ug/L	16843.6	2040.89	2038.35	2044.09
Ba 233.527	Ba	1962.94	ug/L	79379.35	1966.5	1959.75	1965.4
Be 234.861	Be	496.03	ug/L	73618.437	496.634	495.211	496.393
Ca 315.887	Ca	41131.34	ug/L	219977.87	41214.22	41065.86	41201.8
Cd 214.439	Cd	985.47	ug/L	20417.93	986.54	982.79	987.4
Co 228.615	Co	2018.85	ug/L	11764.75	2022.48	2017.31	2021.23
Cr 267.716	Cr	1986.55	ug/L	71602.02	1989	1983.24	1989.33
Cu 327.395	Cu	1973.58	ug/L	51840.74	1978	1969.18	1967.16
Fe 261.187	Fe	2021.88	ug/L	3567.4	2026.33	2017.55	2025.04
K 766.491	K	19895.28	ug/L	25561.38	19996.48	19910.74	19873.73
Li 670.783	Li	1935.07	ug/L	1085756.93	1945.88	1932.05	1936.9
Mg 279.078	Mg	19929.52	ug/L	51718.19	19878.82	19854.45	19926.24
Mn 257.610	Mn	1992.79	ug/L	256296.43	1989.65	1994.19	1986.73
Mo 204.598	Mo	1942.17	ug/L	7240.7	1950.74	1939.88	1948.88
Na 589.592	Na	20039.52	ug/L	163048.29	20110.45	20016.35	20069.91
Ni 231.604	Ni	1956.16	ug/L	3876.06	1956.91	1955.57	1952.47
P 213.618	P	39583.93	ug/L	30296.62	39666.48	39511.99	39517.95
Pb 220.353	Pb	1936.7	ug/L	3028.05	1941.4	1939.37	1931.22
S 181.972	S	1971.36	ug/L	76.93	1897.65	2001.56	1974.92
Sb 206.834	Sb	1974.74	ug/L	1531.07	1966.98	1975.59	1985.45
Se 196.026	Se	1926.42	ug/L	1195	1930.99	1923.64	1930.04
Si 251.611	Si	10446.53	ug/L	18051.9	10400.86	10423.07	10498.31
Sn 189.925	Sn	1994.44	ug/L	2121.04	1998.91	1994.7	1995.62
Sr 421.552	Sr	1987.29	ug/L	4613945	1995.71	1982.86	1991.49
Ti 334.941	Ti	1972.11	ug/L	493278.19	1965.22	1979.94	1980.62
Tl 190.794	Tl	1929.93	ug/L	1861.05	1911.96	1924.5	1939.55
V 292.401	V	1985.73	ug/L	38490.5	1989.66	1981.39	1989.88
Zn 206.200	Zn	1958.84	ug/L	6178.26	1960	1946.12	1966.09

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483690001 3244****Analysis Time: 5/11/2022 10:26:06 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	579463.71	1	1.01	1.01
Ag 328.068	Ag	-0.46	ug/L	-1192.62	-0.12	-0.5	-0.68
Al 396.152	Al	36.43	ug/L	2682.96	33.39	37.46	41.15
As 188.980	As	27.83	ug/L	20.52	25.59	24.09	33.29
B 249.678	B	476.8	ug/L	3946.63	475.18	477.19	478.96
Ba 233.527	Ba	32.7	ug/L	1346.67	32.62	32.74	32.96
Be 234.861	Be	0.015	ug/L	4.626	0.012	0.031	0.041
Ca 315.887	Ca	320179.08	ug/L	1711590.19	320560.63	318249.75	321738.2
Cd 214.439	Cd	0.05	ug/L	3.54	0.03	0.06	0.03
Co 228.615	Co	-3.7	ug/L	8.98	-3.44	-3.81	-3.57
Cr 267.716	Cr	-0.06	ug/L	18.08	-0.06	0.09	-0.15
Cu 327.395	Cu	1.48	ug/L	-1637.32	1.8	1.56	1.13
Fe 261.187	Fe	224.71	ug/L	371.87	222.93	222.06	228.5
K 766.491	K	64381.87	ug/L	81661.44	64327.12	64347.21	64543.02
Li 670.783	Li	352.2	ug/L	207209.84	351.29	351.87	354.11
Mg 279.078	Mg	23546.46	ug/L	61101.88	23320.56	23623.18	23790.22
Mn 257.610	Mn	523.34	ug/L	67287.77	522.62	520.89	525.98
Mo 204.598	Mo	10.95	ug/L	33.72	9.2	12.65	10.53
Na 589.592	Na	87711.05	ug/L	697958.35	87373.23	87734.96	88081.69
Ni 231.604	Ni	0.4	ug/L	5.43	-0.04	1.84	0.8
P 213.618	P	14.96	ug/L	6.91	5.61	17.67	19.86
Pb 220.353	Pb	-3.73	ug/L	-1.76	-6.55	2.03	-3.53
S 181.972	S	273363.08	ug/L	10520.86	271365.67	273351.97	274648.7
Sb 206.834	Sb	1.41	ug/L	2.89	1.11	3.99	-0.35
Se 196.026	Se	4.42	ug/L	4.84	2.83	6.24	7.04
Si 251.611	Si	5259.23	ug/L	9079.69	5237.49	5251.55	5285.11
Sn 189.925	Sn	-2.07	ug/L	0.1	-1.17	-5.23	-0.4
Sr 421.552	Sr	1424.4	ug/L	3315507.32	1420.78	1422.27	1430.94
Ti 334.941	Ti	0.46	ug/L	16201.75	0.21	0.43	0.63
Tl 190.794	Tl	3.57	ug/L	2.13	4.57	2.32	5.54
V 292.401	V	1.76	ug/L	31.54	1.54	1.71	1.9
Zn 206.200	Zn	-0.68	ug/L	8.33	-0.19	-0.9	-0.53

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429784\_3244****Analysis Time: 5/11/2022 10:28:04 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		571259.65	0.99	1	1
Ag 328.068	Ag	535.71	ug/L	20611.22	532.11	534.66	537.67
Al 396.152	Al	2232.53	ug/L	58147.58	2216.5	2223.35	2240.76
As 188.980	As	2160.78	ug/L	1274.53	2147.16	2157.32	2157.13
B 249.678	B	2706.87	ug/L	22352.53	2685.18	2700.47	2717.7
Ba 233.527	Ba	2042.05	ug/L	82608.69	2029.72	2032.14	2048.89
Be 234.861	Be	529.762	ug/L	78622.851	526.316	527.311	531.642
Ca 315.887	Ca	390506.26	ug/L	2087562.3	387474.38	390628.21	392077.65
Cd 214.439	Cd	989.06	ug/L	20492.38	983.44	984.58	993.46
Co 228.615	Co	2052.69	ug/L	11987.22	2039.55	2043.35	2061.98
Cr 267.716	Cr	2047.36	ug/L	73784.15	2032.62	2041.17	2054.87
Cu 327.395	Cu	2128.82	ug/L	56038.16	2129.65	2110.45	2133.18
Fe 261.187	Fe	2353.46	ug/L	4153.95	2330.91	2348.09	2361.82
K 766.491	K	93886.63	ug/L	118935.07	93476.91	93654.66	94025.15
Li 670.783	Li	2753.72	ug/L	1540734.84	2740.71	2744.8	2760.96
Mg 279.078	Mg	46582.78	ug/L	120842.99	46476.82	46308.52	46590.18
Mn 257.610	Mn	2615.37	ug/L	336343.51	2592.67	2605.18	2638.67
Mo 204.598	Mo	2078.88	ug/L	7750.62	2054.46	2063.49	2110.04
Na 589.592	Na	118894.12	ug/L	949988.42	118314.82	118449.67	119079.8
Ni 231.604	Ni	1976.91	ug/L	3917.39	1960.81	1973.31	1983.1
P 213.618	P	43128.03	ug/L	33013.67	42904.62	43093.83	43224.29
Pb 220.353	Pb	1958.76	ug/L	3063.2	1945.82	1958.12	1961.26
S 181.972	S	304416.46	ug/L	11715.94	302754.19	303106.43	305672.22
Sb 206.834	Sb	2157.56	ug/L	1671.5	2141.22	2140.13	2161.85
Se 196.026	Se	2067.63	ug/L	1282.56	2055.66	2052.06	2087.62
Si 251.611	Si	16933.14	ug/L	29220.48	16730.45	16872.12	17044.33
Sn 189.925	Sn	2057.06	ug/L	2187.1	2043.19	2050.45	2063.65
Sr 421.552	Sr	3579.47	ug/L	8319762.12	3558.38	3564.75	3587.81
Ti 334.941	Ti	2093.73	ug/L	522614.35	2060.89	2099.39	2111.37
Tl 190.794	Tl	1934.35	ug/L	1865.97	1909.04	1928.11	1941.12
V 292.401	V	2102.3	ug/L	40749.62	2088.54	2094.9	2108.13
Zn 206.200	Zn	1955.04	ug/L	6179.43	1941.42	1938.83	1982.25

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429785\_3244****Analysis Time: 5/11/2022 10:30:02 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		572079.83	0.99	1	1
Ag 328.068	Ag	530.22	ug/L	20387.83	526.14	531.17	530.37
Al 396.152	Al	2210.29	ug/L	57577.77	2186.45	2215.67	2214.49
As 188.980	As	2136.95	ug/L	1260.49	2129.99	2130.26	2145.27
B 249.678	B	2680.58	ug/L	22135.59	2659.66	2685.01	2682.07
Ba 233.527	Ba	2026.54	ug/L	81981.25	2009.38	2030.02	2028.21
Be 234.861	Be	525.106	ug/L	77931.906	520.722	525.748	525.2
Ca 315.887	Ca	388379.44	ug/L	2076193.07	385058.69	388853.09	389268.2
Cd 214.439	Cd	982.38	ug/L	20353.92	974.02	982.55	984.47
Co 228.615	Co	2038.47	ug/L	11903.96	2021.81	2038.93	2043.34
Cr 267.716	Cr	2030.49	ug/L	73176.37	2012.39	2033.48	2032.22
Cu 327.395	Cu	2111.32	ug/L	55563.88	2082.06	2124.15	2105.44
Fe 261.187	Fe	2338.11	ug/L	4126.71	2318.37	2341.19	2336.75
K 766.491	K	93235.99	ug/L	118113.63	92699.83	93452.82	93198.39
Li 670.783	Li	2728.74	ug/L	1526860.77	2711.12	2738.79	2725.91
Mg 279.078	Mg	46168.7	ug/L	119769.12	45616.33	46303.56	45968.85
Mn 257.610	Mn	2591.73	ug/L	333303.28	2580.91	2608.12	2561.61
Mo 204.598	Mo	2052.15	ug/L	7650.88	2014.99	2059.61	2048.06
Na 589.592	Na	118172.62	ug/L	944216.31	117352.08	118354.95	118105.49
Ni 231.604	Ni	1963.09	ug/L	3890.04	1945.78	1967.77	1961.01
P 213.618	P	42827.78	ug/L	32783.93	42524.76	43144.95	42657.88
Pb 220.353	Pb	1944.11	ug/L	3040.33	1935.29	1943.29	1942.46
S 181.972	S	302701.48	ug/L	11649.95	300346.17	303425.17	302134.39
Sb 206.834	Sb	2143.71	ug/L	1660.9	2122.68	2150.38	2139.92
Se 196.026	Se	2053.92	ug/L	1274.06	2038.83	2054.06	2055.95
Si 251.611	Si	16886.86	ug/L	29140.11	16708.67	16906.47	16920.66
Sn 189.925	Sn	2042.76	ug/L	2171.94	2020.31	2043.46	2047.52
Sr 421.552	Sr	3552.46	ug/L	8256993.67	3525.41	3557.06	3557.58
Ti 334.941	Ti	2057.64	ug/L	513880.91	2043.66	2059.91	2048.66
Tl 190.794	Tl	1924.83	ug/L	1856.87	1889.62	1932.67	1929.04
V 292.401	V	2083.13	ug/L	40378.34	2064.16	2086.76	2084.26
Zn 206.200	Zn	1936.68	ug/L	6121.45	1898.81	1944.52	1929.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483774001 3244****Analysis Time: 5/11/2022 10:32:00 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		574559.23	0.97	1.01	1.02
Ag 328.068	Ag	-0.33	ug/L	-1182.02	-0.78	-0.32	-0.49
Al 396.152	Al	24	ug/L	1279.87	24.4	24.31	23.95
As 188.980	As	11.27	ug/L	10.31	13.54	13.34	10.84
B 249.678	B	121.85	ug/L	1016.09	125.54	120.25	120.06
Ba 233.527	Ba	2058.58	ug/L	83259.23	2119.21	2048.86	2032.02
Be 234.861	Be	0.065	ug/L	10.407	-0.104	0.089	0.151
Ca 315.887	Ca	28777.82	ug/L	153904.85	29670.04	28681.17	28382.81
Cd 214.439	Cd	0.31	ug/L	8.77	0.04	0.62	0.35
Co 228.615	Co	11.48	ug/L	7.4	10.24	12.15	11.8
Cr 267.716	Cr	0.5	ug/L	45.68	0.32	0.83	0.26
Cu 327.395	Cu	8.79	ug/L	-1428.44	8.03	9.12	8.79
Fe 261.187	Fe	722.6	ug/L	1263.59	746.37	714.39	713.85
K 766.491	K	2521.32	ug/L	3603.73	2586.81	2508.87	2494.41
Li 670.783	Li	100.78	ug/L	67323.06	104.21	100.54	99.45
Mg 279.078	Mg	5567.21	ug/L	14472.19	5713.08	5533.23	5513.71
Mn 257.610	Mn	54.41	ug/L	7001.39	55.4	54.42	54.04
Mo 204.598	Mo	3.05	ug/L	4.58	3.87	2.59	3.54
Na 589.592	Na	275543.91	ug/L	2196666.78	284862.25	273696.63	271909.63
Ni 231.604	Ni	1.31	ug/L	6.98	2.63	1.76	-0.11
P 213.618	P	43.15	ug/L	26.1	43.33	48.27	40.69
Pb 220.353	Pb	1.73	ug/L	6.35	1.47	-1.81	0.92
S 181.972	S	904.11	ug/L	35.86	849.49	946.15	834.9
Sb 206.834	Sb	1.46	ug/L	3.38	0.24	-2.12	3.3
Se 196.026	Se	7.64	ug/L	6.74	7.97	11.49	6.74
Si 251.611	Si	4320.86	ug/L	7460.93	4460.25	4313.45	4268.8
Sn 189.925	Sn	-0.66	ug/L	1.96	-1.42	0.47	-1.46
Sr 421.552	Sr	744.79	ug/L	1729631.81	766.7	742.34	735.44
Ti 334.941	Ti	0.59	ug/L	16290.48	0.42	0.85	0.54
Tl 190.794	Tl	0.58	ug/L	-1.64	-1.44	1.3	0.75
V 292.401	V	0.75	ug/L	12.29	0.75	0.92	0.96
Zn 206.200	Zn	9.51	ug/L	29.65	8.69	10.8	9.28

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483905003 3244****Analysis Time: 5/11/2022 10:33:59 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	595662.27	1	1.05	1.05
Ag 328.068	Ag	-0.6	ug/L	-1198.45	-1.22	-0.54	-0.07
Al 396.152	Al	39.43	ug/L	1454.74	40.65	39.94	38.68
As 188.980	As	3.98	ug/L	6.06	9.78	2.08	5.65
B 249.678	B	138.32	ug/L	1151.85	143.37	136.45	137
Ba 233.527	Ba	31.1	ug/L	1257.17	32.08	30.69	30.91
Be 234.861	Be	-0.061	ug/L	-4.985	-0.05	-0.1	-0.059
Ca 315.887	Ca	35314.59	ug/L	188847.11	36108.31	34883.38	35198.11
Cd 214.439	Cd	-0.03	ug/L	1.69	-0.02	0.02	-0.08
Co 228.615	Co	-0.53	ug/L	6.41	-0.64	0.02	-0.58
Cr 267.716	Cr	0.23	ug/L	35.21	0.23	0.31	0.35
Cu 327.395	Cu	1.59	ug/L	-1626.66	-0.32	2.63	2.49
Fe 261.187	Fe	20.77	ug/L	11.76	20.61	22.02	20.06
K 766.491	K	8581.68	ug/L	11241.34	8868	8471.12	8529.35
Li 670.783	Li	12.01	ug/L	18200.43	13.06	11.63	11.72
Mg 279.078	Mg	3805.55	ug/L	9903.84	3907.72	3740.14	3832.03
Mn 257.610	Mn	107.26	ug/L	13794.99	109.85	105.85	106.93
Mo 204.598	Mo	0.37	ug/L	-5.79	-0.66	0.91	0.38
Na 589.592	Na	47351.88	ug/L	376715.46	48755.51	46814.48	46940.1
Ni 231.604	Ni	0.57	ug/L	5.55	0.64	0.77	1.3
P 213.618	P	268.12	ug/L	198.81	267.65	268.85	270.42
Pb 220.353	Pb	-0.9	ug/L	2	-1.34	-0.5	0.4
S 181.972	S	14090.03	ug/L	543.26	14564.97	13951.79	14009.61
Sb 206.834	Sb	0.19	ug/L	2.35	1.62	0.1	-0.43
Se 196.026	Se	1	ug/L	2.62	3.17	-0.68	0.43
Si 251.611	Si	3354.46	ug/L	5797.95	3425.81	3329.44	3352.67
Sn 189.925	Sn	-1.98	ug/L	0.51	-2.11	-3.69	-2.12
Sr 421.552	Sr	272.19	ug/L	632833.85	279.74	268.76	270.64
Ti 334.941	Ti	0.65	ug/L	16320.2	2.28	0.06	0.08
Tl 190.794	Tl	0.63	ug/L	-1.68	-3.31	3.38	3.23
V 292.401	V	1.66	ug/L	31.32	2	1.16	2.19
Zn 206.200	Zn	24.79	ug/L	78.06	24.99	24.77	23.78



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483913001\_3244****Analysis Time: 5/11/2022 10:35:57 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	591586.75	1.03	1.04	1.03
Ag 328.068	Ag	-0.12	ug/L	-1178.95	-0.21	0.33	-0.32
Al 396.152	Al	292.63	ug/L	7550.79	292.38	289.55	293.77
As 188.980	As	0.58	ug/L	4.02	-2.14	3.09	-1.26
B 249.678	B	19.14	ug/L	168.3	19.11	19.81	19.29
Ba 233.527	Ba	15.14	ug/L	610.42	15.51	15.13	14.99
Be 234.861	Be	-0.007	ug/L	0.633	-0.027	-0.023	-0.005
Ca 315.887	Ca	18440.8	ug/L	98648.71	18363.01	18285.48	18501.86
Cd 214.439	Cd	0.03	ug/L	3.34	-0.12	-0.11	0.07
Co 228.615	Co	0.03	ug/L	9.11	-0.18	0.43	-0.01
Cr 267.716	Cr	1.39	ug/L	78.34	1.4	1.36	1.35
Cu 327.395	Cu	11.48	ug/L	-1358.49	11.12	11.81	11.53
Fe 261.187	Fe	644.04	ug/L	1123.19	642.91	638.07	647.8
K 766.491	K	1494.22	ug/L	2300.05	1501.21	1501.4	1470.26
Li 670.783	Li	0.38	ug/L	11745.21	0.44	0.19	0.38
Mg 279.078	Mg	1057.81	ug/L	2777.91	1055.39	1046.55	1058.87
Mn 257.610	Mn	32.77	ug/L	4218.75	32.56	32.55	33.03
Mo 204.598	Mo	0.74	ug/L	-4.41	0.65	-0.56	1.53
Na 589.592	Na	90508.64	ug/L	720148.3	90733.1	89803.61	90817.72
Ni 231.604	Ni	0.48	ug/L	5.37	1.66	0.27	0.34
P 213.618	P	157.63	ug/L	113.66	154.29	150.41	161.67
Pb 220.353	Pb	1.72	ug/L	6.02	-0.59	4.3	1.49
S 181.972	S	4005.73	ug/L	155.18	4006.66	4041.25	3992.38
Sb 206.834	Sb	2.07	ug/L	3.86	2.77	3.39	1.41
Se 196.026	Se	2.71	ug/L	3.61	5.26	7.15	0.22
Si 251.611	Si	523.19	ug/L	926.8	524.34	516.35	525.43
Sn 189.925	Sn	-0.73	ug/L	1.86	0.33	-1.5	-2.32
Sr 421.552	Sr	75.46	ug/L	175729.54	75.47	74.93	75.72
Ti 334.941	Ti	2.4	ug/L	16748.45	2.38	2.22	2.31
Tl 190.794	Tl	-0.37	ug/L	-2.81	1.67	-2.19	1.32
V 292.401	V	2.1	ug/L	38.89	2.34	2.04	1.97
Zn 206.200	Zn	308.09	ug/L	970.9	308.2	306.59	306.95

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483913002\_3244****Analysis Time: 5/11/2022 10:37:55 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	601377.82	1.04	1.05	1.05
Ag 328.068	Ag	-0.27	ug/L	-1185.05	-0.44	-0.37	-0.07
Al 396.152	Al	268.95	ug/L	6977.81	266.15	267.93	271.5
As 188.980	As	4.16	ug/L	6.13	3.9	3.22	5.01
B 249.678	B	14.61	ug/L	130.95	15.32	15.12	13.98
Ba 233.527	Ba	11.09	ug/L	446.3	10.88	11.14	11.21
Be 234.861	Be	-0.082	ug/L	-9.45	-0.079	-0.085	-0.057
Ca 315.887	Ca	19489.87	ug/L	104256.5	19365.69	19506.33	19612.74
Cd 214.439	Cd	0.26	ug/L	7.88	0.17	0.32	0.27
Co 228.615	Co	-0.15	ug/L	8.29	-0.21	0.22	-0.86
Cr 267.716	Cr	1.61	ug/L	86.09	1.38	1.64	1.82
Cu 327.395	Cu	11.36	ug/L	-1361.74	11.19	11.1	11.6
Fe 261.187	Fe	449.74	ug/L	776.69	448.65	449.24	451.19
K 766.491	K	1688.83	ug/L	2545.67	1663.45	1725.18	1706.52
Li 670.783	Li	0.01	ug/L	11541.78	0.12	-0.07	0.1
Mg 279.078	Mg	791.23	ug/L	2086.59	776.59	782.05	807.4
Mn 257.610	Mn	30.76	ug/L	3959.79	30.63	30.67	30.93
Mo 204.598	Mo	0.78	ug/L	-4.25	1.22	0.38	1.4
Na 589.592	Na	33287.55	ug/L	264743.4	33139.52	33226.35	33444.41
Ni 231.604	Ni	1.94	ug/L	8.26	0.49	1.64	2.89
P 213.618	P	335.16	ug/L	249.86	323.38	341.83	349.63
Pb 220.353	Pb	1.4	ug/L	5.52	1.39	-0.36	4.36
S 181.972	S	2248.39	ug/L	87.55	2279.97	2226.03	2236.48
Sb 206.834	Sb	3.09	ug/L	4.64	-0.06	1.62	4.57
Se 196.026	Se	2.38	ug/L	3.42	9.18	-2.29	2.44
Si 251.611	Si	428.37	ug/L	763.69	425.68	429.41	429.39
Sn 189.925	Sn	-1.81	ug/L	0.71	-1.08	-4.07	-2.16
Sr 421.552	Sr	52.45	ug/L	122355.94	52.1	52.36	52.72
Ti 334.941	Ti	2.22	ug/L	16703.74	2.31	2.26	2.28
Tl 190.794	Tl	-2.75	ug/L	-5.1	-2.45	-4.49	-1.95
V 292.401	V	2.51	ug/L	47.1	2.1	2.72	2.72
Zn 206.200	Zn	219.9	ug/L	692.81	219.3	218.4	221.43

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483931006 3244****Analysis Time: 5/11/2022 10:39:53 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599234.74	1.04	1.05	1.05
Ag 328.068	Ag	-0.4	ug/L	-1199.92	-0.23	-0.49	-0.6
Al 396.152	Al	50.58	ug/L	2012.21	49.24	50.37	52.25
As 188.980	As	2.37	ug/L	5.07	-0.06	-2.91	6.88
B 249.678	B	25.79	ug/L	222.76	25.48	27.5	25.8
Ba 233.527	Ba	51.6	ug/L	2081.52	51.09	51.51	52.07
Be 234.861	Be	-0.121	ug/L	-19.085	-0.083	-0.122	-0.125
Ca 315.887	Ca	33609.3	ug/L	179730.86	33147.44	33565.51	33849.98
Cd 214.439	Cd	-0.09	ug/L	0.52	-0.07	-0.08	-0.08
Co 228.615	Co	1.68	ug/L	8.93	0.86	1.06	2.89
Cr 267.716	Cr	3.84	ug/L	166.39	3.64	4.05	3.99
Cu 327.395	Cu	4.71	ug/L	-1541.3	4.82	4.38	4.54
Fe 261.187	Fe	1069.27	ug/L	1880.64	1056.07	1065.7	1078.17
K 766.491	K	1512.2	ug/L	2331.07	1479.87	1537.32	1526.5
Li 670.783	Li	8.1	ug/L	15898.83	8.26	7.99	8.25
Mg 279.078	Mg	8087.79	ug/L	21009.1	7972.78	8077.27	8200.46
Mn 257.610	Mn	57.76	ug/L	7451.21	57.14	57.52	58.2
Mo 204.598	Mo	457.36	ug/L	1697.73	452.55	455.9	461.27
Na 589.592	Na	22010.21	ug/L	175075.67	21848.1	21922.17	22214.53
Ni 231.604	Ni	1.01	ug/L	6.51	0.72	2.43	1.51
P 213.618	P	2375.44	ug/L	1811.56	2348.4	2363.38	2395.66
Pb 220.353	Pb	-3.16	ug/L	-1.89	-1.07	-2.37	-3.95
S 181.972	S	11732.03	ug/L	452.52	11617.55	11771.13	11813.57
Sb 206.834	Sb	-0.16	ug/L	-1.52	-0.79	-4.91	1.33
Se 196.026	Se	5.27	ug/L	5.17	-0.94	6.96	3.55
Si 251.611	Si	3849.48	ug/L	6658.16	3775.41	3858.24	3896.52
Sn 189.925	Sn	163.74	ug/L	176.78	159.87	162.88	165.6
Sr 421.552	Sr	1105	ug/L	2565841.62	1094.86	1101.54	1114.22
Ti 334.941	Ti	0.08	ug/L	16169.96	0.15	-0.03	0.15
Tl 190.794	Tl	2	ug/L	-2.11	2.89	4.47	-2.6
V 292.401	V	0.34	ug/L	-51.91	0.41	0.34	0.19
Zn 206.200	Zn	34.42	ug/L	108.69	33.8	35.13	34.92

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483959001\_3244****Analysis Time: 5/11/2022 10:41:51 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		569446.05	0.98	1	1
Ag 328.068	Ag	-0.24	ug/L	-1176.96	-0.7	-0.13	0.12
Al 396.152	Al	969.15	ug/L	24223.99	964.51	963.75	966.55
As 188.980	As	12.9	ug/L	9.66	6.43	19.09	11.64
B 249.678	B	386.17	ug/L	3160.77	386.41	384.29	386.23
Ba 233.527	Ba	5.47	ug/L	232.8	5.19	5.39	5.51
Be 234.861	Be	-2.076	ug/L	-1030.948	-2.428	-2.051	-2.014
Ca 315.887	Ca	40950.83	ug/L	218977.28	40539.44	40640.74	41028.52
Cd 214.439	Cd	-0.46	ug/L	57.38	-0.54	-0.42	-0.31
Co 228.615	Co	7.81	ug/L	69.38	8.77	8.11	5.95
Cr 267.716	Cr	155.2	ug/L	5590.36	154.86	154.09	155.74
Cu 327.395	Cu	22.03	ug/L	-1058.27	21.4	22.13	22.22
Fe 261.187	Fe	142772.47	ug/L	254545.1	142566.06	141873.88	143155.8
K 766.491	K	378749.14	ug/L	477979.32	379632.21	377024.33	378937.22
Li 670.783	Li	24.26	ug/L	24826.17	24.53	23.95	24.26
Mg 279.078	Mg	7445.01	ug/L	19345.99	7437.3	7402.82	7472.92
Mn 257.610	Mn	2496.24	ug/L	321143.1	2487.37	2477.66	2508.23
Mo 204.598	Mo	18.76	ug/L	64.55	19.03	18.35	19.42
Na 589.592	Na	165181.06	ug/L	1314417.24	165135.61	164320.75	165444.19
Ni 231.604	Ni	165.64	ug/L	338.73	162.64	167.01	165.53
P 213.618	P	1082.28	ug/L	819.93	1082.62	1085.29	1074.34
Pb 220.353	Pb	-1.9	ug/L	0.44	-1.22	-3	3.74
S 181.972	S	16050.82	ug/L	618.62	15919.65	15978.95	16219.51
Sb 206.834	Sb	2.74	ug/L	9.56	1.54	2.83	1.11
Se 196.026	Se	3.14	ug/L	-7.9	4.2	7.2	2.35
Si 251.611	Si	34482.85	ug/L	59349.36	34268.67	34243.33	34682.71
Sn 189.925	Sn	-0.95	ug/L	2.09	-2.02	-1.3	-1.45
Sr 421.552	Sr	234	ug/L	544348	233.52	232.94	234.75
Ti 334.941	Ti	5.82	ug/L	17569.31	6.49	5.55	5.53
Tl 190.794	Tl	-1.62	ug/L	-4.28	-2.44	1.3	-5.73
V 292.401	V	-1.2	ug/L	-250.94	-1.83	-0.57	-0.97
Zn 206.200	Zn	238.65	ug/L	745.73	238.86	235.78	240.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 10:43:51 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	585302.15	0.99	1.01	1.04
Ag 328.068	Ag	1010.21	ug/L	40345.81	1016.97	1023.18	998.58
Al 396.152	Al	9855.48	ug/L	242581.35	9912.79	9994.13	9732.38
As 188.980	As	2005.46	ug/L	1182.12	2024.27	2033.11	1976.62
B 249.678	B	2084.19	ug/L	17209.25	2096.42	2112.1	2059.46
Ba 233.527	Ba	2069.15	ug/L	83674.2	2089.37	2098.56	2040.4
Be 234.861	Be	2010.557	ug/L	298399.88	2027.138	2038.449	1983.958
Ca 315.887	Ca	10166.82	ug/L	54445.75	10253.53	10338.09	10023.67
Cd 214.439	Cd	2029.59	ug/L	42055.94	2023.42	2048.34	2057.99
Co 228.615	Co	2082.83	ug/L	12130.89	2098.97	2113.55	2053.71
Cr 267.716	Cr	2027.48	ug/L	73078.73	2047.26	2055.75	1998
Cu 327.395	Cu	1981.05	ug/L	52045.06	1994.34	2007.43	1956
Fe 261.187	Fe	10106.79	ug/L	17982.2	10207.92	10238.06	9965.71
K 766.491	K	9911.18	ug/L	12965.51	10079.8	10077.16	9716.99
Li 670.783	Li	1908.28	ug/L	1070781.06	1930.68	1935.64	1883.1
Mg 279.078	Mg	10033.68	ug/L	26054.62	10110.8	10175.04	9892.45
Mn 257.610	Mn	2052.38	ug/L	263981.77	2069.14	2081.84	2024.62
Mo 204.598	Mo	1953.82	ug/L	7285.27	1980.49	1946.85	1946.38
Na 589.592	Na	10065.72	ug/L	83870.93	10205.98	10218.79	9889.06
Ni 231.604	Ni	2022.55	ug/L	4007.5	2041.24	2057.12	1984.82
P 213.618	P	2005.32	ug/L	1469.02	2025.63	2026.83	2010.9
Pb 220.353	Pb	2038.5	ug/L	3185.85	2051.62	2068.71	2008.47
S 181.972	S	9857.38	ug/L	380.35	9861.59	9987.38	9826.47
Sb 206.834	Sb	2012.85	ug/L	1561.09	2022.82	2041.15	1995.96
Se 196.026	Se	2031.63	ug/L	1259.46	2038.97	2058.58	2002.63
Si 251.611	Si	10530.77	ug/L	18198.32	10599.07	10668.82	10381.69
Sn 189.925	Sn	1989.15	ug/L	2116.25	2009.42	2011.33	1958.6
Sr 421.552	Sr	2061.51	ug/L	4785151.41	2078.13	2089.05	2033.26
Ti 334.941	Ti	1998.14	ug/L	499581.65	2019	2011.37	1966.74
Tl 190.794	Tl	2054.82	ug/L	1981.63	2066.7	2070.88	2029.04
V 292.401	V	2019.83	ug/L	39141.48	2037.22	2048.29	1990.28
Zn 206.200	Zn	2047.48	ug/L	6456.28	2074.26	2048.43	2038.05

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 10:45:50 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600872.76	1.02	1.06	1.06
Ag 328.068	Ag	0.35	ug/L	-1160.22	-0.04	0.59	0.27
Al 396.152	Al	0.59	ug/L	352.61	1.48	0.61	-0.12
As 188.980	As	1.64	ug/L	4.63	1.53	0.68	4.11
B 249.678	B	9.59	ug/L	89.49	11.84	9.97	8.55
Ba 233.527	Ba	0.26	ug/L	6.64	0.38	0.37	0.2
Be 234.861	Be	0.11	ug/L	20.864	0.285	0.067	0.065
Ca 315.887	Ca	1.81	ug/L	82.62	3.02	0.96	0.72
Cd 214.439	Cd	0.13	ug/L	4.93	0.42	0.02	0.03
Co 228.615	Co	0.25	ug/L	9.39	0.15	0.3	0.16
Cr 267.716	Cr	0.05	ug/L	30.42	0.37	0.01	-0.28
Cu 327.395	Cu	1.06	ug/L	-1640.38	-0.03	1.71	1.23
Fe 261.187	Fe	9.08	ug/L	-8.76	9.68	9.66	8.84
K 766.491	K	15.8	ug/L	432.73	54.79	-14.74	16.79
Li 670.783	Li	-1.21	ug/L	10879.56	-0.55	-1.3	-1.37
Mg 279.078	Mg	4.17	ug/L	45.23	2.68	4.05	4.59
Mn 257.610	Mn	0.32	ug/L	45.51	0.49	0.31	0.28
Mo 204.598	Mo	2.57	ug/L	2.38	1.95	2.37	2.67
Na 589.592	Na	30.56	ug/L	42.56	29.95	29.74	32.71
Ni 231.604	Ni	0.12	ug/L	4.62	2	-0.78	-1.67
P 213.618	P	-5.32	ug/L	-11.25	-8.68	-2.56	-1.78
Pb 220.353	Pb	-0.94	ug/L	1.85	1.01	-3.02	1.45
S 181.972	S	3.6	ug/L	1.15	-19.88	25.1	11.76
Sb 206.834	Sb	-0.93	ug/L	1.51	-4.51	-0.59	-2.65
Se 196.026	Se	5.2	ug/L	5.19	8.3	0.4	8.17
Si 251.611	Si	9.34	ug/L	42.49	18.4	7.07	8.37
Sn 189.925	Sn	-2.19	ug/L	0.32	-2.23	-0.53	-1.46
Sr 421.552	Sr	0.19	ug/L	520.75	0.4	0.21	0.1
Ti 334.941	Ti	-0.38	ug/L	16079.69	0.97	-1	-0.69
Tl 190.794	Tl	0.04	ug/L	-2.46	0.35	-1.5	0.3
V 292.401	V	0.41	ug/L	6.67	0.84	0.26	0.14
Zn 206.200	Zn	0.59	ug/L	0.46	1.28	0.06	0.88

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483980001 3244****Analysis Time: 5/11/2022 10:47:48 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	593521.48	1.03	1.04	1.03
Ag 328.068	Ag	-0.26	ug/L	-1184.55	-0.52	-0.39	0.33
Al 396.152	Al	99.69	ug/L	3046.63	98.77	99.27	100.12
As 188.980	As	4.12	ug/L	6.16	1.11	5.04	8.11
B 249.678	B	46.14	ug/L	391.35	47.24	45.43	46.54
Ba 233.527	Ba	56.55	ug/L	2289.32	56.17	55.64	57.17
Be 234.861	Be	-0.052	ug/L	-5.316	-0.03	-0.074	-0.054
Ca 315.887	Ca	61989.5	ug/L	331437.84	61245.27	61730.9	62372.12
Cd 214.439	Cd	0.12	ug/L	4.86	0.12	0.07	0.17
Co 228.615	Co	-0.61	ug/L	7.36	-0.32	-0.28	-0.82
Cr 267.716	Cr	0.78	ug/L	56.8	0.92	0.82	0.78
Cu 327.395	Cu	68.19	ug/L	176.55	68.04	67.88	68.26
Fe 261.187	Fe	342.95	ug/L	586.43	346.36	341.49	340.85
K 766.491	K	23096.38	ug/L	29550.31	23160.04	23012.66	23096.5
Li 670.783	Li	3.02	ug/L	13179.8	3.12	2.82	3.1
Mg 279.078	Mg	14792.04	ug/L	38395.47	14818.05	14674.76	14995.57
Mn 257.610	Mn	29.93	ug/L	3853.74	29.96	29.79	30
Mo 204.598	Mo	0.38	ug/L	-5.71	-0.05	1.35	-0.46
Na 589.592	Na	38139.41	ug/L	303449.81	38241.85	37976.33	38184.08
Ni 231.604	Ni	1.57	ug/L	7.67	1.1	1.72	1.75
P 213.618	P	291.47	ug/L	215.39	288.59	286.56	304.03
Pb 220.353	Pb	-1.52	ug/L	1.14	-2.78	-0.41	-2.01
S 181.972	S	16221.65	ug/L	625.32	16220.86	16185.94	16212.29
Sb 206.834	Sb	4.3	ug/L	5.48	9.97	1.49	2.61
Se 196.026	Se	2.98	ug/L	3.79	3.01	3.43	1.39
Si 251.611	Si	5676.12	ug/L	9792.74	5631.02	5639.82	5689.9
Sn 189.925	Sn	-3.23	ug/L	-0.84	-5.74	-1.46	-3.76
Sr 421.552	Sr	525.42	ug/L	1221365.86	525.67	523.49	526.97
Ti 334.941	Ti	0.37	ug/L	16245.51	0.41	0.33	0.48
Tl 190.794	Tl	0.88	ug/L	-1.46	-1.14	0.52	3.72
V 292.401	V	0.95	ug/L	17.1	1	0.85	1.34
Zn 206.200	Zn	37.87	ug/L	120.41	38	36.05	38.63

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484103001\_3244****Analysis Time: 5/11/2022 10:49:47 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.82	Ratio	471246.33	0.74	0.84	0.86
Ag 328.068	Ag	-26.77	ug/L	-1094.86	-27.17	-26.91	-26.5
Al 396.152	Al	-1904.14	ug/L	4081.89	-1882.89	-1909.68	-1913.84
As 188.980	As	28.91	ug/L	11.42	22.76	39.78	32.38
B 249.678	B	296.2	ug/L	2471.76	324.78	288.59	285.75
Ba 233.527	Ba	413375.38	ug/L	16719292.43	459946.71	404424.82	392279.88
Be 234.861	Be	-3.368	ug/L	-1477.877	-4.323	-3.108	-2.993
Ca 315.887	Ca	751466.32	ug/L	4017026.23	828720.48	730377.82	723875.28
Cd 214.439	Cd	0.92	ug/L	56.92	1.17	1.16	0.36
Co 228.615	Co	2576.4	ug/L	1098.75	2596.07	2565.6	2569.28
Cr 267.716	Cr	4.56	ug/L	83.65	4.67	4.42	4.07
Cu 327.395	Cu	-19.04	ug/L	-1576.33	-20.23	-19.29	-18.11
Fe 261.187	Fe	171055.93	ug/L	305009.04	188164.03	166439.11	164382.01
K 766.491	K	14507.83	ug/L	19973.15	15920.92	14130.69	13919.26
Li 670.783	Li	15634.59	ug/L	8655036.14	17224.41	15234.71	15018.55
Mg 279.078	Mg	29751.31	ug/L	77187.19	32734.54	28937.45	28601.58
Mn 257.610	Mn	2098.07	ug/L	270022.78	2304.63	2040.34	2019.71
Mo 204.598	Mo	-19.31	ug/L	-0.49	-19.64	-20.22	-19.28
Na 589.592	Na	2585674.95	ug/L	21367819.3	2857991.98	2515641.78	2477922.83
Ni 231.604	Ni	21.81	ug/L	36.7	23.84	17.48	23.51
P 213.618	P	5881.77	ug/L	4532.86	6384.53	5749.97	5714.83
Pb 220.353	Pb	-42.33	ug/L	-9.71	-46.05	-39.2	-50.34
S 181.972	S	5636.25	ug/L	224.72	6239.69	5579.12	5449.64
Sb 206.834	Sb	-3.85	ug/L	12.66	-12.12	-0.38	-1.32
Se 196.026	Se	-18.39	ug/L	-9.51	-13.14	-15.72	-15.55
Si 251.611	Si	5087.55	ug/L	8876.37	5587.76	4951.3	4888.51
Sn 189.925	Sn	-8.95	ug/L	-0.51	-9.4	-11.76	-7.63
Sr 421.552	Sr	####	ug/L	####	####	####	####
Ti 334.941	Ti	14.13	ug/L	15901.45	14.13	14.13	14.16
Tl 190.794	Tl	-32.06	ug/L	-5.72	-32.7	-33.44	-31.06
V 292.401	V	-1.67	ug/L	-327.94	-3.27	-0.93	-1.35
Zn 206.200	Zn	213.24	ug/L	695.62	231.21	208.85	205.93



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484162001\_3244****Analysis Time: 5/11/2022 10:51:45 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602124.55	1.04	1.06	1.06
Ag 328.068	Ag	-0.34	ug/L	-1187.7	-0.15	-0.79	-0.33
Al 396.152	Al	18.03	ug/L	1011.16	18.63	17.5	18.05
As 188.980	As	4.02	ug/L	6.09	0.05	2.72	7.57
B 249.678	B	30.23	ug/L	260.11	30.52	29.72	30.62
Ba 233.527	Ba	259.1	ug/L	10479.78	536.94	249.3	152.03
Be 234.861	Be	-0.036	ug/L	-1.352	0.035	-0.023	-0.075
Ca 315.887	Ca	46434.3	ug/L	248287.44	46864.79	46139.88	46453.31
Cd 214.439	Cd	-0.05	ug/L	1.16	0.02	-0.09	-0.1
Co 228.615	Co	0.69	ug/L	6.58	0.1	0.93	1.47
Cr 267.716	Cr	-0.03	ug/L	26.4	0.07	-0.04	-0.22
Cu 327.395	Cu	2.02	ug/L	-1615.03	1.85	2.8	2.22
Fe 261.187	Fe	34.48	ug/L	36.35	65.87	31.2	23.8
K 766.491	K	1750.35	ug/L	2630.32	1753.71	1752.81	1735.98
Li 670.783	Li	5.36	ug/L	14463.79	7.86	4.99	4.5
Mg 279.078	Mg	9331.58	ug/L	24234.61	9253.01	9256.43	9395.3
Mn 257.610	Mn	74.9	ug/L	9634.47	74.54	74.63	74.87
Mo 204.598	Mo	6.59	ug/L	17.44	6.33	5.77	6.76
Na 589.592	Na	3221.98	ug/L	25942.28	3763.8	3157.3	3032.24
Ni 231.604	Ni	0.58	ug/L	5.61	1.78	-0.91	-0.11
P 213.618	P	9.92	ug/L	0.8	8.34	8.74	14.38
Pb 220.353	Pb	-2.49	ug/L	-0.41	-2.46	-4.59	1.47
S 181.972	S	22988.29	ug/L	885.69	23043.76	22970.19	23047.4
Sb 206.834	Sb	2	ug/L	3.67	5.54	0.34	0.77
Se 196.026	Se	1.51	ug/L	2.93	0.78	1.35	6.52
Si 251.611	Si	254.48	ug/L	465.28	256.19	252.71	257.82
Sn 189.925	Sn	-2.3	ug/L	0.16	-2.99	-2.48	-2.36
Sr 421.552	Sr	241.85	ug/L	562732.19	287.04	235.44	225.39
Ti 334.941	Ti	-0.33	ug/L	16079.47	-0.11	-0.49	-0.36
Tl 190.794	Tl	-1.44	ug/L	-3.68	2.1	-0.54	-3.52
V 292.401	V	0.61	ug/L	10.15	0.19	0.22	1.13
Zn 206.200	Zn	5.49	ug/L	17.65	6.1	5.46	4.98

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484149001 3244****Analysis Time: 5/11/2022 10:53:44 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	592665.61	1.03	1.04	1.04
Ag 328.068	Ag	-0.65	ug/L	-1199.78	-0.61	-0.85	-0.61
Al 396.152	Al	85.36	ug/L	2754.08	84.24	86.03	85.9
As 188.980	As	3.29	ug/L	5.65	6.15	5.74	0.12
B 249.678	B	97.89	ug/L	818.23	97.02	98.38	97.78
Ba 233.527	Ba	629.56	ug/L	25463.37	627.54	626.17	631.68
Be 234.861	Be	-0.094	ug/L	-11.34	-0.09	-0.103	-0.118
Ca 315.887	Ca	53117.94	ug/L	284015.02	52438.44	52991.71	53612.36
Cd 214.439	Cd	0	ug/L	2.29	0.02	-0.02	0.05
Co 228.615	Co	2.52	ug/L	4.38	2.64	2.22	2.4
Cr 267.716	Cr	0.65	ug/L	46.21	0.54	0.52	0.81
Cu 327.395	Cu	1.27	ug/L	-1634.72	1.4	1.55	1.1
Fe 261.187	Fe	283.97	ug/L	481.17	280.64	284.26	287.73
K 766.491	K	11817.4	ug/L	15328.35	11771.02	11792.87	11865.93
Li 670.783	Li	11.83	ug/L	17995.08	11.87	11.9	11.85
Mg 279.078	Mg	10921.31	ug/L	28357.42	10897.05	10790.23	11083.62
Mn 257.610	Mn	352.13	ug/L	45277.83	350.4	351.36	353.99
Mo 204.598	Mo	50.85	ug/L	182.53	50.13	50.16	52.55
Na 589.592	Na	130111.35	ug/L	1036507.6	129035.6	130287.17	130697.8
Ni 231.604	Ni	1.49	ug/L	7.42	1.12	1.82	1.13
P 213.618	P	15.99	ug/L	5.21	7.8	21.11	16.86
Pb 220.353	Pb	-2.91	ug/L	-1	-2.25	-0.67	-2.49
S 181.972	S	52060.42	ug/L	2004.46	51315.17	52266.13	52334.94
Sb 206.834	Sb	16.82	ug/L	14.83	16.18	16.81	15.89
Se 196.026	Se	2.63	ug/L	3.7	10.18	2.42	1.23
Si 251.611	Si	5202.84	ug/L	8979.61	5122.47	5215.03	5241.18
Sn 189.925	Sn	-1.47	ug/L	1.05	-3.2	-0.21	-2.21
Sr 421.552	Sr	598.53	ug/L	1390829.74	593.14	599.08	601.61
Ti 334.941	Ti	0.09	ug/L	16174.75	0.34	0.01	0.04
Tl 190.794	Tl	-1.8	ug/L	-3.75	-4.58	1.51	-2.53
V 292.401	V	1.13	ug/L	14.14	1.3	1.29	1.08
Zn 206.200	Zn	17.36	ug/L	55.39	17.28	17.32	17.99

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484149003 3244****Analysis Time: 5/11/2022 10:55:44 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	564410.15	0.98	0.99	0.99
Ag 328.068	Ag	-0.68	ug/L	-1208.51	-0.56	-1.02	-0.32
Al 396.152	Al	1434.67	ug/L	35735.89	1423.97	1432.28	1443.61
As 188.980	As	3.44	ug/L	5.72	4.44	1.6	5.74
B 249.678	B	326.97	ug/L	2708.18	323.78	327.33	327.81
Ba 233.527	Ba	100.06	ug/L	4044.56	99.14	100.3	100.37
Be 234.861	Be	-0.102	ug/L	-9.249	-0.112	-0.149	-0.041
Ca 315.887	Ca	49774.12	ug/L	266143.16	49341.39	49731.07	50028.62
Cd 214.439	Cd	0.03	ug/L	3.08	0.11	0.05	-0.05
Co 228.615	Co	0.69	ug/L	5.46	0.34	0.78	1.27
Cr 267.716	Cr	2	ug/L	96.15	1.89	1.83	2.16
Cu 327.395	Cu	3.31	ug/L	-1579.48	2.62	3.4	3.7
Fe 261.187	Fe	54.68	ug/L	71.77	54.67	56.32	54.67
K 766.491	K	72410.94	ug/L	91738.99	72186.5	72251.88	72551.01
Li 670.783	Li	14.03	ug/L	19216.87	14.06	13.94	14.06
Mg 279.078	Mg	10629.51	ug/L	27600.71	10485.03	10617.14	10737.11
Mn 257.610	Mn	297.06	ug/L	38211.06	294.05	295.98	301.64
Mo 204.598	Mo	330.28	ug/L	1224.12	326.76	329.65	330.39
Na 589.592	Na	510632.87	ug/L	4063900.66	507885.91	509784.44	511895.63
Ni 231.604	Ni	0.63	ug/L	5.76	-0.52	1.98	2.36
P 213.618	P	32.67	ug/L	15.6	32.95	40	27.73
Pb 220.353	Pb	-1.65	ug/L	0.61	-4.61	-0.39	-0.17
S 181.972	S	332455.68	ug/L	12794.5	330574.94	331554.73	333298.69
Sb 206.834	Sb	130.98	ug/L	101.26	136.09	129.29	130.02
Se 196.026	Se	4.68	ug/L	4.95	5.94	3.74	3.25
Si 251.611	Si	1804.7	ug/L	3138.74	1794.1	1797.64	1809.43
Sn 189.925	Sn	-1.86	ug/L	0.68	-2.73	-1.06	-0.8
Sr 421.552	Sr	523.59	ug/L	1216752.82	520.96	521.27	524.87
Ti 334.941	Ti	-0.01	ug/L	16149.37	0.14	-0.01	-0.22
Tl 190.794	Tl	1.95	ug/L	-1.28	3.25	-0.54	5.1
V 292.401	V	6.75	ug/L	90.22	6.74	6.42	7.05
Zn 206.200	Zn	48.85	ug/L	154.76	48.43	48.6	49.95

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484157001\_3244****Analysis Time: 5/11/2022 10:57:43 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	607704.4	1.05	1.06	1.07
Ag 328.068	Ag	-0.25	ug/L	-1184.28	-0.77	-0.19	0.19
Al 396.152	Al	64.19	ug/L	2058.3	63.66	63.87	64.3
As 188.980	As	1.37	ug/L	4.51	2.34	3.87	-3.41
B 249.678	B	19.76	ug/L	173.49	20.75	20.17	19.09
Ba 233.527	Ba	37.19	ug/L	1503.31	36.96	36.94	37.58
Be 234.861	Be	-0.043	ug/L	-3.124	-0.057	0.004	-0.073
Ca 315.887	Ca	35203.96	ug/L	188255.82	35024.71	35238.89	35281.84
Cd 214.439	Cd	0.06	ug/L	3.65	0.07	0.12	0.09
Co 228.615	Co	2.09	ug/L	21.51	2.65	2.34	1.4
Cr 267.716	Cr	-0.11	ug/L	20.86	-0.29	-0.07	0.11
Cu 327.395	Cu	2	ug/L	-1615.49	1.81	2.21	1.88
Fe 261.187	Fe	222.56	ug/L	371.64	219.31	218.98	227.01
K 766.491	K	1361.2	ug/L	2136.39	1354.68	1375.2	1368.93
Li 670.783	Li	8.65	ug/L	16329.37	8.83	8.57	8.59
Mg 279.078	Mg	5024.64	ug/L	13065.32	4955.56	5022.01	5080.82
Mn 257.610	Mn	222.67	ug/L	28632.49	222.59	222.27	222.75
Mo 204.598	Mo	0.47	ug/L	-5.41	-0.07	-0.47	1.04
Na 589.592	Na	6435.75	ug/L	51093.77	6461.28	6424.84	6436.39
Ni 231.604	Ni	6.28	ug/L	16.86	6.34	5.92	6.85
P 213.618	P	4.47	ug/L	-3.43	2.14	6.93	-0.28
Pb 220.353	Pb	-1.54	ug/L	1.03	-1.89	-0.01	-1.83
S 181.972	S	30998.66	ug/L	1193.94	31016.76	30904.98	31066.53
Sb 206.834	Sb	-2.13	ug/L	0.54	0.43	-1.88	-5.51
Se 196.026	Se	3.36	ug/L	4.1	4.89	3.77	3.24
Si 251.611	Si	2729.55	ug/L	4723.03	2699.89	2732.5	2744.78
Sn 189.925	Sn	-2.57	ug/L	-0.12	0.38	-3.61	-5.31
Sr 421.552	Sr	104.3	ug/L	243133.09	104.03	104.05	104.51
Ti 334.941	Ti	0.07	ug/L	16179.64	0.3	-0.09	-0.06
Tl 190.794	Tl	-2.67	ug/L	-4.67	-8.42	-1.56	0.45
V 292.401	V	0.7	ug/L	12.13	0.25	1.25	0.63
Zn 206.200	Zn	10.94	ug/L	34.38	11.14	10.52	11.36

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484157002\_3244****Analysis Time: 5/11/2022 10:59:43 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599385.85	1.04	1.05	1.05
Ag 328.068	Ag	-0.46	ug/L	-1192.8	-0.33	-0.25	-0.62
Al 396.152	Al	66.02	ug/L	2108.03	65.4	65.51	66.61
As 188.980	As	4.93	ug/L	6.62	1.86	11.41	5.36
B 249.678	B	20.35	ug/L	178.39	21.07	19.5	20.27
Ba 233.527	Ba	42.44	ug/L	1715.9	41.87	43.34	42.88
Be 234.861	Be	0.002	ug/L	3.232	0.011	0.018	-0.055
Ca 315.887	Ca	36321.55	ug/L	194229.93	36164.89	36084.9	36370.65
Cd 214.439	Cd	0.13	ug/L	5.01	0.13	0.24	-0.05
Co 228.615	Co	3.02	ug/L	26.78	3.09	2.04	2.55
Cr 267.716	Cr	0.12	ug/L	28.93	-0.07	0.25	0.2
Cu 327.395	Cu	3.71	ug/L	-1569.19	3.72	3.85	3.88
Fe 261.187	Fe	276.62	ug/L	468.03	275.95	273.75	278.37
K 766.491	K	1382.25	ug/L	2163.13	1394.03	1350.01	1403.42
Li 670.783	Li	8.86	ug/L	16443.18	9.03	8.73	8.92
Mg 279.078	Mg	5147.46	ug/L	13383.86	5062.65	5152.46	5240.66
Mn 257.610	Mn	228.59	ug/L	29393.82	227.65	226.49	229.32
Mo 204.598	Mo	0.39	ug/L	-5.68	1.02	0.23	0.26
Na 589.592	Na	6510.26	ug/L	51696.9	6477.71	6460.05	6548.39
Ni 231.604	Ni	6.6	ug/L	17.5	7.74	5.58	6.49
P 213.618	P	5.05	ug/L	-3.01	0.99	7.23	1.16
Pb 220.353	Pb	-1.32	ug/L	1.37	-0.15	-2.07	0.16
S 181.972	S	30161.48	ug/L	1161.72	29810.25	29967.88	30465.66
Sb 206.834	Sb	25.84	ug/L	22.24	28.87	23.72	27.49
Se 196.026	Se	1.2	ug/L	2.77	3.46	6.93	2.43
Si 251.611	Si	2844.84	ug/L	4921.39	2778.57	2853.25	2911.7
Sn 189.925	Sn	-2.27	ug/L	0.21	-1.51	-2.92	-1.47
Sr 421.552	Sr	107.98	ug/L	251712.74	107.18	107.19	108.67
Ti 334.941	Ti	0.15	ug/L	16199.14	0.32	-0.1	0.12
Tl 190.794	Tl	-1.78	ug/L	-3.79	-2.37	-0.15	-1.01
V 292.401	V	0.78	ug/L	13.7	0.5	0.86	0.66
Zn 206.200	Zn	14.91	ug/L	46.93	14.62	15.46	14.09

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484157003\_3244****Analysis Time: 5/11/2022 11:01:42 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	594224.68	0.99	1.06	1.05
Ag 328.068	Ag	-0.5	ug/L	-1194.29	-0.65	-0.31	-0.53
Al 396.152	Al	1203.63	ug/L	29940.86	1225.76	1188.36	1204.74
As 188.980	As	5.26	ug/L	6.8	7.85	1.88	2.51
B 249.678	B	201.55	ug/L	1673.37	206.1	198.75	200.3
Ba 233.527	Ba	72.2	ug/L	2921.83	74.45	71.22	71.67
Be 234.861	Be	0.024	ug/L	1.089	0.029	0.006	0.102
Ca 315.887	Ca	56543.6	ug/L	302328.89	57662.98	55372.16	56424.02
Cd 214.439	Cd	0.46	ug/L	12.86	0.43	0.61	0.37
Co 228.615	Co	0.09	ug/L	10.95	0.06	0.19	0.49
Cr 267.716	Cr	1.36	ug/L	78.25	1.49	1.27	1.36
Cu 327.395	Cu	478.12	ug/L	11281.14	487.33	469.7	477.75
Fe 261.187	Fe	1900.86	ug/L	3363.59	1936.59	1872.26	1896.1
K 766.491	K	1161.59	ug/L	1880.87	1245.19	1150.06	1124.03
Li 670.783	Li	0.88	ug/L	11988.74	1.87	0.46	0.67
Mg 279.078	Mg	2568.88	ug/L	6697.18	2628.71	2518.69	2578.34
Mn 257.610	Mn	42.03	ug/L	5411.51	42.99	41.4	41.84
Mo 204.598	Mo	-0.2	ug/L	-7.75	-0.22	0.31	-1.02
Na 589.592	Na	5279.34	ug/L	41960.96	5397.61	5198.65	5271.25
Ni 231.604	Ni	5.08	ug/L	14.54	5.2	4.18	6.26
P 213.618	P	276.65	ug/L	194.12	273.29	272.62	274.43
Pb 220.353	Pb	84.33	ug/L	135.25	86.01	80.82	84.75
S 181.972	S	4385.13	ug/L	169.83	4493.22	4254.9	4431.95
Sb 206.834	Sb	-1.15	ug/L	1.35	-3	-1.06	-1.59
Se 196.026	Se	4.34	ug/L	4.53	7.06	4.66	4.95
Si 251.611	Si	3752.17	ug/L	6482.61	3833.27	3695.29	3747
Sn 189.925	Sn	-2.61	ug/L	-0.18	-1.76	-3.67	-2.57
Sr 421.552	Sr	139.75	ug/L	326116.39	142.92	137.46	139.38
Ti 334.941	Ti	5.56	ug/L	17499.36	5.56	5.62	5.53
Tl 190.794	Tl	-0.99	ug/L	-3.35	1.19	-4.19	0.31
V 292.401	V	1.75	ug/L	30.43	1.6	2.18	1.29
Zn 206.200	Zn	871.07	ug/L	2747.94	889.63	858.61	868.75

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484490001 3244****Analysis Time: 5/11/2022 11:03:41 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600769.74	1.04	1.05	1.05
Ag 328.068	Ag	-0.57	ug/L	-1197.03	-0.67	-0.66	-0.63
Al 396.152	Al	53.88	ug/L	2013.54	53.02	53.71	54.76
As 188.980	As	5.77	ug/L	7.16	7.24	3.66	8.6
B 249.678	B	12.26	ug/L	112.15	12.71	12.05	12.16
Ba 233.527	Ba	129.93	ug/L	5257.75	125.85	129.94	131.89
Be 234.861	Be	-0.101	ug/L	-10.909	-0.073	-0.166	-0.094
Ca 315.887	Ca	79168.48	ug/L	423268.13	78308.36	78782.92	79803.42
Cd 214.439	Cd	0	ug/L	2.36	-0.01	0.05	-0.06
Co 228.615	Co	-0.75	ug/L	4.84	-1.3	-0.61	-0.72
Cr 267.716	Cr	0.09	ug/L	31.78	0.43	-0.02	0.12
Cu 327.395	Cu	2.03	ug/L	-1616.09	1.4	2.06	2.12
Fe 261.187	Fe	43.75	ug/L	51.95	45.09	44.13	42.91
K 766.491	K	1486.25	ug/L	2301.35	1477.52	1476.92	1495.26
Li 670.783	Li	-1.65	ug/L	10573.16	-1.58	-1.65	-1.63
Mg 279.078	Mg	2549.15	ug/L	6646.18	2471.13	2554.73	2572.15
Mn 257.610	Mn	2.66	ug/L	347.05	2.56	2.71	2.73
Mo 204.598	Mo	0.95	ug/L	-3.61	1.01	1.86	-0.03
Na 589.592	Na	513.87	ug/L	4147.17	510.47	514.79	513.84
Ni 231.604	Ni	0.35	ug/L	5.1	1.9	0.06	0.35
P 213.618	P	16.34	ug/L	5.99	14.55	16.45	15.71
Pb 220.353	Pb	-1.66	ug/L	0.87	0.88	-4.2	-4.35
S 181.972	S	3531.07	ug/L	136.98	3494.03	3553.74	3556.32
Sb 206.834	Sb	0.5	ug/L	2.56	2.63	0.18	1.56
Se 196.026	Se	1.94	ug/L	3.17	-0.16	0.81	3.12
Si 251.611	Si	1686.97	ug/L	2929.7	1645	1696.8	1709.94
Sn 189.925	Sn	-4	ug/L	-1.68	-2.94	-4.31	-4.44
Sr 421.552	Sr	186.61	ug/L	435443.97	182.94	186.32	188.35
Ti 334.941	Ti	0.38	ug/L	16244.28	0.32	0.32	0.35
Tl 190.794	Tl	-1.62	ug/L	-3.96	-2.13	1.32	-2.5
V 292.401	V	0.73	ug/L	13.05	1.04	1.18	0.45
Zn 206.200	Zn	0.97	ug/L	4.45	1	-0.05	1.89

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484490002\_3244****Analysis Time: 5/11/2022 11:05:41 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598717.86	1.03	1.05	1.05
Ag 328.068	Ag	-0.38	ug/L	-1189.43	-0.26	-0.37	-0.31
Al 396.152	Al	42.01	ug/L	1857.21	39.93	38.76	46.75
As 188.980	As	3.07	ug/L	5.61	1.34	5.52	0.34
B 249.678	B	12.09	ug/L	111.03	12.14	12.47	10.97
Ba 233.527	Ba	87.47	ug/L	3543.16	87.33	86.01	87.84
Be 234.861	Be	-0.084	ug/L	-8.339	-0.075	-0.087	-0.138
Ca 315.887	Ca	110632.31	ug/L	591458	109929.89	109896.55	110984.12
Cd 214.439	Cd	0	ug/L	2.37	0.08	0.2	-0.08
Co 228.615	Co	-0.74	ug/L	8.56	-0.58	-0.17	-0.65
Cr 267.716	Cr	-0.01	ug/L	28.38	0.01	0.32	-0.17
Cu 327.395	Cu	1.55	ug/L	-1630.06	1.75	1.22	1.76
Fe 261.187	Fe	11.8	ug/L	-5.52	10.5	13.07	14.12
K 766.491	K	826.57	ug/L	1474.81	840.49	833.7	799.73
Li 670.783	Li	-1.81	ug/L	10467.97	-1.63	-1.91	-1.91
Mg 279.078	Mg	2861.28	ug/L	7456.03	2847.22	2807.12	2914.44
Mn 257.610	Mn	1.66	ug/L	217.85	1.68	1.64	1.66
Mo 204.598	Mo	0.41	ug/L	-5.64	0.54	0.66	0.39
Na 589.592	Na	538.22	ug/L	4264.01	538.89	531.41	539.09
Ni 231.604	Ni	-0.49	ug/L	3.44	-0.85	-0.32	-0.02
P 213.618	P	17.11	ug/L	6.84	18.81	18.76	13.6
Pb 220.353	Pb	-2.04	ug/L	0.33	-0.68	-2.93	-2.94
S 181.972	S	2914.09	ug/L	113.28	2926.53	2902.91	2923.56
Sb 206.834	Sb	0.02	ug/L	2.16	1.52	1.79	-3.68
Se 196.026	Se	2.47	ug/L	3.5	3.43	-1.86	5.13
Si 251.611	Si	1199.79	ug/L	2091.93	1193.24	1194.3	1203.25
Sn 189.925	Sn	-1.27	ug/L	1.19	-2.97	-1.65	0.02
Sr 421.552	Sr	141.88	ug/L	332508.4	141.26	141.17	142.37
Ti 334.941	Ti	0.04	ug/L	16153.73	0.16	0.01	-0.27
Tl 190.794	Tl	-1.43	ug/L	-3.74	-3.11	-2.72	0.06
V 292.401	V	0.56	ug/L	9.82	0.15	1.21	0.62
Zn 206.200	Zn	1.48	ug/L	7.19	1.5	1.29	1.42



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 11:07:40 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	596686.82	1.01	1.06	1.06
Ag 328.068	Ag	1012.15	ug/L	40425.85	1034.46	998.01	1003.36
Al 396.152	Al	9848.14	ug/L	242394.15	10080.86	9695.17	9748.02
As 188.980	As	2031.53	ug/L	1197.38	2081.32	1992.73	2013.13
B 249.678	B	2088.83	ug/L	17247.68	2136.95	2058.26	2070.35
Ba 233.527	Ba	2070.32	ug/L	83721.5	2123.44	2038.39	2048.9
Be 234.861	Be	2017.993	ug/L	299503.592	2068.113	1985.648	1998.484
Ca 315.887	Ca	10269.21	ug/L	54993	10533.77	10111.37	10175.49
Cd 214.439	Cd	2022.04	ug/L	41899.49	2048.37	1982.49	2081.31
Co 228.615	Co	2081.26	ug/L	12123.44	2131.41	2050.84	2058.96
Cr 267.716	Cr	2038.2	ug/L	73465.27	2087.6	2008.32	2016.72
Cu 327.395	Cu	1984.4	ug/L	52135.88	2030.15	1955.81	1965.6
Fe 261.187	Fe	10087.68	ug/L	17947.99	10331.86	9928.32	10003.61
K 766.491	K	9903.14	ug/L	12955.41	10179.85	9786.61	9730.3
Li 670.783	Li	1901.61	ug/L	1067070.56	1953.6	1875.08	1875.82
Mg 279.078	Mg	10047.54	ug/L	26090.55	10293.13	9885.78	9950.53
Mn 257.610	Mn	2041.48	ug/L	262580.05	2090.93	2010.62	2023.12
Mo 204.598	Mo	1946.06	ug/L	7256.4	2003.77	1908.61	1932.63
Na 589.592	Na	10157.92	ug/L	84606.69	10446.56	9993.09	10042
Ni 231.604	Ni	2018.67	ug/L	3999.82	2070.69	1986.17	2002.52
P 213.618	P	2038.56	ug/L	1494.51	2064.04	2016.71	2014.16
Pb 220.353	Pb	2041.79	ug/L	3191	2094.37	2017.37	2018.38
S 181.972	S	9931.95	ug/L	383.22	10109.82	9775.96	9838.76
Sb 206.834	Sb	2028.24	ug/L	1573.52	2067.96	1999.16	2008.04
Se 196.026	Se	2054.14	ug/L	1273.39	2109.14	2009.15	2046.12
Si 251.611	Si	10551.76	ug/L	18234.17	10784.46	10382.2	10461.29
Sn 189.925	Sn	2009.36	ug/L	2137.73	2061.27	1979.1	1984.01
Sr 421.552	Sr	2060.68	ug/L	4783237.42	2113.19	2032.77	2038.46
Ti 334.941	Ti	2005.37	ug/L	501331.99	2048.97	1962.42	1997.97
Tl 190.794	Tl	2101.27	ug/L	2026.55	2143.45	2066.92	2089.01
V 292.401	V	2023.33	ug/L	39209.95	2070.81	1993.63	2004.27
Zn 206.200	Zn	2047.48	ug/L	6456.24	2096.1	2009.32	2040.18

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 11:09:39 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602443.47	1.03	1.07	1.06
Ag 328.068	Ag	-0.02	ug/L	-1175.12	-0.66	0.4	0.24
Al 396.152	Al	-0.04	ug/L	337.21	0.46	-0.57	-0.68
As 188.980	As	0.02	ug/L	3.67	2.96	-4.49	2.1
B 249.678	B	4.46	ug/L	47.17	5.65	4.5	3.45
Ba 233.527	Ba	0.18	ug/L	3.49	0.06	0.35	0.04
Be 234.861	Be	-0.017	ug/L	1.822	-0.013	0.014	-0.008
Ca 315.887	Ca	-0.21	ug/L	71.81	-0.85	0.11	-0.12
Cd 214.439	Cd	0.09	ug/L	4.07	0.14	0.05	-0.02
Co 228.615	Co	0.09	ug/L	8.46	0.37	0.17	0.14
Cr 267.716	Cr	0.1	ug/L	32.15	0.13	-0.2	0.36
Cu 327.395	Cu	0.42	ug/L	-1657.52	-0.61	1.02	0.94
Fe 261.187	Fe	2.34	ug/L	-20.78	0.13	2.06	3.74
K 766.491	K	1.21	ug/L	414.32	-23.36	22.62	-24.46
Li 670.783	Li	-1.76	ug/L	10569.13	-1.37	-1.97	-2.01
Mg 279.078	Mg	2.57	ug/L	41.1	3.39	-0.39	3.6
Mn 257.610	Mn	0.1	ug/L	17.39	0.15	0.16	0.08
Mo 204.598	Mo	2.75	ug/L	3.05	1.85	2.38	3.24
Na 589.592	Na	30.87	ug/L	44.89	40.21	25.16	28.21
Ni 231.604	Ni	-0.65	ug/L	3.11	-0.72	-0.4	-0.38
P 213.618	P	-4.41	ug/L	-10.53	-7.57	-2.42	-6.87
Pb 220.353	Pb	-0.78	ug/L	2.09	-1.3	-2.27	1.15
S 181.972	S	-16.73	ug/L	0.36	-2.4	-44.88	-22.4
Sb 206.834	Sb	-0.83	ug/L	1.58	3.69	-4.85	-2.06
Se 196.026	Se	3.17	ug/L	3.93	2.35	0.71	4.78
Si 251.611	Si	2.47	ug/L	30.67	4.95	5.04	1.46
Sn 189.925	Sn	-1.43	ug/L	1.14	-1.31	-0.45	-2.37
Sr 421.552	Sr	0.06	ug/L	206.36	0.09	0.06	0.05
Ti 334.941	Ti	0.2	ug/L	16220.36	1.1	-0.3	-0.63
Tl 190.794	Tl	-0.67	ug/L	-3.14	-4.6	0.11	2.76
V 292.401	V	0.07	ug/L	0.04	-0.06	0.39	-0.1
Zn 206.200	Zn	0.63	ug/L	0.57	0.5	0.57	1.02

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484490003 3244****Analysis Time: 5/11/2022 11:11:38 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598134.54	1.03	1.05	1.05
Ag 328.068	Ag	-0.32	ug/L	-1186.53	-0.47	-0.36	-0.3
Al 396.152	Al	46.07	ug/L	1620.67	45.57	46.53	45.19
As 188.980	As	3.14	ug/L	5.57	4.65	1.74	0.39
B 249.678	B	25.72	ug/L	222.39	26.14	25.7	25.04
Ba 233.527	Ba	31.48	ug/L	1272.28	31.77	30.83	31.71
Be 234.861	Be	-0.107	ug/L	-14.829	-0.044	-0.056	-0.198
Ca 315.887	Ca	35225.22	ug/L	188369.4	35511.62	34845.24	35443.06
Cd 214.439	Cd	-0.02	ug/L	2.09	0.06	-0.02	-0.08
Co 228.615	Co	-0.52	ug/L	6.55	-0.83	-0.62	-0.06
Cr 267.716	Cr	-0.03	ug/L	15.34	0.19	-0.22	-0.14
Cu 327.395	Cu	0.79	ug/L	-1647.8	0.82	1.03	0.76
Fe 261.187	Fe	655.23	ug/L	1142.99	657.56	645.2	658
K 766.491	K	2125.23	ug/L	3099.65	2154.38	2076.73	2139.76
Li 670.783	Li	-1.84	ug/L	10484.45	-1.38	-2.01	-1.9
Mg 279.078	Mg	2106.53	ug/L	5497.9	2092.4	2094.46	2129.31
Mn 257.610	Mn	693.43	ug/L	89155.27	697.32	685.13	697.92
Mo 204.598	Mo	4.73	ug/L	10.48	5.14	5.52	3.69
Na 589.592	Na	25181.68	ug/L	200273.53	25336.95	24950.2	25248.01
Ni 231.604	Ni	0.18	ug/L	4.79	-0.97	-1.36	2.27
P 213.618	P	7.8	ug/L	-0.9	6.55	8.6	12.4
Pb 220.353	Pb	-0.39	ug/L	2.89	-1.14	0.02	2.64
S 181.972	S	2188.32	ug/L	85.29	2191.03	2145.76	2191.66
Sb 206.834	Sb	-0.77	ug/L	1.59	-1.39	0.83	-0.98
Se 196.026	Se	4.66	ug/L	5.02	5.33	7.06	6.05
Si 251.611	Si	1002.77	ug/L	1752.68	1008.06	991.95	1008.85
Sn 189.925	Sn	-2.08	ug/L	0.41	-3.82	-1.25	-2.77
Sr 421.552	Sr	217.55	ug/L	506011.25	218.72	215.27	218.06
Ti 334.941	Ti	-0.01	ug/L	16158.93	-0.09	-0.02	-0.03
Tl 190.794	Tl	0.98	ug/L	-0.51	-0.24	3.6	-1.19
V 292.401	V	0.44	ug/L	5.72	0.45	0.06	0.73
Zn 206.200	Zn	11.12	ug/L	34.89	11.59	10.76	9.99

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484490004 3244****Analysis Time: 5/11/2022 11:13:38 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	595974.8	1.04	1.05	1.02
Ag 328.068	Ag	-0.47	ug/L	-1193.09	-0.54	-0.55	-0.36
Al 396.152	Al	68.53	ug/L	2496.49	66.72	68.6	70.59
As 188.980	As	4.29	ug/L	6.32	6.11	3.78	0.25
B 249.678	B	74.85	ug/L	628.72	72.61	74.74	77.31
Ba 233.527	Ba	84.45	ug/L	3421.58	84.11	82.21	88.37
Be 234.861	Be	-0.094	ug/L	-10.468	-0.154	-0.025	-0.111
Ca 315.887	Ca	108158.86	ug/L	578236.1	106572.2	107453.3	111356.78
Cd 214.439	Cd	-0.07	ug/L	0.98	-0.08	-0.02	-0.06
Co 228.615	Co	-1.04	ug/L	7	-0.26	-1.88	-1.08
Cr 267.716	Cr	-0.01	ug/L	28.53	0.11	0.04	-0.23
Cu 327.395	Cu	1.17	ug/L	-1640.23	0.37	1.02	1.94
Fe 261.187	Fe	59.2	ug/L	79.87	59.2	58.83	61.6
K 766.491	K	5723.89	ug/L	7652.57	5689.98	5656.94	5858.84
Li 670.783	Li	12.86	ug/L	18618.84	12.71	12.49	13.81
Mg 279.078	Mg	17014.52	ug/L	44159.6	16925.35	16848.91	17394.77
Mn 257.610	Mn	15.61	ug/L	2012.07	15.5	15.25	16.13
Mo 204.598	Mo	5.26	ug/L	12.48	4.31	5.27	6.34
Na 589.592	Na	32857.46	ug/L	261472.48	32699.93	32550.71	33729.32
Ni 231.604	Ni	0.46	ug/L	5.48	-0.5	1.73	0.68
P 213.618	P	4.56	ug/L	-2.77	12.41	4.37	2.25
Pb 220.353	Pb	-1.8	ug/L	0.77	-1.25	-1.25	-3.09
S 181.972	S	72287.92	ug/L	2782.89	72067.82	71368.74	74460.71
Sb 206.834	Sb	-0.7	ug/L	1.5	-2.06	3.61	3.4
Se 196.026	Se	11.26	ug/L	8.93	15.48	8.21	12.29
Si 251.611	Si	1461.35	ug/L	2542.48	1442.73	1446.73	1504.64
Sn 189.925	Sn	-3.64	ug/L	-1.33	-0.46	-3.48	-6.5
Sr 421.552	Sr	856.94	ug/L	1992171.04	850.15	847.49	882.19
Ti 334.941	Ti	-0.12	ug/L	16114.72	0.35	-0.03	-0.45
Tl 190.794	Tl	-0.79	ug/L	-3.04	1.12	-3.01	-0.32
V 292.401	V	0.71	ug/L	12.09	0.29	1.16	0.85
Zn 206.200	Zn	0.69	ug/L	4.81	0.69	1.09	0.65

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2429661\_3244****Analysis Time: 5/11/2022 11:15:37 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	586137.14	1.02	1.02	1.02
Ag 328.068	Ag	511.38	ug/L	19621.44	500.46	511.86	516.44
Al 396.152	Al	2162.51	ug/L	55262.14	2121.21	2162.26	2178.54
As 188.980	As	2041.07	ug/L	1203.42	1994.46	2029.66	2068.1
B 249.678	B	2159.21	ug/L	17832.14	2111.26	2156.74	2184.16
Ba 233.527	Ba	2059.57	ug/L	83296.59	2018.1	2057.02	2082.14
Be 234.861	Be	510.655	ug/L	75788.45	500.305	509.683	516.149
Ca 315.887	Ca	147087.44	ug/L	786365.63	144077.85	147064.36	148583.14
Cd 214.439	Cd	985.58	ug/L	20420.12	966.74	983.65	996.34
Co 228.615	Co	1994.61	ug/L	11629.9	1954.17	1990.17	2018.32
Cr 267.716	Cr	2007.72	ug/L	72365.22	1964.54	2002.12	2030.43
Cu 327.395	Cu	2015.48	ug/L	52973.09	1977.06	2017.6	2038.05
Fe 261.187	Fe	2110.12	ug/L	3723.75	2063.82	2106.19	2134.35
K 766.491	K	26830.71	ug/L	34328.75	26363.69	26850	27033.87
Li 670.783	Li	2103.33	ug/L	1179235.2	2058.32	2102.49	2125.64
Mg 279.078	Mg	37039.73	ug/L	96091.48	36323.74	37128.2	37355.65
Mn 257.610	Mn	2010.23	ug/L	258540.74	1968.48	2006.99	2030.69
Mo 204.598	Mo	2004.47	ug/L	7473.01	1937.45	2007.97	2040.98
Na 589.592	Na	52913.4	ug/L	424876.07	51783.38	52983.9	53459.94
Ni 231.604	Ni	1918.02	ug/L	3800.73	1879.3	1919.1	1938.4
P 213.618	P	41125.83	ug/L	31478.87	40091.63	41219.71	41535.49
Pb 220.353	Pb	1936.24	ug/L	3027.57	1899.52	1934.57	1951.3
S 181.972	S	73039.15	ug/L	2811.86	71598.25	73221.74	73690.69
Sb 206.834	Sb	2062.43	ug/L	1598.77	2017.6	2060.45	2086.79
Se 196.026	Se	1985.11	ug/L	1231.32	1945.37	1991.03	2004.56
Si 251.611	Si	12130.58	ug/L	20952.33	11791	12111.98	12280.28
Sn 189.925	Sn	2025.15	ug/L	2153.53	1987.54	2020.12	2047.72
Sr 421.552	Sr	2833.4	ug/L	6580841.98	2771.46	2834.29	2861.21
Ti 334.941	Ti	2009.63	ug/L	502330.76	1939.58	2009.28	2040.1
Tl 190.794	Tl	1898.59	ug/L	1830.52	1816.08	1882.33	1941.35
V 292.401	V	2038.17	ug/L	39506.27	1993.78	2036.19	2061.51
Zn 206.200	Zn	1953.43	ug/L	6165.17	1884.47	1942.62	2008.16

## Agilent 5110 ICP-OES Report

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**Sample: 2429662\_3244****Analysis Time: 5/11/2022 11:17:36 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	584650.55	1.02	1.02	1.02
Ag 328.068	Ag	508.63	ug/L	19509.88	499.86	508.99	512.82
Al 396.152	Al	2152.16	ug/L	54995.41	2110.4	2146.06	2174.7
As 188.980	As	2036.34	ug/L	1200.63	2015.95	2029.72	2050.19
B 249.678	B	2147.51	ug/L	17735.62	2107.44	2148.58	2163.75
Ba 233.527	Ba	2059.59	ug/L	83297.33	2024.18	2058.96	2077.22
Be 234.861	Be	510.287	ug/L	75733.932	500.515	510.166	514.471
Ca 315.887	Ca	146276.09	ug/L	782028.59	143385.3	146491.09	147335.49
Cd 214.439	Cd	982.99	ug/L	20366.58	966.68	982.15	991.88
Co 228.615	Co	1992.41	ug/L	11617.06	1958.26	1992.19	2008.2
Cr 267.716	Cr	2007.16	ug/L	72345.03	1970.31	2005.51	2024.13
Cu 327.395	Cu	2010.63	ug/L	52841.63	1981.69	2001.57	2020.93
Fe 261.187	Fe	2113.39	ug/L	3729.63	2067.29	2115.33	2134.94
K 766.491	K	26859.23	ug/L	34364.43	26491.77	26885.91	27006.29
Li 670.783	Li	2093.05	ug/L	1173523.19	2054.96	2097.67	2111.28
Mg 279.078	Mg	36857.42	ug/L	95618.7	36315.9	36813.68	37101.64
Mn 257.610	Mn	2010.01	ug/L	258511.14	1973.6	2007.92	2029.28
Mo 204.598	Mo	1983.78	ug/L	7395.84	1939.31	1986.33	1989.73
Na 589.592	Na	52850.02	ug/L	424371.51	52076.27	52935.48	53261.22
Ni 231.604	Ni	1921.26	ug/L	3807.15	1881.3	1920.7	1939.97
P 213.618	P	41090.06	ug/L	31451.73	40404.48	41348.88	41259.13
Pb 220.353	Pb	1936.49	ug/L	3027.98	1903.1	1937.07	1951.77
S 181.972	S	72489.07	ug/L	2790.69	71093.07	72800.66	73091.14
Sb 206.834	Sb	2048.92	ug/L	1588.43	2013.68	2041.28	2066.97
Se 196.026	Se	1983.92	ug/L	1230.59	1954.27	1976.1	2006.76
Si 251.611	Si	12133.77	ug/L	20957.4	11871.38	12130.51	12264.52
Sn 189.925	Sn	2012.39	ug/L	2139.98	1974.69	2009.53	2029.88
Sr 421.552	Sr	2837.42	ug/L	6590172.38	2790	2832.15	2861.21
Ti 334.941	Ti	2004.43	ug/L	501073.06	1962.01	1995.24	2028.04
Tl 190.794	Tl	1897.24	ug/L	1829.29	1819.34	1890.94	1930.53
V 292.401	V	2040.38	ug/L	39551.88	2003.56	2038.72	2057.82
Zn 206.200	Zn	1925.11	ug/L	6075.81	1883.26	1927.16	1940.1

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438371\_3243****Analysis Time: 5/11/2022 11:19:35 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	607190.83	1.04	1.07	1.07
Ag 328.068	Ag	-0.03	ug/L	-1175.49	-0.46	0.23	0.14
Al 396.152	Al	2.22	ug/L	391.99	2.31	1.97	2.55
As 188.980	As	2.83	ug/L	5.34	2.53	-0.21	6.44
B 249.678	B	5.51	ug/L	55.84	7.47	5.51	4.9
Ba 233.527	Ba	0.61	ug/L	20.98	0.38	0.61	0.93
Be 234.861	Be	-0.024	ug/L	0.873	0.007	-0.019	-0.021
Ca 315.887	Ca	22	ug/L	190.5	25.99	28.22	18.69
Cd 214.439	Cd	0.1	ug/L	4.4	0.12	0.13	0.03
Co 228.615	Co	-0.07	ug/L	7.54	0.19	-0.29	-0.15
Cr 267.716	Cr	0.08	ug/L	31.4	0.36	0.26	-0.11
Cu 327.395	Cu	1.34	ug/L	-1632.82	-0.09	1.8	2.54
Fe 261.187	Fe	2.29	ug/L	-20.87	2.1	4.91	2.46
K 766.491	K	1.88	ug/L	415.18	20.61	-24.17	22.57
Li 670.783	Li	-2.01	ug/L	10432.19	-1.66	-2	-2.21
Mg 279.078	Mg	8.95	ug/L	57.64	10.06	8.73	9.4
Mn 257.610	Mn	0.24	ug/L	35.33	0.25	0.41	0.22
Mo 204.598	Mo	1.95	ug/L	0.06	0.43	1.81	3.13
Na 589.592	Na	43.73	ug/L	148.06	45.21	47	44.92
Ni 231.604	Ni	-0.68	ug/L	3.05	0.46	-1.44	-1.43
P 213.618	P	8.12	ug/L	-0.93	6.65	7.74	11.59
Pb 220.353	Pb	1.22	ug/L	5.22	0.72	0.68	3.26
S 181.972	S	16.26	ug/L	1.63	39.4	39.41	-16.45
Sb 206.834	Sb	-0.67	ug/L	1.71	3.06	1.01	-4.41
Se 196.026	Se	6.66	ug/L	6.09	6.71	7.47	6.43
Si 251.611	Si	34.18	ug/L	85.22	42.31	36.04	28.96
Sn 189.925	Sn	-0.35	ug/L	2.28	-0.2	-2.01	1.37
Sr 421.552	Sr	0.33	ug/L	848.01	0.41	0.5	0.26
Ti 334.941	Ti	0.24	ug/L	16228.68	1.6	-0.06	-0.73
Tl 190.794	Tl	1.27	ug/L	-1.27	2.21	-0.03	1.61
V 292.401	V	0.5	ug/L	8.41	0.08	0.67	0.03
Zn 206.200	Zn	0.14	ug/L	-0.97	-0.04	0.69	0.39

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438372\_3243****Analysis Time: 5/11/2022 11:21:34 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	591645.57	1.03	1.03	1.03
Ag 328.068	Ag	502.61	ug/L	19264.92	494.6	502.14	508.52
Al 396.152	Al	2004.86	ug/L	50911.82	1962.12	1998.55	2036.98
As 188.980	As	1956.35	ug/L	1153.19	1920.91	1955.68	1975.11
B 249.678	B	2035.18	ug/L	16808.21	1993.81	2034.02	2061.47
Ba 233.527	Ba	1970.78	ug/L	79696.13	1940.61	1966.52	1992.43
Be 234.861	Be	499.155	ug/L	74082.325	491.042	498.214	504.796
Ca 315.887	Ca	41677.66	ug/L	222898.43	41014.1	41645.36	42154.87
Cd 214.439	Cd	990.48	ug/L	20521.66	973.67	988.31	1002.3
Co 228.615	Co	2028.72	ug/L	11823.49	1993.42	2023.33	2053.38
Cr 267.716	Cr	1995.17	ug/L	71912.33	1962.73	1991.18	2017.09
Cu 327.395	Cu	1979.62	ug/L	52004.54	1942.96	1971.12	2006.49
Fe 261.187	Fe	2027.91	ug/L	3577.97	1998.57	2024.24	2050.81
K 766.491	K	20162.01	ug/L	25898.15	19918.28	20133.91	20399.49
Li 670.783	Li	1954.08	ug/L	1096320.81	1923.96	1953.59	1974.65
Mg 279.078	Mg	20007.32	ug/L	51919.93	19760.28	19888.52	20207.91
Mn 257.610	Mn	1989.79	ug/L	255910.06	1963.28	1978.4	2012.77
Mo 204.598	Mo	1955.76	ug/L	7291.41	1898.85	1941.61	1988.81
Na 589.592	Na	20311.86	ug/L	165230.76	20045.82	20284.13	20494.22
Ni 231.604	Ni	1957.66	ug/L	3879.02	1924.73	1949.49	1983.06
P 213.618	P	39565.61	ug/L	30282.29	39103.43	39481.81	40057.06
Pb 220.353	Pb	1944.48	ug/L	3040.21	1917.82	1934.06	1967.57
S 181.972	S	1956.5	ug/L	76.36	1901.83	1954.05	2013.3
Sb 206.834	Sb	1996.75	ug/L	1548.44	1967.22	2001.63	2018.41
Se 196.026	Se	1942.74	ug/L	1205.11	1894.7	1938.48	1969.12
Si 251.611	Si	10549.99	ug/L	18230.14	10283.38	10549.34	10701.7
Sn 189.925	Sn	2000.33	ug/L	2127.29	1963.6	1994.7	2024.23
Sr 421.552	Sr	2005.34	ug/L	4655848.81	1975.2	2002.3	2027.28
Ti 334.941	Ti	1990.02	ug/L	497611.88	1957.68	1972.54	2003.97
Tl 190.794	Tl	1908.25	ug/L	1840.11	1836.08	1892.62	1950.28
V 292.401	V	1998.11	ug/L	38729.86	1964.66	1993.66	2022.47
Zn 206.200	Zn	1976.01	ug/L	6232.38	1927.5	1962.38	2004.59



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487870001 3243****Analysis Time: 5/11/2022 11:23:33 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	605237.68	1.05	1.06	1.06
Ag 328.068	Ag	-0.2	ug/L	-1181.94	-0.23	-0.3	0.01
Al 396.152	Al	1674.52	ug/L	41256.03	1668.47	1690.52	1670.95
As 188.980	As	4.2	ug/L	6.14	1.12	4.93	5.42
B 249.678	B	18.61	ug/L	163.68	19.26	19.49	18.51
Ba 233.527	Ba	54.49	ug/L	2202.63	54.28	55.14	54.62
Be 234.861	Be	0.046	ug/L	4.789	0.051	0.083	0.005
Ca 315.887	Ca	23398.38	ug/L	125151.97	23449.76	23666.34	23345.95
Cd 214.439	Cd	-0.02	ug/L	3.17	-0.02	-0.07	-0.01
Co 228.615	Co	0.96	ug/L	14.58	1.11	0.45	1.4
Cr 267.716	Cr	2.37	ug/L	112.38	2.28	2.33	2.34
Cu 327.395	Cu	5.26	ug/L	-1526.18	5.31	5.59	4.88
Fe 261.187	Fe	2046.32	ug/L	3623.6	2057.51	2054.02	2039.76
K 766.491	K	1675.23	ug/L	2529.5	1695.07	1664.63	1698.76
Li 670.783	Li	0.86	ug/L	11997.13	1.04	0.95	0.73
Mg 279.078	Mg	3316.79	ug/L	8636.22	3319.94	3335.45	3311.4
Mn 257.610	Mn	137.39	ug/L	17672.78	138	137.62	137.69
Mo 204.598	Mo	2.25	ug/L	1.44	1.44	2.48	2
Na 589.592	Na	2929.85	ug/L	23223.4	2933.04	2953.77	2924.31
Ni 231.604	Ni	2.22	ug/L	8.89	1.61	1.6	2.98
P 213.618	P	70.68	ug/L	47.12	63.3	69.82	72.91
Pb 220.353	Pb	1.58	ug/L	5.75	1.71	0.44	2.45
S 181.972	S	2335.43	ug/L	90.91	2234.01	2433.57	2332.22
Sb 206.834	Sb	0	ug/L	2.25	2.89	-1.72	0.42
Se 196.026	Se	5.1	ug/L	5.01	6.03	10.75	0.48
Si 251.611	Si	4991.71	ug/L	8614.94	4937.79	4996.51	5002.38
Sn 189.925	Sn	-1.45	ug/L	1.06	-0.51	-2.3	-2.56
Sr 421.552	Sr	137.89	ug/L	320766.9	138.26	138.86	137.69
Ti 334.941	Ti	33.1	ug/L	24175.57	25.2	45.81	32.27
Tl 190.794	Tl	0.35	ug/L	-2.04	3.07	0.9	-0.66
V 292.401	V	3.49	ug/L	64.57	3.43	3.78	3.42
Zn 206.200	Zn	10.77	ug/L	33.33	10.69	10.39	11.65

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487870002\_3243****Analysis Time: 5/11/2022 11:25:33 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	607880.64	1.02	1.08	1.08
Ag 328.068	Ag	-0.38	ug/L	-1189.46	-0.2	-0.43	-0.54
Al 396.152	Al	1596.21	ug/L	39350.17	1714.63	1602.31	1569.28
As 188.980	As	1.97	ug/L	4.82	0.43	6.87	2.31
B 249.678	B	15.66	ug/L	139.34	16.16	15.75	15.41
Ba 233.527	Ba	47.04	ug/L	1901.2	50.43	47.4	45.89
Be 234.861	Be	-0.04	ug/L	-8.015	-0.052	-0.054	-0.042
Ca 315.887	Ca	24499.95	ug/L	131040.29	26185.36	24651.65	24019.94
Cd 214.439	Cd	0.06	ug/L	4.73	0.13	0.02	0
Co 228.615	Co	0.4	ug/L	11.28	0.45	0.68	0.35
Cr 267.716	Cr	2.24	ug/L	108.26	2.75	2.12	1.8
Cu 327.395	Cu	3.13	ug/L	-1584.04	3.07	3.36	2.62
Fe 261.187	Fe	2054.23	ug/L	3637.7	2199.05	2068.62	2002.6
K 766.491	K	1747.55	ug/L	2620.85	1864.53	1753.25	1730.78
Li 670.783	Li	0.71	ug/L	11912.95	1.76	0.41	0.33
Mg 279.078	Mg	3573.8	ug/L	9302.73	3794.05	3565.66	3541.11
Mn 257.610	Mn	109.78	ug/L	14122.53	117.32	110.53	107.31
Mo 204.598	Mo	1.55	ug/L	-1.2	1.3	1.87	1.43
Na 589.592	Na	3104.69	ug/L	24600.78	3303.6	3121.28	3042.52
Ni 231.604	Ni	3.19	ug/L	10.83	1.91	3.09	4.21
P 213.618	P	54.55	ug/L	34.82	53.34	54.67	58.02
Pb 220.353	Pb	-0.68	ug/L	2.22	-0.35	-2.1	0.34
S 181.972	S	2696.19	ug/L	104.79	2816.96	2690.07	2688.08
Sb 206.834	Sb	1.09	ug/L	3.12	4.03	1.43	1.1
Se 196.026	Se	3.26	ug/L	3.86	9.57	-3.37	3.68
Si 251.611	Si	4959.25	ug/L	8558.99	5263.79	4931.31	4910.22
Sn 189.925	Sn	-2.91	ug/L	-0.48	-3.42	-1.66	-2.73
Sr 421.552	Sr	148.81	ug/L	346159.98	159.16	149.93	145.48
Ti 334.941	Ti	16.04	ug/L	20046.03	17.03	15.96	15.97
Tl 190.794	Tl	-1.45	ug/L	-3.78	2.72	-1.86	-3.86
V 292.401	V	2.95	ug/L	54.07	3.12	3.29	2.6
Zn 206.200	Zn	7.34	ug/L	22.55	8.59	6.97	6.16

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487870003 3243****Analysis Time: 5/11/2022 11:27:32 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	613999.14	1.06	1.08	1.08
Ag 328.068	Ag	-0.3	ug/L	-1185.6	-0.67	-0.34	0.04
Al 396.152	Al	3600.9	ug/L	88209.74	3631.75	3596.13	3593.71
As 188.980	As	2.69	ug/L	5.21	0.68	-0.13	2.88
B 249.678	B	23.25	ug/L	201.25	23.55	22.23	23.06
Ba 233.527	Ba	76.62	ug/L	3098.13	77.21	76.54	76.61
Be 234.861	Be	0.025	ug/L	-8.346	0.003	0.028	0.022
Ca 315.887	Ca	24241.38	ug/L	129661.73	24359.42	24157.96	24240.88
Cd 214.439	Cd	0	ug/L	5.13	-0.11	0	0.07
Co 228.615	Co	1.79	ug/L	19.73	2.57	1.25	1.7
Cr 267.716	Cr	4.56	ug/L	190.1	4.54	4.51	4.59
Cu 327.395	Cu	9.57	ug/L	-1408.55	9.69	9.56	9.49
Fe 261.187	Fe	5000.07	ug/L	8890.37	5046	4986.83	4980.28
K 766.491	K	2509.09	ug/L	3580.51	2556.07	2520.16	2469.38
Li 670.783	Li	2.03	ug/L	12633.41	2.34	1.9	1.87
Mg 279.078	Mg	4231.51	ug/L	11008.48	4269.98	4221.45	4215.69
Mn 257.610	Mn	243.89	ug/L	31370.71	244.72	242.85	244.22
Mo 204.598	Mo	0.36	ug/L	-5.35	0.85	-0.05	-0.64
Na 589.592	Na	5241.52	ug/L	41663.44	5300.84	5229.76	5222.72
Ni 231.604	Ni	4.84	ug/L	14.21	4.39	5.05	4.67
P 213.618	P	194.9	ug/L	142.29	198.86	187.24	193.75
Pb 220.353	Pb	4.14	ug/L	9.64	6.88	-0.42	4.1
S 181.972	S	2385.21	ug/L	92.83	2382.29	2446.54	2352.67
Sb 206.834	Sb	-2.91	ug/L	0.08	-4.42	-2.07	-3.55
Se 196.026	Se	5.33	ug/L	4.95	5.2	2.16	3.19
Si 251.611	Si	8178.25	ug/L	14097.46	8233.41	8167.79	8165.76
Sn 189.925	Sn	-0.84	ug/L	1.69	-0.61	0.19	-1.97
Sr 421.552	Sr	141.37	ug/L	328872.64	142.7	141.02	140.97
Ti 334.941	Ti	49.67	ug/L	28182.47	53.63	47.91	48.84
Tl 190.794	Tl	-1.09	ug/L	-3.38	-0.62	-2.44	0.96
V 292.401	V	6.15	ug/L	112.98	6.14	6.27	6.09
Zn 206.200	Zn	24.86	ug/L	77.69	26.12	25.36	24.4

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487870004\_3243****Analysis Time: 5/11/2022 11:29:31 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	611580.5	1.02	1.1	1.08
Ag 328.068	Ag	0.23	ug/L	-1164.2	-0.23	0.36	0.47
Al 396.152	Al	4179.44	ug/L	102262.93	4328.31	4067.59	4166.84
As 188.980	As	3.97	ug/L	5.95	1.81	3.23	4.87
B 249.678	B	18.29	ug/L	160.35	20.71	17.29	17.94
Ba 233.527	Ba	70.09	ug/L	2833.3	72.32	68.17	69.9
Be 234.861	Be	0.003	ug/L	-10.811	-0.025	0.023	0.017
Ca 315.887	Ca	13751.16	ug/L	73587.35	14183.52	13432.3	13711.24
Cd 214.439	Cd	-0.03	ug/L	4.87	-0.12	-0.08	-0.05
Co 228.615	Co	1.58	ug/L	17.86	1.25	1.51	2.03
Cr 267.716	Cr	4.87	ug/L	202.99	5.1	4.66	4.59
Cu 327.395	Cu	7.31	ug/L	-1469.37	7.1	7.53	7.22
Fe 261.187	Fe	5098.63	ug/L	9066.21	5262.47	4964.5	5088.38
K 766.491	K	2057.31	ug/L	3008.77	2158.78	1995.71	2041.24
Li 670.783	Li	2.53	ug/L	12918.85	3.55	1.83	2.37
Mg 279.078	Mg	3318.15	ug/L	8639.71	3422.62	3231.86	3316.26
Mn 257.610	Mn	167.29	ug/L	21524.28	172.51	163.15	167.15
Mo 204.598	Mo	1.38	ug/L	-1.51	1.61	1.13	0.4
Na 589.592	Na	3106.66	ug/L	24659.23	3215.49	3033.73	3091.21
Ni 231.604	Ni	6.04	ug/L	16.58	5.94	5.97	5.82
P 213.618	P	134.32	ug/L	95.78	133.99	137.59	133.02
Pb 220.353	Pb	2.01	ug/L	6.23	5.6	3.06	-0.12
S 181.972	S	1994.6	ug/L	77.79	2043.01	1905.55	2020.87
Sb 206.834	Sb	-0.61	ug/L	1.89	-1.37	-3.75	7.2
Se 196.026	Se	4.03	ug/L	4.11	6.07	1.33	5.23
Si 251.611	Si	8608.37	ug/L	14837.31	8853.06	8320.89	8695.34
Sn 189.925	Sn	-1.63	ug/L	0.87	-1.46	-2.16	-0.15
Sr 421.552	Sr	84.64	ug/L	196909.11	87.51	82.42	84.37
Ti 334.941	Ti	43.12	ug/L	26601.05	43.85	43.57	42.03
Tl 190.794	Tl	0.21	ug/L	-2.25	0.56	1.09	-0.49
V 292.401	V	6.87	ug/L	126.95	6.73	6.74	6.92
Zn 206.200	Zn	21.69	ug/L	67.31	22.34	21.21	21.21

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 11:31:30 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	595898.06	0.96	1.07	1.07
Ag 328.068	Ag	1029.5	ug/L	41138.56	1095.91	999.6	1009.23
Al 396.152	Al	10024.28	ug/L	246729.5	10681.55	9724.91	9828.28
As 188.980	As	2056.45	ug/L	1211.99	2182.33	2001.36	2017.53
B 249.678	B	2121.72	ug/L	17519.15	2254.7	2060.96	2082.9
Ba 233.527	Ba	2110.06	ug/L	85328.7	2249.88	2048	2067.75
Be 234.861	Be	2051.16	ug/L	304426.287	2183.635	1991.131	2011.73
Ca 315.887	Ca	10379.9	ug/L	55585.2	11085.41	10072.53	10171.66
Cd 214.439	Cd	2074.61	ug/L	42988.85	2198.54	2022.78	2032.84
Co 228.615	Co	2121.38	ug/L	12356.64	2264.16	2060.43	2075.74
Cr 267.716	Cr	2069.76	ug/L	74602.18	2207.76	2006.57	2028.26
Cu 327.395	Cu	2019.08	ug/L	53076.16	2149.23	1959.49	1981.91
Fe 261.187	Fe	10318.99	ug/L	18360.18	10987.19	10005.55	10136.45
K 766.491	K	10082.26	ug/L	13182.38	10817.19	9746.93	9882.17
Li 670.783	Li	1928.53	ug/L	1082000.17	2070.1	1871.28	1885.13
Mg 279.078	Mg	10242.27	ug/L	26595.54	10924.09	9930.56	10040.84
Mn 257.610	Mn	2089.76	ug/L	268790.12	2225.83	2028.59	2048.66
Mo 204.598	Mo	1983.98	ug/L	7397.92	2112	1920.6	1960.18
Na 589.592	Na	10315.08	ug/L	85933.72	11049.44	10002.53	10073.93
Ni 231.604	Ni	2064.2	ug/L	4089.93	2201.27	2004.45	2028.65
P 213.618	P	2054.09	ug/L	1505.31	2159.14	1991.97	2035.83
Pb 220.353	Pb	2084.3	ug/L	3257.38	2223.68	2021.78	2038.84
S 181.972	S	10197.46	ug/L	393.44	10908.26	9849.69	10005.04
Sb 206.834	Sb	2068.4	ug/L	1604.53	2188.68	2018.04	2026.76
Se 196.026	Se	2091.07	ug/L	1296.25	2235.54	2028.77	2040.43
Si 251.611	Si	10754.36	ug/L	18583.91	11431.18	10427.3	10549.02
Sn 189.925	Sn	2045.6	ug/L	2176.24	2175.6	1984.24	2011.5
Sr 421.552	Sr	2097.66	ug/L	4869070.24	2238.53	2039.32	2056.34
Ti 334.941	Ti	2033.99	ug/L	508255.72	2166.23	1971.18	1998.66
Tl 190.794	Tl	2137.55	ug/L	2061.55	2279.86	2062.36	2102.76
V 292.401	V	2059.64	ug/L	39912.7	2197.98	1998.09	2018.08
Zn 206.200	Zn	2078.68	ug/L	6554.65	2218.06	2003.3	2045.85

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 11:33:30 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	604605.7	1.03	1.08	1.06
Ag 328.068	Ag	0.15	ug/L	-1168.14	0.11	0.39	0.17
Al 396.152	Al	0.19	ug/L	343.1	1.53	-0.17	0.03
As 188.980	As	1.77	ug/L	4.71	3.66	0.39	0.28
B 249.678	B	3.96	ug/L	43.09	5.9	3.42	3.55
Ba 233.527	Ba	0.24	ug/L	5.9	0.53	0.23	0.11
Be 234.861	Be	0.06	ug/L	13.314	0.148	0.025	0.015
Ca 315.887	Ca	1.89	ug/L	83.05	3.66	1.32	2.52
Cd 214.439	Cd	0.12	ug/L	4.86	0.28	0.06	0.16
Co 228.615	Co	-0.28	ug/L	6.27	-0.01	-0.5	0.1
Cr 267.716	Cr	-0.01	ug/L	28.4	0.1	0.11	-0.04
Cu 327.395	Cu	0.42	ug/L	-1657.67	-0.91	1.22	0.82
Fe 261.187	Fe	2.23	ug/L	-20.97	2	3.39	4.04
K 766.491	K	29.48	ug/L	449.97	18.84	36.12	16.72
Li 670.783	Li	-3.37	ug/L	9677.3	-2.81	-3.66	-3.44
Mg 279.078	Mg	3.47	ug/L	43.42	5.4	3.77	3.19
Mn 257.610	Mn	0.21	ug/L	31.71	0.36	0.22	0.13
Mo 204.598	Mo	3.03	ug/L	4.07	2.68	4.02	1.83
Na 589.592	Na	24.32	ug/L	-7.1	22.29	23.7	31.56
Ni 231.604	Ni	-0.12	ug/L	4.15	0.39	-0.1	0.31
P 213.618	P	-3.13	ug/L	-9.56	-2.39	-3.66	-2.59
Pb 220.353	Pb	-0.3	ug/L	2.83	0.53	1.3	-3.73
S 181.972	S	24.11	ug/L	1.93	50.45	7.36	25.79
Sb 206.834	Sb	-0.91	ug/L	1.52	-2.69	-1.96	-2.6
Se 196.026	Se	3.64	ug/L	4.22	-0.28	2.99	4.65
Si 251.611	Si	4.94	ug/L	34.93	10.45	2.82	2.65
Sn 189.925	Sn	-2.5	ug/L	-0.01	-2.83	-2.09	-2.96
Sr 421.552	Sr	0.16	ug/L	449.2	0.27	0.17	0.12
Ti 334.941	Ti	0.24	ug/L	16229.07	1.45	-0.45	-0.32
Tl 190.794	Tl	0.64	ug/L	-1.89	0.59	-1.49	1.43
V 292.401	V	0.19	ug/L	2.32	0.22	0.57	0.2
Zn 206.200	Zn	0.45	ug/L	0.01	0.68	0.27	0.63

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486606001 3243****Analysis Time: 5/11/2022 11:35:29 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	580678.25	1.02	1.02	1.01
Ag 328.068	Ag	-0.46	ug/L	-1191.69	-0.62	-0.65	-0.29
Al 396.152	Al	23.76	ug/L	1595.94	25.35	21.25	25.79
As 188.980	As	5.29	ug/L	6.93	5.15	6.71	6.19
B 249.678	B	184.46	ug/L	1531.04	180.96	184.2	186.56
Ba 233.527	Ba	85.38	ug/L	3465.48	83.44	85.43	86.7
Be 234.861	Be	-0.168	ug/L	-51.895	-0.166	-0.195	-0.167
Ca 315.887	Ca	149799.07	ug/L	800823.14	146163.33	149410.7	151845.5
Cd 214.439	Cd	-0.11	ug/L	2.71	-0.27	0.07	-0.23
Co 228.615	Co	-0.81	ug/L	13.44	-0.91	-0.42	-1.36
Cr 267.716	Cr	-0.07	ug/L	14.24	0.09	-0.16	0.01
Cu 327.395	Cu	0.98	ug/L	-1645.12	0.82	0.5	1.41
Fe 261.187	Fe	6064.24	ug/L	10790.38	5938.37	6060.02	6135.76
K 766.491	K	3807.47	ug/L	5252.89	3743.11	3774.17	3867.43
Li 670.783	Li	254.63	ug/L	152998.78	248.87	254.68	257.87
Mg 279.078	Mg	81554.29	ug/L	211531.49	79804.45	81620.98	82572.44
Mn 257.610	Mn	862.8	ug/L	110938.82	845.06	862.27	872.98
Mo 204.598	Mo	-0.16	ug/L	-7.38	0.11	0.17	-0.95
Na 589.592	Na	130964.44	ug/L	1042269.94	128672.15	131051.1	132239.47
Ni 231.604	Ni	0.34	ug/L	6.13	-0.04	2.69	0.31
P 213.618	P	2.25	ug/L	-3.91	4.72	-0.66	2.21
Pb 220.353	Pb	-3.77	ug/L	-1.68	-3.39	-3.06	-4.08
S 181.972	S	58084.74	ug/L	2236.42	56991.85	58270.53	58637.96
Sb 206.834	Sb	2.44	ug/L	3.81	7.03	-2.02	3.46
Se 196.026	Se	-0.69	ug/L	1.28	-0.79	1.55	-2.13
Si 251.611	Si	7788.91	ug/L	13431.42	7622.51	7792.03	7882.68
Sn 189.925	Sn	-3.79	ug/L	-1.51	-5.67	-6.46	-0.92
Sr 421.552	Sr	3621.04	ug/L	8409146.5	3547.56	3613.87	3662.8
Ti 334.941	Ti	-0.33	ug/L	16054.18	-0.57	-0.36	-0.19
Tl 190.794	Tl	-2.36	ug/L	-3.05	-1.78	-3.13	0.27
V 292.401	V	0.99	ug/L	10.21	0.93	1.17	0.52
Zn 206.200	Zn	-0.21	ug/L	4.21	-0.43	-0.21	-0.68

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486606002\_3243****Analysis Time: 5/11/2022 11:37:28 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1 Ratio		574235.75	1	1	1
Ag 328.068	Ag	-0.58	ug/L	-1197.58	-0.6	-0.76	-0.37
Al 396.152	Al	31.43	ug/L	1700.87	32.01	30.15	30.62
As 188.980	As	7.01	ug/L	7.96	9.59	9.29	6
B 249.678	B	290.07	ug/L	2404.38	284.17	290.82	292.83
Ba 233.527	Ba	100.95	ug/L	4091.85	98.33	100.3	103.04
Be 234.861	Be	-0.066	ug/L	-6.639	-0.028	-0.078	-0.063
Ca 315.887	Ca	131681.47	ug/L	703975.92	127386.41	132033.14	133791.72
Cd 214.439	Cd	0.05	ug/L	3.45	0.03	0.03	0.06
Co 228.615	Co	-1.35	ug/L	7.01	-0.66	-0.78	-1.75
Cr 267.716	Cr	0.15	ug/L	32.02	0.17	0.2	0
Cu 327.395	Cu	1.11	ug/L	-1642.25	0.57	1.39	1.27
Fe 261.187	Fe	41.51	ug/L	49.22	42.48	37.87	41.51
K 766.491	K	3504.36	ug/L	4861.96	3430.17	3522.85	3534.22
Li 670.783	Li	44.75	ug/L	36326.44	43.82	44.74	45.24
Mg 279.078	Mg	37542.12	ug/L	97394.2	36572.24	37617.79	38041.13
Mn 257.610	Mn	191.92	ug/L	24678.93	185.74	193.77	193.7
Mo 204.598	Mo	0.42	ug/L	-5.46	0.71	0.29	0.97
Na 589.592	Na	285927.2	ug/L	2275577	280950.74	286305.17	288457.28
Ni 231.604	Ni	3.77	ug/L	12.24	3.37	3.73	4.11
P 213.618	P	79.54	ug/L	55.1	86.24	77.67	71.02
Pb 220.353	Pb	-2.65	ug/L	-0.34	-1.85	-5.07	-2.29
S 181.972	S	48396.77	ug/L	1863.56	47613.25	48463.44	48626.37
Sb 206.834	Sb	0.59	ug/L	2.42	2	0.82	-1.16
Se 196.026	Se	-1.79	ug/L	0.91	2.4	-5.7	0.82
Si 251.611	Si	6047.47	ug/L	10433.41	5906.54	6052.46	6110.83
Sn 189.925	Sn	-2.38	ug/L	-0.02	-3.62	-2.05	-1.29
Sr 421.552	Sr	1828.44	ug/L	4247820.66	1790.83	1828.16	1847.78
Ti 334.941	Ti	-0.15	ug/L	16101.58	-0.18	-0.12	-0.13
Tl 190.794	Tl	-1.22	ug/L	-3.04	-1.16	-2.66	-0.69
V 292.401	V	0.89	ug/L	16.6	0.44	0.94	1.06
Zn 206.200	Zn	-0.4	ug/L	2.58	-0.32	-0.56	-0.34



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486606003 3243****Analysis Time: 5/11/2022 11:39:27 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	585154.57	1.02	1.02	1.03
Ag 328.068	Ag	-0.53	ug/L	-1195.31	-0.74	-0.33	-0.4
Al 396.152	Al	19.94	ug/L	1032.31	22.55	20.4	17.85
As 188.980	As	1.94	ug/L	4.86	2.84	1.77	-1.13
B 249.678	B	251.54	ug/L	2086.02	251.28	251.78	252.48
Ba 233.527	Ba	139.99	ug/L	5662.9	138.53	140.58	140.6
Be 234.861	Be	0.124	ug/L	22.183	0.62	0.006	-0.058
Ca 315.887	Ca	44396.81	ug/L	237395.89	44255.38	44464.66	44388.82
Cd 214.439	Cd	0.08	ug/L	4.06	0.4	0.05	-0.06
Co 228.615	Co	-0.22	ug/L	5.59	0.18	-0.49	0.09
Cr 267.716	Cr	0.24	ug/L	37.54	0.95	0.15	0.07
Cu 327.395	Cu	0.7	ug/L	-1650.89	1.31	0.22	0.25
Fe 261.187	Fe	15	ug/L	2.37	20.76	12.94	14.01
K 766.491	K	4403.52	ug/L	5977.44	4408.05	4394.2	4450.83
Li 670.783	Li	26.48	ug/L	26225.19	26.91	26.52	26.36
Mg 279.078	Mg	21015.82	ug/L	54535.34	20682.77	21339.1	21040.24
Mn 257.610	Mn	18.11	ug/L	2333.11	18.38	18.16	17.91
Mo 204.598	Mo	0.11	ug/L	-6.68	0.61	-0.44	-0.87
Na 589.592	Na	110356.37	ug/L	878349.46	110208.07	110827.08	110392.41
Ni 231.604	Ni	-0.57	ug/L	3.47	-1.26	0.07	-0.39
P 213.618	P	7.52	ug/L	-0.91	8.79	5.54	7.52
Pb 220.353	Pb	-2.2	ug/L	0.09	-6.35	0	0.54
S 181.972	S	11345.04	ug/L	437.64	11341.19	11277.08	11333.85
Sb 206.834	Sb	1.1	ug/L	2.97	6.77	-5.58	-0.26
Se 196.026	Se	1.98	ug/L	3.2	-0.46	3.53	6.2
Si 251.611	Si	5740.85	ug/L	9904.1	5720.63	5759.77	5748.43
Sn 189.925	Sn	-1.76	ug/L	0.74	-0.77	-0.07	-4.92
Sr 421.552	Sr	2013.56	ug/L	4675001.51	2008.59	2022.34	2014.59
Ti 334.941	Ti	0.2	ug/L	16207.36	1	-0.01	-0.13
Tl 190.794	Tl	-0.64	ug/L	-2.9	0.11	-0.64	0.27
V 292.401	V	0.99	ug/L	18.54	1.62	1.04	1.01
Zn 206.200	Zn	1.2	ug/L	4.25	2.14	0.81	0.93

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486606004\_3243****Analysis Time: 5/11/2022 11:41:27 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	577951.09	1.01	1.01	1.01
Ag 328.068	Ag	-0.7	ug/L	-1201.61	-0.58	-0.36	-0.76
Al 396.152	Al	20.51	ug/L	1493.12	19.9	18.81	20.1
As 188.980	As	3.7	ug/L	5.99	3.5	5.95	-0.17
B 249.678	B	180.67	ug/L	1499.79	176.39	180.58	182.74
Ba 233.527	Ba	82.86	ug/L	3362.97	81.55	82.86	83.56
Be 234.861	Be	-0.167	ug/L	-50.685	-0.164	-0.174	-0.166
Ca 315.887	Ca	144478.12	ug/L	772379.98	141814.23	143797.09	145824.85
Cd 214.439	Cd	-0.06	ug/L	3.76	-0.02	-0.12	-0.08
Co 228.615	Co	-1.17	ug/L	10.96	-0.83	-0.74	-1.68
Cr 267.716	Cr	-0.21	ug/L	9.83	0.13	-0.41	-0.12
Cu 327.395	Cu	0.5	ug/L	-1658.07	0.7	0.48	0.44
Fe 261.187	Fe	5844.27	ug/L	10398.09	5731.6	5830.57	5898.54
K 766.491	K	3727.18	ug/L	5150.35	3681.75	3706.52	3767.17
Li 670.783	Li	244.05	ug/L	147122.52	239.54	243.88	246.16
Mg 279.078	Mg	78500.26	ug/L	203611.39	76537.25	78930.28	79003.79
Mn 257.610	Mn	828.98	ug/L	106590.29	813.34	828.77	836.78
Mo 204.598	Mo	-0.47	ug/L	-8.57	0.7	-0.54	-0.78
Na 589.592	Na	128722.3	ug/L	1024420.24	126422.79	128677.22	129931.82
Ni 231.604	Ni	2.22	ug/L	9.82	1.22	1.95	3.99
P 213.618	P	6.58	ug/L	-0.63	5.47	4.26	10.51
Pb 220.353	Pb	-4.2	ug/L	-2.38	-5.16	-3.62	-3.03
S 181.972	S	55890.5	ug/L	2151.98	54543.69	56054.33	56631.29
Sb 206.834	Sb	-1.47	ug/L	0.79	-4.98	2.27	-8.68
Se 196.026	Se	-2.68	ug/L	0.05	2.23	-3.57	-2.6
Si 251.611	Si	7538.6	ug/L	13000.61	7397.08	7542.65	7604.91
Sn 189.925	Sn	-1.96	ug/L	0.43	-3.45	1.5	-2.82
Sr 421.552	Sr	3540.91	ug/L	8223010.8	3473.62	3541.64	3572.2
Ti 334.941	Ti	-0.28	ug/L	16067.27	-0.52	-0.19	-0.2
Tl 190.794	Tl	-1.13	ug/L	-1.92	0.08	-1.73	-2.93
V 292.401	V	1.05	ug/L	11.64	0.92	1.33	1.42
Zn 206.200	Zn	-0.74	ug/L	2.3	-0.46	-0.18	-1.95

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486972001 3243****Analysis Time: 5/11/2022 11:43:26 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	579745.04	1	1.02	1.03
Ag 328.068	Ag	-0.02	ug/L	-1188.97	-0.41	0.34	0.22
Al 396.152	Al	195.89	ug/L	5546.4	197.94	194.7	194.37
As 188.980	As	6.22	ug/L	7.3	9.06	4.69	8.64
B 249.678	B	106.88	ug/L	891.8	107.46	106.92	105.55
Ba 233.527	Ba	77.65	ug/L	3130.13	77.83	77.28	77.65
Be 234.861	Be	-0.068	ug/L	-7.035	-0.074	-0.084	-0.071
Ca 315.887	Ca	3234.58	ug/L	17364.62	3292.64	3217.16	3179.77
Cd 214.439	Cd	0.06	ug/L	3.2	0.02	0.06	0.05
Co 228.615	Co	1.95	ug/L	3.2	1.88	1.78	2.45
Cr 267.716	Cr	0.37	ug/L	41.75	0.29	0.36	0.39
Cu 327.395	Cu	1.74	ug/L	-1621.1	0.67	2.29	2.45
Fe 261.187	Fe	266.74	ug/L	449.32	266.05	266.05	263.52
K 766.491	K	938.57	ug/L	1603.03	952.97	902.86	944.86
Li 670.783	Li	17.18	ug/L	20934.58	17.69	16.84	16.84
Mg 279.078	Mg	412.12	ug/L	1103.39	414.64	409.89	409.35
Mn 257.610	Mn	10.68	ug/L	1405.28	10.75	10.53	10.53
Mo 204.598	Mo	651.92	ug/L	2422.84	656.75	647.12	646.83
Na 589.592	Na	363037.64	ug/L	2889210.31	366751.4	360876.41	359268.03
Ni 231.604	Ni	0.73	ug/L	5.85	-1.74	2.23	3.15
P 213.618	P	52.97	ug/L	28.16	53.28	53.96	50.79
Pb 220.353	Pb	-1.22	ug/L	0.88	-0.48	-1.56	-1.43
S 181.972	S	1844.13	ug/L	71.98	1928.58	1831.56	1827.21
Sb 206.834	Sb	-4.36	ug/L	-6.15	-8.01	-3.57	-1.28
Se 196.026	Se	1.01	ug/L	2.58	0.68	-0.53	3.25
Si 251.611	Si	3259.96	ug/L	5646.95	3258.97	3250.13	3233.17
Sn 189.925	Sn	-0.7	ug/L	2.01	-1.11	-1.29	-0.75
Sr 421.552	Sr	149.46	ug/L	347072.96	150.76	148.48	148.14
Ti 334.941	Ti	1.62	ug/L	16548.77	2.74	1.03	0.68
Tl 190.794	Tl	0.65	ug/L	-4.26	3.04	-1.92	0.12
V 292.401	V	0.16	ug/L	-78.23	0.17	0.12	0.21
Zn 206.200	Zn	5.76	ug/L	17.29	6.63	6.23	5.01

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438438\_3243****Analysis Time: 5/11/2022 11:45:25 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.99	Ratio	566631.3	0.96	1	1
Ag 328.068	Ag	560.95	ug/L	21624.44	571.9	555.07	556.39
Al 396.152	Al	2854.69	ug/L	72218.38	2904.96	2812.39	2842.35
As 188.980	As	2209.11	ug/L	1302.21	2258.08	2182.05	2194.82
B 249.678	B	2378.77	ug/L	19642.89	2416.56	2352.15	2369.11
Ba 233.527	Ba	2236.55	ug/L	90438.3	2285.52	2207.85	2219.06
Be 234.861	Be	554.356	ug/L	82273.356	566.115	547.942	549.875
Ca 315.887	Ca	48396.58	ug/L	258819.82	49510.68	47852.12	47953.99
Cd 214.439	Cd	1082.89	ug/L	22436	1104.85	1068.22	1075.6
Co 228.615	Co	2225.36	ug/L	12950.85	2272.04	2197.98	2207.72
Cr 267.716	Cr	2182.91	ug/L	78676.5	2227.54	2156.15	2166.81
Cu 327.395	Cu	2280.73	ug/L	60166.71	2325.52	2251.06	2256.68
Fe 261.187	Fe	2565.19	ug/L	4533.71	2614.57	2530.31	2553.42
K 766.491	K	25664.99	ug/L	32848.34	26291.05	25337.28	25454
Li 670.783	Li	2539.93	ug/L	1421782.63	2599.55	2510.89	2519.59
Mg 279.078	Mg	22210.58	ug/L	57633.94	22631.83	21969.53	21975.86
Mn 257.610	Mn	2203.65	ug/L	283442.37	2248.53	2175.12	2189.44
Mo 204.598	Mo	2781.46	ug/L	10370.01	2811.81	2736.19	2793.05
Na 589.592	Na	378685.95	ug/L	3017887.84	388401.58	373693.61	376231.22
Ni 231.604	Ni	2140.28	ug/L	4240.5	2181.63	2114.67	2128.8
P 213.618	P	45058.44	ug/L	34482.35	46207	44371.57	44570.32
Pb 220.353	Pb	2127.72	ug/L	3325.83	2167.09	2103.35	2110.05
S 181.972	S	4060.31	ug/L	157.33	4136.01	4063.24	3960.49
Sb 206.834	Sb	2227.12	ug/L	1721.14	2268.54	2197.05	2209.9
Se 196.026	Se	2176.3	ug/L	1349.69	2236.43	2136.09	2159.85
Si 251.611	Si	15511.83	ug/L	26783.81	15714.92	15317.17	15457.5
Sn 189.925	Sn	2181.51	ug/L	2319.79	2225.97	2154.18	2170.99
Sr 421.552	Sr	2321.79	ug/L	5390572.47	2367.96	2297.43	2303.28
Ti 334.941	Ti	2198.49	ug/L	548031.74	2238.48	2168.02	2200.19
Tl 190.794	Tl	2060.24	ug/L	1984.34	2064.86	2023.67	2059.52
V 292.401	V	2218.73	ug/L	42934.23	2262.77	2189.39	2204.29
Zn 206.200	Zn	2188.65	ug/L	6903.79	2220.09	2142.9	2211.65

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438439\_3243****Analysis Time: 5/11/2022 11:47:24 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	580198.36	1.01	1.02	1.01
Ag 328.068	Ag	556.54	ug/L	21444.53	552.36	555.87	560.03
Al 396.152	Al	2905.44	ug/L	73469.2	2894.95	2911.57	2927.31
As 188.980	As	2214.11	ug/L	1304.96	2204.48	2217.16	2228.18
B 249.678	B	2374.74	ug/L	19609.8	2361.83	2374.8	2386.93
Ba 233.527	Ba	2243.4	ug/L	90715.05	2236.75	2244.96	2256.78
Be 234.861	Be	554.412	ug/L	82281.481	553.099	554.485	557.116
Ca 315.887	Ca	48238.84	ug/L	257976.85	48212.88	48286.23	48449.77
Cd 214.439	Cd	1080.94	ug/L	22395.62	1076.47	1081.37	1086.86
Co 228.615	Co	2227.68	ug/L	12965.65	2222.86	2229.26	2238.45
Cr 267.716	Cr	2182.35	ug/L	78656.51	2179.1	2184.5	2193.61
Cu 327.395	Cu	2278.27	ug/L	60100.14	2268.48	2280.22	2283.09
Fe 261.187	Fe	2596.84	ug/L	4589.89	2594.69	2596.16	2612.04
K 766.491	K	25689.4	ug/L	32879.45	25689.88	25713.86	25789.16
Li 670.783	Li	2542.05	ug/L	1422949.74	2538.01	2542.59	2555.62
Mg 279.078	Mg	22256.14	ug/L	57752.07	22115.22	22186.73	22483.08
Mn 257.610	Mn	2214.27	ug/L	284808.7	2208.39	2214.92	2224.7
Mo 204.598	Mo	2795.96	ug/L	10424.08	2755.99	2797.12	2824.59
Na 589.592	Na	377377.45	ug/L	3007487.51	376719.91	376764.42	378487.73
Ni 231.604	Ni	2146.38	ug/L	4252.58	2140.49	2144	2159.39
P 213.618	P	45188.1	ug/L	34581.74	44831.43	45196.06	45491.65
Pb 220.353	Pb	2125.11	ug/L	3321.73	2118.85	2121.58	2137.39
S 181.972	S	4095.04	ug/L	158.67	3989.39	4156.26	4122.89
Sb 206.834	Sb	2222.87	ug/L	1718.2	2205.91	2232.28	2230.17
Se 196.026	Se	2185.81	ug/L	1355.58	2169.21	2181.81	2204.94
Si 251.611	Si	15714.63	ug/L	27133.13	15581.59	15718.27	15820.43
Sn 189.925	Sn	2175.83	ug/L	2313.74	2161.32	2174.3	2189.35
Sr 421.552	Sr	2317.81	ug/L	5381325.49	2317.98	2323.59	2324.36
Ti 334.941	Ti	2205.31	ug/L	549681.52	2187.52	2213.57	2213.28
Tl 190.794	Tl	2056.4	ug/L	1980.57	1987.07	2046.83	2092.04
V 292.401	V	2216.57	ug/L	42887.41	2209.85	2216.44	2230.44
Zn 206.200	Zn	2177.86	ug/L	6869.74	2149.87	2175.2	2196.17

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486972002\_3243****Analysis Time: 5/11/2022 11:49:23 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	580982.91	0.99	1.02	1.02
Ag 328.068	Ag	0.3	ug/L	-1174.58	-0.08	0.85	0.2
Al 396.152	Al	1946.36	ug/L	48207.99	2097.07	1953.14	1894.2
As 188.980	As	24.93	ug/L	18.34	24.49	27	24.94
B 249.678	B	130.61	ug/L	1087.35	137.93	130.81	128.46
Ba 233.527	Ba	95.2	ug/L	3840.6	99.93	95.71	93.84
Be 234.861	Be	0.244	ug/L	37.139	0.309	0.25	0.242
Ca 315.887	Ca	4476.59	ug/L	24006.58	4705.16	4487.69	4411.75
Cd 214.439	Cd	0.14	ug/L	5.84	0.28	0.2	0.1
Co 228.615	Co	3.47	ug/L	12.24	4.02	3.46	3.83
Cr 267.716	Cr	1.29	ug/L	74.62	1.63	1.15	1.15
Cu 327.395	Cu	6.73	ug/L	-1485.14	6.72	7.45	6.78
Fe 261.187	Fe	1333.87	ug/L	2352.15	1405.33	1338.99	1311.01
K 766.491	K	1229.22	ug/L	1969.56	1286.67	1225.86	1206.32
Li 670.783	Li	21.49	ug/L	23324.45	23.16	21.48	20.99
Mg 279.078	Mg	1245.75	ug/L	3265.3	1300.36	1252.95	1238.95
Mn 257.610	Mn	53.07	ug/L	6858.98	55.91	53.38	52.18
Mo 204.598	Mo	638.56	ug/L	2373.28	667.98	642.16	627.58
Na 589.592	Na	367365.47	ug/L	2923687.26	382343.49	368133.16	362476.57
Ni 231.604	Ni	1.91	ug/L	8.24	2.71	0.41	1.98
P 213.618	P	56.81	ug/L	31.08	58.13	58.11	52.45
Pb 220.353	Pb	1.78	ug/L	5.49	5.28	2.9	1.62
S 181.972	S	4307.02	ug/L	166.76	4472.99	4312.71	4215.04
Sb 206.834	Sb	2.49	ug/L	-0.72	-0.74	5.4	4.36
Se 196.026	Se	3.34	ug/L	3.94	3.45	4.92	5.05
Si 251.611	Si	12689.35	ug/L	21869.21	13308.43	12685.25	12515.78
Sn 189.925	Sn	-0.36	ug/L	2.36	-2.17	0.79	1.78
Sr 421.552	Sr	215.41	ug/L	500201.11	226.35	216.34	211.91
Ti 334.941	Ti	12.91	ug/L	19280.57	15.03	12.35	12.23
Tl 190.794	Tl	3.78	ug/L	-1.19	2.67	2.69	6.25
V 292.401	V	8.51	ug/L	85.07	9.18	8.47	8.39
Zn 206.200	Zn	10.76	ug/L	33.07	11.88	10.37	10.38

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486972003 3243****Analysis Time: 5/11/2022 11:51:23 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	586839.01	1.03	1	1.04
Ag 328.068	Ag	0.67	ug/L	-1160.67	0.53	1.11	0.62
Al 396.152	Al	107.51	ug/L	3386.05	105.96	109.14	108.39
As 188.980	As	6.71	ug/L	7.58	6.7	9.31	6.65
B 249.678	B	98.81	ug/L	825.15	98.11	100.56	97.43
Ba 233.527	Ba	69.78	ug/L	2811.79	69.22	70.57	68.97
Be 234.861	Be	-0.059	ug/L	-5.506	-0.078	0.004	-0.08
Ca 315.887	Ca	2532.11	ug/L	13609.43	2489.67	2605.14	2492.14
Cd 214.439	Cd	-0.04	ug/L	1.03	-0.01	-0.16	-0.02
Co 228.615	Co	2.24	ug/L	5.13	2.4	2.02	2.12
Cr 267.716	Cr	0.4	ug/L	42.88	0.62	0.32	0.16
Cu 327.395	Cu	2.11	ug/L	-1611.16	1.11	3.48	2.19
Fe 261.187	Fe	154.62	ug/L	249.43	153.1	157.18	150.55
K 766.491	K	928.28	ug/L	1589.88	942.59	945.65	896.23
Li 670.783	Li	17.95	ug/L	21366.3	17.56	18.96	17.29
Mg 279.078	Mg	352.37	ug/L	948.42	345.95	364.54	346.2
Mn 257.610	Mn	8.21	ug/L	1087.9	8.06	8.45	7.91
Mo 204.598	Mo	645.98	ug/L	2400.7	635.84	662.93	635.28
Na 589.592	Na	356440.24	ug/L	2836689.41	351425.82	366702.83	350427.68
Ni 231.604	Ni	1.18	ug/L	6.74	-1.14	2.37	2.32
P 213.618	P	37.31	ug/L	16.17	40.92	36.1	35.24
Pb 220.353	Pb	0.04	ug/L	2.86	-2.06	2.89	0.15
S 181.972	S	7907.42	ug/L	305.31	7697.43	8255.24	7743.78
Sb 206.834	Sb	0.76	ug/L	-2.14	-1.33	-0.53	3.79
Se 196.026	Se	3.29	ug/L	4	2.16	5.25	7.03
Si 251.611	Si	4244.1	ug/L	7339.94	4176.49	4318.8	4202.38
Sn 189.925	Sn	-2.14	ug/L	0.48	-2.86	-0.41	-3.79
Sr 421.552	Sr	143.54	ug/L	333327.97	141.29	147.65	141.26
Ti 334.941	Ti	-0.15	ug/L	16122.55	0.88	-1.68	-0.37
Tl 190.794	Tl	4.16	ug/L	-0.86	4.85	-0.03	7.14
V 292.401	V	-0.23	ug/L	-85.29	-0.02	-0.47	-0.32
Zn 206.200	Zn	5.34	ug/L	15.97	4.52	5.92	5.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486972004\_3243****Analysis Time: 5/11/2022 11:53:22 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	580651.92	1.01	1.02	1.02
Ag 328.068	Ag	0.23	ug/L	-1176.69	0.31	0.09	0.68
Al 396.152	Al	96.05	ug/L	3075.49	97.19	95.36	95.92
As 188.980	As	13.55	ug/L	11.64	17.28	9.66	13.63
B 249.678	B	95.87	ug/L	800.97	95.72	96.76	95.41
Ba 233.527	Ba	136.12	ug/L	5495.93	135.23	136.03	136.09
Be 234.861	Be	-0.064	ug/L	-6.479	-0.104	-0.039	-0.04
Ca 315.887	Ca	3996.62	ug/L	21437.89	3972.04	4017.2	4008.64
Cd 214.439	Cd	0.07	ug/L	3.55	0.02	-0.02	0.2
Co 228.615	Co	3.13	ug/L	9.78	3.09	2.95	3.61
Cr 267.716	Cr	0.26	ug/L	35.67	0.35	0.2	0.08
Cu 327.395	Cu	1.34	ug/L	-1631.74	1.15	1.73	1.5
Fe 261.187	Fe	224.44	ug/L	374.08	225.48	221.03	229.35
K 766.491	K	1711.74	ug/L	2577.77	1733.95	1738.49	1706.69
Li 670.783	Li	23.63	ug/L	24528.3	23.54	23.65	23.58
Mg 279.078	Mg	530.79	ug/L	1411.14	531.55	536.8	522.03
Mn 257.610	Mn	122.71	ug/L	15805.89	122.14	123.08	122.98
Mo 204.598	Mo	575.03	ug/L	2136.27	569.28	577.46	577.68
Na 589.592	Na	440385.27	ug/L	3504896.78	438872.74	440217.81	441548.91
Ni 231.604	Ni	0.59	ug/L	5.58	-0.72	0.77	0.92
P 213.618	P	35.8	ug/L	15.63	35.32	42.53	35.58
Pb 220.353	Pb	-1.13	ug/L	1.12	-1.3	0.75	-2.1
S 181.972	S	9173.05	ug/L	354.02	9096.46	9129.05	9236.93
Sb 206.834	Sb	-3.82	ug/L	-5.14	-3.62	-2.02	-4
Se 196.026	Se	1.23	ug/L	2.76	6.13	2.27	-1.89
Si 251.611	Si	4081.36	ug/L	7058.76	4029.21	4091.64	4090.03
Sn 189.925	Sn	-3.33	ug/L	-0.8	-3.6	-1.43	-5.56
Sr 421.552	Sr	238.95	ug/L	554816.33	238.32	239.25	239.27
Ti 334.941	Ti	1.65	ug/L	16556.44	1.76	1.35	1.57
Tl 190.794	Tl	1.93	ug/L	-2.57	4.04	6.64	-0.62
V 292.401	V	-0.46	ug/L	-80.99	-0.39	-0.56	-0.63
Zn 206.200	Zn	9.68	ug/L	29.65	9.87	9.23	9.7



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/11/2022 11:55:22 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602369.87	1.04	1.06	1.05
Ag 328.068	Ag	1012.34	ug/L	40433.48	1016.69	1007.59	1012.77
Al 396.152	Al	9864.7	ug/L	242809.76	9913.3	9814.51	9878.87
As 188.980	As	2018.74	ug/L	1189.72	2036.77	2013.78	2018.19
B 249.678	B	2085.07	ug/L	17216.79	2096.09	2073.38	2089.11
Ba 233.527	Ba	2073.84	ug/L	83863.67	2090.2	2064.8	2072.09
Be 234.861	Be	2016.706	ug/L	299312.672	2029.355	2007.039	2017.403
Ca 315.887	Ca	10161.37	ug/L	54416.54	10252.56	10105.24	10149.54
Cd 214.439	Cd	2054.56	ug/L	42573.33	2057.78	2067.6	2053.32
Co 228.615	Co	2082.94	ug/L	12133.94	2095.02	2073.76	2081.91
Cr 267.716	Cr	2033.05	ug/L	73279.46	2044.25	2021.91	2032.77
Cu 327.395	Cu	1985.87	ug/L	52175.64	1995.12	1977.82	1986.38
Fe 261.187	Fe	10164.45	ug/L	18084.76	10223.65	10125.84	10160.8
K 766.491	K	9930.53	ug/L	12990.19	10047.41	9884.51	9943.29
Li 670.783	Li	1896.44	ug/L	1064185.5	1914.19	1891.97	1891.3
Mg 279.078	Mg	10048.28	ug/L	26092.46	10115.37	9999.61	10051.78
Mn 257.610	Mn	2058.26	ug/L	264738.79	2072.66	2048.38	2057.52
Mo 204.598	Mo	1956.11	ug/L	7293.84	1952.6	1957.17	1960.71
Na 589.592	Na	10299.91	ug/L	85743.7	10504.2	10233.16	10255.25
Ni 231.604	Ni	2027.29	ug/L	4016.88	2044.94	2012.88	2026.87
P 213.618	P	2043.2	ug/L	1497.98	2036.7	2039.16	2045.81
Pb 220.353	Pb	2045.49	ug/L	3196.77	2053.27	2036.14	2046.46
S 181.972	S	9997.44	ug/L	385.74	9960.09	10099.9	9908.01
Sb 206.834	Sb	2031.57	ug/L	1576.19	2043.11	2018.58	2030.88
Se 196.026	Se	2053.76	ug/L	1273.16	2071.79	2047.14	2053.38
Si 251.611	Si	10574.91	ug/L	18274.39	10618.01	10524.44	10575.59
Sn 189.925	Sn	2002.74	ug/L	2130.68	2016.49	1992.31	2007.33
Sr 421.552	Sr	2061.55	ug/L	4785243.05	2081.15	2045.21	2062.45
Ti 334.941	Ti	2001.48	ug/L	500391.21	1999.49	1996.57	1995.91
Tl 190.794	Tl	2103.94	ug/L	2029.04	2119.82	2083.76	2110.28
V 292.401	V	2024.99	ug/L	39239.53	2036.26	2014.39	2022.98
Zn 206.200	Zn	2051.9	ug/L	6470.16	2055.38	2049.6	2059.14

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/11/2022 11:57:21 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	606811.25	1.04	1.06	1.07
Ag 328.068	Ag	0.29	ug/L	-1162.52	-0.24	0.31	0.5
Al 396.152	Al	0.76	ug/L	357.31	1.3	0.26	1.11
As 188.980	As	3.5	ug/L	5.73	8.89	-1.09	4.19
B 249.678	B	3.6	ug/L	40.07	5.28	3.23	3.66
Ba 233.527	Ba	0.22	ug/L	4.96	0.35	0.19	0.16
Be 234.861	Be	0.145	ug/L	25.915	0.241	0.142	0.115
Ca 315.887	Ca	-26.74	ug/L	-70.05	-26.01	-25.6	-27
Cd 214.439	Cd	0.08	ug/L	3.99	0.11	0.1	0.04
Co 228.615	Co	0.05	ug/L	8.23	0.35	-0.31	-0.33
Cr 267.716	Cr	0.09	ug/L	31.96	-0.06	0.2	0.24
Cu 327.395	Cu	1.08	ug/L	-1639.79	-0.57	1.06	1.79
Fe 261.187	Fe	1.9	ug/L	-21.56	4.21	0.64	0.99
K 766.491	K	19.62	ug/L	437.55	12.97	21.8	4.91
Li 670.783	Li	-1.93	ug/L	10474.66	-1.5	-1.94	-2.05
Mg 279.078	Mg	2.96	ug/L	42.09	3.6	2.05	4.88
Mn 257.610	Mn	0.18	ug/L	28.28	0.35	0.19	0.12
Mo 204.598	Mo	3.2	ug/L	4.71	3.43	3.18	2.61
Na 589.592	Na	76.51	ug/L	408.13	81.77	77.89	77.31
Ni 231.604	Ni	0.3	ug/L	4.98	0.07	2.16	-0.56
P 213.618	P	-5.63	ug/L	-11.48	-8.94	-5.05	-8.57
Pb 220.353	Pb	-0.46	ug/L	2.59	2.06	0.58	-1.97
S 181.972	S	12.74	ug/L	1.5	-8.55	12.02	48.53
Sb 206.834	Sb	-2.15	ug/L	0.55	-2.95	1.01	-2.57
Se 196.026	Se	1.1	ug/L	2.66	-1.64	-1.84	5.05
Si 251.611	Si	4.11	ug/L	33.5	7.94	4.53	1.59
Sn 189.925	Sn	-0.83	ug/L	1.77	0.76	-0.84	-0.42
Sr 421.552	Sr	0.23	ug/L	611.56	0.37	0.23	0.18
Ti 334.941	Ti	-0.06	ug/L	16158.36	1.15	0.22	-0.53
Tl 190.794	Tl	1.81	ug/L	-0.76	4.64	1.61	-1.15
V 292.401	V	0.61	ug/L	10.54	0.71	0.74	0.45
Zn 206.200	Zn	0.43	ug/L	-0.05	1.03	0.39	-0.3

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30486989001\_3243****Analysis Time: 5/11/2022 11:59:21 PM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	587905.38	1.03	1.03	1.03
Ag 328.068	Ag	-0.28	ug/L	-1185.37	-0.58	0	-0.21
Al 396.152	Al	24.17	ug/L	982.54	25.02	22.88	23.63
As 188.980	As	3.57	ug/L	5.78	6.35	6.05	-0.82
B 249.678	B	347.71	ug/L	2879.36	342.34	348.5	349.23
Ba 233.527	Ba	106.63	ug/L	4309.86	104.77	105.95	106.85
Be 234.861	Be	-0.028	ug/L	0.016	-0.053	-0.034	-0.009
Ca 315.887	Ca	10192.12	ug/L	54554.9	10003.84	10226.69	10260.31
Cd 214.439	Cd	-0.04	ug/L	1.41	-0.03	-0.09	-0.02
Co 228.615	Co	-0.02	ug/L	5.08	-0.11	0.56	-0.35
Cr 267.716	Cr	0.28	ug/L	38.49	0.11	0.52	0.29
Cu 327.395	Cu	0.92	ug/L	-1644.33	0.9	0.9	1.26
Fe 261.187	Fe	25.92	ug/L	21.29	27.48	26.78	24.46
K 766.491	K	2378.32	ug/L	3414.46	2383.43	2389.29	2349.51
Li 670.783	Li	17.36	ug/L	21183.91	17.06	17.41	17.28
Mg 279.078	Mg	2906.98	ug/L	7573.22	2843.15	2905.76	2900.79
Mn 257.610	Mn	7.98	ug/L	1029.99	8.03	7.67	7.84
Mo 204.598	Mo	0.46	ug/L	-5.47	1.52	-0.09	-0.07
Na 589.592	Na	225459.13	ug/L	1794332.97	222345.44	225894.07	225879.73
Ni 231.604	Ni	0.03	ug/L	4.47	0.53	-0.51	0.53
P 213.618	P	5.18	ug/L	-3.08	5.04	6.43	6.48
Pb 220.353	Pb	-0.39	ug/L	2.75	0.97	-1.99	-0.74
S 181.972	S	32599.54	ug/L	1255.5	32162.64	32787.72	32628.28
Sb 206.834	Sb	1.05	ug/L	3.04	1.78	-1.4	-1.44
Se 196.026	Se	5.4	ug/L	5.31	8.5	-2.02	1.54
Si 251.611	Si	3047.1	ug/L	5268.8	2990.11	3054.49	3062.46
Sn 189.925	Sn	-1.99	ug/L	0.53	-3.94	-1.42	0.3
Sr 421.552	Sr	497.89	ug/L	1156009.01	489	498.77	500.37
Ti 334.941	Ti	0.16	ug/L	16206.83	0.37	0.16	-0.17
Tl 190.794	Tl	0.61	ug/L	-1.86	3.34	0.33	-1.5
V 292.401	V	0.47	ug/L	8.07	0.47	0.28	0.4
Zn 206.200	Zn	0.49	ug/L	0.52	0.41	0.31	0.72

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487880001\_3243****Analysis Time: 5/12/2022 12:01:21 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	609121.84	1.06	1.06	1.07
Ag 328.068	Ag	0.13	ug/L	-1169	-0.01	0.29	0.27
Al 396.152	Al	263.71	ug/L	6823.51	265.35	265.19	263.46
As 188.980	As	3.43	ug/L	5.69	0.69	9.43	-1.14
B 249.678	B	9.01	ug/L	84.67	8.91	9.15	9.49
Ba 233.527	Ba	43.52	ug/L	1757.85	44.04	43.52	43.3
Be 234.861	Be	0.04	ug/L	8.291	0.059	-0.018	0.077
Ca 315.887	Ca	12106.86	ug/L	64790.58	12204.69	12174.09	12141.17
Cd 214.439	Cd	0.08	ug/L	4.19	0.1	0.11	0.1
Co 228.615	Co	0.64	ug/L	11.3	1.51	-0.54	1.33
Cr 267.716	Cr	0.82	ug/L	57.48	0.78	0.65	1.06
Cu 327.395	Cu	4.96	ug/L	-1534.68	4.95	4.67	5.29
Fe 261.187	Fe	537.08	ug/L	932.78	542.57	539.29	535.92
K 766.491	K	1264.01	ug/L	2009.6	1252.37	1278.28	1260.25
Li 670.783	Li	3.22	ug/L	13324.67	3.33	3.29	3.15
Mg 279.078	Mg	4676.76	ug/L	12162.85	4666.43	4715	4699.4
Mn 257.610	Mn	53.22	ug/L	6848.15	53.58	53.58	53.23
Mo 204.598	Mo	3.33	ug/L	5.27	3.27	3.01	2.85
Na 589.592	Na	6224.49	ug/L	49421.55	6289.29	6256.55	6221.08
Ni 231.604	Ni	2.84	ug/L	10.07	1.15	4.61	3.48
P 213.618	P	24.62	ug/L	11.74	21.37	21.3	26.89
Pb 220.353	Pb	0.42	ug/L	4	0.63	-1.33	0.77
S 181.972	S	7103.31	ug/L	274.37	7088.18	7161.68	7152.58
Sb 206.834	Sb	0.24	ug/L	2.4	0.68	2.3	0.71
Se 196.026	Se	0.26	ug/L	2.11	2.87	1.8	-1.27
Si 251.611	Si	8694.95	ug/L	14985.4	8632.84	8781.04	8737.7
Sn 189.925	Sn	-1.8	ug/L	0.73	-2.05	-3.89	-0.02
Sr 421.552	Sr	63.74	ug/L	148345.65	64.29	64.06	63.78
Ti 334.941	Ti	3.06	ug/L	16908.51	3.37	2.86	3.2
Tl 190.794	Tl	-0.78	ug/L	-3.15	-1.56	-2.7	3.46
V 292.401	V	0.95	ug/L	16.47	1.02	0.77	1.01
Zn 206.200	Zn	15.04	ug/L	46.48	14.37	15.3	14.89

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487880002\_3243****Analysis Time: 5/12/2022 12:03:20 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	593089.53	1.03	1.04	1.04
Ag 328.068	Ag	-0.28	ug/L	-1182.94	-0.68	0.27	-0.07
Al 396.152	Al	109.89	ug/L	3318.8	111.22	108.39	110.07
As 188.980	As	4.03	ug/L	6	2.13	6.54	0.18
B 249.678	B	28.46	ug/L	242.29	28.75	28.2	28.54
Ba 233.527	Ba	644.39	ug/L	26064.3	638.69	644.34	647.85
Be 234.861	Be	-0.078	ug/L	-72.186	-0.109	-0.101	-0.042
Ca 315.887	Ca	51111.12	ug/L	273287.58	50678.66	51482.26	51421.82
Cd 214.439	Cd	0.02	ug/L	8.45	-0.02	-0.14	0.18
Co 228.615	Co	1.81	ug/L	1.39	2.28	1.93	1.61
Cr 267.716	Cr	0.37	ug/L	33.25	0.09	0.72	0.36
Cu 327.395	Cu	3.84	ug/L	-1563.88	3.43	4.26	4.39
Fe 261.187	Fe	13490.2	ug/L	24028.41	13348.43	13465.38	13587.42
K 766.491	K	1423.8	ug/L	2214.91	1411.51	1418.7	1450.72
Li 670.783	Li	35.51	ug/L	31170.74	35.35	35.46	35.73
Mg 279.078	Mg	5366.67	ug/L	13952.87	5314.96	5368.27	5399.24
Mn 257.610	Mn	553.2	ug/L	71145.29	547.7	553.1	556.22
Mo 204.598	Mo	0.28	ug/L	-5.88	-0.64	0.82	0.43
Na 589.592	Na	96587.42	ug/L	769732.94	95795.63	96769.12	96922.65
Ni 231.604	Ni	2.28	ug/L	9.49	4.14	2	2.55
P 213.618	P	532.24	ug/L	401.28	521.03	537.18	535.28
Pb 220.353	Pb	3.17	ug/L	8.52	5.58	2.83	1.05
S 181.972	S	5844.16	ug/L	225.98	5778.7	5804.66	5855.62
Sb 206.834	Sb	1.18	ug/L	3.46	-4.03	2.95	2.15
Se 196.026	Se	0.34	ug/L	1.25	1.78	-1.46	0.44
Si 251.611	Si	7343.93	ug/L	12661.78	7229.73	7372.04	7348.65
Sn 189.925	Sn	-1.54	ug/L	1.01	-1.02	-0.29	-2.33
Sr 421.552	Sr	625.13	ug/L	1452499.2	620.1	625.64	628.4
Ti 334.941	Ti	2.99	ug/L	16875.87	3.34	2.73	2.87
Tl 190.794	Tl	-0.34	ug/L	-2.25	1.53	-5.58	2
V 292.401	V	0.59	ug/L	-9.32	0.75	0.43	0.28
Zn 206.200	Zn	13.72	ug/L	43.11	13.44	13.18	13.51

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487880003 3243****Analysis Time: 5/12/2022 12:05:19 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	592444.67	1.03	1.03	1.03
Ag 328.068	Ag	-0.18	ug/L	-1180.77	-0.01	-0.03	-0.39
Al 396.152	Al	57.29	ug/L	1823.26	56.48	57.59	58.99
As 188.980	As	4.71	ug/L	6.45	7.05	1.25	6.49
B 249.678	B	50.87	ug/L	430.01	50.24	51.26	50.66
Ba 233.527	Ba	229.46	ug/L	9278.37	226.17	230.12	229.31
Be 234.861	Be	0.011	ug/L	0.895	0.044	0.053	0.024
Ca 315.887	Ca	14460.68	ug/L	77372.56	14331.46	14477.78	14443.32
Cd 214.439	Cd	0.13	ug/L	5.4	0.23	0.18	0.09
Co 228.615	Co	1.12	ug/L	7.92	0.57	1.59	1.53
Cr 267.716	Cr	0.3	ug/L	39.04	0.42	0.29	0.24
Cu 327.395	Cu	1.65	ug/L	-1624.31	1.83	1.55	1.41
Fe 261.187	Fe	1072.16	ug/L	1886.74	1055.43	1071.72	1079.55
K 766.491	K	1260.42	ug/L	2005.5	1248.03	1227.25	1262.63
Li 670.783	Li	65.22	ug/L	47780.95	64.47	65.28	65.35
Mg 279.078	Mg	3035.32	ug/L	7906.14	2964.7	3021.62	3070.34
Mn 257.610	Mn	31.18	ug/L	4014.64	30.78	31.15	31.26
Mo 204.598	Mo	1.15	ug/L	-2.87	1.14	-0.1	1.73
Na 589.592	Na	141326.29	ug/L	1124992.33	139666.09	141402.11	141278.37
Ni 231.604	Ni	0.5	ug/L	5.44	0.93	0.11	-0.14
P 213.618	P	164.72	ug/L	119.3	165.11	162.63	163.86
Pb 220.353	Pb	1.74	ug/L	6.11	0.55	3.28	0.97
S 181.972	S	2785.34	ug/L	108.21	2740.78	2733.7	2758.1
Sb 206.834	Sb	2.4	ug/L	4.11	1.27	-1.35	6.27
Se 196.026	Se	0.35	ug/L	2.12	-1.92	0.66	-2.92
Si 251.611	Si	5502.21	ug/L	9492.59	5399.9	5485.98	5596.56
Sn 189.925	Sn	-1.57	ug/L	0.97	-1.37	-0.51	-1.81
Sr 421.552	Sr	490.33	ug/L	1138597.26	483.79	491.28	490.68
Ti 334.941	Ti	1.47	ug/L	16521.56	1.57	1.78	1.27
Tl 190.794	Tl	-1.01	ug/L	-3.4	-2.3	0.21	-2.03
V 292.401	V	0.32	ug/L	3.55	0.31	0.18	0.03
Zn 206.200	Zn	17.94	ug/L	55.67	17.44	17.94	17.89

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487881001 3243****Analysis Time: 5/12/2022 12:07:18 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	597702.86	1.04	1.05	1.04
Ag 328.068	Ag	-0.73	ug/L	-1194.74	-0.84	-0.47	-0.86
Al 396.152	Al	84.53	ug/L	3087.98	85.69	83.37	85.85
As 188.980	As	4.1	ug/L	6.09	8.24	0.69	3.37
B 249.678	B	38.16	ug/L	325.73	37.81	36.83	40.59
Ba 233.527	Ba	3146.97	ug/L	127284.63	3138.7	3130.02	3175.16
Be 234.861	Be	-0.109	ug/L	-20.698	-0.108	-0.105	-0.108
Ca 315.887	Ca	76090.85	ug/L	406816.72	75536.52	76509.58	76252.75
Cd 214.439	Cd	0.04	ug/L	3.58	0.05	0.01	0.01
Co 228.615	Co	16.86	ug/L	5.81	16.7	17.41	16.93
Cr 267.716	Cr	0.27	ug/L	36.04	0.35	0.04	0.56
Cu 327.395	Cu	2.04	ug/L	-1610.88	1.98	2.09	1.42
Fe 261.187	Fe	1752.66	ug/L	3100.29	1749.71	1751.86	1767.3
K 766.491	K	6877.12	ug/L	9109.79	6863.63	6903.09	6919.52
Li 670.783	Li	60.14	ug/L	44549.03	59.8	60.06	60.76
Mg 279.078	Mg	17734.09	ug/L	46025.19	17714.97	17612.38	17900.92
Mn 257.610	Mn	135.7	ug/L	17453.21	135.48	135.61	136.79
Mo 204.598	Mo	0.65	ug/L	-4.08	0.96	0.39	0.96
Na 589.592	Na	40337.66	ug/L	326850.2	40273.25	40370.2	40546.06
Ni 231.604	Ni	0.59	ug/L	5.65	0.63	0.02	2.7
P 213.618	P	92.25	ug/L	64.44	88.86	95.92	94.41
Pb 220.353	Pb	-1.51	ug/L	1.58	0.99	-3.29	-3.43
S 181.972	S	273.3	ug/L	11.67	220.24	309.45	298.85
Sb 206.834	Sb	0.48	ug/L	2.59	-1.29	2.44	5.54
Se 196.026	Se	-1	ug/L	1.36	1.3	-3.09	-1.82
Si 251.611	Si	13405.54	ug/L	23091.23	13298.97	13264.05	13575.28
Sn 189.925	Sn	-3.37	ug/L	-0.96	-5.25	-2.55	-1.16
Sr 421.552	Sr	4435	ug/L	10296386.85	4420.31	4431.68	4463.44
Ti 334.941	Ti	3.26	ug/L	16915.78	3.25	3.08	3.46
Tl 190.794	Tl	-1.46	ug/L	-3.31	0.15	-3.37	-1.38
V 292.401	V	0.83	ug/L	12.77	0.89	0.69	0.65
Zn 206.200	Zn	15.81	ug/L	51.34	15.62	15.22	16.66

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487881002\_3243****Analysis Time: 5/12/2022 12:09:18 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	605848.67	1.05	1.06	1.06
Ag 328.068	Ag	-0.62	ug/L	-1193.91	-0.5	-0.36	-0.85
Al 396.152	Al	44.1	ug/L	1779.65	43.66	43.7	45.08
As 188.980	As	0.29	ug/L	3.79	-4.93	5.3	0.46
B 249.678	B	63.41	ug/L	531.85	63.73	62.89	64.43
Ba 233.527	Ba	1663.35	ug/L	67275.67	1655.6	1664.95	1672.3
Be 234.861	Be	-0.191	ug/L	-64.971	-0.221	-0.211	-0.133
Ca 315.887	Ca	40239.64	ug/L	215173.95	39949.44	40470.88	40415.81
Cd 214.439	Cd	-0.05	ug/L	4.68	-0.08	-0.06	-0.03
Co 228.615	Co	8.88	ug/L	7.18	8.96	7.94	9.5
Cr 267.716	Cr	0.19	ug/L	26.85	0.33	0.07	0.03
Cu 327.395	Cu	1.87	ug/L	-1615.77	1.99	1.74	1.81
Fe 261.187	Fe	8575.65	ug/L	15266.14	8516.6	8574.57	8622.02
K 766.491	K	2483.65	ug/L	3555.54	2501.03	2483.76	2456.76
Li 670.783	Li	23.12	ug/L	24157.21	23.25	23.02	23.17
Mg 279.078	Mg	11429.84	ug/L	29676.18	11342.43	11466.47	11490.26
Mn 257.610	Mn	524.79	ug/L	67485.4	522.24	524.49	527.62
Mo 204.598	Mo	0.37	ug/L	-5.39	-0.26	0.58	1.11
Na 589.592	Na	19303.71	ug/L	156611.31	19219.01	19360.65	19390.09
Ni 231.604	Ni	1.41	ug/L	7.56	1.01	1.77	3.62
P 213.618	P	124.38	ug/L	88.57	130.12	122.91	118.22
Pb 220.353	Pb	-1.9	ug/L	0.75	-1.79	-1.62	-3.11
S 181.972	S	158.09	ug/L	7.18	158.86	163.07	157.34
Sb 206.834	Sb	-0.99	ug/L	1.65	-8.61	4.21	1.55
Se 196.026	Se	3.03	ug/L	3.37	2.99	1.94	5.16
Si 251.611	Si	7551.28	ug/L	13018.88	7494.72	7540.16	7631.92
Sn 189.925	Sn	-2.7	ug/L	-0.21	-1.7	-4.46	-2.16
Sr 421.552	Sr	984.36	ug/L	2286020.95	980.05	984.62	988.79
Ti 334.941	Ti	1.58	ug/L	16530.66	1.64	1.59	1.63
Tl 190.794	Tl	-1.73	ug/L	-3.37	-5.53	-0.55	-1.33
V 292.401	V	0.56	ug/L	-2.42	0.85	0.41	0.67
Zn 206.200	Zn	13.13	ug/L	41.19	12.46	14.48	13.82



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487881003 3243****Analysis Time: 5/12/2022 12:11:17 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602687.31	1.03	1.06	1.07
Ag 328.068	Ag	-0.46	ug/L	-1185.51	-0.53	-0.7	-0.06
Al 396.152	Al	2578.4	ug/L	63575.84	2705.47	2594.22	2531.94
As 188.980	As	80.54	ug/L	50.29	86.96	77.42	80.96
B 249.678	B	279	ug/L	2280.72	287.88	280.32	275.73
Ba 233.527	Ba	788.76	ug/L	31914.34	820.72	796.26	774.23
Be 234.861	Be	-1.973	ug/L	-941.344	-2.285	-1.955	-1.859
Ca 315.887	Ca	55580.3	ug/L	297181.99	57519.3	55969.93	55136.22
Cd 214.439	Cd	-0.48	ug/L	51.22	-0.57	-0.26	-0.49
Co 228.615	Co	10.04	ug/L	52.23	11.36	9.13	9.81
Cr 267.716	Cr	5.18	ug/L	218.83	5.59	5.42	4.81
Cu 327.395	Cu	6.93	ug/L	-1469.44	6.86	7.01	6.81
Fe 261.187	Fe	132320.07	ug/L	235908.55	137774.73	133246.43	129877.04
K 766.491	K	8718.55	ug/L	11367.46	9063.91	8793.73	8541.03
Li 670.783	Li	4.06	ug/L	13581.11	4.75	4.07	3.73
Mg 279.078	Mg	12950.18	ug/L	33622.03	13484.06	13088.95	12692.58
Mn 257.610	Mn	400.83	ug/L	51729.62	417.79	404.21	393.25
Mo 204.598	Mo	1.89	ug/L	1.34	1.79	1.76	2.2
Na 589.592	Na	13821.36	ug/L	111310.64	14388.3	13922.49	13559.48
Ni 231.604	Ni	5.69	ug/L	21.58	8.52	8.23	4.25
P 213.618	P	567.98	ug/L	426.28	587.83	574.75	567.02
Pb 220.353	Pb	2.64	ug/L	7.18	2.77	4.62	2.09
S 181.972	S	652.22	ug/L	26.03	674.4	666.5	633.12
Sb 206.834	Sb	0.18	ug/L	5.97	2.67	4.56	-4.77
Se 196.026	Se	0.94	ug/L	-8.67	-0.94	2.39	-3
Si 251.611	Si	10065.59	ug/L	17341.72	10411.17	10143.97	9906.93
Sn 189.925	Sn	-2.4	ug/L	0.44	-3.64	-2.28	-2.52
Sr 421.552	Sr	272.06	ug/L	633123.43	283.48	274.29	266.87
Ti 334.941	Ti	30.3	ug/L	23482.87	31.71	30.85	28.97
Tl 190.794	Tl	-1.2	ug/L	-6.53	1.47	-1.66	-3.7
V 292.401	V	3.15	ug/L	-135.57	2.94	3.16	3.05
Zn 206.200	Zn	69.78	ug/L	214.47	72.33	70.85	68.39

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30487881004 3243****Analysis Time: 5/12/2022 12:13:16 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	603168.67	1.02	1.06	1.07
Ag 328.068	Ag	0.42	ug/L	-1142.95	0.26	0.44	0.67
Al 396.152	Al	10763.73	ug/L	262797.36	11107.7	10706.39	10627.98
As 188.980	As	30.65	ug/L	21.05	30.92	34.54	28.43
B 249.678	B	15.08	ug/L	106.08	16.07	15.29	14.74
Ba 233.527	Ba	349.03	ug/L	14124.28	360.72	346.98	344.7
Be 234.861	Be	-1.094	ug/L	-642.379	-0.963	-1.423	-0.928
Ca 315.887	Ca	9237.75	ug/L	49473.28	9576.94	9190.34	9119.69
Cd 214.439	Cd	-0.74	ug/L	33.73	-0.68	-0.71	-0.69
Co 228.615	Co	40.54	ug/L	244.69	42.73	39.47	40.31
Cr 267.716	Cr	15.73	ug/L	429.89	16.1	15.49	15.57
Cu 327.395	Cu	12.87	ug/L	-1298.75	13.21	12.75	12.58
Fe 261.187	Fe	103153.8	ug/L	183905.4	106524.07	102536.79	101963.63
K 766.491	K	4367.83	ug/L	5894.84	4511.22	4334.39	4305.9
Li 670.783	Li	9.07	ug/L	16224.31	9.9	8.92	8.73
Mg 279.078	Mg	13241.31	ug/L	34377.55	13684.59	13151.06	13080.21
Mn 257.610	Mn	9827.76	ug/L	1263655.93	10132.68	9778.03	9705.57
Mo 204.598	Mo	0.62	ug/L	-2.3	-1.33	1.78	1.21
Na 589.592	Na	16118.83	ug/L	128751.07	16687.87	16054.88	15922.3
Ni 231.604	Ni	20.06	ug/L	48.56	22.97	18.36	20.4
P 213.618	P	373.4	ug/L	277.54	385.6	369.5	373.1
Pb 220.353	Pb	12.83	ug/L	24.33	12.75	13.22	15
S 181.972	S	1128.87	ug/L	44.79	1141.01	1139.93	1090.21
Sb 206.834	Sb	0.13	ug/L	5.19	3.27	1.95	1.16
Se 196.026	Se	5.1	ug/L	-0.45	7.07	8.88	0.68
Si 251.611	Si	16566.67	ug/L	28536.03	17084.83	16451.37	16377.97
Sn 189.925	Sn	-2.17	ug/L	0.56	-0.41	-4.24	-3.65
Sr 421.552	Sr	105.4	ug/L	244989	108.96	104.84	104.07
Ti 334.941	Ti	90.29	ug/L	38003.14	93.94	88.97	87.88
Tl 190.794	Tl	-10.75	ug/L	-0.81	-11.53	-11.2	-9.15
V 292.401	V	16.96	ug/L	177.16	17.11	17.38	16.81
Zn 206.200	Zn	48.18	ug/L	146.42	48.77	47.94	47.61

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2430096\_3242****Analysis Time: 5/12/2022 12:15:15 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	615414.31	1.03	1.09	1.09
Ag 328.068	Ag	0.16	ug/L	-1167.94	-0.92	0.46	0.61
Al 396.152	Al	2.47	ug/L	396.88	3.17	2.23	2.75
As 188.980	As	2.15	ug/L	4.93	-1.67	2.34	4.22
B 249.678	B	0.62	ug/L	15.52	1.07	0.78	0.44
Ba 233.527	Ba	0.09	ug/L	0.01	0.16	0.09	-0.04
Be 234.861	Be	-0.088	ug/L	-8.695	-0.101	-0.105	-0.051
Ca 315.887	Ca	9.07	ug/L	121.41	8.14	10.72	6.8
Cd 214.439	Cd	0.04	ug/L	3.21	0.06	-0.03	0.19
Co 228.615	Co	-0.13	ug/L	7.27	0.29	-0.93	0.2
Cr 267.716	Cr	0.14	ug/L	33.62	0.28	0.09	0.07
Cu 327.395	Cu	1.17	ug/L	-1637.21	-0.58	1.98	1.82
Fe 261.187	Fe	14.51	ug/L	0.93	14.37	14.38	14.15
K 766.491	K	-16.71	ug/L	391.69	15.68	-20.03	-7.1
Li 670.783	Li	-3.85	ug/L	9411.3	-3.04	-4.07	-4.1
Mg 279.078	Mg	1.33	ug/L	37.88	-0.03	0.37	2.06
Mn 257.610	Mn	0.65	ug/L	88.23	0.89	0.73	0.65
Mo 204.598	Mo	0.19	ug/L	-6.52	-0.26	0.07	0.04
Na 589.592	Na	35.67	ug/L	82.84	37.89	37.38	34.11
Ni 231.604	Ni	0.67	ug/L	5.71	1.58	-0.8	0.88
P 213.618	P	4.46	ug/L	-3.72	-0.09	5.38	4.04
Pb 220.353	Pb	-1.71	ug/L	0.63	-3.09	-1.41	-0.85
S 181.972	S	-18.49	ug/L	0.3	-54.24	5.33	-21.15
Sb 206.834	Sb	-1.88	ug/L	0.79	-2.89	-6.3	1.86
Se 196.026	Se	3.56	ug/L	4.18	2.81	-0.59	6.33
Si 251.611	Si	27.35	ug/L	73.43	27.13	27.68	26.87
Sn 189.925	Sn	-1.32	ug/L	1.25	-1.98	-2.79	0.09
Sr 421.552	Sr	0.01	ug/L	103.21	0.01	0.01	0.02
Ti 334.941	Ti	0.13	ug/L	16202.34	2.25	-0.47	-0.59
Tl 190.794	Tl	0.21	ug/L	-2.29	-1.06	0.18	0.95
V 292.401	V	0.38	ug/L	6.41	0.96	0.52	-0.43
Zn 206.200	Zn	0.23	ug/L	-0.68	-0.62	1.23	0.29

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2430097\_3242****Analysis Time: 5/12/2022 12:17:13 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599910.34	1.05	1.05	1.05
Ag 328.068	Ag	510.83	ug/L	19598.97	504.67	510.92	515.6
Al 396.152	Al	2044	ug/L	51905.02	2030.1	2040.06	2055.73
As 188.980	As	1988.74	ug/L	1172.06	1957.94	1984.55	2017.07
B 249.678	B	2065.88	ug/L	17061.76	2038.92	2069.04	2084.88
Ba 233.527	Ba	2019.09	ug/L	81649.9	1994.8	2017.64	2037.09
Be 234.861	Be	508.46	ug/L	75463.304	502.329	507.877	512.971
Ca 315.887	Ca	42197.82	ug/L	225679.82	41649.83	42220.68	42534.96
Cd 214.439	Cd	1011.73	ug/L	20961.81	1000.83	1010.35	1021.42
Co 228.615	Co	2074.25	ug/L	12089.15	2051.02	2071.95	2090.98
Cr 267.716	Cr	2034.15	ug/L	73316.73	2005.99	2033.15	2052.9
Cu 327.395	Cu	2026.46	ug/L	53274.61	2010.02	2027.24	2036.31
Fe 261.187	Fe	2090.58	ug/L	3689.3	2055.97	2088.06	2112.45
K 766.491	K	20536.73	ug/L	26371.96	20348.68	20522.2	20702.67
Li 670.783	Li	1982.26	ug/L	1111949.63	1962.14	1981.44	1998.89
Mg 279.078	Mg	20430	ug/L	53016.05	20186.54	20378.01	20647.17
Mn 257.610	Mn	2049.97	ug/L	263649.04	2022.67	2042.69	2068.24
Mo 204.598	Mo	1995.15	ug/L	7438.43	1963.57	1994.6	2017.93
Na 589.592	Na	20762.42	ug/L	168909.29	20532.36	20766.49	20915.43
Ni 231.604	Ni	2005.89	ug/L	3974.48	1984.08	2007.48	2025.15
P 213.618	P	40568.55	ug/L	31050.32	39903.48	40574.67	41107.41
Pb 220.353	Pb	1993.65	ug/L	3117.02	1968.45	1993.98	2010.58
S 181.972	S	2067.01	ug/L	80.61	1980.87	2093.73	2155.4
Sb 206.834	Sb	2026.31	ug/L	1571.61	1994.95	2026.28	2038.08
Se 196.026	Se	1987.09	ug/L	1232.58	1962.99	1989.91	2003.69
Si 251.611	Si	10662.67	ug/L	18425.16	10453.19	10653.21	10797.7
Sn 189.925	Sn	2043.45	ug/L	2173.09	2022.91	2046.19	2058.98
Sr 421.552	Sr	2042.7	ug/L	4742593.18	2015.23	2044.08	2060.54
Ti 334.941	Ti	2027.32	ug/L	506637.32	2008.12	2022.33	2039.71
Tl 190.794	Tl	1964.55	ug/L	1894.51	1904.71	1945.65	2006.45
V 292.401	V	2040.58	ug/L	39551.25	2014.39	2039.09	2060.03
Zn 206.200	Zn	2021.77	ug/L	6376.73	1986.26	2025.35	2044.75

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 12:19:13 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	604873.77	1.02	1.07	1.07
Ag 328.068	Ag	1006.5	ug/L	40193.58	1021.7	992	1002.95
Al 396.152	Al	9797.09	ug/L	241141.99	9942.9	9645.13	9760.94
As 188.980	As	2007.64	ug/L	1183.2	2047.58	1970.7	1997.51
B 249.678	B	2072.02	ug/L	17109.11	2097.25	2046.94	2066.51
Ba 233.527	Ba	2054.82	ug/L	83094.7	2087.56	2025.46	2046.41
Be 234.861	Be	2000.857	ug/L	296960.25	2029.059	1971.44	1994.636
Ca 315.887	Ca	10129.59	ug/L	54246.44	10288.5	9983.78	10082.54
Cd 214.439	Cd	2024.6	ug/L	41952.66	2054.16	2015.3	1978.34
Co 228.615	Co	2064.72	ug/L	12028.13	2096.47	2036.82	2055.32
Cr 267.716	Cr	2020.76	ug/L	72836.79	2050.44	1991.61	2014.04
Cu 327.395	Cu	1973.98	ug/L	51853.1	2004.8	1945.87	1966.46
Fe 261.187	Fe	10037.6	ug/L	17858.68	10197.68	9887.1	10005.04
K 766.491	K	9840.39	ug/L	12875.87	10015.87	9743.62	9774.84
Li 670.783	Li	1889	ug/L	1060071.72	1928.49	1857.07	1877.65
Mg 279.078	Mg	9937.71	ug/L	25805.71	10101.52	9792.15	9894.38
Mn 257.610	Mn	2034.29	ug/L	261655.85	2066.12	2005.8	2028.2
Mo 204.598	Mo	1938.98	ug/L	7229.91	1959.79	1908.73	1945.69
Na 589.592	Na	10093.28	ug/L	84062.8	10290.73	9952.54	10048.05
Ni 231.604	Ni	1998.91	ug/L	3960.71	2033.69	1968.36	1995
P 213.618	P	2011.39	ug/L	1473.98	2043.54	1965.75	2025.88
Pb 220.353	Pb	2022.24	ug/L	3160.47	2054.57	1998.02	2017.14
S 181.972	S	9846.19	ug/L	379.92	9964.03	9740.73	9836.08
Sb 206.834	Sb	2014.71	ug/L	1563.24	2034.92	1975.28	2027.44
Se 196.026	Se	2031.44	ug/L	1259.34	2061.65	1994.18	2026.88
Si 251.611	Si	10525.76	ug/L	18189.24	10659.55	10365.29	10490.96
Sn 189.925	Sn	1985.59	ug/L	2112.47	2011.71	1956.98	1982.83
Sr 421.552	Sr	2049.74	ug/L	4757846.9	2081.04	2017.34	2044.74
Ti 334.941	Ti	1988.5	ug/L	497251.92	2013.83	1954.95	1980.08
Tl 190.794	Tl	2086.13	ug/L	2011.88	2112.49	2054.07	2080.82
V 292.401	V	2010.53	ug/L	38960.05	2041.84	1981.47	2004.59
Zn 206.200	Zn	2023.39	ug/L	6380.23	2046.82	1995.78	2018.43

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 12:21:12 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	601328.24	1.03	1.06	1.06
Ag 328.068	Ag	0.43	ug/L	-1156.82	0.13	0.46	0.77
Al 396.152	Al	1.65	ug/L	378.63	5.86	0.48	-0.24
As 188.980	As	-0.14	ug/L	3.58	-2.27	-4.21	4.66
B 249.678	B	3.76	ug/L	41.37	6.33	3.65	3.24
Ba 233.527	Ba	0.73	ug/L	25.84	1.45	0.53	0.52
Be 234.861	Be	0.375	ug/L	59.987	1.121	0.187	0.096
Ca 315.887	Ca	6.83	ug/L	109.43	5.78	7.49	7.02
Cd 214.439	Cd	0.46	ug/L	11.74	1.26	0.12	0.14
Co 228.615	Co	0.14	ug/L	8.74	0.68	-0.62	0.47
Cr 267.716	Cr	0.28	ug/L	38.72	1.06	-0.11	-0.12
Cu 327.395	Cu	1.08	ug/L	-1639.89	0.91	1.1	1.36
Fe 261.187	Fe	7.26	ug/L	-12	5.89	5.68	9.81
K 766.491	K	0.62	ug/L	413.58	13.98	-4.64	-7.42
Li 670.783	Li	-1.22	ug/L	10869.29	-0.1	-1.55	-1.7
Mg 279.078	Mg	4.94	ug/L	47.24	6.63	6.11	2.42
Mn 257.610	Mn	0.69	ug/L	92.98	1.38	0.52	0.48
Mo 204.598	Mo	2.75	ug/L	3.06	2.65	2.25	2.52
Na 589.592	Na	36.75	ug/L	92.68	32.06	36.86	36.36
Ni 231.604	Ni	1.46	ug/L	7.28	2.64	1.09	2.48
P 213.618	P	-5.02	ug/L	-11.02	-10.6	-0.68	-7.35
Pb 220.353	Pb	0.47	ug/L	4.04	0.99	0.03	-1.34
S 181.972	S	18.3	ug/L	1.71	28.04	15.01	14.06
Sb 206.834	Sb	2.77	ug/L	4.38	6.61	1.32	4.69
Se 196.026	Se	2.93	ug/L	3.79	5.58	2.58	-1.57
Si 251.611	Si	6.48	ug/L	37.57	13.85	4.4	3.93
Sn 189.925	Sn	-2.02	ug/L	0.51	-3.2	-1.31	-2.29
Sr 421.552	Sr	0.58	ug/L	1419.16	1.34	0.39	0.33
Ti 334.941	Ti	0.4	ug/L	16269.14	2.38	-0.11	-0.88
Tl 190.794	Tl	1.44	ug/L	-1.11	2.11	-3.36	4.02
V 292.401	V	0.5	ug/L	8.37	1.07	0.16	0.08
Zn 206.200	Zn	0.67	ug/L	0.71	1.54	0.48	0.8

## Agilent 5110 ICP-OES Report

Analyst:

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**Sample: 30484028001\_3242****Analysis Time: 5/12/2022 12:23:11 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	612088	1.07	1.07	1.07
Ag 328.068	Ag	-0.18	ug/L	-1181.43	-0.09	-0.42	-0.15
Al 396.152	Al	43.73	ug/L	1480.22	42.68	43.68	44.54
As 188.980	As	3.99	ug/L	6.04	2.55	5.45	6.56
B 249.678	B	9.8	ug/L	91.17	10.07	9.53	9.31
Ba 233.527	Ba	14.42	ug/L	581.51	13.96	14.56	14.56
Be 234.861	Be	-0.069	ug/L	-6.56	-0.076	-0.036	-0.087
Ca 315.887	Ca	17379.93	ug/L	92977.28	16963.32	17535.85	17479.77
Cd 214.439	Cd	0.03	ug/L	2.98	-0.01	0.01	0.11
Co 228.615	Co	-0.37	ug/L	6.92	-0.15	-0.15	-0.81
Cr 267.716	Cr	0.37	ug/L	38.29	0.5	0.47	0.42
Cu 327.395	Cu	1.48	ug/L	-1629.13	2.52	0.88	1.06
Fe 261.187	Fe	112.3	ug/L	175.76	109	112.51	115.17
K 766.491	K	1568.41	ug/L	2395.89	1547.5	1582.73	1553.44
Li 670.783	Li	2.99	ug/L	13192.42	2.94	2.99	3.01
Mg 279.078	Mg	12285.78	ug/L	31895.41	11897.4	12297.61	12543.8
Mn 257.610	Mn	235.26	ug/L	30250.45	226.3	235.22	240.38
Mo 204.598	Mo	0.13	ug/L	-6.65	-0.89	-0.18	0.37
Na 589.592	Na	4376.71	ug/L	34660.99	4304.34	4390.81	4403.49
Ni 231.604	Ni	0.87	ug/L	6.24	0.32	1.12	1.78
P 213.618	P	3.5	ug/L	-4.26	-2.94	8.08	4.8
Pb 220.353	Pb	-3.87	ug/L	-2.6	-1.96	-4.24	-5.81
S 181.972	S	17324.92	ug/L	667.73	17058.09	17427.47	17371.54
Sb 206.834	Sb	0.46	ug/L	2.54	2.16	-1.44	1.07
Se 196.026	Se	2.83	ug/L	3.78	0.32	3.3	3.25
Si 251.611	Si	2659.61	ug/L	4602.73	2600.51	2647	2697.96
Sn 189.925	Sn	-1.5	ug/L	1.04	-1.81	-1.38	-3.82
Sr 421.552	Sr	129.6	ug/L	301372.2	127.06	129.86	130.59
Ti 334.941	Ti	0.38	ug/L	16260.15	0.37	0.56	0.25
Tl 190.794	Tl	-0.93	ug/L	-2.96	-1	-2.36	2.63
V 292.401	V	0.81	ug/L	14.61	0.32	0.92	0.78
Zn 206.200	Zn	2.23	ug/L	6.42	2.71	2.32	2.37

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2430145\_3242****Analysis Time: 5/12/2022 12:25:11 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598905.14	1.04	1.04	1.05
Ag 328.068	Ag	510.29	ug/L	19577.62	502.55	509.78	514.47
Al 396.152	Al	2122.75	ug/L	53891.87	2081.75	2116.65	2147.6
As 188.980	As	2006.98	ug/L	1182.92	1968.98	2009.55	2023.28
B 249.678	B	2077.64	ug/L	17158.62	2041.99	2079.31	2096.54
Ba 233.527	Ba	2022.38	ug/L	81784.93	1991.37	2020.3	2040.27
Be 234.861	Be	508.225	ug/L	75427.522	500.442	507.742	512.475
Ca 315.887	Ca	58639.48	ug/L	313567.69	57702.78	58520.65	59195.39
Cd 214.439	Cd	999.49	ug/L	20708.32	982.69	999.35	1007.86
Co 228.615	Co	2031	ug/L	11839.13	1997.54	2030.27	2049.33
Cr 267.716	Cr	2022.27	ug/L	72885.08	1988.98	2020.35	2039.74
Cu 327.395	Cu	2013.35	ug/L	52918.6	1966.58	2015.75	2043.73
Fe 261.187	Fe	2183.25	ug/L	3855.1	2147.58	2182.21	2199.69
K 766.491	K	22390.32	ug/L	28714.15	22126.48	22398.4	22523.56
Li 670.783	Li	2007.88	ug/L	1126187.04	1977.9	2010.84	2018.05
Mg 279.078	Mg	32672.94	ug/L	84765.94	31985.37	32669.05	33182.83
Mn 257.610	Mn	2247.79	ug/L	289081.89	2206.85	2246.42	2277.53
Mo 204.598	Mo	1979.15	ug/L	7378.73	1928.29	1956.64	2036.4
Na 589.592	Na	25248.83	ug/L	204623.13	24876.88	25251.03	25422.93
Ni 231.604	Ni	1966.55	ug/L	3896.74	1932.78	1966.62	1989.05
P 213.618	P	40802.16	ug/L	31230.12	39832.71	40641.41	41207.47
Pb 220.353	Pb	1969.42	ug/L	3079.31	1933.77	1970.02	1990.63
S 181.972	S	19355.98	ug/L	745.95	19034.26	19342.77	19518.52
Sb 206.834	Sb	2043.55	ug/L	1584.89	2002.52	2044.23	2061.43
Se 196.026	Se	1973.36	ug/L	1224.13	1934.1	1972.78	1993.86
Si 251.611	Si	13389.32	ug/L	23116.56	13113.12	13386.38	13509.85
Sn 189.925	Sn	2044.18	ug/L	2173.85	2013.54	2032.62	2065.5
Sr 421.552	Sr	2164.72	ug/L	5026301.84	2132.33	2165.67	2177.43
Ti 334.941	Ti	2020.93	ug/L	505086.44	1969.94	2020.44	2053.17
Tl 190.794	Tl	1944.63	ug/L	1875.48	1878.14	1936.46	1971.58
V 292.401	V	2042.69	ug/L	39594.43	2010.1	2040.44	2058.99
Zn 206.200	Zn	1969.2	ug/L	6211.72	1931.5	1942.18	2034.51



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2430146\_3242****Analysis Time: 5/12/2022 12:27:10 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	601071.37	1.05	1.05	1.05
Ag 328.068	Ag	513.67	ug/L	19713.9	509.02	513.53	516.34
Al 396.152	Al	2009.95	ug/L	51135.11	1989.18	1999.16	2031.79
As 188.980	As	1902.44	ug/L	1121.48	1887.49	1904.63	1920.04
B 249.678	B	2092.23	ug/L	17278.52	2068.5	2094.43	2105.73
Ba 233.527	Ba	1918.19	ug/L	77570.09	1898.83	1918.87	1930.03
Be 234.861	Be	480.828	ug/L	71361.568	476.093	480.726	483.788
Ca 315.887	Ca	57003.3	ug/L	304818.79	56291.14	57191.52	57378.55
Cd 214.439	Cd	947.41	ug/L	19629.26	935.89	949.31	952.83
Co 228.615	Co	1923.89	ug/L	11217.01	1905.73	1921.45	1937.08
Cr 267.716	Cr	1915.44	ug/L	69035.74	1893.64	1915.34	1929.01
Cu 327.395	Cu	1909.44	ug/L	50102.42	1884.94	1901.82	1936.57
Fe 261.187	Fe	2077.7	ug/L	3667.36	2052.08	2075.66	2095.78
K 766.491	K	21231.69	ug/L	27251.91	21146.65	21216.87	21318.11
Li 670.783	Li	2007.81	ug/L	1126202.52	1992.05	2006.94	2020.78
Mg 279.078	Mg	31884.37	ug/L	82720.95	31382.25	31966.1	32224.97
Mn 257.610	Mn	2162.09	ug/L	278064.04	2138.5	2154.88	2185.92
Mo 204.598	Mo	2006.36	ug/L	7479.82	1981.15	1997.69	2030.89
Na 589.592	Na	24165.4	ug/L	195801.49	24048.44	24136.53	24282.85
Ni 231.604	Ni	1863.8	ug/L	3693.35	1846.46	1862.21	1879.48
P 213.618	P	38862.4	ug/L	29744.35	38344.58	38720.01	39385.7
Pb 220.353	Pb	1867.78	ug/L	2920.4	1845.72	1873.99	1877.84
S 181.972	S	19732.47	ug/L	760.44	19703.01	19635.14	19900.5
Sb 206.834	Sb	2057.65	ug/L	1594.8	2055.28	2064.82	2070.96
Se 196.026	Se	1869.54	ug/L	1159.85	1852.95	1866.49	1880.81
Si 251.611	Si	13556.23	ug/L	23403.9	13361.84	13554.35	13668.76
Sn 189.925	Sn	2060.8	ug/L	2191.48	2030.23	2062.92	2082.47
Sr 421.552	Sr	2056.39	ug/L	4774800.29	2043.25	2052.04	2070.07
Ti 334.941	Ti	2034.9	ug/L	508466.28	2013.4	2035.81	2054.63
Tl 190.794	Tl	1849.28	ug/L	1782.62	1799.86	1847.54	1872.83
V 292.401	V	1933.14	ug/L	37456.49	1914.84	1931.85	1945.62
Zn 206.200	Zn	1864.58	ug/L	5881.75	1844.77	1871.72	1871.42

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484028003 3242****Analysis Time: 5/12/2022 12:29:10 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	618611.65	1.07	1.09	1.08
Ag 328.068	Ag	-0.01	ug/L	-1173.81	-0.42	-0.09	-0.07
Al 396.152	Al	43.87	ug/L	1497.61	43.01	44.82	44
As 188.980	As	4.54	ug/L	6.37	4.56	6.53	5.18
B 249.678	B	13.24	ug/L	119.09	15.32	12.97	12.66
Ba 233.527	Ba	24.42	ug/L	986.12	24.32	24.08	24.59
Be 234.861	Be	-0.062	ug/L	-9.006	-0.033	-0.21	-0.016
Ca 315.887	Ca	19904.17	ug/L	106470.67	19784.07	19875.54	20038.42
Cd 214.439	Cd	0.09	ug/L	4.52	0.19	0.04	-0.03
Co 228.615	Co	3.53	ug/L	29.7	4.03	3.06	3.53
Cr 267.716	Cr	0.46	ug/L	31.88	0.35	0.47	0.47
Cu 327.395	Cu	1.14	ug/L	-1637.85	0.79	1.24	1.21
Fe 261.187	Fe	790.53	ug/L	1385.24	783.67	790.85	793.46
K 766.491	K	1488.52	ug/L	2296.47	1509.07	1512.45	1468.34
Li 670.783	Li	6.97	ug/L	15382.77	7.26	6.96	7
Mg 279.078	Mg	15101.75	ug/L	39198.23	14936.3	14873.06	15291.24
Mn 257.610	Mn	800.37	ug/L	102904.65	792.66	798.56	808.4
Mo 204.598	Mo	1.62	ug/L	-1.02	1.19	1.17	1.39
Na 589.592	Na	5467.76	ug/L	43363.67	5444.07	5448.36	5490.27
Ni 231.604	Ni	7.27	ug/L	18.95	8.69	6.79	6.68
P 213.618	P	14.65	ug/L	4.33	19.33	15.78	14.56
Pb 220.353	Pb	-1.01	ug/L	2	-2.67	0.38	-0.94
S 181.972	S	24012.04	ug/L	925.09	23891.53	24015.4	24117.28
Sb 206.834	Sb	0.02	ug/L	2.19	-2.69	1.67	0.94
Se 196.026	Se	4.68	ug/L	5.05	4.01	7.04	7.55
Si 251.611	Si	2763.41	ug/L	4781.93	2727.63	2726.12	2817.49
Sn 189.925	Sn	0.36	ug/L	3.02	1.02	0.19	0.25
Sr 421.552	Sr	161.92	ug/L	376455.63	161.03	161.35	162.93
Ti 334.941	Ti	0.46	ug/L	16276.07	0.8	0.29	0.33
Tl 190.794	Tl	1.37	ug/L	0.11	2.03	0.01	2.16
V 292.401	V	0.98	ug/L	16.49	0.92	1.08	0.9
Zn 206.200	Zn	1.81	ug/L	5.2	2.7	1.81	1.1

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484028004\_3242****Analysis Time: 5/12/2022 12:31:09 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	615863.6	1.05	1.1	1.09
Ag 328.068	Ag	0.24	ug/L	-1164.17	-0.23	0.14	0.56
Al 396.152	Al	214.63	ug/L	5589.19	218.04	209.77	212.68
As 188.980	As	1.57	ug/L	4.58	2.33	-2.66	4.41
B 249.678	B	5.16	ug/L	52.5	5.89	5.88	3.57
Ba 233.527	Ba	20.63	ug/L	831.35	21.91	20.28	20.08
Be 234.861	Be	0.035	ug/L	3.801	0.106	0.015	-0.029
Ca 315.887	Ca	3918.78	ug/L	21021.19	3982.13	3825.23	3896.39
Cd 214.439	Cd	0.23	ug/L	7.53	0.5	0.21	0.14
Co 228.615	Co	2.77	ug/L	24.02	3.73	2.05	2.99
Cr 267.716	Cr	1.12	ug/L	62.39	1.83	1.07	0.77
Cu 327.395	Cu	4.05	ug/L	-1558.76	3.01	4.92	4.62
Fe 261.187	Fe	1304.34	ug/L	2300.92	1312.77	1280.05	1300.11
K 766.491	K	1073.62	ug/L	1767.95	1080.57	1063.16	1075.07
Li 670.783	Li	-0.11	ug/L	11467.91	1.02	-0.57	-0.58
Mg 279.078	Mg	3160	ug/L	8229.41	3161.46	3105.79	3179.91
Mn 257.610	Mn	400.84	ug/L	51539.92	405.83	391.97	398.08
Mo 204.598	Mo	1.31	ug/L	-2.22	2.57	1.1	0.5
Na 589.592	Na	541.53	ug/L	4148.61	554.46	540.77	536.2
Ni 231.604	Ni	13.07	ug/L	30.33	14.84	12.1	11.94
P 213.618	P	41.49	ug/L	24.65	53.3	40.58	40.92
Pb 220.353	Pb	-0.23	ug/L	3.04	-0.69	0.08	-0.24
S 181.972	S	3861.58	ug/L	149.63	3880.68	3840.36	3824.13
Sb 206.834	Sb	-0.04	ug/L	2.22	4.68	-4.66	2.52
Se 196.026	Se	0.14	ug/L	2.08	-2.38	4.53	1.55
Si 251.611	Si	2282.9	ug/L	3954.38	2283.64	2252.84	2293.34
Sn 189.925	Sn	-1.97	ug/L	0.56	-1.84	-2.29	1.12
Sr 421.552	Sr	18.05	ug/L	42076.08	19.05	17.71	17.63
Ti 334.941	Ti	3.03	ug/L	16903.91	5.41	2.12	2.03
Tl 190.794	Tl	-0.32	ug/L	-2.22	-1.68	-1.32	0.88
V 292.401	V	1.44	ug/L	25.07	1.89	1.54	1.61
Zn 206.200	Zn	23.1	ug/L	71.59	24.78	23.18	21.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484145001 3242****Analysis Time: 5/12/2022 12:33:08 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600261.59	1.05	1.05	1.05
Ag 328.068	Ag	-0.36	ug/L	-1190.33	-0.47	-0.37	-0.1
Al 396.152	Al	318.89	ug/L	8381.36	314.25	316.46	322.01
As 188.980	As	8.9	ug/L	6.54	7.98	10.52	7.92
B 249.678	B	41.99	ug/L	359.55	42.03	42.06	41.79
Ba 233.527	Ba	70.14	ug/L	2836.38	68.72	70.35	71.25
Be 234.861	Be	-0.09	ug/L	-10.413	-0.065	-0.153	-0.083
Ca 315.887	Ca	48550.26	ug/L	259598.93	47948.79	48486.71	48986.79
Cd 214.439	Cd	0.12	ug/L	4.84	-0.06	0.21	0.06
Co 228.615	Co	-3.65	ug/L	7.93	-3.07	-3.81	-4.64
Cr 267.716	Cr	636.9	ug/L	22987.72	627.71	636.81	642.32
Cu 327.395	Cu	6.9	ug/L	-1482.83	6.48	7.11	6.93
Fe 261.187	Fe	357.38	ug/L	609.25	354.92	354.99	361.2
K 766.491	K	61838.86	ug/L	78404.36	61205.51	61920.21	62202.27
Li 670.783	Li	70.01	ug/L	50393.64	69.02	70.13	70.69
Mg 279.078	Mg	4462.52	ug/L	11607.36	4349.02	4511	4521.29
Mn 257.610	Mn	24.69	ug/L	3183.55	24.32	24.63	24.93
Mo 204.598	Mo	82.41	ug/L	300.21	81.04	84.32	82.49
Na 589.592	Na	51966.97	ug/L	413522.74	51334.46	52098.59	52306.28
Ni 231.604	Ni	2.66	ug/L	9.71	3.51	3.95	2.84
P 213.618	P	134.94	ug/L	95.94	130.24	142.21	128.45
Pb 220.353	Pb	-2.22	ug/L	-0.09	-1.77	-0.22	-4.15
S 181.972	S	46355.19	ug/L	1784.88	45700.61	46478.83	46718.47
Sb 206.834	Sb	3.39	ug/L	10.18	4.62	1.11	4.7
Se 196.026	Se	11.74	ug/L	9.23	10.57	13.91	8.72
Si 251.611	Si	9202.96	ug/L	15861.3	9040.44	9198.41	9331.79
Sn 189.925	Sn	-2.35	ug/L	0.09	-4.53	-5.8	1.2
Sr 421.552	Sr	3600.69	ug/L	8359049.44	3556.42	3603.9	3625.45
Ti 334.941	Ti	5.77	ug/L	17570.3	5.62	5.33	6.27
Tl 190.794	Tl	0.2	ug/L	-2.36	-1.93	-5.27	0.91
V 292.401	V	6.55	ug/L	92.46	6.26	6.43	6.94
Zn 206.200	Zn	6.34	ug/L	19.94	5.33	7.42	6.73

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484158001\_3242****Analysis Time: 5/12/2022 12:35:07 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	590488.13	1.03	1.03	1.03
Ag 328.068	Ag	-0.53	ug/L	-1196.05	-0.33	-0.45	-0.77
Al 396.152	Al	959.57	ug/L	24181.07	938.51	954.74	969.41
As 188.980	As	7.03	ug/L	7.91	7.76	9.8	0.45
B 249.678	B	117.81	ug/L	982.75	115.23	118.48	119.96
Ba 233.527	Ba	87.83	ug/L	3557.8	86.35	87.94	88.88
Be 234.861	Be	-0.071	ug/L	-11.085	-0.084	-0.058	-0.073
Ca 315.887	Ca	97386.79	ug/L	520655.39	95166.15	97274.78	98970.44
Cd 214.439	Cd	-0.04	ug/L	2.26	-0.14	-0.07	0.13
Co 228.615	Co	-0.92	ug/L	7.08	-0.56	-0.42	-1.22
Cr 267.716	Cr	2.38	ug/L	114.82	2.39	2.26	2.54
Cu 327.395	Cu	5.43	ug/L	-1523.98	5.22	5.54	5.28
Fe 261.187	Fe	1253.65	ug/L	2210.31	1233.94	1255.95	1263.95
K 766.491	K	6387.02	ug/L	8488.49	6291.64	6400.49	6452.28
Li 670.783	Li	13.79	ug/L	19129.76	13.61	13.82	13.94
Mg 279.078	Mg	25968.93	ug/L	67380.98	25180.03	25998.88	26609.79
Mn 257.610	Mn	51.95	ug/L	6687.38	51.11	52.01	52.42
Mo 204.598	Mo	27.36	ug/L	95.02	26.15	26.83	28.72
Na 589.592	Na	143378.87	ug/L	1141068.69	141653.5	143505.24	144408.38
Ni 231.604	Ni	1.62	ug/L	7.92	0.37	2.29	1
P 213.618	P	966.4	ug/L	734.74	946.71	965.05	977.46
Pb 220.353	Pb	-1.37	ug/L	1.42	-0.87	-2.78	0.36
S 181.972	S	71906.79	ug/L	2768.21	70671.19	72023.99	72575.87
Sb 206.834	Sb	2.72	ug/L	4	8.34	0.27	1.79
Se 196.026	Se	6.48	ug/L	5.89	12.52	1.65	2
Si 251.611	Si	4120.33	ug/L	7117.72	4028.06	4150.13	4127.19
Sn 189.925	Sn	-1.39	ug/L	1.07	-2.17	-0.29	-1.49
Sr 421.552	Sr	5056.36	ug/L	11739208.85	4985.65	5057.68	5097.09
Ti 334.941	Ti	9.07	ug/L	18341.77	8.87	9.04	9.16
Tl 190.794	Tl	-1.32	ug/L	-3.6	-1.89	-0.22	-2
V 292.401	V	3.5	ug/L	62.64	3.58	3.2	3.6
Zn 206.200	Zn	19.86	ug/L	65.04	19.27	20.3	19.58

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484158002\_3242****Analysis Time: 5/12/2022 12:37:06 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	584883.43	1.02	1.02	1.02
Ag 328.068	Ag	-0.56	ug/L	-1197.09	-0.05	-0.76	-0.13
Al 396.152	Al	1615.34	ug/L	40263	1592.99	1618.57	1629.42
As 188.980	As	6.64	ug/L	7.69	5.47	8.46	4.92
B 249.678	B	131.76	ug/L	1097.77	131.07	129.58	132.83
Ba 233.527	Ba	97.65	ug/L	3956.96	96.73	97.8	98.1
Be 234.861	Be	-0.063	ug/L	-13.572	-0.02	-0.052	-0.096
Ca 315.887	Ca	119433.93	ug/L	638509.46	117782.91	118834.71	120888.47
Cd 214.439	Cd	-0.05	ug/L	2.56	0.04	-0.1	-0.17
Co 228.615	Co	-0.44	ug/L	11.46	-0.51	-0.71	0.01
Cr 267.716	Cr	3.75	ug/L	164.01	3.83	3.75	3.58
Cu 327.395	Cu	5.06	ug/L	-1534.38	4.82	5.26	5.14
Fe 261.187	Fe	2191.89	ug/L	3883.2	2164.9	2193.42	2203.08
K 766.491	K	7368.63	ug/L	9730.8	7295.62	7358.56	7433.62
Li 670.783	Li	18.43	ug/L	21687.31	18.18	18.45	18.51
Mg 279.078	Mg	31046.85	ug/L	80549.88	30663.05	31180.33	31228.98
Mn 257.610	Mn	80.89	ug/L	10409.99	80.09	81	81.34
Mo 204.598	Mo	28.96	ug/L	101.08	28.53	29.21	29.6
Na 589.592	Na	158202.02	ug/L	1259061.34	156481.51	157896.86	159512.47
Ni 231.604	Ni	3.11	ug/L	10.96	5.07	2.52	3.07
P 213.618	P	1183.15	ug/L	901.19	1168.84	1179.66	1194.19
Pb 220.353	Pb	-2.25	ug/L	0.07	-3.21	-2.46	-1.27
S 181.972	S	80594.5	ug/L	3102.56	79662.34	80637.29	81336.59
Sb 206.834	Sb	-0.65	ug/L	1.37	1.74	0.06	0.07
Se 196.026	Se	8.11	ug/L	6.82	11.32	9.98	4.1
Si 251.611	Si	5152.28	ug/L	8893.67	5073.05	5124.67	5233.49
Sn 189.925	Sn	-2.08	ug/L	0.31	-1.06	-1.5	-3.03
Sr 421.552	Sr	5603.79	ug/L	13010478.42	5555.62	5595.2	5638.93
Ti 334.941	Ti	15.69	ug/L	19938.79	15.58	15.65	15.78
Tl 190.794	Tl	-0.87	ug/L	-3.11	-0.03	2.15	-4.08
V 292.401	V	4.84	ug/L	87.48	4.46	5	4.46
Zn 206.200	Zn	21.73	ug/L	71.72	21.51	21.12	21.7

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484211001\_3242****Analysis Time: 5/12/2022 12:39:06 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599345.41	1.05	1.05	1.04
Ag 328.068	Ag	-0.47	ug/L	-1193.65	-0.68	-0.31	-0.34
Al 396.152	Al	42.38	ug/L	1462.41	42.69	42.2	42.13
As 188.980	As	6.53	ug/L	7.54	8.22	9.29	4.1
B 249.678	B	200.17	ug/L	1661.96	196.14	199.83	203.14
Ba 233.527	Ba	7.71	ug/L	310.41	7.63	7.63	7.65
Be 234.861	Be	-0.08	ug/L	-8.232	-0.082	-0.056	-0.09
Ca 315.887	Ca	19522.49	ug/L	104430.3	19225.05	19467.86	19751.93
Cd 214.439	Cd	0.09	ug/L	4.27	0.1	0.04	0.1
Co 228.615	Co	-0.26	ug/L	7.8	-0.66	0.14	-0.05
Cr 267.716	Cr	0.71	ug/L	54.25	0.67	0.83	0.74
Cu 327.395	Cu	7.33	ug/L	-1470.84	7.32	7.2	7.18
Fe 261.187	Fe	96.91	ug/L	148.57	96	96.51	97.04
K 766.491	K	12499.87	ug/L	16181.95	12341.02	12487.54	12594.98
Li 670.783	Li	1.59	ug/L	12409.39	1.56	1.51	1.66
Mg 279.078	Mg	17913.3	ug/L	46489.25	17495.94	18033.61	18123.41
Mn 257.610	Mn	30.04	ug/L	3867.08	29.31	29.97	30.41
Mo 204.598	Mo	10.12	ug/L	30.58	9.5	10.37	9.7
Na 589.592	Na	39991.12	ug/L	318087.85	39588.45	39907.53	40261.76
Ni 231.604	Ni	2.23	ug/L	8.98	3.28	0.22	3.96
P 213.618	P	2177.13	ug/L	1662.97	2135.45	2160.52	2211.21
Pb 220.353	Pb	-3.08	ug/L	-1.36	0.34	-2.79	-3.82
S 181.972	S	10770.43	ug/L	415.5	10617.11	10700.11	10872.7
Sb 206.834	Sb	-2.64	ug/L	0.03	-2.87	0.35	-1.67
Se 196.026	Se	7.07	ug/L	6.34	11.23	6.09	3.78
Si 251.611	Si	8789.42	ug/L	15148.52	8641.57	8775.32	8875.92
Sn 189.925	Sn	-1.68	ug/L	0.85	-0.96	-4.28	-0.92
Sr 421.552	Sr	112.74	ug/L	262290.96	111.36	112.78	113.61
Ti 334.941	Ti	0.38	ug/L	16258.09	0.43	0.35	0.52
Tl 190.794	Tl	-1.18	ug/L	-3.51	-0.27	-1.19	-1.99
V 292.401	V	1.14	ug/L	20.12	1.1	1.01	1.29
Zn 206.200	Zn	72.06	ug/L	226.81	71.01	71.04	72.55

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484248002\_3242****Analysis Time: 5/12/2022 12:41:05 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	597421	1.01	1.06	1.06
Ag 328.068	Ag	-0.37	ug/L	-1187.48	-0.17	-0.42	-0.55
Al 396.152	Al	260.42	ug/L	6887.96	267.36	255.61	259.05
As 188.980	As	4.36	ug/L	6.29	4.28	5.83	6.31
B 249.678	B	15.09	ug/L	133.79	14.65	14.61	16.21
Ba 233.527	Ba	53.46	ug/L	2162.71	54.97	52.66	52.98
Be 234.861	Be	-0.116	ug/L	-27.25	-0.076	-0.128	-0.14
Ca 315.887	Ca	44715.42	ug/L	239099.59	45779.24	43932.3	44359.08
Cd 214.439	Cd	-0.01	ug/L	3.28	-0.05	0.07	0.06
Co 228.615	Co	-0.18	ug/L	9.25	-0.12	-0.37	0.2
Cr 267.716	Cr	0.32	ug/L	13.89	0.35	0.31	0.23
Cu 327.395	Cu	4.07	ug/L	-1558.19	4.4	3.89	4.4
Fe 261.187	Fe	3001.13	ug/L	5326.38	3074.98	2959.57	2984.8
K 766.491	K	1922.84	ug/L	2847.7	2005.93	1895.05	1904.43
Li 670.783	Li	-0.9	ug/L	10974.3	-0.12	-1.16	-1.21
Mg 279.078	Mg	12053.85	ug/L	31294.62	12358.76	11840.67	11955.09
Mn 257.610	Mn	1536.89	ug/L	197597.69	1576.35	1512.41	1527.26
Mo 204.598	Mo	-0.15	ug/L	-7.61	0.03	-1.13	-0.63
Na 589.592	Na	4180.05	ug/L	33174.22	4305.07	4109.6	4137.18
Ni 231.604	Ni	0.95	ug/L	6.49	-0.89	0.97	2.51
P 213.618	P	13.83	ug/L	3.82	14.99	13.57	7.66
Pb 220.353	Pb	0.97	ug/L	5.24	1.06	1.24	-0.64
S 181.972	S	10060.42	ug/L	388.27	10384.03	9851.26	10089.99
Sb 206.834	Sb	2.81	ug/L	4.43	2.56	3.81	3.39
Se 196.026	Se	2.54	ug/L	3.77	-3.68	6.45	0.23
Si 251.611	Si	3831.29	ug/L	6619.85	3906.08	3753.35	3796.1
Sn 189.925	Sn	-3.33	ug/L	-0.92	-3.04	-1.78	-3.54
Sr 421.552	Sr	155.64	ug/L	362569.27	159.64	153.11	154.48
Ti 334.941	Ti	2.56	ug/L	16779.04	2.74	2.56	2.35
Tl 190.794	Tl	-2.34	ug/L	-2.45	-2.78	-3.49	1.53
V 292.401	V	0.94	ug/L	12.64	1.03	1.01	0.79
Zn 206.200	Zn	20.19	ug/L	63.88	20.64	19.78	20.3



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 12:43:04 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599346.11	1	1.06	1.06
Ag 328.068	Ag	1007.51	ug/L	40235.16	1031.27	993.47	1000.09
Al 396.152	Al	9799.2	ug/L	241193.04	10040.37	9654.72	9719.36
As 188.980	As	2008.63	ug/L	1183.87	2047.88	1980.52	1998.23
B 249.678	B	2071.86	ug/L	17107.7	2120.12	2044.56	2056.62
Ba 233.527	Ba	2051.28	ug/L	82951.32	2106.92	2019.79	2033.54
Be 234.861	Be	2002.333	ug/L	297179.387	2050.613	1972.387	1986.728
Ca 315.887	Ca	10186.54	ug/L	54550.84	10449.07	10052.37	10076.84
Cd 214.439	Cd	2015.43	ug/L	41762.66	2061.86	1965.9	2022
Co 228.615	Co	2061.67	ug/L	12009.33	2112.99	2030.04	2047.93
Cr 267.716	Cr	2021.31	ug/L	72856.83	2071.38	1991.99	2004.89
Cu 327.395	Cu	1975.19	ug/L	51885.72	2021.53	1947	1959.8
Fe 261.187	Fe	9996.21	ug/L	17784.95	10258.01	9844.94	9912.38
K 766.491	K	9884.86	ug/L	12931.88	10219.7	9758.9	9783.09
Li 670.783	Li	1898.07	ug/L	1065113.44	1952.65	1872.93	1879.36
Mg 279.078	Mg	9930.44	ug/L	25786.89	10176.29	9784.33	9849.11
Mn 257.610	Mn	2025.24	ug/L	260491.79	2077.57	1994.41	2009.19
Mo 204.598	Mo	1938.7	ug/L	7228.87	1974.25	1892.95	1945.27
Na 589.592	Na	10107.33	ug/L	84167.79	10405.7	9959.8	10005.75
Ni 231.604	Ni	1999.38	ug/L	3961.65	2049.91	1973.08	1979.08
P 213.618	P	2023.3	ug/L	1483.06	2025.19	2012.37	2018.72
Pb 220.353	Pb	2013.17	ug/L	3146.3	2065.57	1984.07	1998.51
S 181.972	S	9802.16	ug/L	378.22	10041.15	9647.6	9720.41
Sb 206.834	Sb	2008.32	ug/L	1558.09	2042.46	1983.22	1998.19
Se 196.026	Se	2027.41	ug/L	1256.84	2072.16	2002.75	2001.55
Si 251.611	Si	10485.73	ug/L	18120.31	10714.52	10335.56	10416.83
Sn 189.925	Sn	1984.57	ug/L	2111.4	2028.18	1954.49	1971.45
Sr 421.552	Sr	2054.61	ug/L	4769131.3	2110.51	2028.77	2035.79
Ti 334.941	Ti	1991.92	ug/L	498078.5	2034.86	1969.24	1977.95
Tl 190.794	Tl	2085.09	ug/L	2010.89	2143.93	2056.43	2065.14
V 292.401	V	2013.63	ug/L	39021.31	2064.54	1982.7	1996.41
Zn 206.200	Zn	2017.45	ug/L	6361.52	2070.63	1971.09	2010.86

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 12:45:03 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	605052.98	1.03	1.06	1.07
Ag 328.068	Ag	0.15	ug/L	-1168.08	-0.63	0.42	0.82
Al 396.152	Al	0.53	ug/L	351.21	1.53	0.19	0.78
As 188.980	As	0.54	ug/L	3.98	-2.5	-1.25	2
B 249.678	B	2.73	ug/L	32.9	4.71	3.03	1.49
Ba 233.527	Ba	0.32	ug/L	9.33	0.42	0.34	0.37
Be 234.861	Be	0.084	ug/L	16.947	0.122	0.108	0.071
Ca 315.887	Ca	-23.15	ug/L	-50.86	-24.56	-23.44	-20.83
Cd 214.439	Cd	0.07	ug/L	3.76	0.07	0.24	0.01
Co 228.615	Co	0.1	ug/L	8.49	0.13	0.18	0.44
Cr 267.716	Cr	0.22	ug/L	36.46	0.42	0.29	0.12
Cu 327.395	Cu	0.48	ug/L	-1656.12	-0.92	0.84	0.62
Fe 261.187	Fe	1.58	ug/L	-22.13	0.42	2.62	1.56
K 766.491	K	9.5	ug/L	424.78	-15.44	0.84	31.28
Li 670.783	Li	-2.05	ug/L	10411.62	-1.51	-2.09	-2.27
Mg 279.078	Mg	4.44	ug/L	45.94	3.99	1.9	3.95
Mn 257.610	Mn	0.24	ug/L	35.46	0.31	0.24	0.2
Mo 204.598	Mo	2.41	ug/L	1.79	1.68	3.52	2.26
Na 589.592	Na	30.57	ug/L	42.78	24.13	31.51	34.45
Ni 231.604	Ni	-0.3	ug/L	3.79	-0.65	1.03	-2.21
P 213.618	P	-3.04	ug/L	-9.48	-3.49	-3.4	-3.27
Pb 220.353	Pb	-1.66	ug/L	0.71	-2.46	-0.46	-0.56
S 181.972	S	20.81	ug/L	1.81	30.99	4.08	-2.22
Sb 206.834	Sb	-2.71	ug/L	0.13	-5.47	-7.68	1.1
Se 196.026	Se	2.73	ug/L	3.66	5.36	-3.05	5.09
Si 251.611	Si	4.88	ug/L	34.82	9.56	3.52	2.76
Sn 189.925	Sn	-0.78	ug/L	1.83	0.58	-0.62	-1.5
Sr 421.552	Sr	0.23	ug/L	595.72	0.25	0.24	0.23
Ti 334.941	Ti	0.45	ug/L	16281.25	2.1	0.21	-0.43
Tl 190.794	Tl	1.04	ug/L	-1.5	4.32	-4.11	2.2
V 292.401	V	0.21	ug/L	2.67	1.18	-0.74	-0.35
Zn 206.200	Zn	0.36	ug/L	-0.28	0.26	0.45	0.34

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484249002\_3242****Analysis Time: 5/12/2022 12:47:02 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602492.96	1.06	1.05	1.05
Ag 328.068	Ag	-0.02	ug/L	-1171.21	-0.11	-0.36	0.33
Al 396.152	Al	86.14	ug/L	2769.33	86.24	85.88	85.97
As 188.980	As	7.04	ug/L	7.91	8.39	3.99	5.19
B 249.678	B	23.11	ug/L	198.14	23.45	23.31	22.52
Ba 233.527	Ba	94.57	ug/L	3828.27	93.32	94.64	94.96
Be 234.861	Be	0.026	ug/L	-24.59	0.519	-0.132	-0.159
Ca 315.887	Ca	71081.4	ug/L	380038.62	69499.29	70761.76	71861.58
Cd 214.439	Cd	0.07	ug/L	6.54	0.56	-0.19	0
Co 228.615	Co	0.45	ug/L	14.4	1.07	0.64	0.32
Cr 267.716	Cr	0.21	ug/L	-30.39	0.71	0.14	-0.08
Cu 327.395	Cu	5.82	ug/L	-1509.2	6.1	5.98	5.51
Fe 261.187	Fe	6682.53	ug/L	11890.83	6542.66	6673.51	6744.93
K 766.491	K	2505.24	ug/L	3589.11	2496.86	2473.97	2517.62
Li 670.783	Li	-0.88	ug/L	10911.89	-0.42	-1	-1.03
Mg 279.078	Mg	20554.94	ug/L	53341.39	20267.19	20508.99	20704.35
Mn 257.610	Mn	3804.03	ug/L	489074.26	3731.07	3799.25	3837.48
Mo 204.598	Mo	0.35	ug/L	-5.6	0.94	-0.34	0.34
Na 589.592	Na	8125.88	ug/L	64659.83	8010.99	8135.52	8170.23
Ni 231.604	Ni	-0.46	ug/L	3.91	-1.56	-1.1	2.01
P 213.618	P	6.17	ug/L	-1.83	10.78	7.91	4.43
Pb 220.353	Pb	-2.25	ug/L	0.74	-1.71	-4.16	-0.29
S 181.972	S	11596.57	ug/L	447.51	11399.12	11608.73	11610.2
Sb 206.834	Sb	4.17	ug/L	5.52	6.67	4.47	0.95
Se 196.026	Se	-1.86	ug/L	1.46	-0.44	1.2	-5.53
Si 251.611	Si	3952.62	ug/L	6831.02	3882.3	3911.31	4013.53
Sn 189.925	Sn	-1.92	ug/L	0.55	0.02	-1.54	-2.63
Sr 421.552	Sr	238.35	ug/L	555326.49	234.93	238.15	239.87
Ti 334.941	Ti	0.92	ug/L	16373.62	1.65	0.81	0.58
Tl 190.794	Tl	-4.62	ug/L	-1.27	-1.38	-2.77	-8.22
V 292.401	V	1.02	ug/L	7.77	1.91	0.72	0.66
Zn 206.200	Zn	34.33	ug/L	109.45	34.08	34.58	34.58

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484253002\_3242****Analysis Time: 5/12/2022 12:49:02 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	622052.25	1.08	1.09	1.09
Ag 328.068	Ag	-0.2	ug/L	-1181.91	-0.1	-0.41	-0.1
Al 396.152	Al	997.7	ug/L	24759.41	990.55	990.62	998.83
As 188.980	As	1.78	ug/L	4.72	1.41	4.97	-2.56
B 249.678	B	8.14	ug/L	77.4	9.28	8.17	7.55
Ba 233.527	Ba	31.25	ug/L	1262.52	30.95	30.99	31.8
Be 234.861	Be	-0.035	ug/L	-5.416	-0.119	0.096	-0.044
Ca 315.887	Ca	23836.62	ug/L	127493.38	23681.29	23823.5	23869.2
Cd 214.439	Cd	0.08	ug/L	4.78	0.05	0.07	0.14
Co 228.615	Co	0.13	ug/L	9.91	-0.41	0.01	0.77
Cr 267.716	Cr	2.11	ug/L	101.94	2.24	1.88	2.14
Cu 327.395	Cu	5.5	ug/L	-1519.94	5.01	5.87	5.25
Fe 261.187	Fe	1384.6	ug/L	2443.59	1371.55	1373.56	1396.89
K 766.491	K	5383.63	ug/L	7205.74	5392.41	5367.4	5378.74
Li 670.783	Li	-0.7	ug/L	11136.23	-0.47	-0.73	-0.77
Mg 279.078	Mg	1379.63	ug/L	3612.6	1355.64	1387.13	1393.04
Mn 257.610	Mn	177.24	ug/L	22793.92	175.66	176.56	178.75
Mo 204.598	Mo	1.3	ug/L	-2.21	2.13	1.78	0.85
Na 589.592	Na	2213.03	ug/L	17474.2	2205.22	2204.22	2226.2
Ni 231.604	Ni	2.36	ug/L	9.13	3.03	0.89	2.07
P 213.618	P	183.37	ug/L	133.59	179.73	182.47	193.22
Pb 220.353	Pb	-0.79	ug/L	2.08	-0.59	-1.08	1.8
S 181.972	S	1299.6	ug/L	51.05	1277.72	1316.19	1301.5
Sb 206.834	Sb	2.53	ug/L	4.22	0.5	2.12	5.06
Se 196.026	Se	3.31	ug/L	3.97	-2.53	4.21	5.59
Si 251.611	Si	2728.43	ug/L	4721.01	2696.17	2719.38	2759.82
Sn 189.925	Sn	-3.01	ug/L	-0.58	-3.48	-4.25	-0.91
Sr 421.552	Sr	84.72	ug/L	197377.3	84.1	84.45	85.17
Ti 334.941	Ti	11.03	ug/L	18833.99	11.21	10.92	10.83
Tl 190.794	Tl	-1.63	ug/L	-3.84	-0.67	0.67	-3.58
V 292.401	V	2.41	ug/L	44.16	2.29	2.95	1.88
Zn 206.200	Zn	26.17	ug/L	81.92	25.73	25.81	27.34

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484256003 3242****Analysis Time: 5/12/2022 12:51:02 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	601327.46	1.07	1.07	1
Ag 328.068	Ag	-0.55	ug/L	-1196.41	-1.08	-0.4	-0.43
Al 396.152	Al	409.2	ug/L	10515.32	396.25	402.4	434.19
As 188.980	As	1.9	ug/L	4.84	3.89	6.41	-0.33
B 249.678	B	89.38	ug/L	748.15	85.78	88.75	94.12
Ba 233.527	Ba	37	ug/L	1496.73	35.96	36.26	39.12
Be 234.861	Be	-0.103	ug/L	-10.421	-0.078	-0.103	-0.096
Ca 315.887	Ca	46475.57	ug/L	248508.73	44873.41	45617.17	49555.93
Cd 214.439	Cd	0.02	ug/L	2.89	0.05	0	0.04
Co 228.615	Co	-0.26	ug/L	8.63	-0.6	-0.91	-0.24
Cr 267.716	Cr	-0.07	ug/L	25.98	0.12	-0.17	-0.16
Cu 327.395	Cu	3.23	ug/L	-1582.51	2.47	3.71	2.78
Fe 261.187	Fe	28.49	ug/L	25.59	28.13	27.14	30.12
K 766.491	K	11228.82	ug/L	14582.02	10903.56	11077.4	11900.35
Li 670.783	Li	4.65	ug/L	14100.19	4.21	4.21	6.02
Mg 279.078	Mg	7977.45	ug/L	20722.95	7692.04	7833.17	8489.88
Mn 257.610	Mn	34.85	ug/L	4485.75	34.01	33.98	37.09
Mo 204.598	Mo	0.49	ug/L	-5.3	0.25	1.13	-0.23
Na 589.592	Na	34351.66	ug/L	273265.25	33393.02	33738.14	36430.93
Ni 231.604	Ni	-0.41	ug/L	3.65	-1.37	-0.93	0.29
P 213.618	P	586.65	ug/L	443.22	567.76	571.27	631.21
Pb 220.353	Pb	-1.28	ug/L	1.41	-3.14	-0.12	-0.16
S 181.972	S	15084.97	ug/L	581.56	14674.19	14791.75	15849.16
Sb 206.834	Sb	-0.64	ug/L	1.68	-0.77	-0.09	3.71
Se 196.026	Se	1.53	ug/L	2.93	2.78	-1.25	-1.3
Si 251.611	Si	3599.07	ug/L	6219.06	3491	3510.73	3828.74
Sn 189.925	Sn	-2.9	ug/L	-0.47	-3.43	-0.47	-4.6
Sr 421.552	Sr	853.71	ug/L	1982909.3	828.4	838.41	905.44
Ti 334.941	Ti	-0.19	ug/L	16114.18	-0.01	-0.25	-0.28
Tl 190.794	Tl	-0.61	ug/L	-2.93	-0.21	-0.52	0.71
V 292.401	V	0.88	ug/L	16.1	1.15	1.1	0.48
Zn 206.200	Zn	26.48	ug/L	83.85	25.35	26.13	28.13

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485042001\_3242****Analysis Time: 5/12/2022 12:53:01 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	612937.01	1.04	1.08	1.08
Ag 328.068	Ag	-0.38	ug/L	-1189.71	-0.8	0.16	-0.53
Al 396.152	Al	197.6	ug/L	5290.11	199.46	196.22	197.33
As 188.980	As	-0.28	ug/L	3.52	-3.29	0.79	-1.45
B 249.678	B	16.73	ug/L	148.49	16.61	17.37	15.83
Ba 233.527	Ba	41.63	ug/L	1682.73	41.95	41.24	41.83
Be 234.861	Be	-0.09	ug/L	-10.75	-0.084	-0.077	-0.09
Ca 315.887	Ca	30451.58	ug/L	162852.13	30793.89	30279.21	30301.13
Cd 214.439	Cd	0	ug/L	2.54	-0.04	-0.01	0.02
Co 228.615	Co	-0.16	ug/L	8.02	-0.62	-0.18	-0.05
Cr 267.716	Cr	0.31	ug/L	37.83	0.19	0.48	0.44
Cu 327.395	Cu	1.37	ug/L	-1632.36	0.41	1.46	1.93
Fe 261.187	Fe	413.38	ug/L	712.04	417.26	412.23	412.64
K 766.491	K	1815.65	ug/L	2708.72	1871.97	1809.45	1782.73
Li 670.783	Li	-0.84	ug/L	11057.03	-0.2	-1.09	-0.98
Mg 279.078	Mg	6524.88	ug/L	16955.82	6573.05	6456.57	6556.42
Mn 257.610	Mn	122.33	ug/L	15731.97	123.04	121.18	122.61
Mo 204.598	Mo	1.63	ug/L	-1.06	1.85	2.19	1.59
Na 589.592	Na	21870.25	ug/L	173937.98	22048.29	21722.03	21867.95
Ni 231.604	Ni	1.54	ug/L	7.52	2.58	-0.18	0.89
P 213.618	P	20.78	ug/L	9.04	20.22	22.63	22.24
Pb 220.353	Pb	-2.4	ug/L	-0.34	0.69	-3.61	-3.02
S 181.972	S	6595.18	ug/L	254.84	6590.4	6620.72	6558.54
Sb 206.834	Sb	-1.55	ug/L	0.99	-3.88	2.56	0
Se 196.026	Se	1.5	ug/L	2.91	5.11	0.47	2.4
Si 251.611	Si	1095.75	ug/L	1912.24	1100.67	1087.23	1098.84
Sn 189.925	Sn	-2.72	ug/L	-0.27	-2.13	-4.39	-1.56
Sr 421.552	Sr	106.81	ug/L	248834.41	107.7	105.96	106.83
Ti 334.941	Ti	1.47	ug/L	16520.18	2.28	1.13	1.17
Tl 190.794	Tl	-0.53	ug/L	-2.78	-4.07	-1.78	4.41
V 292.401	V	1.14	ug/L	20.52	1.1	1.24	1.38
Zn 206.200	Zn	1.62	ug/L	4.84	1.94	1.49	1.49

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485371001\_3242****Analysis Time: 5/12/2022 12:55:01 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	606964.57	1.05	1.05	1.07
Ag 328.068	Ag	-0.38	ug/L	-1189.64	-0.69	-0.55	-0.04
Al 396.152	Al	49.96	ug/L	1868.53	49.73	50.2	49.13
As 188.980	As	4.22	ug/L	6.24	5.62	7.04	4.24
B 249.678	B	20.96	ug/L	183.73	20.35	21.08	21.09
Ba 233.527	Ba	38.96	ug/L	1578.4	38.4	38.34	39.65
Be 234.861	Be	-0.092	ug/L	-10.082	-0.072	-0.107	-0.089
Ca 315.887	Ca	70614.91	ug/L	377544.79	70024.36	70485.03	71435.58
Cd 214.439	Cd	-0.1	ug/L	0.27	-0.21	-0.05	-0.12
Co 228.615	Co	-0.69	ug/L	8.04	-0.74	-0.13	-1.09
Cr 267.716	Cr	0.53	ug/L	48.46	0.52	0.41	0.63
Cu 327.395	Cu	3.48	ug/L	-1576.55	3.26	3.72	3.63
Fe 261.187	Fe	58.28	ug/L	78.93	57.98	57.54	56.01
K 766.491	K	16959.07	ug/L	21814.02	16839.21	16879.9	17147.3
Li 670.783	Li	5.65	ug/L	14639.39	5.74	5.86	5.54
Mg 279.078	Mg	18848.12	ug/L	48914.17	18511.88	19204.21	18878.15
Mn 257.610	Mn	2.78	ug/L	361.6	2.97	2.83	2.74
Mo 204.598	Mo	0.83	ug/L	-4.02	0.3	0.79	0.38
Na 589.592	Na	7365.28	ug/L	58499.54	7317.65	7334.94	7429.69
Ni 231.604	Ni	-0.03	ug/L	4.52	0.36	0.37	-0.35
P 213.618	P	96.56	ug/L	67.5	95.71	93.79	98.82
Pb 220.353	Pb	-1.45	ug/L	1.27	-1.66	-0.93	-1.84
S 181.972	S	23056.43	ug/L	888.34	22869.96	22728.39	23281.97
Sb 206.834	Sb	-1.52	ug/L	0.93	-3.23	-0.92	-4.13
Se 196.026	Se	2.45	ug/L	3.48	2.67	-1.22	5.8
Si 251.611	Si	3058.34	ug/L	5289.37	3019.61	3057.68	3097.81
Sn 189.925	Sn	1.92	ug/L	4.62	2.11	-0.06	3.04
Sr 421.552	Sr	366.34	ug/L	852366.16	363.48	364.86	369.86
Ti 334.941	Ti	0.37	ug/L	16244.44	0.55	0.33	0.38
Tl 190.794	Tl	0.6	ug/L	-1.73	2.38	0.76	1.41
V 292.401	V	0.94	ug/L	17.28	0.7	0.86	0.96
Zn 206.200	Zn	15.36	ug/L	49.78	15.31	14.87	15.88

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 7:37:49 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	608462.43	1.02	1.08	1.08
Ag 328.068	Ag	1023.69	ug/L	40900.69	1056.5	1008.06	1013.24
Al 396.152	Al	9947.91	ug/L	244854.33	10257.76	9783.95	9854.59
As 188.980	As	2067.24	ug/L	1218.3	2138.7	2042.08	2042.04
B 249.678	B	2111.78	ug/L	17437.22	2175.76	2078.47	2090.49
Ba 233.527	Ba	2087.49	ug/L	84415.7	2153.04	2056.1	2066.56
Be 234.861	Be	2045.169	ug/L	303536.962	2108.165	2013.259	2026.032
Ca 315.887	Ca	10461.23	ug/L	56019.79	10822.54	10275.77	10353.87
Cd 214.439	Cd	2065.65	ug/L	42803.13	2181.84	1990.25	2028.3
Co 228.615	Co	2105.68	ug/L	12266.47	2171.55	2073.11	2083.99
Cr 267.716	Cr	2059.33	ug/L	74226.62	2123.46	2026.56	2039.83
Cu 327.395	Cu	2009.37	ug/L	52812.82	2073.67	1976.32	1988.09
Fe 261.187	Fe	10177.09	ug/L	18107.12	10488.81	10022.52	10068.93
K 766.491	K	10081.55	ug/L	13181.12	10466.27	9879.39	9978.37
Li 670.783	Li	1929.02	ug/L	1082284.88	1999.21	1899.39	1906.51
Mg 279.078	Mg	10159.29	ug/L	26380.34	10494.05	10000.57	10061
Mn 257.610	Mn	2053.43	ug/L	264118.99	2116.96	2022.13	2033.05
Mo 204.598	Mo	1979.21	ug/L	7380.11	2039.79	1953.66	1965.71
Na 589.592	Na	10314.34	ug/L	85884.62	10671.45	10140.05	10196.11
Ni 231.604	Ni	2033.49	ug/L	4029.15	2096.3	2008.16	2011.38
P 213.618	P	2059.36	ug/L	1509.6	2128.46	2005.08	2031.56
Pb 220.353	Pb	2065.7	ug/L	3228.32	2138.05	2033.87	2042.4
S 181.972	S	10156.75	ug/L	391.87	10457.86	10035.04	10078.29
Sb 206.834	Sb	2063.83	ug/L	1601.33	2131.71	2035.82	2056.07
Se 196.026	Se	2090.18	ug/L	1295.69	2162.35	2060.65	2066.8
Si 251.611	Si	10617.72	ug/L	18348.42	10933.16	10442.31	10508.82
Sn 189.925	Sn	2040.68	ug/L	2171.03	2103.68	2010.91	2018.26
Sr 421.552	Sr	2083.77	ug/L	4836822.7	2152.56	2051.45	2059.73
Ti 334.941	Ti	2020.53	ug/L	505000.25	2088.04	1986.31	2007.72
Tl 190.794	Tl	2139.93	ug/L	2063.87	2207.86	2101.22	2126.44
V 292.401	V	2047.01	ug/L	39666.74	2109.87	2017.37	2028.47
Zn 206.200	Zn	2085.75	ug/L	6576.91	2158.56	2048.3	2061.35



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 7:39:49 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	607308.82	1.06	1.08	1.09
Ag 328.068	Ag	0.33	ug/L	-1160.86	-0.37	0.01	0.87
Al 396.152	Al	0.29	ug/L	345.07	2.03	-0.73	0.12
As 188.980	As	2.01	ug/L	4.85	-2.13	3.86	3.67
B 249.678	B	1.94	ug/L	26.41	3	1.88	1.19
Ba 233.527	Ba	0.32	ug/L	9.12	0.51	0.1	0.17
Be 234.861	Be	0.081	ug/L	16.213	0.173	0.095	0.021
Ca 315.887	Ca	-1.34	ug/L	65.73	1.22	-1.63	-2.94
Cd 214.439	Cd	0.14	ug/L	5.16	0.41	0.17	0.06
Co 228.615	Co	-0.25	ug/L	6.49	-0.35	0.36	-0.09
Cr 267.716	Cr	0.05	ug/L	30.51	0.34	0.12	-0.03
Cu 327.395	Cu	1.24	ug/L	-1635.56	-0.17	0.84	1.41
Fe 261.187	Fe	2.77	ug/L	-20	6.96	4.03	-2.12
K 766.491	K	-33.94	ug/L	369.99	-48.4	-28.75	-56.39
Li 670.783	Li	-2.22	ug/L	10313.37	-2.07	-2.67	-2.81
Mg 279.078	Mg	1.87	ug/L	39.28	3.64	1.33	0.05
Mn 257.610	Mn	0.09	ug/L	16.53	0.23	0.1	0.06
Mo 204.598	Mo	2.05	ug/L	0.43	0.99	1.79	2.41
Na 589.592	Na	11.35	ug/L	-110.23	11.31	12.62	9.25
Ni 231.604	Ni	0.05	ug/L	4.49	0.56	0.48	-0.15
P 213.618	P	-3.53	ug/L	-9.87	-0.94	0.03	-6.4
Pb 220.353	Pb	-0.59	ug/L	2.39	-0.3	-0.82	-1.31
S 181.972	S	-23.25	ug/L	0.11	-54.5	-3.3	-58.39
Sb 206.834	Sb	0.13	ug/L	2.33	1.06	4.94	-3.33
Se 196.026	Se	0.23	ug/L	2.11	-2.79	1.14	1.1
Si 251.611	Si	1.09	ug/L	28.29	6.21	0.52	-1.42
Sn 189.925	Sn	-1.64	ug/L	0.92	-0.22	-2.4	-0.65
Sr 421.552	Sr	0.15	ug/L	428.98	0.27	0.17	0.08
Ti 334.941	Ti	-0.68	ug/L	16007.77	1.49	-0.08	-0.99
Tl 190.794	Tl	0.59	ug/L	-1.93	3.74	-1.64	0.25
V 292.401	V	0.36	ug/L	5.73	0.04	1.2	0.4
Zn 206.200	Zn	0.46	ug/L	0.03	0.06	0.09	1.22

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 7:41:48 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	610882.57	1.02	1.08	1.08
Ag 328.068	Ag	1028.35	ug/L	41092.36	1063.09	1014.04	1015.99
Al 396.152	Al	10005.96	ug/L	246276.92	10331.4	9857.03	9887.98
As 188.980	As	2075.37	ug/L	1223.04	2145.72	2038.47	2051.95
B 249.678	B	2121.52	ug/L	17517.58	2190.63	2092.39	2093.14
Ba 233.527	Ba	2096.96	ug/L	84798.71	2168.64	2066.03	2071.94
Be 234.861	Be	2055.595	ug/L	305084.698	2123.846	2024.622	2031.254
Ca 315.887	Ca	10504.66	ug/L	56252.11	10888.55	10340.99	10376.54
Cd 214.439	Cd	2067.69	ug/L	42845.38	2126.54	2022.87	2042.11
Co 228.615	Co	2116.96	ug/L	12332.57	2185.98	2085.71	2091.56
Cr 267.716	Cr	2068.18	ug/L	74545.62	2136.35	2037.11	2045.18
Cu 327.395	Cu	2019.51	ug/L	53087.61	2084.11	1993.88	1995.31
Fe 261.187	Fe	10244.48	ug/L	18227.19	10579.35	10099.31	10122.84
K 766.491	K	10170.83	ug/L	13293.98	10512.27	10010.98	10069.7
Li 670.783	Li	1930.42	ug/L	1083053.87	1993.89	1901.87	1909.85
Mg 279.078	Mg	10211.38	ug/L	26515.4	10547.56	10056.33	10095.74
Mn 257.610	Mn	2064.6	ug/L	265554.17	2135.3	2032.3	2040.08
Mo 204.598	Mo	1984.81	ug/L	7401.03	2021.26	1961.16	1963.53
Na 589.592	Na	10380.72	ug/L	86430.97	10762.32	10217.34	10252.95
Ni 231.604	Ni	2039.98	ug/L	4042	2110.97	2012.48	2016.39
P 213.618	P	2066.5	ug/L	1514.81	2092.97	2025.01	2071.67
Pb 220.353	Pb	2069.3	ug/L	3233.93	2138.84	2034.01	2048.33
S 181.972	S	10209.49	ug/L	393.9	10473.34	9992.06	10149.82
Sb 206.834	Sb	2070.5	ug/L	1606.59	2134.18	2043.92	2045.81
Se 196.026	Se	2103.83	ug/L	1304.14	2171.16	2073.04	2075.94
Si 251.611	Si	10718.31	ug/L	18521.7	11056.76	10566.08	10588.14
Sn 189.925	Sn	2045.1	ug/L	2175.72	2109.58	2013.64	2023.07
Sr 421.552	Sr	2095.6	ug/L	4864276.59	2169.71	2065.44	2066.45
Ti 334.941	Ti	2033.55	ug/L	508151.51	2086.75	2006.35	2018.14
Tl 190.794	Tl	2147.65	ug/L	2071.33	2209.07	2123.34	2125.21
V 292.401	V	2055.37	ug/L	39828.74	2122.71	2024.03	2034.08
Zn 206.200	Zn	2083.32	ug/L	6569.23	2135.74	2050.95	2063.27

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 7:43:48 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	619370.66	1.05	1.09	1.1
Ag 328.068	Ag	0.07	ug/L	-1171.62	-0.56	0.12	0.39
Al 396.152	Al	-0.3	ug/L	330.84	0.44	-0.56	-0.65
As 188.980	As	2.24	ug/L	4.99	5.48	-3.02	3.51
B 249.678	B	2.26	ug/L	29.02	3.18	2.56	1.26
Ba 233.527	Ba	0.24	ug/L	5.86	0.47	0.2	0.21
Be 234.861	Be	0.077	ug/L	15.735	0.179	0.086	0.028
Ca 315.887	Ca	-0.21	ug/L	71.82	-1.72	0.67	0.35
Cd 214.439	Cd	0.19	ug/L	6.18	0.29	0.18	0.13
Co 228.615	Co	-0.18	ug/L	6.88	0.21	-0.41	0.2
Cr 267.716	Cr	0.01	ug/L	28.79	0.13	-0.05	0.02
Cu 327.395	Cu	0.71	ug/L	-1649.74	-0.66	0.63	1.8
Fe 261.187	Fe	1.15	ug/L	-22.91	1.09	0.94	5.4
K 766.491	K	-40.69	ug/L	361.48	-51.15	-36.69	-53.94
Li 670.783	Li	-2.69	ug/L	10052.63	-2.03	-2.81	-2.92
Mg 279.078	Mg	3.01	ug/L	42.22	4.87	1.35	2.96
Mn 257.610	Mn	0.15	ug/L	24.15	0.3	0.16	0.07
Mo 204.598	Mo	2.61	ug/L	2.5	2.31	2.23	3.13
Na 589.592	Na	11	ug/L	-113.19	8.13	13.56	8.89
Ni 231.604	Ni	0.92	ug/L	6.21	0.82	1.05	0.73
P 213.618	P	-4.17	ug/L	-10.35	-10.45	-2.68	-1.76
Pb 220.353	Pb	0.14	ug/L	3.52	0.95	0.07	0.09
S 181.972	S	-3.91	ug/L	0.86	23.61	-5.87	17.07
Sb 206.834	Sb	1.75	ug/L	3.58	-1.21	7.38	1.7
Se 196.026	Se	2.51	ug/L	3.53	5.7	-3.04	3.74
Si 251.611	Si	1.89	ug/L	29.67	5.25	1.76	1.36
Sn 189.925	Sn	-2.69	ug/L	-0.21	-2.74	-1.71	-3.16
Sr 421.552	Sr	0.14	ug/L	404.02	0.25	0.17	0.1
Ti 334.941	Ti	0.09	ug/L	16194.48	1.72	0	-0.72
Tl 190.794	Tl	1.49	ug/L	-1.06	3	4.35	-1.1
V 292.401	V	0.49	ug/L	8.12	0.56	0.21	0.64
Zn 206.200	Zn	0.28	ug/L	-0.53	0.39	0.92	-0.61

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483803001\_3242****Analysis Time: 5/12/2022 7:45:48 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	611900.24	1.07	1.07	1.07
Ag 328.068	Ag	-0.45	ug/L	-1192.26	-0.2	-0.24	-0.87
Al 396.152	Al	28.48	ug/L	1324.2	28.98	28.18	28.2
As 188.980	As	3.73	ug/L	5.94	2.03	7.04	5.87
B 249.678	B	56.93	ug/L	480.38	56.23	55.25	58.89
Ba 233.527	Ba	47.7	ug/L	1931.42	46.49	47.44	48.1
Be 234.861	Be	-0.049	ug/L	-4.898	-0.091	0.028	-0.075
Ca 315.887	Ca	65403.19	ug/L	349685.63	64306.7	65505.95	65170.2
Cd 214.439	Cd	0.11	ug/L	4.67	0.14	0.24	0.06
Co 228.615	Co	-0.94	ug/L	5.86	-1.36	-0.36	-0.59
Cr 267.716	Cr	0.16	ug/L	30.42	0.19	0.25	0.01
Cu 327.395	Cu	2.28	ug/L	-1608.69	1.96	2.96	1.67
Fe 261.187	Fe	353.21	ug/L	604.52	348.75	352.46	358.8
K 766.491	K	2259.57	ug/L	3275.66	2254.23	2228.21	2291.81
Li 670.783	Li	3.84	ug/L	13629.13	3.83	3.76	3.85
Mg 279.078	Mg	11763.32	ug/L	30541.14	11721.09	11570.28	11827.32
Mn 257.610	Mn	244.52	ug/L	31441.88	239.95	243.03	247.72
Mo 204.598	Mo	1.22	ug/L	-2.57	1.71	1.28	1.01
Na 589.592	Na	43493.12	ug/L	346041.06	42949.47	43391.76	43952.82
Ni 231.604	Ni	1.45	ug/L	7.39	0.33	2.18	2.29
P 213.618	P	10.81	ug/L	1.68	7.48	9.53	9.2
Pb 220.353	Pb	-2.49	ug/L	-0.36	-3.78	-2.72	-0.03
S 181.972	S	39550.61	ug/L	1523.07	39081.7	39317.19	40014.05
Sb 206.834	Sb	0.07	ug/L	2.2	-2.22	0.47	1.13
Se 196.026	Se	1.5	ug/L	2.95	-0.34	0.62	-1.37
Si 251.611	Si	3419.66	ug/L	5910.9	3326.48	3420.83	3474.72
Sn 189.925	Sn	-4.02	ug/L	-1.69	-5.13	-1.37	-3.57
Sr 421.552	Sr	192.04	ug/L	447649.51	189.55	191.51	194.06
Ti 334.941	Ti	0.08	ug/L	16175.53	0.26	-0.02	0.22
Tl 190.794	Tl	-0.73	ug/L	-2.72	-2.31	0.15	-2.1
V 292.401	V	1.01	ug/L	18.06	1.66	0.62	1.08
Zn 206.200	Zn	9	ug/L	29.43	8.99	8.89	8.77

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2430147\_3242****Analysis Time: 5/12/2022 7:47:47 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	592448.27	1.03	1.04	1.03
Ag 328.068	Ag	518.76	ug/L	19922.02	511.64	517.88	523.7
Al 396.152	Al	2121.88	ug/L	54109.82	2075.64	2108.74	2149.66
As 188.980	As	2066.2	ug/L	1218.07	2024.48	2062.97	2086.01
B 249.678	B	2174.12	ug/L	17954.87	2135.52	2174.39	2196.74
Ba 233.527	Ba	2056.53	ug/L	83169.97	2025.65	2049.95	2077.45
Be 234.861	Be	517.855	ug/L	76855.746	508.843	516.576	523.445
Ca 315.887	Ca	107410.16	ug/L	574271.49	105518.52	107523.76	108594.03
Cd 214.439	Cd	1007.92	ug/L	20883.01	990.3	1007.78	1017.57
Co 228.615	Co	2040.42	ug/L	11895.71	2008.03	2038.03	2059.89
Cr 267.716	Cr	2038.35	ug/L	73464.47	2002.75	2032.39	2059.11
Cu 327.395	Cu	2041.73	ug/L	53686.53	2008.95	2026.01	2063.28
Fe 261.187	Fe	2423.58	ug/L	4282.82	2383.87	2415.95	2448.06
K 766.491	K	23895.31	ug/L	30620.7	23587.48	23834.15	24104.61
Li 670.783	Li	2124.28	ug/L	1190872.18	2087.47	2122.07	2148.25
Mg 279.078	Mg	32379.75	ug/L	84006.28	31874.66	32174.62	32676.85
Mn 257.610	Mn	2244.35	ug/L	288640.55	2211.42	2241.26	2264.12
Mo 204.598	Mo	2021.72	ug/L	7537.49	1997.15	2008.34	2042.64
Na 589.592	Na	64954.24	ug/L	520692.65	64116.61	64670.6	65443.03
Ni 231.604	Ni	1956.2	ug/L	3876.27	1922.21	1950.95	1975.55
P 213.618	P	41397.84	ug/L	31686.49	40855	41107.35	42121.46
Pb 220.353	Pb	1971.09	ug/L	3081.97	1934.9	1969.08	1998.3
S 181.972	S	41714.04	ug/L	1606.38	41065.94	41708.24	41979.35
Sb 206.834	Sb	2093.22	ug/L	1622.93	2050.79	2096.04	2111.35
Se 196.026	Se	2028.86	ug/L	1258.47	1985.56	2035.66	2043.92
Si 251.611	Si	14227.92	ug/L	24560.57	13895.13	14203.93	14399.68
Sn 189.925	Sn	2069.46	ug/L	2200.65	2041.08	2062.44	2092.02
Sr 421.552	Sr	2241.76	ug/L	5206481.05	2206.12	2235.73	2262.85
Ti 334.941	Ti	2039.15	ug/L	509481.75	2016.17	2029.21	2050.48
Tl 190.794	Tl	1968.47	ug/L	1898.4	1903.07	1956.79	2003.34
V 292.401	V	2071.58	ug/L	40155.47	2036.39	2066.29	2092.26
Zn 206.200	Zn	2002.61	ug/L	6318.82	1969.13	2005.79	2014.2

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2430148\_3242****Analysis Time: 5/12/2022 7:49:47 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599763.29	1.05	1.05	1.05
Ag 328.068	Ag	520.45	ug/L	19990.36	510.3	520.98	524.71
Al 396.152	Al	2121.2	ug/L	54101.03	2079.24	2122.32	2154.38
As 188.980	As	2071.16	ug/L	1220.92	2024.34	2075.77	2091.73
B 249.678	B	2180.75	ug/L	18009.69	2136.67	2182.95	2199.1
Ba 233.527	Ba	2052.04	ug/L	82988.39	2009.23	2051.84	2072.16
Be 234.861	Be	516.93	ug/L	76718.126	505.863	517.141	521.545
Ca 315.887	Ca	108798.3	ug/L	581691.78	106522.95	108674.34	109779.49
Cd 214.439	Cd	1003.97	ug/L	20801.34	984.07	1003.45	1014.3
Co 228.615	Co	2036.28	ug/L	11872.39	1991.88	2038.04	2053.97
Cr 267.716	Cr	2037.1	ug/L	73419.46	1990.58	2035.71	2058.54
Cu 327.395	Cu	2045.59	ug/L	53790.92	2013.94	2039.82	2077.46
Fe 261.187	Fe	2414.23	ug/L	4266.04	2363.58	2415.1	2432.78
K 766.491	K	23908.72	ug/L	30637.57	23490.68	23971.97	24080.08
Li 670.783	Li	2131.9	ug/L	1195111.98	2086.13	2134.28	2149.19
Mg 279.078	Mg	32332.54	ug/L	83883.85	31600.7	32312.01	32806.14
Mn 257.610	Mn	2234.76	ug/L	287408.46	2183.24	2231.42	2260.53
Mo 204.598	Mo	2033.32	ug/L	7580.72	1982.25	2015.61	2065.79
Na 589.592	Na	65142.52	ug/L	522182.73	63930.58	65284.26	65439.86
Ni 231.604	Ni	1947.93	ug/L	3859.9	1904.22	1950.71	1967.78
P 213.618	P	41443.83	ug/L	31721.55	40513.33	41549.68	41757.28
Pb 220.353	Pb	1963.01	ug/L	3069.31	1921.68	1966.42	1978.52
S 181.972	S	41670.8	ug/L	1604.72	40875.94	41688.82	42174.52
Sb 206.834	Sb	2097.44	ug/L	1626.29	2053.24	2099.63	2120.45
Se 196.026	Se	2005.1	ug/L	1243.76	1960.14	2012.26	2023.81
Si 251.611	Si	14365.06	ug/L	24796.8	14024.08	14374	14488.37
Sn 189.925	Sn	2063.93	ug/L	2194.76	2022.2	2060.35	2085.82
Sr 421.552	Sr	2238.5	ug/L	5198905.85	2193.65	2241.84	2259.35
Ti 334.941	Ti	2047.48	ug/L	511497.19	1993.53	2041.08	2058.43
Tl 190.794	Tl	1960.87	ug/L	1890.98	1884.53	1956.29	1989.88
V 292.401	V	2069.07	ug/L	40103.87	2024.86	2067.26	2089.38
Zn 206.200	Zn	1987.31	ug/L	6270.55	1944.76	1982.93	2013.44

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483821001\_3242****Analysis Time: 5/12/2022 7:51:46 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.1	Ratio	629546.88	1.09	1.1	1.1
Ag 328.068	Ag	-0.07	ug/L	-1177.03	-0.23	0.1	-0.11
Al 396.152	Al	1025.26	ug/L	25400.84	995.72	1020.62	1035.54
As 188.980	As	1.35	ug/L	4.46	3.29	-4.51	0.23
B 249.678	B	14.74	ug/L	131.74	16.85	15.17	14.06
Ba 233.527	Ba	50.03	ug/L	2021.37	49.58	50.02	50.28
Be 234.861	Be	0.021	ug/L	0.728	0.004	-0.026	0.024
Ca 315.887	Ca	16151.12	ug/L	86410.56	16047.09	16012.61	16276.65
Cd 214.439	Cd	-0.1	ug/L	1.16	-0.15	-0.13	0.05
Co 228.615	Co	0.5	ug/L	10.98	0.97	-0.54	0.97
Cr 267.716	Cr	1.35	ug/L	77.02	1.38	1.19	1.59
Cu 327.395	Cu	5.12	ug/L	-1530.21	5.06	5.14	5.25
Fe 261.187	Fe	1853.38	ug/L	3279.66	1835.81	1850.89	1861.84
K 766.491	K	2226.8	ug/L	3223.69	2190.1	2199.63	2291.3
Li 670.783	Li	-1.21	ug/L	10854.72	-1.04	-1.22	-1.21
Mg 279.078	Mg	3081.22	ug/L	8025.2	3071.99	3065.29	3112
Mn 257.610	Mn	42.23	ug/L	5437.3	41.95	42.15	42.59
Mo 204.598	Mo	3.42	ug/L	5.7	3	3.91	4.07
Na 589.592	Na	2828.05	ug/L	22403.74	2816.59	2827.1	2841.28
Ni 231.604	Ni	3.93	ug/L	12.28	2.78	4.38	3.71
P 213.618	P	150.82	ug/L	108.55	144.24	155.55	155.1
Pb 220.353	Pb	-0.62	ug/L	2.33	-0.27	-0.81	-0.95
S 181.972	S	3619.88	ug/L	140.33	3578.99	3656.78	3617.2
Sb 206.834	Sb	1.91	ug/L	3.73	2.7	0.58	0.51
Se 196.026	Se	3.76	ug/L	4.17	1.17	0.14	6.33
Si 251.611	Si	2765.38	ug/L	4784.48	2702.94	2766.59	2806.71
Sn 189.925	Sn	-1.49	ug/L	1.04	-3.92	1.03	-2.51
Sr 421.552	Sr	88.88	ug/L	206823.15	88	88.78	89.61
Ti 334.941	Ti	14.19	ug/L	19601.02	13.12	14.77	14.2
Tl 190.794	Tl	1.96	ug/L	-0.6	0.76	1.9	0.01
V 292.401	V	2.59	ug/L	46.92	2.44	2.47	2.91
Zn 206.200	Zn	180.7	ug/L	569.03	178.8	180.21	181.02

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 7:53:46 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602624.76	0.97	1.08	1.08
Ag 328.068	Ag	1032.89	ug/L	41279.23	1096.22	1007.26	1010.95
Al 396.152	Al	10047.12	ug/L	247288.38	10657.14	9778.65	9838.51
As 188.980	As	2072.25	ug/L	1221.29	2194.49	2018.39	2024.71
B 249.678	B	2132.54	ug/L	17608.41	2260.56	2078.55	2088.59
Ba 233.527	Ba	2103	ug/L	85043.14	2233.47	2048.5	2058.14
Be 234.861	Be	2061.516	ug/L	305963.344	2186.957	2008.385	2018.318
Ca 315.887	Ca	10577.1	ug/L	56639.32	11221.67	10310.61	10362.18
Cd 214.439	Cd	2093.13	ug/L	43372.49	2218.18	2036.36	2075.08
Co 228.615	Co	2120.54	ug/L	12352.56	2252.95	2064.3	2073.95
Cr 267.716	Cr	2076.75	ug/L	74854.31	2202.85	2022.34	2032.59
Cu 327.395	Cu	2027.34	ug/L	53300.07	2148.5	1976.04	1987.38
Fe 261.187	Fe	10234.35	ug/L	18209.21	10840.78	9960.07	10024.25
K 766.491	K	10216.86	ug/L	13352.09	10873.42	9955.24	9993.41
Li 670.783	Li	1947.36	ug/L	1092468.06	2070.13	1899.46	1904.59
Mg 279.078	Mg	10222.13	ug/L	26543.32	10855.85	9954.95	10007.25
Mn 257.610	Mn	2065.44	ug/L	265662.73	2191.97	2011.46	2022.44
Mo 204.598	Mo	1994.86	ug/L	7438.52	2109.67	1932.63	1966.49
Na 589.592	Na	10451.54	ug/L	87006.2	11144.75	10173.57	10205.49
Ni 231.604	Ni	2036.25	ug/L	4034.61	2161.05	1986.31	1994.34
P 213.618	P	2057.01	ug/L	1507.24	2140.23	1996.36	2028.07
Pb 220.353	Pb	2076.39	ug/L	3244.99	2206.15	2023.28	2038.85
S 181.972	S	10117.95	ug/L	390.38	10708.05	9796.26	9954.37
Sb 206.834	Sb	2072.33	ug/L	1607.67	2192.83	2014.9	2030.48
Se 196.026	Se	2105.32	ug/L	1305.07	2236.07	2040.52	2057.64
Si 251.611	Si	10843.95	ug/L	18738.08	11497.53	10565.29	10617.05
Sn 189.925	Sn	2054.38	ug/L	2185.57	2179.54	1998.98	2012.51
Sr 421.552	Sr	2102.32	ug/L	4879871.06	2230.02	2051.63	2058.2
Ti 334.941	Ti	2046.63	ug/L	511314.62	2183.14	1974.29	2002.53
Tl 190.794	Tl	2148.73	ug/L	2072.33	2278.97	2096.06	2106.01
V 292.401	V	2063.87	ug/L	39995	2192.08	2010.83	2019.21
Zn 206.200	Zn	2089.91	ug/L	6590.05	2211.29	2025.04	2057.8



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 7:55:45 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	615760.61	1.04	1.09	1.08
Ag 328.068	Ag	-0.24	ug/L	-1184.2	-1.03	0.11	0.04
Al 396.152	Al	0.7	ug/L	355.08	2.37	0.45	0.07
As 188.980	As	-0.39	ug/L	3.43	0.1	1.67	-3.06
B 249.678	B	2.52	ug/L	31.16	3.34	2.7	1.99
Ba 233.527	Ba	0.18	ug/L	3.58	0.41	0.09	0.21
Be 234.861	Be	0.066	ug/L	14.121	0.156	0.097	0.032
Ca 315.887	Ca	3.21	ug/L	90.08	5.2	4.05	0.93
Cd 214.439	Cd	0.1	ug/L	4.42	0.15	0.2	0.11
Co 228.615	Co	-0.24	ug/L	6.58	-0.44	-0.91	0.26
Cr 267.716	Cr	0.03	ug/L	29.62	0.24	0.02	-0.17
Cu 327.395	Cu	0.56	ug/L	-1653.95	-0.62	1.45	0.44
Fe 261.187	Fe	1.57	ug/L	-22.16	-1.82	3.34	2.53
K 766.491	K	-18.44	ug/L	389.55	-5.68	-30.34	-11
Li 670.783	Li	-2	ug/L	10438.95	-1.21	-2.24	-2.19
Mg 279.078	Mg	3.58	ug/L	43.7	2.82	3.6	1.68
Mn 257.610	Mn	0.23	ug/L	34.28	0.35	0.22	0.14
Mo 204.598	Mo	2.17	ug/L	0.9	0.77	1.9	2.75
Na 589.592	Na	17.88	ug/L	-58.5	17.45	13.72	23.85
Ni 231.604	Ni	0.52	ug/L	5.43	-0.42	1.68	1.52
P 213.618	P	-3.05	ug/L	-9.48	-2.62	-3.62	-3.93
Pb 220.353	Pb	-0.22	ug/L	2.96	2.84	-1.46	-1.19
S 181.972	S	2.33	ug/L	1.1	28.24	13.75	-8.16
Sb 206.834	Sb	-0.85	ug/L	1.57	8.07	-1.94	-3.64
Se 196.026	Se	2.58	ug/L	3.57	-1.43	6.12	3.27
Si 251.611	Si	4.83	ug/L	34.72	7.73	5.98	4.55
Sn 189.925	Sn	-1.74	ug/L	0.81	-1.23	-1.21	-2.7
Sr 421.552	Sr	0.18	ug/L	493.94	0.27	0.19	0.15
Ti 334.941	Ti	0.48	ug/L	16288.23	2.4	-0.32	-0.13
Tl 190.794	Tl	0.82	ug/L	-1.7	-0.03	2.37	-0.02
V 292.401	V	0.46	ug/L	7.71	1.48	0.39	-0.37
Zn 206.200	Zn	0.27	ug/L	-0.56	0.28	-0.14	0.25

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483821002\_3242****Analysis Time: 5/12/2022 7:57:45 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	615138.25	1.08	1.07	1.07
Ag 328.068	Ag	-0.74	ug/L	-1202.2	-0.69	-0.75	-0.94
Al 396.152	Al	5862.03	ug/L	143632.16	5803.95	5912.62	5896.82
As 188.980	As	10.05	ug/L	9.48	9.55	9.71	11.12
B 249.678	B	41.77	ug/L	351.82	41.58	42.41	42.18
Ba 233.527	Ba	96.39	ug/L	3904.82	94.47	97.27	97.3
Be 234.861	Be	-0.05	ug/L	-74.791	-0.221	0.02	0.17
Ca 315.887	Ca	92497.51	ug/L	494528.97	90389.3	92949.9	93437.97
Cd 214.439	Cd	0.04	ug/L	11.75	0.15	-0.06	0.15
Co 228.615	Co	6.28	ug/L	51.03	6.09	6.33	6.73
Cr 267.716	Cr	24.06	ug/L	892.49	23.76	24.26	24.16
Cu 327.395	Cu	41.58	ug/L	-541.33	40.58	42.04	42.37
Fe 261.187	Fe	17339.57	ug/L	30891.24	17004.79	17432.05	17519.96
K 766.491	K	5302.83	ug/L	7111.09	5239.06	5308.72	5361.19
Li 670.783	Li	9.69	ug/L	16821.14	9.33	9.88	9.88
Mg 279.078	Mg	6280.02	ug/L	16322.07	6154.96	6317.65	6343.11
Mn 257.610	Mn	388.91	ug/L	50035.49	381.61	391.26	392.9
Mo 204.598	Mo	15.31	ug/L	50.85	14.54	15.54	16.43
Na 589.592	Na	5160.33	ug/L	41064.3	5083.44	5205	5204.69
Ni 231.604	Ni	42.03	ug/L	88.36	42.25	42.78	41.37
P 213.618	P	123.61	ug/L	87.04	112.36	122.89	131.47
Pb 220.353	Pb	9.69	ug/L	18.29	9.16	12.95	9.42
S 181.972	S	18113.37	ug/L	698.15	17871.51	18372.71	18310.39
Sb 206.834	Sb	0.77	ug/L	3.29	1.66	3.13	1.18
Se 196.026	Se	2.93	ug/L	2.48	7.19	-0.17	-3.87
Si 251.611	Si	9764.13	ug/L	16827.18	9699.36	9807.89	9762.38
Sn 189.925	Sn	-1.92	ug/L	0.53	-1.83	-2.07	-3.44
Sr 421.552	Sr	327.1	ug/L	761892.72	321.33	328.89	330.54
Ti 334.941	Ti	47.09	ug/L	27541.7	47.99	48.8	48.83
Tl 190.794	Tl	-1.93	ug/L	-4.24	-1.18	-0.55	-2.53
V 292.401	V	13.7	ug/L	240.54	13.46	14.26	13.62
Zn 206.200	Zn	149.58	ug/L	472.89	148.33	151.37	150.38

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483821003 3242****Analysis Time: 5/12/2022 7:59:44 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	591003.03	1.06	1.05	1.05
Ag 328.068	Ag	-0.41	ug/L	-1188.21	-0.38	-0.47	-0.08
Al 396.152	Al	9397.96	ug/L	230001.59	9052.3	9204.18	9284.42
As 188.980	As	11.49	ug/L	10.36	11.9	12.79	5.74
B 249.678	B	33.31	ug/L	282.57	31.79	33.25	32.78
Ba 233.527	Ba	100.89	ug/L	4091.11	96.8	98.84	99.84
Be 234.861	Be	0.19	ug/L	-32.142	0.127	0.281	0.102
Ca 315.887	Ca	137345.15	ug/L	734268.14	131770.32	134754.21	136524.33
Cd 214.439	Cd	0.36	ug/L	19.2	0.19	0.16	0.34
Co 228.615	Co	5.38	ug/L	49.44	5.87	4.21	6.07
Cr 267.716	Cr	26.49	ug/L	982.88	25.19	26.18	26.44
Cu 327.395	Cu	39.17	ug/L	-606.9	38.16	38.77	38.57
Fe 261.187	Fe	17240.91	ug/L	30714.93	16535.06	16905.52	17090.5
K 766.491	K	5783.69	ug/L	7726.01	5557.06	5675.95	5724.53
Li 670.783	Li	23.86	ug/L	24670.82	22.52	23	23.21
Mg 279.078	Mg	10972.35	ug/L	28491.26	10513.1	10830.75	10829.98
Mn 257.610	Mn	288.22	ug/L	37094.59	276.45	282.63	285.71
Mo 204.598	Mo	15.83	ug/L	53.17	15.08	14.85	16.28
Na 589.592	Na	10552.66	ug/L	83994.06	10161.02	10326.35	10442.97
Ni 231.604	Ni	33.76	ug/L	72.05	31.6	32.81	33.12
P 213.618	P	244.19	ug/L	179.95	228.63	244.04	237.33
Pb 220.353	Pb	11.52	ug/L	21.01	7.83	13	10.26
S 181.972	S	13433.9	ug/L	518.13	12928.79	13102.96	13260.62
Sb 206.834	Sb	2.9	ug/L	4.89	8.62	-4.19	4.64
Se 196.026	Se	4.26	ug/L	3.28	2.25	3.93	0.96
Si 251.611	Si	15242.92	ug/L	26254.07	14613.18	14905.06	15139.8
Sn 189.925	Sn	-1.27	ug/L	1.15	-1.14	-2.17	0.56
Sr 421.552	Sr	408.28	ug/L	951570.32	391.71	400.03	404.48
Ti 334.941	Ti	67.42	ug/L	32449.96	62.71	66.28	65.61
Tl 190.794	Tl	-2.92	ug/L	-5.32	-2.08	-2.29	-3.05
V 292.401	V	19.2	ug/L	348.7	18.63	19.17	19.28
Zn 206.200	Zn	133.1	ug/L	422.57	126.63	130.68	132.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: RINSE****Analysis Time: 5/12/2022 8:01:43 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	608845.78	1.05	1.07	1.06
Ag 328.068	Ag	-0.12	ug/L	-1179.14	-0.23	-0.07	-0.26
Al 396.152	Al	1.69	ug/L	378.22	0.51	2.63	2.01
As 188.980	As	0.42	ug/L	3.91	5.8	0.47	-3.09
B 249.678	B	0.5	ug/L	14.5	1.16	0.1	0.04
Ba 233.527	Ba	-0.02	ug/L	-4.44	0.05	-0.01	0.06
Be 234.861	Be	-0.043	ug/L	-2.024	-0.056	-0.075	0.002
Ca 315.887	Ca	19.82	ug/L	178.84	6.59	24.95	29.42
Cd 214.439	Cd	0.12	ug/L	4.83	0.09	0.16	0.13
Co 228.615	Co	-0.63	ug/L	4.3	-0.27	-1.13	-0.53
Cr 267.716	Cr	-0.12	ug/L	24.32	-0.24	-0.24	0
Cu 327.395	Cu	1.07	ug/L	-1640.13	0.56	1.24	1.5
Fe 261.187	Fe	6.24	ug/L	-13.82	3.14	6.46	6.54
K 766.491	K	-25.72	ug/L	380.35	-40.05	-40	-1.41
Li 670.783	Li	-2.37	ug/L	10234.14	-2.28	-2.61	-2.23
Mg 279.078	Mg	2.61	ug/L	41.19	-1	2.8	2.69
Mn 257.610	Mn	0.08	ug/L	14.26	0.02	0.15	0.13
Mo 204.598	Mo	0.49	ug/L	-5.39	0.29	0.85	0.52
Na 589.592	Na	16.59	ug/L	-69.14	11.79	17.55	20.64
Ni 231.604	Ni	0.88	ug/L	6.13	0.17	3.47	-0.44
P 213.618	P	-5.67	ug/L	-11.49	-4.44	-7.49	-10.64
Pb 220.353	Pb	-1.09	ug/L	1.6	-3.01	-0.37	0.45
S 181.972	S	-9.29	ug/L	0.65	-26.17	3.02	-2.47
Sb 206.834	Sb	-0.21	ug/L	2.07	-2.1	2.71	1.74
Se 196.026	Se	2.28	ug/L	3.38	4.7	-4.53	7.81
Si 251.611	Si	2.82	ug/L	31.24	1.44	3.46	4.49
Sn 189.925	Sn	-2.92	ug/L	-0.46	-3.79	-1.21	-3.77
Sr 421.552	Sr	0.09	ug/L	273.3	0.01	0.12	0.13
Ti 334.941	Ti	-0.36	ug/L	16085.31	0.05	-0.94	-0.17
Tl 190.794	Tl	-1.69	ug/L	-4.13	-0.05	-0.71	-5.02
V 292.401	V	0.24	ug/L	3.59	-0.02	0.65	-0.18
Zn 206.200	Zn	0.32	ug/L	-0.4	-0.09	0.7	0.32

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: RINSE****Analysis Time: 5/12/2022 8:03:43 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	609140.12	1.05	1.08	1.07
Ag 328.068	Ag	-0.16	ug/L	-1180.87	-0.5	0.01	0.36
Al 396.152	Al	0.84	ug/L	357.46	1.36	0.31	0.68
As 188.980	As	0.13	ug/L	3.74	-2.12	-0.49	1.46
B 249.678	B	0.21	ug/L	12.08	0.66	0.1	-0.08
Ba 233.527	Ba	0.01	ug/L	-3.25	0.1	-0.05	0.02
Be 234.861	Be	-0.068	ug/L	-5.709	-0.091	-0.069	-0.076
Ca 315.887	Ca	4.47	ug/L	96.8	-0.29	6.42	5.51
Cd 214.439	Cd	-0.07	ug/L	0.92	-0.08	0.03	-0.12
Co 228.615	Co	0.19	ug/L	9.04	0.63	0.35	-0.58
Cr 267.716	Cr	-0.07	ug/L	25.97	-0.16	-0.24	0.04
Cu 327.395	Cu	1.1	ug/L	-1639.28	0.44	1.86	1.22
Fe 261.187	Fe	1.5	ug/L	-22.27	1.46	0.74	-0.29
K 766.491	K	1.33	ug/L	414.46	-2.9	-12.33	21.3
Li 670.783	Li	-2.39	ug/L	10219.72	-2.14	-2.78	-2.39
Mg 279.078	Mg	2.86	ug/L	41.84	2.56	3.34	4.01
Mn 257.610	Mn	0.03	ug/L	7.86	-0.02	0.01	0.08
Mo 204.598	Mo	0.5	ug/L	-5.35	0.43	0.81	-0.86
Na 589.592	Na	13.53	ug/L	-93.51	12.31	9.07	17.8
Ni 231.604	Ni	0.57	ug/L	5.52	2.6	-1.16	-0.46
P 213.618	P	-4.84	ug/L	-10.85	-5.16	-7.27	-1.03
Pb 220.353	Pb	-1.45	ug/L	1.04	-0.29	-0.67	-2.14
S 181.972	S	-11.12	ug/L	0.58	7.37	-57.95	25.73
Sb 206.834	Sb	0.17	ug/L	2.37	0.85	-0.13	1.89
Se 196.026	Se	5.07	ug/L	5.11	10.28	1.83	4.09
Si 251.611	Si	0.79	ug/L	27.74	1.43	0.02	0.27
Sn 189.925	Sn	-1.29	ug/L	1.28	1.14	-1.92	-2.49
Sr 421.552	Sr	0.04	ug/L	173.2	0.02	0.04	0.05
Ti 334.941	Ti	-0.52	ug/L	16046.99	-0.17	-1.1	-0.66
Tl 190.794	Tl	-1.65	ug/L	-4.09	-3.88	-1.64	-0.74
V 292.401	V	0.23	ug/L	3.39	0.09	0.18	0.65
Zn 206.200	Zn	0.19	ug/L	-0.8	0.52	0.26	0.49

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: PQL****Analysis Time: 5/12/2022 8:05:43 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	617678.72	1.04	1.09	1.08
Ag 328.068	Ag	0.44	ug/L	-1156.12	-0.43	0.82	0.38
Al 396.152	Al	7.38	ug/L	517.99	7.61	6.07	7.78
As 188.980	As	2.83	ug/L	5.33	0.98	7	2.54
B 249.678	B	5.53	ug/L	55.98	5.12	5.57	5.83
Ba 233.527	Ba	0.68	ug/L	23.75	0.75	0.75	0.6
Be 234.861	Be	0.049	ug/L	11.711	0.005	0.052	0.069
Ca 315.887	Ca	88.16	ug/L	544.1	79.78	89.75	96.66
Cd 214.439	Cd	0.13	ug/L	4.99	0.14	0.06	0.14
Co 228.615	Co	0.7	ug/L	12.05	0.26	0.73	1.6
Cr 267.716	Cr	0.64	ug/L	51.56	0.74	0.4	0.9
Cu 327.395	Cu	1.53	ug/L	-1627.48	-0.45	1.77	2.28
Fe 261.187	Fe	11.66	ug/L	-4.17	10.28	11.48	12.58
K 766.491	K	28.59	ug/L	448.91	73.16	24.54	11.49
Li 670.783	Li	6.39	ug/L	15103.17	7.18	6.08	6.21
Mg 279.078	Mg	52.7	ug/L	171.1	54.27	50.25	56.23
Mn 257.610	Mn	0.61	ug/L	83.03	0.51	0.6	0.7
Mo 204.598	Mo	1.3	ug/L	-2.35	1.11	0.99	2.52
Na 589.592	Na	67.7	ug/L	338.85	70.77	63.15	70.12
Ni 231.604	Ni	1.05	ug/L	6.47	0.26	2.54	1.84
P 213.618	P	45.84	ug/L	28.01	46.09	47.02	37.68
Pb 220.353	Pb	0.16	ug/L	3.56	-0.87	1.23	-0.58
S 181.972	S	21.3	ug/L	1.83	18.35	49.09	8.56
Sb 206.834	Sb	3.88	ug/L	5.24	-1.67	4.93	5.89
Se 196.026	Se	5.32	ug/L	5.27	5.51	1.67	7.64
Si 251.611	Si	13.51	ug/L	49.65	11.9	15.77	13.86
Sn 189.925	Sn	8.81	ug/L	12.02	5.71	9.26	8.48
Sr 421.552	Sr	1.17	ug/L	2791.98	1.12	1.17	1.22
Ti 334.941	Ti	0.61	ug/L	16318.73	2.34	0.29	0.09
Tl 190.794	Tl	1.65	ug/L	-0.9	0.32	0.15	2.28
V 292.401	V	1.4	ug/L	26.06	1.56	1.81	0.93
Zn 206.200	Zn	2.71	ug/L	7.13	2.31	3.25	3.2

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2427534\_3188****Analysis Time: 5/12/2022 8:07:42 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	620668.43	1.04	1.09	1.11
Ag 328.068	Ag	-0.02	ug/L	-1174.92	-0.64	0.1	0.19
Al 396.152	Al	2.81	ug/L	405.27	2.76	3.3	2.3
As 188.980	As	0.01	ug/L	3.66	5.87	-4.49	-1.99
B 249.678	B	0.25	ug/L	12.41	-0.54	0.53	0.39
Ba 233.527	Ba	0.02	ug/L	-2.89	-0.04	0.02	-0.03
Be 234.861	Be	-0.081	ug/L	-7.662	-0.072	-0.058	-0.113
Ca 315.887	Ca	27.89	ug/L	222.02	27.17	28.08	27.19
Cd 214.439	Cd	-0.02	ug/L	1.87	0.06	-0.05	-0.03
Co 228.615	Co	-0.26	ug/L	6.51	0.1	-0.51	-0.31
Cr 267.716	Cr	0.44	ug/L	44.49	0.84	0.43	0.33
Cu 327.395	Cu	1.17	ug/L	-1637.25	-0.13	0.99	2.1
Fe 261.187	Fe	7.06	ug/L	-12.35	7.85	6.75	7.55
K 766.491	K	-34.88	ug/L	368.78	-5.86	-35.04	-52.26
Li 670.783	Li	-2.71	ug/L	10046.3	-1.91	-2.86	-3.03
Mg 279.078	Mg	4.39	ug/L	45.81	6.95	3.57	4.37
Mn 257.610	Mn	0.04	ug/L	9.81	0.04	0.06	0.04
Mo 204.598	Mo	0.05	ug/L	-7.02	0.41	-0.88	1.12
Na 589.592	Na	19.7	ug/L	-44.31	16.83	17.83	20.5
Ni 231.604	Ni	-0.19	ug/L	4	-0.92	-1.12	0.86
P 213.618	P	-3.48	ug/L	-9.8	-8.4	-1.97	-3.36
Pb 220.353	Pb	-0.71	ug/L	2.2	0.41	-1.17	0.02
S 181.972	S	0.43	ug/L	1.02	-7.12	36.95	12.55
Sb 206.834	Sb	-1.29	ug/L	1.25	-0.85	-5.38	-0.02
Se 196.026	Se	5.8	ug/L	5.56	8.48	10.95	2.01
Si 251.611	Si	1.44	ug/L	28.84	3.48	0.53	1.55
Sn 189.925	Sn	-2.56	ug/L	-0.06	-3.03	-0.81	-5.21
Sr 421.552	Sr	0.05	ug/L	184.82	0.06	0.06	0.04
Ti 334.941	Ti	-0.36	ug/L	16085.62	0.81	-0.17	-1.38
Tl 190.794	Tl	-2.98	ug/L	-5.37	-1.43	-6.34	-2
V 292.401	V	0.27	ug/L	4.2	0.42	0.41	-0.29
Zn 206.200	Zn	0.89	ug/L	1.4	0.05	1.5	1.65

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2427535\_3188****Analysis Time: 5/12/2022 8:09:42 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	606903.31	1.05	1.06	1.06
Ag 328.068	Ag	515.22	ug/L	19777.59	510.46	515.16	518.2
Al 396.152	Al	2054.59	ug/L	52173.85	2038.72	2053.12	2063.58
As 188.980	As	2014.23	ug/L	1187.04	1980.23	2010.86	2027.03
B 249.678	B	2076.27	ug/L	17147.54	2051.81	2079.37	2090.46
Ba 233.527	Ba	2021.49	ug/L	81747.14	2004.22	2020.73	2031.47
Be 234.861	Be	513.198	ug/L	76166.397	508.214	513.172	516.24
Ca 315.887	Ca	43186.87	ug/L	230967	42788.87	43205.28	43451.96
Cd 214.439	Cd	1020.28	ug/L	21138.89	1009.48	1022.35	1025.34
Co 228.615	Co	2084.55	ug/L	12150.49	2066.85	2085.2	2093.97
Cr 267.716	Cr	2052.19	ug/L	73966.92	2033.42	2051.53	2061.54
Cu 327.395	Cu	2040.23	ug/L	53647.92	2020.39	2044.57	2040.27
Fe 261.187	Fe	2080.48	ug/L	3671.15	2060.56	2077.82	2095.39
K 766.491	K	20927.03	ug/L	26864.66	20801.11	20931.52	21018.7
Li 670.783	Li	1993.16	ug/L	1117995.83	1975.07	1994.14	2006.72
Mg 279.078	Mg	20469.64	ug/L	53118.84	20300.53	20501.72	20552.08
Mn 257.610	Mn	2027.8	ug/L	260800.38	2019.88	2027.07	2022.03
Mo 204.598	Mo	2018.85	ug/L	7526.86	1976.2	2025.27	2046.58
Na 589.592	Na	21078.03	ug/L	171425.76	20888.95	21089.09	21205.95
Ni 231.604	Ni	2002.26	ug/L	3967.29	1986.28	2006.42	2004.75
P 213.618	P	40444.95	ug/L	30954.98	40283.95	40189.92	40781.23
Pb 220.353	Pb	1996.22	ug/L	3121.01	1980.3	1998.85	2006.09
S 181.972	S	1998.22	ug/L	77.96	1970.5	1970.48	1976.73
Sb 206.834	Sb	2060.88	ug/L	1598.52	2046.26	2063.82	2060.18
Se 196.026	Se	1995.33	ug/L	1237.68	1968.78	2006.14	1992.95
Si 251.611	Si	10501.02	ug/L	18147.48	10350.22	10505.91	10579.37
Sn 189.925	Sn	2055.83	ug/L	2186.23	2037.62	2052.25	2062.58
Sr 421.552	Sr	2061.52	ug/L	4786296.7	2040.93	2063.42	2072.86
Ti 334.941	Ti	2034.94	ug/L	508480.02	1998.08	2039.27	2051.04
Tl 190.794	Tl	1998.99	ug/L	1927.72	1943.08	1996.17	2032.31
V 292.401	V	2055.5	ug/L	39840.45	2033.38	2055.59	2066.72
Zn 206.200	Zn	2026.23	ug/L	6390.79	1984.25	2038.97	2055.4



## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484151001\_3188****Analysis Time: 5/12/2022 8:11:41 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	620854.43	1.04	1.09	1.11
Ag 328.068	Ag	1172.66	ug/L	46579.97	1200.21	1166.9	1157.25
Al 396.152	Al	31.8	ug/L	1143.46	32.45	31.14	31.74
As 188.980	As	2.44	ug/L	5.05	2.73	-0.4	2.4
B 249.678	B	6.71	ug/L	65.61	9.01	6.25	5.46
Ba 233.527	Ba	13.48	ug/L	541.96	14.02	13.39	13.34
Be 234.861	Be	-0.029	ug/L	-0.199	0.007	-0.041	-0.033
Ca 315.887	Ca	6014.46	ug/L	32223.24	6180.5	5987.61	5902.21
Cd 214.439	Cd	0.1	ug/L	4.35	-0.03	0.17	0
Co 228.615	Co	-0.36	ug/L	6.9	0.19	-0.15	-1.02
Cr 267.716	Cr	0.17	ug/L	36.93	0.29	0.29	-0.07
Cu 327.395	Cu	1640.75	ug/L	42774.41	1677.13	1631.94	1618.5
Fe 261.187	Fe	43.7	ug/L	52.92	43.6	45.34	42.74
K 766.491	K	569.11	ug/L	1107.74	594.69	549.57	541.99
Li 670.783	Li	-1.49	ug/L	10706.42	-0.68	-1.54	-1.97
Mg 279.078	Mg	1289.64	ug/L	3379.06	1325	1271.08	1272.63
Mn 257.610	Mn	9.15	ug/L	1180.71	9.71	8.94	8.98
Mo 204.598	Mo	2.45	ug/L	1.97	1.21	2.97	1.69
Na 589.592	Na	10053.58	ug/L	79838.54	10321.79	9996.9	9898.07
Ni 231.604	Ni	0.7	ug/L	5.81	1.21	-0.21	1.27
P 213.618	P	741.17	ug/L	522.21	747.23	748.39	715.49
Pb 220.353	Pb	-2.25	ug/L	-0.09	-4.1	-0.18	-0.95
S 181.972	S	1241.69	ug/L	48.81	1257.4	1218.04	1275.33
Sb 206.834	Sb	-1.95	ug/L	0.66	-0.99	-2.02	-2.34
Se 196.026	Se	3.18	ug/L	3.98	1.67	6.29	2.79
Si 251.611	Si	1357.93	ug/L	2362.84	1389.05	1351.49	1336.66
Sn 189.925	Sn	-1.41	ug/L	1.18	0.95	-1.83	-1.52
Sr 421.552	Sr	20.04	ug/L	46743.93	20.57	19.98	19.72
Ti 334.941	Ti	0.81	ug/L	16356.32	2.49	0.57	-0.26
Tl 190.794	Tl	1.64	ug/L	-0.86	0.39	2.96	5.47
V 292.401	V	0.1	ug/L	0.24	0.44	0.21	-0.34
Zn 206.200	Zn	17.55	ug/L	54.23	18.2	17.35	17.23

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2437204\_3188****Analysis Time: 5/12/2022 8:13:41 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	609021.59	1.05	1.07	1.07
Ag 328.068	Ag	1575.09	ug/L	62943.6	1566.61	1567.35	1579.96
Al 396.152	Al	2090.65	ug/L	52915	2056.45	2084.38	2108.22
As 188.980	As	1963.75	ug/L	1157.33	1949.22	1953.45	1974.64
B 249.678	B	1854.45	ug/L	15317.25	1846.46	1843.63	1859.98
Ba 233.527	Ba	1976.29	ug/L	79921.73	1966.17	1967.14	1978.68
Be 234.861	Be	498.574	ug/L	73996.179	495.295	496.191	499.926
Ca 315.887	Ca	47610.91	ug/L	254614.47	47289.03	47366.99	47792.63
Cd 214.439	Cd	989.57	ug/L	20502.82	983.77	982.83	993.82
Co 228.615	Co	2022.37	ug/L	11787.08	2007.74	2012.75	2027.48
Cr 267.716	Cr	1993.73	ug/L	71863.55	1979.11	1982.07	1999.64
Cu 327.395	Cu	3612.5	ug/L	96233.4	3589.56	3590.23	3626.46
Fe 261.187	Fe	2073.11	ug/L	3658.64	2060.39	2056.12	2083.13
K 766.491	K	21031.85	ug/L	26969.94	21016.94	20939.24	21017.83
Li 670.783	Li	1937.72	ug/L	1087265.24	1926.29	1927.31	1944.27
Mg 279.078	Mg	21197.81	ug/L	55007.37	20920.87	21121.05	21324.74
Mn 257.610	Mn	1985.79	ug/L	255387.91	1973.69	1980.65	1990.62
Mo 204.598	Mo	1778.53	ug/L	6630.8	1768.04	1746.75	1799.03
Na 589.592	Na	30365.01	ug/L	245250.22	30245.3	30210.86	30430.6
Ni 231.604	Ni	1941.17	ug/L	3846.4	1928.38	1931.26	1946
P 213.618	P	40350.18	ug/L	30846.65	39986.83	40271.77	40484.8
Pb 220.353	Pb	1938.63	ug/L	3031.44	1921.64	1925.45	1951.62
S 181.972	S	3216.1	ug/L	124.86	3234.25	3204.02	3226.24
Sb 206.834	Sb	1793.35	ug/L	1392.71	1780.63	1773.25	1799.23
Se 196.026	Se	1953.14	ug/L	1211.58	1943.19	1944.17	1954.68
Si 251.611	Si	11720.82	ug/L	20240.36	11584.22	11653.4	11776.32
Sn 189.925	Sn	1987.32	ug/L	2113.69	1980.8	1972.99	1988.9
Sr 421.552	Sr	2019.36	ug/L	4688544.12	2013.74	2006.84	2021.05
Ti 334.941	Ti	1802.78	ug/L	452300.66	1770.58	1798.32	1823.49
Tl 190.794	Tl	1976.2	ug/L	1906.94	1978.08	1971.58	1972.31
V 292.401	V	2002.47	ug/L	38832.08	1989.01	1992.05	2009.85
Zn 206.200	Zn	1990.97	ug/L	6279.69	1962.41	1974.13	2006.89

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2427536\_3188****Analysis Time: 5/12/2022 8:15:41 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	580684.44	1.06	1.07	1.01
Ag 328.068	Ag	1775.06	ug/L	71080.99	1670.42	1670.76	1798.82
Al 396.152	Al	2232.85	ug/L	56630.96	2091.03	2081.85	2259.18
As 188.980	As	2128.27	ug/L	1254.42	1994.33	2015.18	2161.91
B 249.678	B	2182.15	ug/L	18020.96	2046.13	2057.12	2212.7
Ba 233.527	Ba	2135.05	ug/L	86340.32	2004.81	2010.3	2162.93
Be 234.861	Be	540.009	ug/L	80145.259	506.231	508.077	547.339
Ca 315.887	Ca	51434.82	ug/L	275058.51	48416.38	48223.33	51928.96
Cd 214.439	Cd	1071.62	ug/L	22202.51	1004.47	1008.96	1085.71
Co 228.615	Co	2189.86	ug/L	12761.67	2054.57	2061.45	2216.74
Cr 267.716	Cr	2154.96	ug/L	77672.28	2019.12	2028.24	2183.83
Cu 327.395	Cu	3929.58	ug/L	104827.8	3691.21	3696.44	3982.14
Fe 261.187	Fe	2227.94	ug/L	3933.75	2090.64	2099.88	2255.19
K 766.491	K	22848.01	ug/L	29265.05	21492.18	21525.83	23146.41
Li 670.783	Li	2103.58	ug/L	1179291.67	1977.24	1977.16	2134.08
Mg 279.078	Mg	23096.25	ug/L	59930.73	21700.96	21601.95	23374.34
Mn 257.610	Mn	2147.28	ug/L	276163.8	2008.85	2012.64	2177.8
Mo 204.598	Mo	2110.15	ug/L	7867.61	1977.47	1977.25	2134.55
Na 589.592	Na	33228.56	ug/L	268346.09	31243.8	31301.74	33692.71
Ni 231.604	Ni	2089.07	ug/L	4139.14	1962.76	1970.07	2108.98
P 213.618	P	43513.82	ug/L	33263.32	40915.5	41001.79	43969.32
Pb 220.353	Pb	2095.04	ug/L	3275.48	1969.9	1976.88	2115.82
S 181.972	S	3496.29	ug/L	135.64	3283.83	3281.36	3477.47
Sb 206.834	Sb	2155.14	ug/L	1670.6	2015.47	2030.85	2177.76
Se 196.026	Se	2119.63	ug/L	1314.69	1984.17	1995.29	2138.42
Si 251.611	Si	12408.11	ug/L	21431.21	11618.99	11691.15	12575.56
Sn 189.925	Sn	2146.48	ug/L	2282.53	2015.17	2021.17	2175.52
Sr 421.552	Sr	2183.78	ug/L	5070309.89	2046.97	2059.2	2212
Ti 334.941	Ti	2135.2	ug/L	532719.58	2004.22	2004.69	2165.54
Tl 190.794	Tl	2096.76	ug/L	2022.22	1928.92	1956.73	2144.39
V 292.401	V	2163.02	ug/L	41929.92	2030.24	2035.65	2192.07
Zn 206.200	Zn	2149.98	ug/L	6781.55	2011.94	2017.69	2170.57

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 8:17:40 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	609073.69	1.01	1.08	1.08
Ag 328.068	Ag	1029.33	ug/L	41133.5	1076.02	1012.67	1012.89
Al 396.152	Al	10013.07	ug/L	246445.17	10454.29	9856.84	9850.42
As 188.980	As	2081.04	ug/L	1226.44	2167.1	2048.43	2047.43
B 249.678	B	2126.52	ug/L	17558.83	2222.96	2091.41	2093.15
Ba 233.527	Ba	2091.36	ug/L	84572.45	2187.35	2059.81	2054.71
Be 234.861	Be	2055.255	ug/L	305034.349	2145.707	2023.398	2022.585
Ca 315.887	Ca	10598	ug/L	56751.07	11080.08	10445.5	10427.63
Cd 214.439	Cd	2077.72	ug/L	43053.25	2190.66	2026.94	2033.86
Co 228.615	Co	2113.81	ug/L	12314.14	2209.82	2079.46	2079.44
Cr 267.716	Cr	2071.94	ug/L	74681.4	2165.62	2038.56	2038.14
Cu 327.395	Cu	2022.34	ug/L	53164.22	2111.98	1990.51	1990.78
Fe 261.187	Fe	10165.74	ug/L	18086.86	10616.89	10013.74	9996.21
K 766.491	K	10209.13	ug/L	13342.05	10751.96	9994.68	10037.37
Li 670.783	Li	1940.24	ug/L	1088517.58	2025.35	1912.36	1908.93
Mg 279.078	Mg	10194.64	ug/L	26472.02	10630.87	10039.13	10036.03
Mn 257.610	Mn	2049.35	ug/L	263593.57	2140.6	2018.44	2015.73
Mo 204.598	Mo	1983.33	ug/L	7395.51	2056.57	1953.24	1959.99
Na 589.592	Na	10444.36	ug/L	86926.76	10988.81	10282.11	10235.44
Ni 231.604	Ni	2023.04	ug/L	4008.47	2113.16	1987.96	1992.35
P 213.618	P	2069.63	ug/L	1517.12	2129.85	2057.15	2050.93
Pb 220.353	Pb	2064.27	ug/L	3226.07	2155.05	2031.28	2031.3
S 181.972	S	10234.54	ug/L	394.86	10585.65	10060.23	10134.52
Sb 206.834	Sb	2072.14	ug/L	1607.81	2165.04	2030.18	2033.14
Se 196.026	Se	2097.84	ug/L	1300.44	2188.72	2066.48	2055.18
Si 251.611	Si	10847.36	ug/L	18743.54	11326.46	10678.79	10676.5
Sn 189.925	Sn	2042.19	ug/L	2172.63	2129	2013.51	2014.3
Sr 421.552	Sr	2096.29	ug/L	4865895.08	2190.21	2062.17	2064.73
Ti 334.941	Ti	2031.26	ug/L	507595.91	2108.07	1993.33	2000.95
Tl 190.794	Tl	2148.36	ug/L	2072.04	2239.39	2119.67	2109.05
V 292.401	V	2058.23	ug/L	39886.28	2148.73	2027.63	2023.09
Zn 206.200	Zn	2071.35	ug/L	6531.5	2152.11	2049.2	2036.32

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 8:19:40 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	615238.62	1.01	1.09	1.11
Ag 328.068	Ag	-0.24	ug/L	-1184.06	-1.79	0.42	0.38
Al 396.152	Al	1.05	ug/L	363.85	1.97	0.88	1.03
As 188.980	As	-1.22	ug/L	2.94	-0.16	-3.71	2.32
B 249.678	B	3.03	ug/L	35.37	5.41	2.51	2.31
Ba 233.527	Ba	0.38	ug/L	11.8	0.68	0.38	0.26
Be 234.861	Be	0.159	ug/L	27.907	0.316	0.186	0.103
Ca 315.887	Ca	1.02	ug/L	78.36	2.14	0.18	2.12
Cd 214.439	Cd	0.02	ug/L	2.75	0.16	-0.07	0
Co 228.615	Co	0.82	ug/L	12.71	1.42	0.16	1.38
Cr 267.716	Cr	0.05	ug/L	30.34	0.2	0.22	0.07
Cu 327.395	Cu	0.34	ug/L	-1659.76	-2.05	0.95	1.91
Fe 261.187	Fe	2.69	ug/L	-20.15	-0.15	7.41	2.43
K 766.491	K	-21.35	ug/L	385.9	3.64	-65.78	-13.78
Li 670.783	Li	-2.35	ug/L	10243.04	-0.99	-2.7	-2.95
Mg 279.078	Mg	3.22	ug/L	42.77	3.59	3.6	6.83
Mn 257.610	Mn	0.28	ug/L	40.06	0.47	0.4	0.13
Mo 204.598	Mo	2.49	ug/L	2.09	1.45	2.69	2.43
Na 589.592	Na	16.89	ug/L	-65.99	20.18	14.24	17.66
Ni 231.604	Ni	0.49	ug/L	5.36	0.49	1.18	0.14
P 213.618	P	1.42	ug/L	-6.04	-0.49	-3.57	1
Pb 220.353	Pb	-1.02	ug/L	1.71	-0.86	-0.89	0.23
S 181.972	S	5.3	ug/L	1.21	-23.26	25.91	12.98
Sb 206.834	Sb	1.65	ug/L	3.5	-0.37	3.67	-0.3
Se 196.026	Se	-0.02	ug/L	1.96	-0.98	6.81	-5.14
Si 251.611	Si	6.58	ug/L	37.74	14.28	6.25	3.45
Sn 189.925	Sn	-1.21	ug/L	1.37	-0.23	-1.95	-2.1
Sr 421.552	Sr	0.26	ug/L	671.45	0.43	0.29	0.18
Ti 334.941	Ti	0.82	ug/L	16369.19	3.47	0.16	-0.72
Tl 190.794	Tl	2.23	ug/L	-0.34	3.33	3.03	0.35
V 292.401	V	0.64	ug/L	11.17	0.87	0.73	0.38
Zn 206.200	Zn	0.95	ug/L	1.58	1.09	1.27	0.81

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2437205\_3188****Analysis Time: 5/12/2022 8:21:39 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	610220.35	1.03	1.08	1.08
Ag 328.068	Ag	342.95	ug/L	12785.67	348.92	339.45	339.67
Al 396.152	Al	527.41	ug/L	13557.42	537.19	519.92	521.84
As 188.980	As	405.44	ug/L	241.8	412.78	402.22	401.95
B 249.678	B	414.89	ug/L	3434.85	421.84	410.34	411.25
Ba 233.527	Ba	420.86	ug/L	17016.56	428.57	415.4	416.51
Be 234.861	Be	103.292	ug/L	15333.603	104.977	102.06	102.236
Ca 315.887	Ca	10188.48	ug/L	54543.68	10339.81	10092.39	10067.91
Cd 214.439	Cd	210	ug/L	4352.7	212.18	205.74	208.82
Co 228.615	Co	433.63	ug/L	2533.84	436.45	424.81	431.97
Cr 267.716	Cr	425.62	ug/L	15363.63	432.46	420.69	421.8
Cu 327.395	Cu	761.25	ug/L	18962.05	773.01	752.67	754.05
Fe 261.187	Fe	497.69	ug/L	859.66	508.59	492.35	491.42
K 766.491	K	4271.77	ug/L	5807.67	4379.37	4239.66	4198.6
Li 670.783	Li	394.12	ug/L	230314.45	400.83	389.3	390.23
Mg 279.078	Mg	4497.44	ug/L	11697.78	4532.55	4422.92	4482.13
Mn 257.610	Mn	421.2	ug/L	54174.73	427.51	416.85	416.37
Mo 204.598	Mo	413.1	ug/L	1534.48	421.5	407.53	408.94
Na 589.592	Na	6346.06	ug/L	51111.66	6460.2	6267.83	6292.54
Ni 231.604	Ni	414.07	ug/L	823.94	418.32	408.67	412.54
P 213.618	P	8296.04	ug/L	6335.62	8427.81	8130.41	8253.83
Pb 220.353	Pb	413.97	ug/L	649.88	422.2	406.74	410.83
S 181.972	S	667.55	ug/L	26.71	625.56	636.5	679.27
Sb 206.834	Sb	413.98	ug/L	322.96	418.25	411.94	412.96
Se 196.026	Se	409	ug/L	255.27	419.64	405.99	408.56
Si 251.611	Si	2387.79	ug/L	4145.63	2428.74	2356.2	2364.08
Sn 189.925	Sn	421.79	ug/L	450.67	428.56	416.27	417.88
Sr 421.552	Sr	433.26	ug/L	1005994.19	440.83	428.09	429.08
Ti 334.941	Ti	414.66	ug/L	116485.83	421	412.09	407.71
Tl 190.794	Tl	410.69	ug/L	394.16	409.19	400.37	413.41
V 292.401	V	420.05	ug/L	8140.43	426.67	415.53	415.72
Zn 206.200	Zn	457.39	ug/L	1441.54	463.63	451.99	452.82

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2427537\_3188****Analysis Time: 5/12/2022 8:23:39 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	604965.85	1.03	1.07	1.07
Ag 328.068	Ag	1666.64	ug/L	66666.95	1679.42	1652.04	1665.88
Al 396.152	Al	2096.97	ug/L	53228.58	2097.26	2078.73	2107.86
As 188.980	As	2031.04	ug/L	1197	2028.76	2017.26	2028.34
B 249.678	B	2085.48	ug/L	17223.34	2096.66	2070.1	2085.98
Ba 233.527	Ba	2018.25	ug/L	81616.78	2032.65	1999.22	2019.6
Be 234.861	Be	513.756	ug/L	76249.084	516.507	509.398	513.946
Ca 315.887	Ca	49391.64	ug/L	264135.11	49777.27	48997.46	49377.5
Cd 214.439	Cd	1019.42	ug/L	21121.13	1024.55	1012.24	1020.44
Co 228.615	Co	2072.98	ug/L	12083.77	2085.73	2055.96	2070.08
Cr 267.716	Cr	2042.75	ug/L	73629.38	2056.7	2022.98	2042.36
Cu 327.395	Cu	3685.75	ug/L	98220.15	3709.26	3652.12	3684.62
Fe 261.187	Fe	2104.56	ug/L	3714.12	2113.14	2087.5	2109.3
K 766.491	K	21602.02	ug/L	27692.36	21831.05	21424.68	21529.58
Li 670.783	Li	1921.61	ug/L	1078202.61	1935.53	1907.54	1915.46
Mg 279.078	Mg	21784.64	ug/L	56529.23	21787.54	21661.98	21818.92
Mn 257.610	Mn	2016.87	ug/L	259393.78	2022.47	1988.37	2024.78
Mo 204.598	Mo	2017.22	ug/L	7520.73	2033.21	1992.8	2010.89
Na 589.592	Na	31275.6	ug/L	252579.86	31500.41	31024.15	31248.14
Ni 231.604	Ni	1975.94	ug/L	3915.25	1985.71	1957.94	1980.05
P 213.618	P	41319.29	ug/L	31586.34	41662.81	40661.32	41122.59
Pb 220.353	Pb	1983.02	ug/L	3100.51	1989.51	1970.8	1988.47
S 181.972	S	3221.39	ug/L	125.06	3251.05	3234.19	3179.12
Sb 206.834	Sb	2058.07	ug/L	1596.23	2070.23	2042.74	2069.14
Se 196.026	Se	2024.07	ug/L	1255.49	2033.89	2003.89	2030.82
Si 251.611	Si	11516.9	ug/L	19895.19	11563.53	11409.59	11525.64
Sn 189.925	Sn	1954	ug/L	2078.01	1959.3	1941.18	1955.49
Sr 421.552	Sr	2061.83	ug/L	4787163.08	2075.49	2046.97	2059.02
Ti 334.941	Ti	2021.96	ug/L	505328.68	2044.74	2003.22	2014.67
Tl 190.794	Tl	1981.65	ug/L	1911.01	1959.82	1963.26	1993.31
V 292.401	V	2046.55	ug/L	39666.91	2059.87	2028.59	2045.76
Zn 206.200	Zn	2056.77	ug/L	6487.42	2072.54	2024.09	2055.55

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438796\_3257****Analysis Time: 5/12/2022 8:25:38 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	614872.01	1.06	1.08	1.07
Ag 328.068	Ag	0.38	ug/L	-1158.74	0.08	1.1	0.1
Al 396.152	Al	2.93	ug/L	409.69	3.73	3.74	2.51
As 188.980	As	2.89	ug/L	5.37	-0.36	6.03	2.23
B 249.678	B	3.54	ug/L	39.6	4.94	3.61	2.78
Ba 233.527	Ba	0.81	ug/L	29	1.08	0.93	0.69
Be 234.861	Be	0.147	ug/L	26.181	0.178	0.234	0.126
Ca 315.887	Ca	21.71	ug/L	188.96	28.68	24	19.79
Cd 214.439	Cd	0.29	ug/L	8.3	0.52	0.47	0.17
Co 228.615	Co	0.46	ug/L	10.65	0.81	1.05	-0.22
Cr 267.716	Cr	0.74	ug/L	55.4	0.72	1.32	0.75
Cu 327.395	Cu	1.8	ug/L	-1620.33	1.38	2.39	1.84
Fe 261.187	Fe	4.04	ug/L	-17.75	3.17	6.29	2.67
K 766.491	K	5.2	ug/L	419.37	26.85	12.2	-9.16
Li 670.783	Li	-1.68	ug/L	10614.87	-1.15	-1.53	-1.7
Mg 279.078	Mg	9.98	ug/L	60.31	14.6	13.44	8.06
Mn 257.610	Mn	0.8	ug/L	107.19	1.18	0.99	0.66
Mo 204.598	Mo	2.5	ug/L	2.12	1.07	2.19	3.42
Na 589.592	Na	35.25	ug/L	80.95	44.81	37.74	29.86
Ni 231.604	Ni	0.54	ug/L	5.47	-0.64	1.09	1.03
P 213.618	P	15.23	ug/L	4.52	19.84	23.85	10.83
Pb 220.353	Pb	0.26	ug/L	3.71	1.22	-1.31	0.89
S 181.972	S	-0.48	ug/L	0.99	28.22	-31.74	-10.3
Sb 206.834	Sb	4.06	ug/L	5.38	8.55	3.41	1.76
Se 196.026	Se	2.43	ug/L	3.48	-1.26	3.27	5.84
Si 251.611	Si	39.06	ug/L	93.62	45.39	40.67	36.1
Sn 189.925	Sn	0.62	ug/L	3.32	1	-0.07	1.27
Sr 421.552	Sr	0.79	ug/L	1901.33	1.1	1.06	0.65
Ti 334.941	Ti	1.54	ug/L	16543.98	3.03	1.68	1.19
Tl 190.794	Tl	2.1	ug/L	-0.47	3.77	2.32	3.07
V 292.401	V	0.74	ug/L	13.06	0.92	1.39	0.98
Zn 206.200	Zn	1.88	ug/L	4.52	1	2.14	2.36



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438797\_3257****Analysis Time: 5/12/2022 8:27:38 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	612587.96	1.07	1.07	1.07
Ag 328.068	Ag	505.72	ug/L	19391.71	501.77	505.27	507.87
Al 396.152	Al	2026.41	ug/L	51445.67	1991.49	2024.87	2039.11
As 188.980	As	1983.24	ug/L	1168.79	1967.42	1979.87	1985.31
B 249.678	B	2051.34	ug/L	16941.79	2028.51	2050.22	2064.29
Ba 233.527	Ba	1982.45	ug/L	80168.25	1965.75	1978.61	1991.82
Be 234.861	Be	504.803	ug/L	74920.618	499.776	504.039	507.518
Ca 315.887	Ca	42691.33	ug/L	228317.32	42285.24	42615.69	42944.32
Cd 214.439	Cd	1003.62	ug/L	20793.77	993.83	1002.95	1008.56
Co 228.615	Co	2046.31	ug/L	11928.47	2027.04	2045.3	2055.18
Cr 267.716	Cr	2018.53	ug/L	72754.37	1998.21	2015.76	2028.23
Cu 327.395	Cu	2002.14	ug/L	52615.31	1975.43	2006.71	2008.21
Fe 261.187	Fe	2038.05	ug/L	3595.7	2015.67	2036.51	2049.28
K 766.491	K	20553.97	ug/L	26393.04	20409.68	20488.11	20665.31
Li 670.783	Li	1968.36	ug/L	1104241.02	1950.4	1965.15	1976.26
Mg 279.078	Mg	20142.88	ug/L	52271.44	19933.63	20154.08	20140.62
Mn 257.610	Mn	1986.66	ug/L	255508.4	1965.5	1989.92	1991.01
Mo 204.598	Mo	1972.1	ug/L	7352.46	1918.05	1977.34	1996.83
Na 589.592	Na	20747.83	ug/L	168722.8	20583.33	20721.79	20865.24
Ni 231.604	Ni	1954.76	ug/L	3873.29	1932.29	1960.62	1963.03
P 213.618	P	39697.12	ug/L	30382.57	39410.86	39711.16	39931.33
Pb 220.353	Pb	1958.26	ug/L	3061.73	1942.75	1962.68	1962.91
S 181.972	S	2028.61	ug/L	79.13	2062.32	2034.31	2057.55
Sb 206.834	Sb	2019.49	ug/L	1566.72	1985.61	2025.11	2035.31
Se 196.026	Se	1975.69	ug/L	1225.51	1961.88	1958.97	1985.94
Si 251.611	Si	10711.57	ug/L	18508.4	10529.74	10692.78	10804.56
Sn 189.925	Sn	2031.11	ug/L	2159.99	2007.76	2029.3	2045.87
Sr 421.552	Sr	2022.77	ug/L	4696318.18	2002.21	2019.47	2037.44
Ti 334.941	Ti	2003.49	ug/L	500872.31	1965.19	2015.73	2031.77
Tl 190.794	Tl	1964.29	ug/L	1894.3	1924.29	1954.82	1991.19
V 292.401	V	2019.81	ug/L	39149.97	2000.55	2018.47	2029.12
Zn 206.200	Zn	1993.03	ug/L	6286.02	1952.18	1992.94	2013.92

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482805009 3257****Analysis Time: 5/12/2022 8:29:37 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	586453.49	0.87	1.07	1.08
Ag 328.068	Ag	-1.01	ug/L	-1206.66	-3.18	-0.28	-0.42
Al 396.152	Al	113.92	ug/L	3279.55	137.29	105.91	107.48
As 188.980	As	3.73	ug/L	6.01	3.87	4.73	1.42
B 249.678	B	29.08	ug/L	245.93	36.43	26.96	26.29
Ba 233.527	Ba	112.93	ug/L	4566.79	131.89	106.97	107.15
Be 234.861	Be	-0.039	ug/L	-13.572	-0.045	-0.024	-0.038
Ca 315.887	Ca	33256.43	ug/L	177846.25	38608.46	31605.81	31664.65
Cd 214.439	Cd	0.09	ug/L	4.66	0.15	0.26	-0.05
Co 228.615	Co	31.53	ug/L	192.53	37.56	29.32	29.48
Cr 267.716	Cr	2.2	ug/L	-49.56	2.08	2	2.49
Cu 327.395	Cu	10.95	ug/L	-1364.43	8.81	11.61	11.56
Fe 261.187	Fe	2271.91	ug/L	4026.73	2655.77	2156.39	2154.24
K 766.491	K	4372.09	ug/L	5940.72	5136.8	4147.92	4131.57
Li 670.783	Li	-0.62	ug/L	10969.56	2.81	-1.5	-1.81
Mg 279.078	Mg	5047.3	ug/L	13125.76	5902.16	4788.19	4802.5
Mn 257.610	Mn	8642.24	ug/L	1111085.42	10063.74	8180.93	8250.47
Mo 204.598	Mo	1.76	ug/L	-0.15	0.65	3.66	0.82
Na 589.592	Na	5311.17	ug/L	42289.48	6195.24	5042.46	5029.78
Ni 231.604	Ni	10.17	ug/L	24.54	13.17	8.32	10.28
P 213.618	P	24.66	ug/L	12.12	30.04	19.91	23.62
Pb 220.353	Pb	-1.28	ug/L	3.02	-0.34	-2.84	-0.46
S 181.972	S	2846.85	ug/L	110.99	3340.09	2695.51	2714.84
Sb 206.834	Sb	3.15	ug/L	4.72	4.57	3.5	5.95
Se 196.026	Se	4.57	ug/L	7.39	3.12	3.76	6.04
Si 251.611	Si	4658.88	ug/L	8049.49	5430.91	4376.98	4460.14
Sn 189.925	Sn	-2.05	ug/L	0.44	-2	-1.27	-0.75
Sr 421.552	Sr	160.01	ug/L	372387.53	186.97	151.78	151.51
Ti 334.941	Ti	3.4	ug/L	16976.92	8.5	1.86	1.68
Tl 190.794	Tl	-10.09	ug/L	1.09	-13.2	-8.91	-5.91
V 292.401	V	1.62	ug/L	22.6	1.96	1.85	1.45
Zn 206.200	Zn	17.25	ug/L	54.24	19.33	16.94	16.29

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482805019 3257****Analysis Time: 5/12/2022 8:31:37 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	592481.81	0.97	1.05	1.06
Ag 328.068	Ag	-1.17	ug/L	-1220.74	-2.11	-1.28	-0.7
Al 396.152	Al	17.3	ug/L	1013.77	20.58	17.7	15.04
As 188.980	As	2.61	ug/L	5.27	4.14	2.5	0.04
B 249.678	B	62.47	ug/L	525.8	66.93	62.06	59.99
Ba 233.527	Ba	203.8	ug/L	8243.78	216.27	201.61	198.19
Be 234.861	Be	-0.064	ug/L	-6.134	-0.032	-0.094	-0.043
Ca 315.887	Ca	50646.65	ug/L	270804.58	54151.51	49818.6	49282.12
Cd 214.439	Cd	0.05	ug/L	3.33	0.02	0.13	0.08
Co 228.615	Co	0.55	ug/L	8.42	0.68	0.03	1.23
Cr 267.716	Cr	0.98	ug/L	50.82	0.95	1.05	0.96
Cu 327.395	Cu	15.21	ug/L	-1257.42	14.44	15.71	16.05
Fe 261.187	Fe	135.09	ug/L	215.71	144.98	135.61	132.34
K 766.491	K	2226.99	ug/L	3232.73	2415.22	2180.88	2179.88
Li 670.783	Li	0.89	ug/L	11970.52	2.4	0.61	0.38
Mg 279.078	Mg	9110.53	ug/L	23661.58	9709.48	8960.54	8884.11
Mn 257.610	Mn	755.67	ug/L	97157.15	813.23	749.44	726.87
Mo 204.598	Mo	2.95	ug/L	3.89	2.03	3.6	2.4
Na 589.592	Na	81972.3	ug/L	652576.34	87556.53	81269.27	79919.89
Ni 231.604	Ni	1.9	ug/L	8.22	3.29	2.15	0.56
P 213.618	P	7.72	ug/L	-1.09	12.15	7.95	9.07
Pb 220.353	Pb	-0.64	ug/L	2.62	1.94	-3.64	0.5
S 181.972	S	1579.02	ug/L	61.87	1700.92	1590.22	1539.86
Sb 206.834	Sb	2.21	ug/L	3.87	-0.26	4.03	2.97
Se 196.026	Se	5.23	ug/L	5.44	-0.46	10.09	7.39
Si 251.611	Si	5596.79	ug/L	9656.63	5938.86	5485.12	5453.96
Sn 189.925	Sn	-1.98	ug/L	0.5	0.02	-3.57	-2.14
Sr 421.552	Sr	263.66	ug/L	613525.24	282.72	261.53	256.56
Ti 334.941	Ti	0.89	ug/L	16370.93	2.79	0.38	0.19
Tl 190.794	Tl	-1.4	ug/L	-2.61	-3.58	1.38	-0.8
V 292.401	V	0.99	ug/L	17.5	0.82	1.16	1.25
Zn 206.200	Zn	11.99	ug/L	38.39	12.58	11.99	12.03

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483175001 3257****Analysis Time: 5/12/2022 8:33:37 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	0.96	Ratio	548761.49	0.88	0.97	0.99
Ag 328.068	Ag	-0.82	ug/L	-1195.18	-1	-0.6	-1.07
Al 396.152	Al	846.09	ug/L	23788.89	949.2	850.12	804.45
As 188.980	As	15.04	ug/L	11.57	16.88	13.26	20.04
B 249.678	B	407.38	ug/L	3317.56	447.49	405.23	393.24
Ba 233.527	Ba	13.42	ug/L	614.38	15.07	13.74	12.54
Be 234.861	Be	-1.831	ug/L	-1408.323	-2.913	-2.252	-0.749
Ca 315.887	Ca	590529.36	ug/L	3156748.63	651832.84	586318.98	567257.35
Cd 214.439	Cd	-0.77	ug/L	87.77	-0.32	-0.67	-1.27
Co 228.615	Co	29.44	ug/L	238.83	33.16	30.6	27.95
Cr 267.716	Cr	-0.3	ug/L	-45.09	-0.5	-0.15	-0.42
Cu 327.395	Cu	1.2	ug/L	-1629.11	-0.51	2.43	1.53
Fe 261.187	Fe	208210.34	ug/L	371224.7	231229	206828.79	200097.91
K 766.491	K	89245.76	ug/L	112998.68	98689.58	88523.53	86008.89
Li 670.783	Li	155.15	ug/L	97153.5	173.34	154.04	148.65
Mg 279.078	Mg	153971.88	ug/L	399344.17	171174.21	153206.53	147834.7
Mn 257.610	Mn	4827.32	ug/L	620953.28	5361.65	4798.2	4641.96
Mo 204.598	Mo	0.45	ug/L	-2.76	-0.42	0.93	0.62
Na 589.592	Na	335160.38	ug/L	2667298.47	370117.25	332191.38	323084.67
Ni 231.604	Ni	42.78	ug/L	100.72	51.14	42.16	39.58
P 213.618	P	5.44	ug/L	-1.83	5.05	3.2	13.16
Pb 220.353	Pb	-6.88	ug/L	-5.38	-6.65	-9.87	-5.01
S 181.972	S	881504.49	ug/L	33923.33	967158.03	872554.14	850058.09
Sb 206.834	Sb	11.41	ug/L	16.23	9.54	13.63	12.54
Se 196.026	Se	-4.64	ug/L	-19.15	-6.53	-1.76	-3.35
Si 251.611	Si	10397.43	ug/L	17924.95	11474.03	10314.09	10012.21
Sn 189.925	Sn	-1.02	ug/L	1.65	-2.6	0.52	-1.3
Sr 421.552	Sr	4681.87	ug/L	10884482.84	5196.53	4651.36	4501.85
Ti 334.941	Ti	0.43	ug/L	16119.86	1.2	0.08	0.36
Tl 190.794	Tl	-5.42	ug/L	-5.11	-6.45	-7.49	-3.45
V 292.401	V	-2.98	ug/L	-399.75	-5.27	-2.99	-1.63
Zn 206.200	Zn	44.2	ug/L	151.02	50.27	44.78	42.94

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482121001\_3257****Analysis Time: 5/12/2022 8:35:36 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	622415.61	1.09	1.09	1.09
Ag 328.068	Ag	-0.76	ug/L	-1205	-0.74	-1.01	-0.84
Al 396.152	Al	32.85	ug/L	1190.94	34.25	32.99	32.01
As 188.980	As	1.68	ug/L	4.67	3.65	0.11	3.74
B 249.678	B	10.61	ug/L	97.92	11.49	10.54	10.94
Ba 233.527	Ba	42.34	ug/L	1709.86	42.15	42.87	42.59
Be 234.861	Be	-0.062	ug/L	-5.54	-0.055	-0.064	-0.015
Ca 315.887	Ca	11215.59	ug/L	60025.89	11429.53	11374.55	11128.26
Cd 214.439	Cd	0.02	ug/L	2.75	-0.01	0.04	-0.07
Co 228.615	Co	-0.02	ug/L	7.29	0.08	-0.62	0.26
Cr 267.716	Cr	-0.1	ug/L	24.91	-0.17	-0.12	0.12
Cu 327.395	Cu	1.7	ug/L	-1623.16	1.68	2.06	1.89
Fe 261.187	Fe	153.84	ug/L	249.4	174.86	157.03	145.18
K 766.491	K	1929.7	ug/L	2848.76	1911.83	1955.2	1961.59
Li 670.783	Li	-1.35	ug/L	10787.69	-1.4	-1.29	-1.4
Mg 279.078	Mg	3614.96	ug/L	9409.23	3645.89	3682.31	3620.37
Mn 257.610	Mn	6.2	ug/L	802.28	6.68	6.38	5.98
Mo 204.598	Mo	0.99	ug/L	-3.47	1.04	0.35	0.98
Na 589.592	Na	7527.28	ug/L	59787.43	7589.47	7635.2	7503.52
Ni 231.604	Ni	1.6	ug/L	7.61	2.08	1.63	1.7
P 213.618	P	5.4	ug/L	-2.9	9.16	1.27	8.55
Pb 220.353	Pb	-1.76	ug/L	0.6	-4.56	-1.15	-1.1
S 181.972	S	3211.13	ug/L	124.59	3240.28	3246.54	3257.43
Sb 206.834	Sb	-1.4	ug/L	1.13	-0.06	-3.24	-4.14
Se 196.026	Se	0.97	ug/L	2.56	-0.63	4.06	3.39
Si 251.611	Si	3088.85	ug/L	5340.64	3077.92	3126.44	3112.46
Sn 189.925	Sn	-1.7	ug/L	0.84	-1.99	-0.95	-1.72
Sr 421.552	Sr	89.91	ug/L	209076.92	91.23	91.26	89.5
Ti 334.941	Ti	0.8	ug/L	16363.34	0.86	0.78	0.64
Tl 190.794	Tl	-0.78	ug/L	-3.21	-1.18	0.34	-3.09
V 292.401	V	0.5	ug/L	8.34	0.27	0.56	0.96
Zn 206.200	Zn	2.11	ug/L	5.69	2.24	1.64	2.43

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438822\_3257****Analysis Time: 5/12/2022 8:37:36 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	606154.83	1.05	1.06	1.06
Ag 328.068	Ag	566.44	ug/L	21859.52	565.48	570.81	565.95
Al 396.152	Al	2407.15	ug/L	61058.32	2423.68	2426.61	2413.08
As 188.980	As	2300.55	ug/L	1355.27	2324.34	2309.16	2302.81
B 249.678	B	2358.39	ug/L	19476.13	2360.53	2380.23	2357.05
Ba 233.527	Ba	2341.85	ug/L	94704.23	2354.9	2367.11	2336.36
Be 234.861	Be	586.4	ug/L	87029.316	589.907	592.92	585.017
Ca 315.887	Ca	59702	ug/L	319254.06	60187.34	60160.74	59521.64
Cd 214.439	Cd	1143.99	ug/L	23701.78	1146.05	1153.55	1143.29
Co 228.615	Co	2370.1	ug/L	13813.68	2383.69	2394.75	2365.04
Cr 267.716	Cr	2352.49	ug/L	84786.95	2370.27	2376.11	2347.62
Cu 327.395	Cu	2349.32	ug/L	62027.29	2358.26	2363.98	2354.95
Fe 261.187	Fe	2491.41	ug/L	4402.03	2503.58	2524.9	2487.76
K 766.491	K	26028.6	ug/L	33308.55	26188.03	26338.39	25936.45
Li 670.783	Li	2331.68	ug/L	1305963.92	2344.95	2356.96	2325.91
Mg 279.078	Mg	27053.94	ug/L	70194.12	27178.6	27414.54	26929.86
Mn 257.610	Mn	2300.08	ug/L	295818.23	2310.89	2325.86	2295.27
Mo 204.598	Mo	2295.66	ug/L	8559.87	2298.27	2299.6	2304.35
Na 589.592	Na	31628.26	ug/L	256005.83	31854.53	31943.32	31558.67
Ni 231.604	Ni	2257.12	ug/L	4471.76	2268.54	2282.27	2252.14
P 213.618	P	45802.38	ug/L	35055.38	45960.36	46239.52	45614.26
Pb 220.353	Pb	2236.22	ug/L	3495.82	2242.28	2253.65	2238.18
S 181.972	S	5393.5	ug/L	208.64	5406.48	5446.68	5408.33
Sb 206.834	Sb	2325.98	ug/L	1803.92	2336	2354.14	2313.44
Se 196.026	Se	2250.22	ug/L	1395.53	2253	2274.9	2239.63
Si 251.611	Si	15264.95	ug/L	26351.02	15171.86	15397.76	15301.73
Sn 189.925	Sn	2332.69	ug/L	2480.28	2340.16	2355.95	2330.8
Sr 421.552	Sr	2436.46	ug/L	5657043.71	2451.89	2466.13	2427.6
Ti 334.941	Ti	2332.66	ug/L	580505.51	2335.64	2352.15	2335.48
Tl 190.794	Tl	2209	ug/L	2130.54	2166.37	2213.27	2228.73
V 292.401	V	2348.67	ug/L	45524.75	2360.97	2372.46	2344.46
Zn 206.200	Zn	2294.03	ug/L	7236.06	2277.6	2315.45	2300.51

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438823\_3257****Analysis Time: 5/12/2022 8:39:36 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	606014.33	1.05	1.06	1.06
Ag 328.068	Ag	577.15	ug/L	22295.24	578.55	577.91	578.05
Al 396.152	Al	2461.44	ug/L	62416.22	2470.45	2472.09	2466.09
As 188.980	As	2335.48	ug/L	1375.77	2334.05	2353.18	2339.78
B 249.678	B	2405.84	ug/L	19867.78	2402.08	2415.09	2411.84
Ba 233.527	Ba	2387.35	ug/L	96544.04	2389.57	2393.04	2393.69
Be 234.861	Be	597.326	ug/L	88650.982	598.117	599.002	598.41
Ca 315.887	Ca	61403.29	ug/L	328349.1	61554.3	61426.26	61507.84
Cd 214.439	Cd	1167.85	ug/L	24196.26	1169.24	1168.68	1171.39
Co 228.615	Co	2411.79	ug/L	14056.59	2409.27	2416.84	2421.92
Cr 267.716	Cr	2392.62	ug/L	86232.67	2394.9	2396.7	2400.28
Cu 327.395	Cu	2390.98	ug/L	63156.82	2384.56	2403.48	2396.75
Fe 261.187	Fe	2523.8	ug/L	4459.52	2524.74	2530.09	2527.14
K 766.491	K	26628.54	ug/L	34066.44	26754.22	26734.35	26657.58
Li 670.783	Li	2383.48	ug/L	1334730.98	2390.93	2391.37	2389.54
Mg 279.078	Mg	27560.05	ug/L	71506.62	27628.11	27648.5	27624.93
Mn 257.610	Mn	2345.49	ug/L	301658.45	2341.22	2355.36	2351.47
Mo 204.598	Mo	2335.77	ug/L	8709.57	2334.62	2329.55	2332.99
Na 589.592	Na	32234.22	ug/L	260915.49	32335.08	32308.17	32360.22
Ni 231.604	Ni	2296.16	ug/L	4549.03	2296.51	2299.58	2310.48
P 213.618	P	46679.84	ug/L	35727.22	46586.79	46644.6	46999.48
Pb 220.353	Pb	2282.43	ug/L	3568.01	2283.98	2292.07	2283.63
S 181.972	S	5493.96	ug/L	212.51	5518.42	5455.49	5572.92
Sb 206.834	Sb	2371.18	ug/L	1838.93	2371.84	2377.45	2380.63
Se 196.026	Se	2296.16	ug/L	1423.98	2298.32	2295.14	2309.21
Si 251.611	Si	15647.83	ug/L	27010.81	15570.57	15704.93	15706.01
Sn 189.925	Sn	2376.82	ug/L	2527.14	2375.47	2378.53	2385.27
Sr 421.552	Sr	2474.56	ug/L	5745494.21	2479.59	2486.06	2482.35
Ti 334.941	Ti	2370.59	ug/L	589679.72	2362.22	2372.39	2361.56
Tl 190.794	Tl	2254.79	ug/L	2174.75	2213.13	2246.77	2285.75
V 292.401	V	2390.4	ug/L	46334.14	2390.22	2397.58	2398.03
Zn 206.200	Zn	2351.99	ug/L	7418.92	2353.14	2348.41	2356.55

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

Sample: CCV

Analysis Time: 5/12/2022 8:41:36 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	609907.39	1.01	1.08	1.08
Ag 328.068	Ag	1029.33	ug/L	41133.15	1070.87	1011.73	1017.41
Al 396.152	Al	10021.37	ug/L	246657.49	10430.31	9831.77	9910.48
As 188.980	As	2076.84	ug/L	1223.93	2163.12	2026.73	2060.87
B 249.678	B	2129.92	ug/L	17586.91	2213.16	2095.5	2109.8
Ba 233.527	Ba	2093.19	ug/L	84646.14	2177.04	2054.46	2072.68
Be 234.861	Be	2057.746	ug/L	305403.853	2138.137	2021.196	2036.577
Ca 315.887	Ca	10655.29	ug/L	57057.31	11099.63	10474.5	10547.47
Cd 214.439	Cd	2075.85	ug/L	43014.49	2151.47	2059.18	2071.8
Co 228.615	Co	2116.55	ug/L	12329.93	2201.67	2081.16	2092.38
Cr 267.716	Cr	2075.16	ug/L	74797.41	2160.41	2036.71	2053.1
Cu 327.395	Cu	2021.21	ug/L	53133.75	2099.21	1986.5	1999.32
Fe 261.187	Fe	10185.6	ug/L	18122.21	10580.74	10001.91	10090.04
K 766.491	K	10228.92	ug/L	13367.24	10663.83	10054.1	10107.12
Li 670.783	Li	1948.2	ug/L	1092941.47	2032.74	1916.55	1923.31
Mg 279.078	Mg	10227.78	ug/L	26557.94	10643.02	10037.78	10113.46
Mn 257.610	Mn	2052.8	ug/L	264038.13	2134.86	2014.84	2032.58
Mo 204.598	Mo	1998.55	ug/L	7452.27	2066.91	1961.03	1977.48
Na 589.592	Na	10449.27	ug/L	86969.43	10913.33	10257.57	10312.67
Ni 231.604	Ni	2024.12	ug/L	4010.61	2107.72	1986.83	2001.63
P 213.618	P	2064.21	ug/L	1512.88	2120.05	2052.92	2040.82
Pb 220.353	Pb	2066.97	ug/L	3230.28	2151.66	2022.66	2046.56
S 181.972	S	10252.48	ug/L	395.55	10581.79	10195.56	10162.69
Sb 206.834	Sb	2073.07	ug/L	1608.46	2166.11	2037	2050.38
Se 196.026	Se	2100.23	ug/L	1301.92	2176.63	2073.69	2079.6
Si 251.611	Si	10907.91	ug/L	18847.99	11335.64	10718.92	10789.89
Sn 189.925	Sn	2051.78	ug/L	2182.83	2133.9	2012.5	2029.54
Sr 421.552	Sr	2098.43	ug/L	4870850.46	2185.43	2061.55	2070.44
Ti 334.941	Ti	2027.24	ug/L	506624.6	2110.43	1983.62	2010.48
Tl 190.794	Tl	2148.11	ug/L	2071.76	2242.86	2112.41	2117.51
V 292.401	V	2060.39	ug/L	39926.3	2143.7	2025.05	2037.06
Zn 206.200	Zn	2099.39	ug/L	6619.92	2179.96	2057.3	2075.62



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 8:43:35 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	612970.29	1	1.09	1.1
Ag 328.068	Ag	-0.32	ug/L	-1187.29	-1.54	-0.12	0.39
Al 396.152	Al	0.91	ug/L	360.76	3.5	0.78	-1.34
As 188.980	As	3.62	ug/L	5.8	1.89	2.37	3.51
B 249.678	B	3.61	ug/L	40.16	4.84	3.1	4.06
Ba 233.527	Ba	0.32	ug/L	9.06	0.49	0.24	0.31
Be 234.861	Be	0.182	ug/L	31.291	0.338	0.193	0.104
Ca 315.887	Ca	16.57	ug/L	161.49	19.32	18.77	13.57
Cd 214.439	Cd	0.07	ug/L	3.67	0.25	0.14	-0.11
Co 228.615	Co	0.28	ug/L	9.54	0.38	0.24	0.28
Cr 267.716	Cr	0.07	ug/L	31.28	0.06	0.1	0.12
Cu 327.395	Cu	0.44	ug/L	-1657.21	-2.65	1.93	1.57
Fe 261.187	Fe	8.49	ug/L	-9.81	9.41	8.6	5.67
K 766.491	K	-17.21	ug/L	391.11	14.09	-29.75	-39.54
Li 670.783	Li	-2.15	ug/L	10354.01	-0.69	-2.5	-2.73
Mg 279.078	Mg	7.1	ug/L	52.83	8.75	7.46	6.21
Mn 257.610	Mn	0.42	ug/L	58.58	0.58	0.42	0.35
Mo 204.598	Mo	2.89	ug/L	3.57	2.67	3.32	2.74
Na 589.592	Na	29.12	ug/L	31.23	37.22	25.29	29.5
Ni 231.604	Ni	-0.32	ug/L	3.76	-0.97	-0.25	1.02
P 213.618	P	3.06	ug/L	-4.8	9.57	4.33	-0.85
Pb 220.353	Pb	-0.65	ug/L	2.29	-3.32	0.15	1.24
S 181.972	S	36.79	ug/L	2.42	61.44	1.28	48.05
Sb 206.834	Sb	-4.1	ug/L	-0.96	-7.2	0.2	-3.33
Se 196.026	Se	5.9	ug/L	5.62	6.97	4.53	9.71
Si 251.611	Si	7.45	ug/L	39.26	14.19	8.09	3.79
Sn 189.925	Sn	-0.75	ug/L	1.85	-2.7	-0.95	-0.18
Sr 421.552	Sr	0.41	ug/L	1034.61	0.57	0.42	0.35
Ti 334.941	Ti	1.09	ug/L	16434.33	4.43	0.11	-0.26
Tl 190.794	Tl	2.9	ug/L	0.3	1.16	2.52	5.57
V 292.401	V	0.72	ug/L	12.62	1.24	0.56	0.86
Zn 206.200	Zn	0.49	ug/L	0.13	1.23	0.78	0.17

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482121002\_3257****Analysis Time: 5/12/2022 8:45:35 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	625949	1.1	1.1	1.09
Ag 328.068	Ag	-0.3	ug/L	-1186.37	-0.36	-0.38	-0.24
Al 396.152	Al	37.91	ug/L	1298.23	38.29	37.21	37.5
As 188.980	As	0.51	ug/L	3.97	-0.1	4.03	3.57
B 249.678	B	9.11	ug/L	85.53	8.34	9.38	9.14
Ba 233.527	Ba	34.62	ug/L	1397.24	34.25	34.59	34.67
Be 234.861	Be	-0.044	ug/L	-2.79	-0.035	-0.059	-0.039
Ca 315.887	Ca	7548.94	ug/L	40425.82	7467.54	7534.67	7573.99
Cd 214.439	Cd	0.02	ug/L	2.78	-0.04	-0.05	0.13
Co 228.615	Co	0.02	ug/L	7.55	0.34	-0.03	-0.42
Cr 267.716	Cr	0.51	ug/L	46.74	0.66	0.18	0.77
Cu 327.395	Cu	1.66	ug/L	-1624.23	1.27	1.63	2.21
Fe 261.187	Fe	134.87	ug/L	215.57	133.12	133.64	134.97
K 766.491	K	1624.43	ug/L	2463.05	1570.98	1616.4	1671.85
Li 670.783	Li	-1.73	ug/L	10579.44	-1.89	-1.7	-1.76
Mg 279.078	Mg	2764.81	ug/L	7204.5	2732.29	2733.8	2798.93
Mn 257.610	Mn	10.31	ug/L	1329.92	10.18	10.15	10.23
Mo 204.598	Mo	1.4	ug/L	-1.96	0.64	0.56	2.64
Na 589.592	Na	4079.28	ug/L	32331.11	4032.72	4081.77	4089.64
Ni 231.604	Ni	1.45	ug/L	7.3	3.39	0.14	0.73
P 213.618	P	5.22	ug/L	-3.08	9.96	6.63	1.02
Pb 220.353	Pb	-1.59	ug/L	0.86	-3.63	-0.44	0.28
S 181.972	S	2621.52	ug/L	101.9	2517.36	2645.57	2637.09
Sb 206.834	Sb	-0.51	ug/L	1.83	-3.28	0.53	-0.16
Se 196.026	Se	1.9	ug/L	3.14	3.95	4.82	2.21
Si 251.611	Si	2972.38	ug/L	5140.2	2941.08	2953.56	2986.19
Sn 189.925	Sn	-1.76	ug/L	0.77	-1.73	-2.66	-0.91
Sr 421.552	Sr	55.74	ug/L	129649.26	54.86	55.72	56
Ti 334.941	Ti	0.7	ug/L	16339.97	0.78	0.67	0.77
Tl 190.794	Tl	0.23	ug/L	-2.24	1.24	-2.13	2.2
V 292.401	V	0.45	ug/L	7.42	0.42	0.47	0.36
Zn 206.200	Zn	1.95	ug/L	5.04	1.54	1.92	2.28

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482121003\_3257****Analysis Time: 5/12/2022 8:47:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	616530.76	1.07	1.09	1.08
Ag 328.068	Ag	-0.44	ug/L	-1192.26	-0.78	-0.27	-0.17
Al 396.152	Al	50.84	ug/L	1609.06	51.33	50.37	51.37
As 188.980	As	1.92	ug/L	4.8	2.58	6.14	-0.02
B 249.678	B	8.84	ug/L	83.34	8.35	9.18	8.59
Ba 233.527	Ba	34.97	ug/L	1411.25	35.27	34.77	35.04
Be 234.861	Be	0.158	ug/L	27.258	0.103	0.185	0.237
Ca 315.887	Ca	6605.76	ug/L	35384.1	6642.94	6595.93	6581.18
Cd 214.439	Cd	0.2	ug/L	6.4	0.07	0.17	0.44
Co 228.615	Co	0.28	ug/L	8.99	0.42	-0.11	0.77
Cr 267.716	Cr	0.36	ug/L	41.43	0.03	0.46	0.58
Cu 327.395	Cu	1.48	ug/L	-1629.04	0.74	2.23	1.81
Fe 261.187	Fe	111.56	ug/L	174.02	108.4	112.22	114.54
K 766.491	K	1546.37	ug/L	2364.42	1576.65	1503.58	1565.09
Li 670.783	Li	-0.94	ug/L	11018.8	-0.92	-1.08	-0.95
Mg 279.078	Mg	2455.11	ug/L	6401.36	2447.85	2452.76	2476.86
Mn 257.610	Mn	5.67	ug/L	734.24	5.29	5.83	5.93
Mo 204.598	Mo	0.79	ug/L	-4.22	0.71	0.42	0.83
Na 589.592	Na	4145.81	ug/L	32861.13	4181.27	4132.56	4131.9
Ni 231.604	Ni	0.94	ug/L	6.28	1.68	0.29	0.44
P 213.618	P	6.75	ug/L	-1.91	7.64	5.66	6.3
Pb 220.353	Pb	-1.08	ug/L	1.65	-3.17	-1.94	1.75
S 181.972	S	2397.5	ug/L	93.28	2344.95	2417.39	2384.82
Sb 206.834	Sb	-2.9	ug/L	-0.03	-1.38	0.46	-7.67
Se 196.026	Se	3.2	ug/L	3.94	3.72	6.77	-3.56
Si 251.611	Si	3374.36	ug/L	5831.74	3370.04	3374.94	3386.11
Sn 189.925	Sn	-1.2	ug/L	1.37	-2.34	1.64	-1.46
Sr 421.552	Sr	53.23	ug/L	123812.31	53.54	53.06	53.24
Ti 334.941	Ti	1.52	ug/L	16537.54	2.35	0.86	1.1
Tl 190.794	Tl	-0.47	ug/L	-2.92	1.48	-2.8	-1.05
V 292.401	V	0.88	ug/L	15.88	0.57	0.49	1.46
Zn 206.200	Zn	2.56	ug/L	6.93	1.78	2.64	2.81

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482121004\_3257****Analysis Time: 5/12/2022 8:49:35 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	621705.41	1.09	1.09	1.07
Ag 328.068	Ag	-0.42	ug/L	-1191.21	-0.34	-0.22	-0.82
Al 396.152	Al	47.89	ug/L	1538.37	48.42	47.93	48.8
As 188.980	As	0.74	ug/L	4.1	5.3	0.76	-4.09
B 249.678	B	8.71	ug/L	82.25	8.72	8.84	8.33
Ba 233.527	Ba	36.22	ug/L	1461.72	36.93	36.27	36.31
Be 234.861	Be	-0.056	ug/L	-4.507	-0.086	-0.062	-0.035
Ca 315.887	Ca	6975.05	ug/L	37358.09	7065.09	6996.11	7043
Cd 214.439	Cd	-0.03	ug/L	1.67	-0.03	-0.07	0.01
Co 228.615	Co	-0.11	ug/L	6.7	0.61	0.28	-0.69
Cr 267.716	Cr	0.09	ug/L	31.7	-0.07	-0.04	0.22
Cu 327.395	Cu	1.86	ug/L	-1618.8	1.44	2.16	1.06
Fe 261.187	Fe	107.87	ug/L	167.43	109.29	106.82	108.77
K 766.491	K	1668.51	ug/L	2518.51	1696.63	1665.53	1673.84
Li 670.783	Li	-0.91	ug/L	11036.45	-0.99	-1.03	-0.66
Mg 279.078	Mg	2639.13	ug/L	6878.58	2667.13	2668.03	2640.89
Mn 257.610	Mn	5.45	ug/L	704.78	5.46	5.46	5.67
Mo 204.598	Mo	0.42	ug/L	-5.61	0.84	0.45	1.09
Na 589.592	Na	4418.32	ug/L	35032.36	4487.14	4431.98	4438.83
Ni 231.604	Ni	-1.09	ug/L	2.25	-0.47	-2.54	-0.72
P 213.618	P	3.4	ug/L	-4.48	4.16	6.83	4.14
Pb 220.353	Pb	-0.99	ug/L	1.79	-1.06	1.55	-2.92
S 181.972	S	2510.55	ug/L	97.63	2531.55	2470.63	2538.49
Sb 206.834	Sb	2.12	ug/L	3.87	0.12	2.91	5.56
Se 196.026	Se	0.76	ug/L	2.43	-8.77	2.61	0.65
Si 251.611	Si	3609.14	ug/L	6235.64	3635.8	3619.75	3624.51
Sn 189.925	Sn	-1.91	ug/L	0.61	-1.61	-2.16	-1.3
Sr 421.552	Sr	56.48	ug/L	131360.51	57.44	56.76	56.74
Ti 334.941	Ti	1.01	ug/L	16413.92	1.35	0.57	1.39
Tl 190.794	Tl	-1.14	ug/L	-3.56	-0.06	-0.59	-1.1
V 292.401	V	0.48	ug/L	8.26	0.21	0.26	0.59
Zn 206.200	Zn	3.02	ug/L	8.39	3.28	3.27	2.59

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482121005\_3257****Analysis Time: 5/12/2022 8:51:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	622150.71	1.07	1.09	1.09
Ag 328.068	Ag	-0.35	ug/L	-1188.25	-1.01	-0.2	-0.24
Al 396.152	Al	103.74	ug/L	2874.36	106.17	104.01	102.95
As 188.980	As	1.98	ug/L	4.83	-0.89	0.19	-0.3
B 249.678	B	4.53	ug/L	47.78	4.38	4.5	4.59
Ba 233.527	Ba	42.75	ug/L	1725.44	43.16	42.92	42.88
Be 234.861	Be	0.096	ug/L	18.354	0.108	0.071	0.094
Ca 315.887	Ca	979.51	ug/L	5309.06	1005.35	988.09	972.08
Cd 214.439	Cd	0.12	ug/L	4.82	0.05	0.1	0.18
Co 228.615	Co	0.03	ug/L	6.84	0.33	-0.06	-0.39
Cr 267.716	Cr	0.39	ug/L	42.21	0.51	0.49	0.22
Cu 327.395	Cu	1.16	ug/L	-1637.4	-0.16	1.22	1.85
Fe 261.187	Fe	82.6	ug/L	122.36	85.63	83.93	81.91
K 766.491	K	693.99	ug/L	1288.37	737.53	699.09	675.39
Li 670.783	Li	-0.93	ug/L	11024.66	-0.6	-0.98	-1.03
Mg 279.078	Mg	748.88	ug/L	1976.5	757.73	745.8	749.03
Mn 257.610	Mn	25.69	ug/L	3307.35	26.06	25.84	25.81
Mo 204.598	Mo	0.25	ug/L	-6.24	1.15	-0.13	0.16
Na 589.592	Na	599	ug/L	4647.83	613.31	601.22	593.27
Ni 231.604	Ni	1.51	ug/L	7.39	1.83	-0.31	2.08
P 213.618	P	-1.23	ug/L	-8.06	-3.31	-0.59	-0.05
Pb 220.353	Pb	-1.46	ug/L	1.04	-2.96	-1.12	-1.18
S 181.972	S	1728.19	ug/L	67.51	1800.63	1699.92	1772.93
Sb 206.834	Sb	-0.11	ug/L	2.16	2.56	0.56	-1.02
Se 196.026	Se	0.78	ug/L	2.46	-0.02	0.19	3.23
Si 251.611	Si	2528.11	ug/L	4375.76	2541.54	2538.35	2541.3
Sn 189.925	Sn	-1.3	ug/L	1.28	-2.06	-1.56	-1.28
Sr 421.552	Sr	10.56	ug/L	24604.33	10.84	10.64	10.47
Ti 334.941	Ti	0.69	ug/L	16338.57	1.88	0.5	0.11
Tl 190.794	Tl	0.07	ug/L	-2.38	-1.77	1.26	-1.92
V 292.401	V	0.24	ug/L	3.51	0.7	0.06	-0.23
Zn 206.200	Zn	10.31	ug/L	31.15	10.28	11.01	10.35

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482140001\_3257****Analysis Time: 5/12/2022 8:53:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	625154.73	1.08	1.1	1.09
Ag 328.068	Ag	-0.35	ug/L	-1188.38	-0.81	-0.1	-0.38
Al 396.152	Al	2.61	ug/L	400.94	2.05	1.53	4.68
As 188.980	As	-1.1	ug/L	3.01	-2.6	-0.3	-1.68
B 249.678	B	0.75	ug/L	16.57	0.68	0.95	1.07
Ba 233.527	Ba	0.47	ug/L	15.18	0.55	0.47	0.42
Be 234.861	Be	-0.063	ug/L	-5.054	-0.069	-0.086	-0.03
Ca 315.887	Ca	14.57	ug/L	150.81	17.16	11.4	15.68
Cd 214.439	Cd	0.02	ug/L	2.78	-0.05	0.06	-0.07
Co 228.615	Co	-0.3	ug/L	6.19	-1.01	-0.4	-0.19
Cr 267.716	Cr	-0.14	ug/L	23.55	-0.29	0.14	-0.1
Cu 327.395	Cu	1.17	ug/L	-1637.41	0.67	1.37	1.18
Fe 261.187	Fe	3.37	ug/L	-18.94	3.02	4.66	2.86
K 766.491	K	-31.68	ug/L	372.84	-17.08	-49.65	-68.47
Li 670.783	Li	-2.38	ug/L	10226.17	-2.27	-2.54	-2.28
Mg 279.078	Mg	3.41	ug/L	43.27	4.23	1.66	5.06
Mn 257.610	Mn	0.3	ug/L	42.75	0.35	0.27	0.28
Mo 204.598	Mo	0.7	ug/L	-4.6	0.55	0.72	0.74
Na 589.592	Na	22.31	ug/L	-22.68	20.09	28.64	23.47
Ni 231.604	Ni	0.6	ug/L	5.57	-0.65	0.74	2
P 213.618	P	2.19	ug/L	-5.45	6.08	0.55	4.51
Pb 220.353	Pb	-0.69	ug/L	2.24	-1.1	-1.17	-1.71
S 181.972	S	10.94	ug/L	1.43	14.57	-12.79	17.97
Sb 206.834	Sb	-1.23	ug/L	1.29	-0.36	-1.61	-0.97
Se 196.026	Se	2.91	ug/L	3.77	-0.05	0.96	3.91
Si 251.611	Si	35.35	ug/L	87.21	35.47	34.47	37.4
Sn 189.925	Sn	-3.21	ug/L	-0.76	-3.17	-3.37	-2.67
Sr 421.552	Sr	0.04	ug/L	165.45	0.04	0.04	0.04
Ti 334.941	Ti	0.21	ug/L	16222.85	1.04	-0.4	0.26
Tl 190.794	Tl	0.84	ug/L	-1.68	-2.61	0.88	2.05
V 292.401	V	0.01	ug/L	-0.96	-0.17	0.04	0.59
Zn 206.200	Zn	1.34	ug/L	2.82	1.8	1.09	0.65

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482146001\_3257****Analysis Time: 5/12/2022 8:55:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	624513.27	1.09	1.09	1.09
Ag 328.068	Ag	-0.04	ug/L	-1176.13	-0.25	0.18	0.07
Al 396.152	Al	2.53	ug/L	398.84	1.98	2.11	2.95
As 188.980	As	-0.45	ug/L	3.39	4.91	-0.06	-3.45
B 249.678	B	-0.05	ug/L	9.96	-0.18	-0.35	-0.49
Ba 233.527	Ba	0.54	ug/L	18.26	0.59	0.57	0.62
Be 234.861	Be	-0.041	ug/L	-1.755	0.007	-0.058	-0.044
Ca 315.887	Ca	13.76	ug/L	146.45	13.32	13.66	14.75
Cd 214.439	Cd	0.06	ug/L	3.55	0.12	0.01	0.17
Co 228.615	Co	-0.62	ug/L	4.34	-0.51	-0.46	-0.93
Cr 267.716	Cr	0.07	ug/L	31.01	-0.01	0.02	0.29
Cu 327.395	Cu	1.6	ug/L	-1625.65	0.88	1.96	1.58
Fe 261.187	Fe	6.19	ug/L	-13.91	4.01	7.66	8.33
K 766.491	K	-2.57	ug/L	409.53	-9.49	-0.53	9
Li 670.783	Li	-2.22	ug/L	10315.23	-2.25	-2.23	-2.08
Mg 279.078	Mg	3.64	ug/L	43.87	3.88	4.13	4.01
Mn 257.610	Mn	0.25	ug/L	36.49	0.18	0.29	0.26
Mo 204.598	Mo	0.71	ug/L	-4.58	1.11	0.11	0.86
Na 589.592	Na	27.78	ug/L	20.92	22.63	27.98	28.47
Ni 231.604	Ni	0.89	ug/L	6.15	-0.01	2.87	-1.31
P 213.618	P	2.53	ug/L	-5.2	1.68	3.87	3.57
Pb 220.353	Pb	-1.42	ug/L	1.09	-0.93	-2.64	0.27
S 181.972	S	-3.13	ug/L	0.89	-29.32	-9.83	38.08
Sb 206.834	Sb	-1.35	ug/L	1.2	-0.69	-4.94	0.49
Se 196.026	Se	2.38	ug/L	3.45	0.18	3.14	3.15
Si 251.611	Si	38.48	ug/L	92.6	40.17	38.78	37.08
Sn 189.925	Sn	-2.17	ug/L	0.35	-1.42	-4.26	0.12
Sr 421.552	Sr	0.12	ug/L	354.15	0.09	0.14	0.14
Ti 334.941	Ti	-0.1	ug/L	16148.67	0.37	-0.24	-0.01
Tl 190.794	Tl	-1.52	ug/L	-3.97	-0.49	-1.81	0.28
V 292.401	V	0.14	ug/L	1.49	-0.04	-0.14	0.47
Zn 206.200	Zn	1.57	ug/L	3.54	1.58	1.14	1.77

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482152001\_3257****Analysis Time: 5/12/2022 8:57:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	614340.65	1.05	1.08	1.08
Ag 328.068	Ag	-0.4	ug/L	-1190.63	-0.74	-0.33	-0.3
Al 396.152	Al	21.14	ug/L	879.07	22.38	20.65	20.62
As 188.980	As	-0.7	ug/L	3.25	-0.49	-3.9	0.64
B 249.678	B	7.03	ug/L	68.41	7.2	6.67	6.97
Ba 233.527	Ba	33.17	ug/L	1338.56	34.66	33.31	32.88
Be 234.861	Be	-0.069	ug/L	-5.975	-0.102	-0.045	-0.045
Ca 315.887	Ca	5391.35	ug/L	28892.42	5630.53	5447.44	5324.35
Cd 214.439	Cd	0.04	ug/L	3.2	-0.01	0.14	0.09
Co 228.615	Co	-0.13	ug/L	6.53	-0.08	0.11	0.09
Cr 267.716	Cr	0.18	ug/L	35.07	0.24	0.07	0.23
Cu 327.395	Cu	1.29	ug/L	-1634.17	0.83	1.85	1.51
Fe 261.187	Fe	30.76	ug/L	29.93	27.99	30.43	35.26
K 766.491	K	1419.15	ug/L	2203.74	1493.06	1438.81	1404.87
Li 670.783	Li	-0.84	ug/L	11075.25	-0.51	-0.95	-0.95
Mg 279.078	Mg	2118.1	ug/L	5527.35	2192.06	2130.43	2113.95
Mn 257.610	Mn	1.86	ug/L	243.96	1.94	1.83	1.89
Mo 204.598	Mo	0.52	ug/L	-5.25	1.2	0.66	0.5
Na 589.592	Na	1633.29	ug/L	12861.5	1692.86	1650.29	1618.78
Ni 231.604	Ni	0.22	ug/L	4.85	-1.78	0.15	0.11
P 213.618	P	-1.02	ug/L	-7.86	2.31	3.4	-10.58
Pb 220.353	Pb	-1.97	ug/L	0.25	-1.28	-3.63	-1.95
S 181.972	S	2317.75	ug/L	90.2	2356.76	2348.94	2209.41
Sb 206.834	Sb	-0.44	ug/L	1.89	-5.16	5.79	-0.35
Se 196.026	Se	2.52	ug/L	3.53	5.37	-2.27	4.16
Si 251.611	Si	3342.67	ug/L	5777.17	3427.28	3363.64	3331.72
Sn 189.925	Sn	-2.06	ug/L	0.46	-2.04	-2.1	-2.18
Sr 421.552	Sr	34.35	ug/L	79955.8	35.79	34.65	34.07
Ti 334.941	Ti	0.49	ug/L	16287.68	1.31	0	0.35
Tl 190.794	Tl	-1.56	ug/L	-3.98	2.2	-4.3	-3.5
V 292.401	V	0.55	ug/L	9.66	0.97	0.61	0.58
Zn 206.200	Zn	4.83	ug/L	14.05	5.61	4.52	4.26



## Agilent 5110 ICP-OES Report

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482159001\_3257****Analysis Time: 5/12/2022 8:59:32 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	601224.1	1.08	1.08	1.07
Ag 328.068	Ag	-0.42	ug/L	-1191.36	-0.57	-0.49	-0.33
Al 396.152	Al	78.04	ug/L	2331.85	75.48	76.72	75.47
As 188.980	As	2.48	ug/L	5.15	5.03	-0.02	1.27
B 249.678	B	14.05	ug/L	126.38	13.55	12.99	14.64
Ba 233.527	Ba	39.42	ug/L	1592.5	37.98	39.03	39.09
Be 234.861	Be	-0.067	ug/L	-6.247	-0.06	-0.105	-0.07
Ca 315.887	Ca	20291.57	ug/L	108541.57	19880.02	19998.33	19902.86
Cd 214.439	Cd	0.05	ug/L	3.44	0.12	-0.07	0.18
Co 228.615	Co	-0.44	ug/L	5.65	-0.83	0.08	-0.15
Cr 267.716	Cr	0.3	ug/L	39.4	0.44	0.25	0.17
Cu 327.395	Cu	2.69	ug/L	-1596.58	2.65	2.63	2.57
Fe 261.187	Fe	137.69	ug/L	220.48	136.18	138.37	133.91
K 766.491	K	2595.09	ug/L	3689.47	2506.7	2548.91	2539.78
Li 670.783	Li	-0.36	ug/L	11331.57	-0.88	-0.89	-0.82
Mg 279.078	Mg	4076.89	ug/L	10607.29	3911.88	3999.93	4009.5
Mn 257.610	Mn	11.77	ug/L	1517.85	11.32	11.44	11.62
Mo 204.598	Mo	0.5	ug/L	-5.3	-0.19	1.46	-0.07
Na 589.592	Na	5162.28	ug/L	40961.08	5037.14	5087.83	5056.03
Ni 231.604	Ni	0.89	ug/L	6.2	1.31	-1.03	1.13
P 213.618	P	32.69	ug/L	18.07	35.64	32.34	28.78
Pb 220.353	Pb	-1.5	ug/L	1.03	-2.09	-2.63	-3.14
S 181.972	S	3597.26	ug/L	139.46	3429.77	3645.33	3502.83
Sb 206.834	Sb	-0.27	ug/L	2.01	4.11	-10.89	-2.75
Se 196.026	Se	4.84	ug/L	4.96	-3.37	2.78	6.36
Si 251.611	Si	2756.39	ug/L	4768.82	2647.35	2701.36	2707.89
Sn 189.925	Sn	-1.58	ug/L	0.95	0.07	-0.48	-2.04
Sr 421.552	Sr	114.12	ug/L	265529	111.63	112.51	111.77
Ti 334.941	Ti	0.88	ug/L	16379.82	0.96	1.01	1.09
Tl 190.794	Tl	-1.3	ug/L	-3.69	-0.98	-0.8	-1.91
V 292.401	V	0.62	ug/L	10.81	0.46	1.05	0.62
Zn 206.200	Zn	2.05	ug/L	5.82	1.03	2.44	2.52

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482164001\_3257****Analysis Time: 5/12/2022 9:01:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	609918.02	1.06	1.06	1.07
Ag 328.068	Ag	-0.94	ug/L	-1212.53	-0.74	-0.89	-0.97
Al 396.152	Al	21.09	ug/L	1130.01	21.17	20.76	20.32
As 188.980	As	1.75	ug/L	4.77	3.15	-1.87	5.05
B 249.678	B	10.75	ug/L	99.54	10.88	10.98	9.6
Ba 233.527	Ba	20.94	ug/L	848.44	20.73	21.18	20.77
Be 234.861	Be	-0.111	ug/L	-12.408	-0.146	-0.092	-0.089
Ca 315.887	Ca	61344.8	ug/L	327991.56	60888.71	62486.52	59810.48
Cd 214.439	Cd	0.05	ug/L	3.28	0.07	0.05	0.01
Co 228.615	Co	-0.6	ug/L	8.32	-0.89	-0.59	0.13
Cr 267.716	Cr	-0.08	ug/L	25.92	0.12	-0.18	-0.13
Cu 327.395	Cu	1.17	ug/L	-1639.14	1	1.83	0.63
Fe 261.187	Fe	10.08	ug/L	-7.72	9.67	4.78	12.32
K 766.491	K	968.05	ug/L	1645.16	957.51	1003.76	958.84
Li 670.783	Li	-0.06	ug/L	11479.72	-0.05	0.04	-0.03
Mg 279.078	Mg	4592.82	ug/L	11945.81	4572.91	4688.46	4493.53
Mn 257.610	Mn	1.13	ug/L	149.57	1.17	1.09	1.15
Mo 204.598	Mo	0.38	ug/L	-5.76	0.57	0.7	0.76
Na 589.592	Na	2405.8	ug/L	18993.86	2376.22	2414.64	2427.83
Ni 231.604	Ni	-0.07	ug/L	4.31	-1.19	1.73	-0.09
P 213.618	P	7.36	ug/L	-0.98	12.22	7.21	5.43
Pb 220.353	Pb	-0.72	ug/L	2.32	-1.56	0.27	-0.69
S 181.972	S	3636.97	ug/L	141.04	3541.67	3719.2	3612.61
Sb 206.834	Sb	-0.09	ug/L	2.1	0.88	0.14	0.24
Se 196.026	Se	0.43	ug/L	2.23	2.47	-2.78	-3.86
Si 251.611	Si	2726.46	ug/L	4717.83	2695.85	2800.13	2661.22
Sn 189.925	Sn	-1.64	ug/L	0.85	-2.83	0.9	-3.83
Sr 421.552	Sr	390.39	ug/L	907981.04	386.44	392.84	391.61
Ti 334.941	Ti	0.45	ug/L	16264.57	0.48	0.32	0.63
Tl 190.794	Tl	-1.59	ug/L	-3.94	-3.96	-1.42	-0.24
V 292.401	V	0.91	ug/L	16.66	1.24	0.75	1.03
Zn 206.200	Zn	1.53	ug/L	5.68	1.25	2.09	1.67

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482171001\_3257****Analysis Time: 5/12/2022 9:03:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	616120.51	1.04	1.09	1.1
Ag 328.068	Ag	-0.29	ug/L	-1185.98	-0.58	0.13	-0.16
Al 396.152	Al	21.03	ug/L	863.93	22.04	21.81	19.44
As 188.980	As	-2.21	ug/L	2.35	-5.47	-3.79	2.09
B 249.678	B	4.53	ug/L	47.74	4.51	4.39	4.14
Ba 233.527	Ba	29.48	ug/L	1188.89	30.66	29.52	29.03
Be 234.861	Be	-0.088	ug/L	-8.763	-0.08	-0.119	-0.076
Ca 315.887	Ca	2592.36	ug/L	13930.38	2705.65	2594.61	2549.37
Cd 214.439	Cd	-0.01	ug/L	2.06	-0.03	0	-0.07
Co 228.615	Co	0.06	ug/L	7.58	0.17	-0.52	0.37
Cr 267.716	Cr	0.47	ug/L	45.77	0.76	0.51	0.32
Cu 327.395	Cu	1.21	ug/L	-1636.38	-0.49	2.17	1.68
Fe 261.187	Fe	19.47	ug/L	9.8	21.52	21.45	15.51
K 766.491	K	895.32	ug/L	1542.57	936.27	918	888.21
Li 670.783	Li	-1.12	ug/L	10922.91	-0.32	-1.49	-1.43
Mg 279.078	Mg	1373.64	ug/L	3596.71	1422.14	1375.21	1341.11
Mn 257.610	Mn	0.77	ug/L	103.17	0.78	0.77	0.74
Mo 204.598	Mo	0.83	ug/L	-4.12	0.27	1.12	1.5
Na 589.592	Na	1210.22	ug/L	9487.09	1259.02	1213.8	1186.84
Ni 231.604	Ni	0.75	ug/L	5.89	1.43	0.64	-0.79
P 213.618	P	5.41	ug/L	-2.95	8.27	4.2	4.12
Pb 220.353	Pb	-1.78	ug/L	0.54	-4.28	0.82	-0.54
S 181.972	S	1988.67	ug/L	77.54	2034.07	1955.15	2001.7
Sb 206.834	Sb	-1.65	ug/L	0.96	-1.24	-0.34	-2.42
Se 196.026	Se	-0.08	ug/L	1.92	1.2	2.11	0.92
Si 251.611	Si	3378.71	ug/L	5839.11	3462.26	3379.83	3325.11
Sn 189.925	Sn	-2.63	ug/L	-0.15	-3.15	-2.26	-2.12
Sr 421.552	Sr	17.8	ug/L	41453.31	18.57	17.82	17.47
Ti 334.941	Ti	0.65	ug/L	16327.62	2	-0.25	-0.2
Tl 190.794	Tl	-0.72	ug/L	-3.17	0.61	-0.56	-1.08
V 292.401	V	0.63	ug/L	11.17	0.7	0.85	0.43
Zn 206.200	Zn	3.1	ug/L	8.48	2.8	3.34	3.27

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 9:05:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	604786.23	1.05	1.06	1.06
Ag 328.068	Ag	1014.17	ug/L	40509.95	1007.07	1013.05	1018.7
Al 396.152	Al	9866.68	ug/L	242845.87	9792.29	9841.09	9910.09
As 188.980	As	2041.22	ug/L	1203.03	2021.75	2046.91	2050.02
B 249.678	B	2094.26	ug/L	17292.57	2075.64	2092.17	2104.34
Ba 233.527	Ba	2060.28	ug/L	83315.62	2049.41	2056.43	2068.33
Be 234.861	Be	2026.373	ug/L	300747.717	2012.869	2021.499	2036.991
Ca 315.887	Ca	10449.47	ug/L	55956.69	10391.25	10428.02	10491.88
Cd 214.439	Cd	2043.21	ug/L	42338.24	2017.97	2033.25	2074.11
Co 228.615	Co	2084.55	ug/L	12143.57	2070.58	2080.72	2092.1
Cr 267.716	Cr	2047.46	ug/L	73799.44	2034.1	2043.8	2056.94
Cu 327.395	Cu	1988.69	ug/L	52252.13	1974.94	1985.91	1996.01
Fe 261.187	Fe	10005.41	ug/L	17801.22	9960.75	9979.81	10036.06
K 766.491	K	9991.33	ug/L	13066.67	9991.75	9930.56	10012.37
Li 670.783	Li	1922.94	ug/L	1078927.74	1914.11	1918.34	1929.47
Mg 279.078	Mg	10057.39	ug/L	26116.09	9998.15	10032.6	10097.75
Mn 257.610	Mn	2017.98	ug/L	259558.6	2007.36	2014.67	2025.16
Mo 204.598	Mo	1953.45	ug/L	7284.01	1945.59	1933.8	1970.21
Na 589.592	Na	10221.17	ug/L	85090.91	10163.67	10232.56	10265.76
Ni 231.604	Ni	1996.66	ug/L	3956.26	1987.76	1991.93	2004.4
P 213.618	P	2009.08	ug/L	1471.72	1982.09	1974.93	2020.4
Pb 220.353	Pb	2032.69	ug/L	3176.77	2020.82	2025.73	2038.48
S 181.972	S	9906.89	ug/L	382.25	9878.88	9861.58	9967.36
Sb 206.834	Sb	2048.19	ug/L	1589.2	2014.67	2045.74	2059.16
Se 196.026	Se	2055.37	ug/L	1274.15	2034.81	2045.6	2073.02
Si 251.611	Si	10611.36	ug/L	18336.68	10489.36	10584.41	10690.08
Sn 189.925	Sn	2013.95	ug/L	2142.62	1997.27	2013.33	2016.5
Sr 421.552	Sr	2061.74	ug/L	4785689.93	2045.23	2062.93	2066.03
Ti 334.941	Ti	2003.92	ug/L	500981.68	1993.73	1992.07	2019.54
Tl 190.794	Tl	2114.4	ug/L	2039.26	2103.21	2109.77	2121.86
V 292.401	V	2029.39	ug/L	39327.94	2014.89	2027.06	2038.56
Zn 206.200	Zn	2054.47	ug/L	6478.26	2037.02	2034.9	2078.31

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 9:07:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	608557.76	1.03	1.07	1.08
Ag 328.068	Ag	-0.5	ug/L	-1194.66	-1.01	-0.25	-0.46
Al 396.152	Al	-0.3	ug/L	330.93	0.41	-0.45	-0.84
As 188.980	As	4.22	ug/L	6.16	5.58	-2.47	9.4
B 249.678	B	1.88	ug/L	25.89	3.05	2.04	1.64
Ba 233.527	Ba	0.08	ug/L	-0.67	0.08	0.02	0.11
Be 234.861	Be	-0.001	ug/L	4.275	-0.008	-0.014	-0.015
Ca 315.887	Ca	-0.42	ug/L	70.66	-0.39	-0.38	-0.63
Cd 214.439	Cd	0.08	ug/L	3.91	0.11	-0.01	0.14
Co 228.615	Co	0.06	ug/L	8.31	0.25	0.49	0.05
Cr 267.716	Cr	-0.17	ug/L	22.48	-0.12	-0.44	0.01
Cu 327.395	Cu	0.27	ug/L	-1661.75	-1.46	0.96	0.62
Fe 261.187	Fe	0.56	ug/L	-23.95	2.41	1.47	-0.77
K 766.491	K	-31.6	ug/L	372.96	-39.08	-5.39	-52.69
Li 670.783	Li	-2.15	ug/L	10353.14	-1.54	-2.15	-2.41
Mg 279.078	Mg	1.65	ug/L	38.69	-0.52	4.6	1.62
Mn 257.610	Mn	0.01	ug/L	5.92	0.1	0.02	-0.05
Mo 204.598	Mo	2.4	ug/L	1.74	1.54	2.55	2.63
Na 589.592	Na	12.19	ug/L	-104.02	12.91	12.34	10.59
Ni 231.604	Ni	0.6	ug/L	5.59	1.33	-0.44	0.27
P 213.618	P	1.37	ug/L	-6.09	2.5	1.6	2.18
Pb 220.353	Pb	-3.02	ug/L	-1.41	-3.73	-2.8	-2.59
S 181.972	S	27.52	ug/L	2.07	31.04	34.62	9.76
Sb 206.834	Sb	-0.68	ug/L	1.7	1.6	-3.22	-0.68
Se 196.026	Se	0.64	ug/L	2.37	-2.9	2.22	0.2
Si 251.611	Si	3.41	ug/L	32.3	8.37	3.26	2.42
Sn 189.925	Sn	-0.44	ug/L	2.18	-0.02	1.06	-2.14
Sr 421.552	Sr	0.03	ug/L	150.66	0.06	0.03	0.03
Ti 334.941	Ti	0.77	ug/L	16357.05	2.45	0.43	0.06
Tl 190.794	Tl	0.19	ug/L	-2.31	-0.31	0.9	-1.02
V 292.401	V	0.27	ug/L	3.91	0.07	-0.05	0.46
Zn 206.200	Zn	0.36	ug/L	-0.27	0.66	0.59	-0.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482171002\_3257****Analysis Time: 5/12/2022 9:09:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	608635.59	1.07	1.09	1.01
Ag 328.068	Ag	-0.91	ug/L	-1211.11	-0.77	-0.54	-1.97
Al 396.152	Al	17.72	ug/L	781.89	17.43	18.74	19.55
As 188.980	As	3.34	ug/L	5.64	6.08	2.82	6.39
B 249.678	B	5.27	ug/L	53.92	4.23	6.09	5.45
Ba 233.527	Ba	27.03	ug/L	1089.82	26.96	26.91	28.37
Be 234.861	Be	0.05	ug/L	11.73	0.042	0.122	0.074
Ca 315.887	Ca	2301.71	ug/L	12376.76	2295.38	2273.33	2414.78
Cd 214.439	Cd	0.04	ug/L	3.18	0.14	0.13	-0.04
Co 228.615	Co	0.14	ug/L	8.1	0.3	0.28	0.49
Cr 267.716	Cr	0.22	ug/L	36.59	0.38	0.21	0.21
Cu 327.395	Cu	0.62	ug/L	-1652.22	0.73	1.4	-1.23
Fe 261.187	Fe	13.24	ug/L	-1.31	15.58	12.36	10.64
K 766.491	K	837.23	ug/L	1469.25	860.8	818.47	872.46
Li 670.783	Li	-0.09	ug/L	11494.04	-0.15	-0.5	0.99
Mg 279.078	Mg	1264.58	ug/L	3313.88	1262.02	1239.18	1327.13
Mn 257.610	Mn	0.69	ug/L	93.72	0.64	0.72	0.76
Mo 204.598	Mo	0.85	ug/L	-4.04	0.35	0.99	1.04
Na 589.592	Na	1111.97	ug/L	8700.46	1106.88	1104.79	1159.59
Ni 231.604	Ni	-0.08	ug/L	4.23	-0.08	0.11	0.25
P 213.618	P	7.47	ug/L	-1.37	3.55	5.2	7.1
Pb 220.353	Pb	-0.8	ug/L	2.07	-0.86	1.08	-1.45
S 181.972	S	2004.69	ug/L	78.15	1989.55	1958.1	2127.09
Sb 206.834	Sb	-0.5	ug/L	1.85	-3.52	-1.01	1.57
Se 196.026	Se	6.03	ug/L	5.71	1.47	3.27	16.64
Si 251.611	Si	3168.63	ug/L	5477.68	3135.74	3086.89	3354.97
Sn 189.925	Sn	-3.36	ug/L	-0.92	-3.63	-3.58	-3.39
Sr 421.552	Sr	16.23	ug/L	37809.25	16.16	16.14	17.02
Ti 334.941	Ti	1.4	ug/L	16510.16	1.48	0.37	3.34
Tl 190.794	Tl	0.2	ug/L	-2.29	0.75	0.14	-0.5
V 292.401	V	0.34	ug/L	5.55	0.63	0.02	0.73
Zn 206.200	Zn	2.49	ug/L	6.53	2.49	2.35	1.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482171003 3257****Analysis Time: 5/12/2022 9:11:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	621476.43	1.09	1.08	1.09
Ag 328.068	Ag	-0.36	ug/L	-1188.74	-0.26	-0.31	-0.4
Al 396.152	Al	52.14	ug/L	1656.1	51.91	53.26	51.69
As 188.980	As	2.44	ug/L	5.12	3.42	-4.16	6.5
B 249.678	B	12.61	ug/L	114.36	13.03	11.46	13.23
Ba 233.527	Ba	16.91	ug/L	681.32	16.92	17.17	16.87
Be 234.861	Be	-0.058	ug/L	-5.292	-0.047	-0.049	-0.076
Ca 315.887	Ca	10893.12	ug/L	58302.16	10872.26	10968.73	10933.14
Cd 214.439	Cd	0.08	ug/L	3.98	0.06	0.02	0.15
Co 228.615	Co	0.2	ug/L	9.49	0.09	0.01	0.47
Cr 267.716	Cr	0.01	ug/L	27.85	0.24	0.06	-0.24
Cu 327.395	Cu	2.81	ug/L	-1593.13	3.21	3.2	2.66
Fe 261.187	Fe	203.54	ug/L	338.05	203.04	205.06	205.5
K 766.491	K	1728.68	ug/L	2595.26	1703.88	1742.61	1729.26
Li 670.783	Li	-1.47	ug/L	10720.86	-1.54	-1.48	-1.38
Mg 279.078	Mg	4202.83	ug/L	10933.77	4167.9	4255.79	4199.14
Mn 257.610	Mn	72.6	ug/L	9338.19	72.59	73.14	72.77
Mo 204.598	Mo	-0.03	ug/L	-7.29	-0.31	-0.66	-0.17
Na 589.592	Na	3043.83	ug/L	24057.05	3037.36	3064	3052.56
Ni 231.604	Ni	0.46	ug/L	5.35	1.57	0.01	0.97
P 213.618	P	14.69	ug/L	4.2	14.49	15.86	16.49
Pb 220.353	Pb	-0.05	ug/L	3.29	-0.32	0.95	-0.87
S 181.972	S	3312.79	ug/L	128.5	3394.81	3301.82	3309.74
Sb 206.834	Sb	-0.26	ug/L	2.02	2.79	-4.04	4.24
Se 196.026	Se	0.49	ug/L	2.28	-1.48	-1.36	5.99
Si 251.611	Si	3533.63	ug/L	6105.88	3496.64	3553.7	3526.89
Sn 189.925	Sn	-1.72	ug/L	0.81	-0.85	-0.69	-2.51
Sr 421.552	Sr	50.93	ug/L	118574.43	50.83	51.3	51.13
Ti 334.941	Ti	0.67	ug/L	16331.55	0.73	0.77	0.58
Tl 190.794	Tl	-1.76	ug/L	-4.05	-1.13	-3.17	-3.12
V 292.401	V	0.54	ug/L	9.28	0.32	0.83	0.23
Zn 206.200	Zn	5	ug/L	14.77	5.2	4.95	5.51

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482175001\_3257****Analysis Time: 5/12/2022 9:13:35 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	621821.99	1.07	1.09	1.1
Ag 328.068	Ag	-0.25	ug/L	-1184.34	-0.31	-0.25	0.06
Al 396.152	Al	66.41	ug/L	1977.92	67.1	66.24	66.24
As 188.980	As	3.42	ug/L	5.69	5.68	5.74	0.3
B 249.678	B	4.76	ug/L	49.66	4.73	5.41	5.18
Ba 233.527	Ba	22.34	ug/L	900.09	22.28	22.52	22.32
Be 234.861	Be	0.056	ug/L	12.41	0.003	0.047	0.072
Ca 315.887	Ca	4667.27	ug/L	25021.93	4713.03	4699.99	4616.85
Cd 214.439	Cd	0.07	ug/L	3.78	0.08	0.26	-0.02
Co 228.615	Co	-0.47	ug/L	4.9	-0.46	-1.01	0.08
Cr 267.716	Cr	0.21	ug/L	36.05	0.3	0.22	0.3
Cu 327.395	Cu	1.85	ug/L	-1618.94	0.56	2.13	2.34
Fe 261.187	Fe	81.04	ug/L	119.56	81.15	82.93	80.2
K 766.491	K	644.48	ug/L	1226.56	639.59	656.4	641.79
Li 670.783	Li	-0.63	ug/L	11191.53	-0.39	-0.69	-0.75
Mg 279.078	Mg	1437.05	ug/L	3761.18	1450.62	1433.51	1430.56
Mn 257.610	Mn	3.33	ug/L	432.35	3.3	3.29	3.34
Mo 204.598	Mo	1.17	ug/L	-2.83	0.49	0.68	2.21
Na 589.592	Na	975.02	ug/L	7601.81	982.85	981.11	970.98
Ni 231.604	Ni	0.71	ug/L	5.8	-0.01	-0.32	1.22
P 213.618	P	3.68	ug/L	-4.28	6.49	1.3	6.74
Pb 220.353	Pb	-1.13	ug/L	1.57	1.12	-3.29	0.16
S 181.972	S	1497.44	ug/L	58.64	1518.79	1471.69	1503.09
Sb 206.834	Sb	1.17	ug/L	3.15	1.59	2.86	2.81
Se 196.026	Se	4.9	ug/L	5	1.17	5.57	2.89
Si 251.611	Si	3571.15	ug/L	6170.21	3580	3564.4	3586.82
Sn 189.925	Sn	-2.23	ug/L	0.28	-0.87	-2.01	-3.92
Sr 421.552	Sr	40.87	ug/L	95071.16	41.17	41	40.8
Ti 334.941	Ti	0.73	ug/L	16347.79	1.91	0.53	0.18
Tl 190.794	Tl	-2.2	ug/L	-4.6	-1.23	-3.56	-4.07
V 292.401	V	0.78	ug/L	14.02	0.81	0.62	1.5
Zn 206.200	Zn	1.86	ug/L	4.63	1.62	1.76	2.45



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30482181001\_3257****Analysis Time: 5/12/2022 9:15:35 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	621561.55	1.09	1.08	1.08
Ag 328.068	Ag	-0.63	ug/L	-1199.94	-0.61	-0.76	-0.75
Al 396.152	Al	30.84	ug/L	1174.96	30.89	31.53	30.91
As 188.980	As	0.62	ug/L	4.05	2.85	-1.06	-1.28
B 249.678	B	10.92	ug/L	100.62	10.31	10.65	12.01
Ba 233.527	Ba	37.92	ug/L	1531.83	37.74	37.41	38.89
Be 234.861	Be	-0.083	ug/L	-8.466	-0.073	-0.091	-0.087
Ca 315.887	Ca	19321.56	ug/L	103356.32	19096.61	19398.11	19463.64
Cd 214.439	Cd	-0.04	ug/L	1.56	-0.06	-0.04	0.01
Co 228.615	Co	-0.3	ug/L	6.39	-0.49	0.21	0.21
Cr 267.716	Cr	0.18	ug/L	35.15	0.06	0.19	0.06
Cu 327.395	Cu	2.06	ug/L	-1613.57	1.73	2.02	2.33
Fe 261.187	Fe	118.02	ug/L	185.42	114.47	118.89	121.66
K 766.491	K	2014.18	ug/L	2956.68	1996.04	2024.88	2058.48
Li 670.783	Li	-0.61	ug/L	11193.33	-0.74	-0.68	-0.44
Mg 279.078	Mg	3862.53	ug/L	10051.37	3787.72	3876.58	3929.44
Mn 257.610	Mn	13.12	ug/L	1691.86	12.81	13.24	13.38
Mo 204.598	Mo	-0.12	ug/L	-7.64	0.09	-0.96	0.54
Na 589.592	Na	4198.3	ug/L	33286.13	4157.1	4219.74	4228.55
Ni 231.604	Ni	1.28	ug/L	6.96	-0.36	1.41	2.76
P 213.618	P	7.15	ug/L	-1.49	6.45	7.76	6.62
Pb 220.353	Pb	-1.87	ug/L	0.44	-2.87	-3.38	0
S 181.972	S	3248.63	ug/L	126.04	3237.19	3343.71	3238.41
Sb 206.834	Sb	0.58	ug/L	2.67	-1	-0.16	2.71
Se 196.026	Se	3.43	ug/L	4.09	2.02	4.47	4.39
Si 251.611	Si	1165.4	ug/L	2031.67	1150.06	1171.32	1173.87
Sn 189.925	Sn	-2.3	ug/L	0.19	-3.75	-2.96	-0.46
Sr 421.552	Sr	120.19	ug/L	279572.5	118.66	120.9	121.15
Ti 334.941	Ti	0.56	ug/L	16303.13	0.72	0.59	0.4
Tl 190.794	Tl	0.04	ug/L	-2.39	-2.08	-0.91	2.03
V 292.401	V	0.86	ug/L	15.61	0.58	0.69	0.88
Zn 206.200	Zn	1.63	ug/L	4.46	1.35	2.2	0.9

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438824\_3257****Analysis Time: 5/12/2022 9:17:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	605197.37	1.06	1.05	1.05
Ag 328.068	Ag	538.52	ug/L	20724.89	532.29	541.16	542.38
Al 396.152	Al	2256.23	ug/L	57279.89	2242.68	2263.72	2271.69
As 188.980	As	2166.74	ug/L	1276.75	2149.09	2185.27	2178.36
B 249.678	B	2222.19	ug/L	18351.97	2198.18	2233.58	2240.54
Ba 233.527	Ba	2186	ug/L	88401.83	2167.82	2198.1	2202.1
Be 234.861	Be	548.882	ug/L	81461.703	543.53	552.152	553.253
Ca 315.887	Ca	64296.77	ug/L	343812.29	63607.22	64669.33	64818.82
Cd 214.439	Cd	1080.08	ug/L	22377.81	1070.15	1083.95	1089.15
Co 228.615	Co	2209.72	ug/L	12879.95	2190.91	2223.04	2228.52
Cr 267.716	Cr	2201.13	ug/L	79333.48	2182.9	2214.23	2216.32
Cu 327.395	Cu	2195.73	ug/L	57862.74	2179.65	2205.35	2227.31
Fe 261.187	Fe	2314.46	ug/L	4087.42	2297.03	2327.72	2327.69
K 766.491	K	24475.55	ug/L	31346.72	24303.97	24651.13	24610.88
Li 670.783	Li	2176.67	ug/L	1219904.62	2157.74	2193.78	2191.22
Mg 279.078	Mg	25605.54	ug/L	66438.04	25447.6	25849.95	25803.58
Mn 257.610	Mn	2149.45	ug/L	276445.02	2126.2	2165.81	2165.62
Mo 204.598	Mo	2149.51	ug/L	8014.47	2134.33	2168.49	2152.5
Na 589.592	Na	26487.26	ug/L	214792.91	26295.97	26637.02	26660.69
Ni 231.604	Ni	2102.11	ug/L	4164.96	2081.1	2118.36	2120.57
P 213.618	P	43197.19	ug/L	33061.71	42860.61	43439.94	43429.42
Pb 220.353	Pb	2105.85	ug/L	3292.27	2089.04	2119.37	2119.04
S 181.972	S	5243.93	ug/L	202.89	5186.78	5255.56	5242.81
Sb 206.834	Sb	2186.46	ug/L	1695.8	2128.91	2196.37	2221.24
Se 196.026	Se	2122.01	ug/L	1316.13	2109.06	2131.81	2130.3
Si 251.611	Si	12593.92	ug/L	21751.85	12351.23	12639.8	12744.01
Sn 189.925	Sn	2197.2	ug/L	2336.37	2178.07	2212.32	2210.15
Sr 421.552	Sr	2305.62	ug/L	5353443.87	2284.56	2321.74	2320.52
Ti 334.941	Ti	2173.61	ug/L	542024.07	2151.41	2178.84	2201.77
Tl 190.794	Tl	2098.95	ug/L	2024.27	2041.05	2111.65	2124.65
V 292.401	V	2201.9	ug/L	42680.89	2180.85	2213.11	2219.44
Zn 206.200	Zn	2160.63	ug/L	6815.45	2137.29	2181.44	2164.05

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2438825\_3257****Analysis Time: 5/12/2022 9:19:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	591846.3	1.03	1	1.06
Ag 328.068	Ag	583.7	ug/L	22561.31	578.6	612.24	573.5
Al 396.152	Al	2503.58	ug/L	63532.51	2492.27	2626.72	2455.03
As 188.980	As	2397.08	ug/L	1412.23	2370.7	2515.05	2361.29
B 249.678	B	2451.24	ug/L	20242.36	2428.58	2569.64	2414.46
Ba 233.527	Ba	2443.5	ug/L	98815.78	2428.13	2566.27	2403.5
Be 234.861	Be	611.933	ug/L	90818.801	607.919	642.389	601.723
Ca 315.887	Ca	71543.99	ug/L	382557.11	70897.89	75121.19	70548.98
Cd 214.439	Cd	1191.24	ug/L	24680.71	1180.68	1251.12	1170.63
Co 228.615	Co	2462.46	ug/L	14349.77	2450.54	2581.96	2421.31
Cr 267.716	Cr	2457.62	ug/L	88574.62	2444.28	2580.53	2414.86
Cu 327.395	Cu	2439.59	ug/L	64474.72	2425.23	2551.47	2403.12
Fe 261.187	Fe	2566.38	ug/L	4535.16	2552.6	2696.82	2513.49
K 766.491	K	27236.46	ug/L	34836.19	27096.39	28631.89	26746.84
Li 670.783	Li	2438.95	ug/L	1365524.8	2423.29	2564.04	2397.17
Mg 279.078	Mg	28475.51	ug/L	73880.87	28304.66	29848.97	27972.7
Mn 257.610	Mn	2385.4	ug/L	306791.17	2376.5	2505.51	2346.92
Mo 204.598	Mo	2397.05	ug/L	8938.22	2364.07	2487.41	2371.87
Na 589.592	Na	29413.19	ug/L	238573.01	29276.21	30951.01	28864.65
Ni 231.604	Ni	2336.12	ug/L	4628.13	2329.79	2449.03	2296.53
P 213.618	P	47831.06	ug/L	36608.72	47443.07	50114.45	47380.98
Pb 220.353	Pb	2324.02	ug/L	3632.96	2304.4	2434.01	2297.2
S 181.972	S	5574.11	ug/L	215.61	5452.67	5887.63	5456.84
Sb 206.834	Sb	2414.33	ug/L	1871.77	2372.15	2543.18	2364.9
Se 196.026	Se	2331.72	ug/L	1446.01	2316.5	2438.47	2291.79
Si 251.611	Si	13954.61	ug/L	24099.49	13756.54	14645.15	13751.81
Sn 189.925	Sn	2435.92	ug/L	2589.93	2421.62	2556.79	2388.36
Sr 421.552	Sr	2562.83	ug/L	5950655.54	2554.58	2688.98	2519.85
Ti 334.941	Ti	2407.27	ug/L	598550.14	2361.66	2510.67	2392.77
Tl 190.794	Tl	2288.25	ug/L	2207.06	2230.2	2388.4	2269.41
V 292.401	V	2450.63	ug/L	47503.53	2434	2572.45	2410.81
Zn 206.200	Zn	2398.71	ug/L	7566.67	2369.44	2503.11	2369.26

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485299001 3257****Analysis Time: 5/12/2022 9:21:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	597996.48	1.02	1.05	1.05
Ag 328.068	Ag	572.14	ug/L	22091.33	583.94	573.37	565.59
Al 396.152	Al	2391.36	ug/L	60849.95	2459.99	2398.14	2356.37
As 188.980	As	2349.42	ug/L	1384.29	2406.73	2361.43	2318.19
B 249.678	B	2395.01	ug/L	19778.41	2451.69	2397.46	2372.18
Ba 233.527	Ba	2357.05	ug/L	95321.54	2415.35	2363.05	2333.51
Be 234.861	Be	594.419	ug/L	88219.979	609.774	596.121	587.627
Ca 315.887	Ca	95367.49	ug/L	509903.39	97933.72	95770.56	94297.34
Cd 214.439	Cd	1149.39	ug/L	23813.75	1176.91	1151.08	1137.61
Co 228.615	Co	2359.13	ug/L	13750.92	2419.03	2366.65	2334.25
Cr 267.716	Cr	2374.34	ug/L	85574.21	2437.67	2380.92	2348.62
Cu 327.395	Cu	2355.8	ug/L	62202.01	2406.62	2358.57	2342.38
Fe 261.187	Fe	2373.37	ug/L	4191.45	2433.14	2383.42	2348.91
K 766.491	K	26799.27	ug/L	34288.11	27545.51	26855.53	26464.97
Li 670.783	Li	2412.77	ug/L	1351022.28	2474.83	2423.33	2385.29
Mg 279.078	Mg	34883.52	ug/L	90499.05	35765.49	35017.11	34509.14
Mn 257.610	Mn	2322.02	ug/L	298640.79	2385.47	2322.54	2302.72
Mo 204.598	Mo	2340.48	ug/L	8726.99	2393.28	2335.29	2309.18
Na 589.592	Na	29244.98	ug/L	237072.04	30032.14	29339.07	28891.86
Ni 231.604	Ni	2233.72	ug/L	4425.51	2293.26	2238.36	2214.84
P 213.618	P	46290.81	ug/L	35429.84	47111.3	46490.85	46011.93
Pb 220.353	Pb	2241.51	ug/L	3504.18	2296.4	2243.5	2219.33
S 181.972	S	31547.04	ug/L	1215.12	32320.92	31532.37	31199.56
Sb 206.834	Sb	2362.87	ug/L	1831.92	2401.63	2367.48	2355.32
Se 196.026	Se	2259.64	ug/L	1401.39	2298.6	2271.47	2240.1
Si 251.611	Si	16383.49	ug/L	28276.82	16720.44	16384.32	16260.9
Sn 189.925	Sn	2374.8	ug/L	2525	2436.57	2383.74	2345.15
Sr 421.552	Sr	3022.82	ug/L	7018996.99	3103.97	3031.79	2986.01
Ti 334.941	Ti	2357.36	ug/L	586470.24	2408.52	2376.35	2338.15
Tl 190.794	Tl	2229.51	ug/L	2150.23	2238.65	2225.1	2222.49
V 292.401	V	2379.03	ug/L	46114.26	2437.09	2386.61	2355.1
Zn 206.200	Zn	2325.64	ug/L	7337.13	2375.03	2341.08	2288.4

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484411001\_3174****Analysis Time: 5/12/2022 9:23:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	604165.94	1.06	1.05	1.05
Ag 328.068	Ag	-1.13	ug/L	-1217.3	-0.91	-1.73	-0.93
Al 396.152	Al	12.07	ug/L	897.83	11.38	12.58	13.22
As 188.980	As	6.68	ug/L	7.45	8.13	12.09	-0.43
B 249.678	B	545.17	ug/L	4502.86	534.23	547.57	549.27
Ba 233.527	Ba	731.49	ug/L	29587.81	716.53	733.53	738.09
Be 234.861	Be	-0.295	ug/L	-161.292	-0.16	-0.266	-0.403
Ca 315.887	Ca	39635.73	ug/L	211945.8	38655.73	39715.67	39931.82
Cd 214.439	Cd	0.09	ug/L	14.78	0.37	0.08	0.15
Co 228.615	Co	14.03	ug/L	69.28	15.19	12.71	14.11
Cr 267.716	Cr	0.75	ug/L	56.48	1.29	0.77	0.46
Cu 327.395	Cu	3.19	ug/L	-1580.34	3.64	3.37	3.11
Fe 261.187	Fe	24826.72	ug/L	44243.03	24266.45	24872.26	25063.54
K 766.491	K	14404.59	ug/L	18579.81	14143.24	14395.92	14531.8
Li 670.783	Li	3.7	ug/L	13467.77	4.13	3.84	3.5
Mg 279.078	Mg	20325.54	ug/L	52745.71	19842.8	20377.24	20502.54
Mn 257.610	Mn	80.06	ug/L	10332.39	78.83	80.17	80.54
Mo 204.598	Mo	2.71	ug/L	3.29	3.42	2.32	2.43
Na 589.592	Na	44288.53	ug/L	353674	43346.89	44523.81	44545.65
Ni 231.604	Ni	2.48	ug/L	10.55	2.97	3.05	1.02
P 213.618	P	41.38	ug/L	24.5	48.89	44.93	37.99
Pb 220.353	Pb	-2.93	ug/L	-1.07	-3.95	-3.57	0.12
S 181.972	S	663.38	ug/L	26.57	664.75	634.84	701.74
Sb 206.834	Sb	1.39	ug/L	3.88	-0.25	6.79	1.04
Se 196.026	Se	-0.03	ug/L	-0.1	0.12	-1.56	0.95
Si 251.611	Si	8091.79	ug/L	13948.08	7944.17	8120.16	8148.01
Sn 189.925	Sn	-2.4	ug/L	0.15	-0.11	-2.03	-3.04
Sr 421.552	Sr	297.38	ug/L	691413.35	291.26	298.2	299.51
Ti 334.941	Ti	0.91	ug/L	16375.62	1.47	1.07	0.49
Tl 190.794	Tl	0.69	ug/L	-2.11	1.31	0.38	-0.11
V 292.401	V	0.69	ug/L	-23.89	1.48	0.85	0.19
Zn 206.200	Zn	104.57	ug/L	328.91	104.34	102.45	106.29

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2431301\_3174****Analysis Time: 5/12/2022 9:25:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598123.77	1.05	1.04	1.05
Ag 328.068	Ag	524.43	ug/L	20155.55	509.54	527.2	528.23
Al 396.152	Al	2131.9	ug/L	54338.61	2057.18	2135.04	2156.28
As 188.980	As	2072.74	ug/L	1221.57	2018.07	2081.76	2097.38
B 249.678	B	2688.89	ug/L	22196.19	2602.86	2702.96	2710.86
Ba 233.527	Ba	2764.55	ug/L	111806.74	2676	2774.19	2791.26
Be 234.861	Be	521.288	ug/L	77241.156	504.576	522.758	526.3
Ca 315.887	Ca	83117.86	ug/L	444417.94	80712.9	83392.68	83864.18
Cd 214.439	Cd	1017.5	ug/L	21092.57	986.35	1021.76	1025.85
Co 228.615	Co	2079.71	ug/L	12101.32	2015.68	2086.32	2097.53
Cr 267.716	Cr	2069.77	ug/L	74601.86	2004.99	2076.4	2087.53
Cu 327.395	Cu	2067.24	ug/L	54381.81	2001.34	2069.03	2096.43
Fe 261.187	Fe	27453.44	ug/L	48913.2	26568.91	27545.66	27712.02
K 766.491	K	36518.83	ug/L	46528.42	35531.69	36700.72	36805.79
Li 670.783	Li	2160.81	ug/L	1211089.84	2093.35	2169.14	2179.94
Mg 279.078	Mg	41592.34	ug/L	107897.48	40124.18	41774.41	42131.52
Mn 257.610	Mn	2083.76	ug/L	268031.63	2016.58	2090.65	2103.27
Mo 204.598	Mo	2041.34	ug/L	7611.05	1961.51	2042.64	2075.57
Na 589.592	Na	66197.49	ug/L	531936.32	64324.68	66574.76	66599.92
Ni 231.604	Ni	1954.99	ug/L	3875.05	1890.73	1963.81	1976.15
P 213.618	P	41095	ug/L	31452.76	39719.29	41264.29	41578.6
Pb 220.353	Pb	1973.98	ug/L	3086.44	1910.55	1987.66	1991.14
S 181.972	S	2739.81	ug/L	106.53	2621.48	2692.82	2778.11
Sb 206.834	Sb	2083.11	ug/L	1615.97	2000.35	2090.66	2111.21
Se 196.026	Se	2032.92	ug/L	1258.81	1971.64	2046.98	2043.8
Si 251.611	Si	18847.58	ug/L	32507.75	18259.48	18899.52	19007.96
Sn 189.925	Sn	2053.05	ug/L	2183.3	1987.3	2056.48	2066.03
Sr 421.552	Sr	2360.22	ug/L	5480739.74	2293.28	2369.8	2377.28
Ti 334.941	Ti	2050.87	ug/L	512317.42	1968.36	2059.86	2065.07
Tl 190.794	Tl	1978.47	ug/L	1907.37	1882.15	1974.6	2004.69
V 292.401	V	2085.15	ug/L	40381.91	2021.27	2092.55	2101.77
Zn 206.200	Zn	2109.26	ug/L	6653.22	2032.24	2107.38	2137.26

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2431302\_3174****Analysis Time: 5/12/2022 9:27:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	598056.94	1.05	1.04	1.05
Ag 328.068	Ag	532.8	ug/L	20495.48	522.12	533.73	535.62
Al 396.152	Al	2164.53	ug/L	55178.3	2114.77	2174.56	2167.81
As 188.980	As	2106.14	ug/L	1241.21	2065.76	2110.62	2115.08
B 249.678	B	2742.16	ug/L	22635.59	2685.22	2745.31	2762.28
Ba 233.527	Ba	2818.21	ug/L	113976.94	2760.64	2820.37	2836.14
Be 234.861	Be	528.006	ug/L	78233.23	517.377	527.949	530.932
Ca 315.887	Ca	81867.42	ug/L	437734.23	80336.43	81760.22	82288.69
Cd 214.439	Cd	1028.97	ug/L	21330.48	1008.06	1030.74	1036.44
Co 228.615	Co	2108.38	ug/L	12267.26	2061.48	2110.34	2122.28
Cr 267.716	Cr	2096.34	ug/L	75559.15	2052.89	2097.96	2108.61
Cu 327.395	Cu	2103.11	ug/L	55354.07	2068.9	2111.47	2102.79
Fe 261.187	Fe	28466.83	ug/L	50719.95	27905.29	28456.25	28643.7
K 766.491	K	37336.35	ug/L	47560.28	36730.32	37412.05	37457.28
Li 670.783	Li	2196.47	ug/L	1230883.35	2147.17	2204.91	2210.08
Mg 279.078	Mg	42801.88	ug/L	111034.23	42014.83	42996.2	42874.32
Mn 257.610	Mn	2116.64	ug/L	272261.42	2071.33	2115.51	2128.96
Mo 204.598	Mo	2084.25	ug/L	7771.13	2016.03	2074.13	2110.11
Na 589.592	Na	68086.36	ug/L	547072.06	66898.2	68156.66	68415.36
Ni 231.604	Ni	1984.15	ug/L	3932.8	1939.95	1982.7	2000.5
P 213.618	P	41891.95	ug/L	32062.91	41203.08	41864.9	41904.64
Pb 220.353	Pb	2003.83	ug/L	3133.05	1966.35	2007.46	2013.06
S 181.972	S	2803.13	ug/L	108.97	2683.52	2791.95	2850
Sb 206.834	Sb	2125.59	ug/L	1648.77	2074.49	2123.79	2144.71
Se 196.026	Se	2068.75	ug/L	1280.91	2029.89	2069.94	2089.84
Si 251.611	Si	19272.75	ug/L	33240.31	18857.35	19307.13	19419.69
Sn 189.925	Sn	2084.3	ug/L	2216.51	2048.97	2085.02	2097.69
Sr 421.552	Sr	2398.22	ug/L	556898.11	2358.63	2399.27	2412.72
Ti 334.941	Ti	2084.17	ug/L	520373.15	2015.84	2083.03	2111.57
Tl 190.794	Tl	1998.9	ug/L	1927.02	1924.94	1988.89	2030.26
V 292.401	V	2113.28	ug/L	40923.62	2070.02	2113.61	2128.5
Zn 206.200	Zn	2146.14	ug/L	6769.57	2094.56	2146.42	2154.15

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 9:29:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	605460.92	1.02	1.07	1.07
Ag 328.068	Ag	1014.74	ug/L	40533.77	1033.66	1004.05	1007.68
Al 396.152	Al	9876.15	ug/L	243082.12	10058.22	9760.32	9805.38
As 188.980	As	2051.15	ug/L	1208.91	2085.54	2019.2	2048.79
B 249.678	B	2102.04	ug/L	17356.73	2139.54	2077.07	2091.18
Ba 233.527	Ba	2058.41	ug/L	83240.01	2099.79	2033.11	2043.48
Be 234.861	Be	2031.03	ug/L	301438.903	2070.307	2006.253	2017.046
Ca 315.887	Ca	10427.07	ug/L	55836.99	10641.49	10328.01	10348.3
Cd 214.439	Cd	2043.76	ug/L	42349.66	2083.19	2069.41	2033.04
Co 228.615	Co	2087.02	ug/L	12157.92	2126.87	2062.46	2075.85
Cr 267.716	Cr	2054.81	ug/L	74064.31	2094.3	2030.79	2040
Cu 327.395	Cu	1989.84	ug/L	52283.32	2026.42	1968.84	1974.5
Fe 261.187	Fe	9951.85	ug/L	17705.69	10135.76	9840.15	9881.07
K 766.491	K	10080.66	ug/L	13179.45	10350.74	9960.39	9974.97
Li 670.783	Li	1934.33	ug/L	1085257.49	1981.44	1911.09	1916.53
Mg 279.078	Mg	10080.5	ug/L	26176.02	10271.42	9950.11	10017.69
Mn 257.610	Mn	2007.47	ug/L	258208.66	2045.52	1983.44	1994.17
Mo 204.598	Mo	1964.22	ug/L	7324.16	1996.69	1930.31	1955.83
Na 589.592	Na	10307.48	ug/L	85774.23	10518.24	10197.38	10212.05
Ni 231.604	Ni	1992.58	ug/L	3948.18	2030.74	1971.58	1980.8
P 213.618	P	2032.74	ug/L	1489.71	2044.58	2021.53	2024.22
Pb 220.353	Pb	2031.31	ug/L	3174.59	2073.88	1998.27	2021.48
S 181.972	S	10027.88	ug/L	386.91	10256.46	10016.3	9867.06
Sb 206.834	Sb	2047.21	ug/L	1588.37	2074.82	2029.55	2040.54
Se 196.026	Se	2064.15	ug/L	1279.58	2104.73	2045.38	2047.27
Si 251.611	Si	10776.58	ug/L	18621.09	10978.6	10665	10713.57
Sn 189.925	Sn	2021.12	ug/L	2150.25	2061.74	1995.74	2001.33
Sr 421.552	Sr	2067.44	ug/L	4798919.09	2105.41	2046.26	2053.6
Ti 334.941	Ti	2009.05	ug/L	502223.48	2039.45	1992.65	2000.54
Tl 190.794	Tl	2123.11	ug/L	2047.66	2156.37	2102.7	2109.28
V 292.401	V	2033.31	ug/L	39403.57	2073.41	2008.22	2019.53
Zn 206.200	Zn	2068.65	ug/L	6522.99	2108.86	2037.16	2058.42



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 9:31:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	610690.03	1	1.09	1.09
Ag 328.068	Ag	-0.63	ug/L	-1200.15	-1.41	-0.43	-0.62
Al 396.152	Al	1.15	ug/L	366.61	2.8	1.11	0.01
As 188.980	As	2.54	ug/L	5.16	3.5	5.02	-0.33
B 249.678	B	3.3	ug/L	37.63	4.21	3.36	4.23
Ba 233.527	Ba	0.41	ug/L	12.83	0.51	0.55	0.25
Be 234.861	Be	0.177	ug/L	30.741	0.378	0.176	0.121
Ca 315.887	Ca	5.06	ug/L	99.96	6.76	6.39	3.88
Cd 214.439	Cd	0.2	ug/L	6.46	0.47	0.37	0.04
Co 228.615	Co	-0.01	ug/L	7.86	0.15	-0.35	0.45
Cr 267.716	Cr	0.14	ug/L	33.63	0.26	0.1	0
Cu 327.395	Cu	0.75	ug/L	-1648.7	-1.29	1.41	1.27
Fe 261.187	Fe	5.86	ug/L	-14.5	6.91	4.37	3.99
K 766.491	K	-5.14	ug/L	406.34	55.62	-30.87	-54.55
Li 670.783	Li	-1.08	ug/L	10951.46	0.44	-1.42	-1.59
Mg 279.078	Mg	3.52	ug/L	43.56	4.21	3.99	4.12
Mn 257.610	Mn	0.34	ug/L	48.29	0.5	0.35	0.29
Mo 204.598	Mo	2.82	ug/L	3.3	1.24	2.41	2.99
Na 589.592	Na	22.38	ug/L	-22.25	19.12	22.04	24.13
Ni 231.604	Ni	-0.48	ug/L	3.45	1.78	-1.91	-0.94
P 213.618	P	4.56	ug/L	-3.65	6.6	5.37	3.56
Pb 220.353	Pb	-0.81	ug/L	2.04	-1.37	-0.9	0.1
S 181.972	S	-12.78	ug/L	0.52	-11.52	14.36	-38.35
Sb 206.834	Sb	1	ug/L	3	3.7	-4.08	0.36
Se 196.026	Se	5.33	ug/L	5.27	8.73	4.82	5.77
Si 251.611	Si	8.17	ug/L	40.48	15.91	7.16	6.46
Sn 189.925	Sn	-2.59	ug/L	-0.1	-1.82	-3.84	-2.65
Sr 421.552	Sr	0.33	ug/L	843.78	0.54	0.33	0.26
Ti 334.941	Ti	1.06	ug/L	16428.89	3.57	0.13	0.54
Tl 190.794	Tl	1.58	ug/L	-0.97	0.68	3.61	1.86
V 292.401	V	0.63	ug/L	10.93	1.15	0.82	0.34
Zn 206.200	Zn	0.52	ug/L	0.25	1	-0.42	1.34

## Agilent 5110 ICP-OES Report

Analyst:

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Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2425983\_3230****Analysis Time: 5/12/2022 9:33:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	625169.92	1.06	1.1	1.11
Ag 328.068	Ag	-0.49	ug/L	-1194.34	-1.34	-0.1	-0.12
Al 396.152	Al	3.16	ug/L	414.61	3.33	4.04	3
As 188.980	As	2.7	ug/L	5.26	3.42	5	1.76
B 249.678	B	2.12	ug/L	27.86	2.74	1.49	1.61
Ba 233.527	Ba	0.36	ug/L	10.79	0.24	0.43	0.4
Be 234.861	Be	-0.021	ug/L	1.104	0.019	-0.038	-0.026
Ca 315.887	Ca	51.26	ug/L	346.93	51.24	48.9	52.46
Cd 214.439	Cd	0.05	ug/L	3.28	0.05	0.04	0.11
Co 228.615	Co	-0.61	ug/L	4.39	-0.93	-0.53	-0.62
Cr 267.716	Cr	-0.03	ug/L	27.64	-0.02	0.1	0.03
Cu 327.395	Cu	1.85	ug/L	-1618.93	0.24	2.97	2.04
Fe 261.187	Fe	16.12	ug/L	3.8	18.67	16.76	13.51
K 766.491	K	-28.05	ug/L	377.4	-21.15	-34.73	-44.19
Li 670.783	Li	-2.49	ug/L	10163.42	-1.98	-2.57	-2.79
Mg 279.078	Mg	7.27	ug/L	53.29	6.84	8.57	5.93
Mn 257.610	Mn	0.19	ug/L	28.6	0.21	0.2	0.18
Mo 204.598	Mo	0.66	ug/L	-4.76	0.32	1.47	0.34
Na 589.592	Na	29.13	ug/L	31.39	26.12	29.55	31.12
Ni 231.604	Ni	0	ug/L	4.38	0.15	-0.84	-0.1
P 213.618	P	4.08	ug/L	-4.02	4.21	2.42	7.61
Pb 220.353	Pb	-1.61	ug/L	0.79	0.67	-3.32	-2.54
S 181.972	S	17.17	ug/L	1.67	17.81	37.73	-1.08
Sb 206.834	Sb	-0.2	ug/L	2.08	0.37	1.1	-0.99
Se 196.026	Se	2.45	ug/L	3.49	2.09	1.01	0.48
Si 251.611	Si	26.83	ug/L	72.55	27.4	25.84	26.98
Sn 189.925	Sn	-0.66	ug/L	1.96	0.06	-0.62	-2.15
Sr 421.552	Sr	0.14	ug/L	385.68	0.14	0.14	0.13
Ti 334.941	Ti	0.59	ug/L	16314.94	2.35	0	-0.41
Tl 190.794	Tl	0.4	ug/L	-2.11	0.46	-0.8	1.98
V 292.401	V	0.17	ug/L	2.08	0.15	0.19	0.32
Zn 206.200	Zn	1.73	ug/L	4.04	2.98	0.88	1.33

## Agilent 5110 ICP-OES Report

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**Sample: 2425984\_3230****Analysis Time: 5/12/2022 9:35:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	604995.91	1.05	1.06	1.06
Ag 328.068	Ag	523.72	ug/L	20123.34	518.89	522.8	526.49
Al 396.152	Al	2107.76	ug/L	53500.65	2081.52	2092.74	2125.98
As 188.980	As	2064.96	ug/L	1216.89	2033.95	2053.25	2089.08
B 249.678	B	2128.12	ug/L	17575.49	2101.78	2125.43	2138.56
Ba 233.527	Ba	2062.15	ug/L	83391.65	2039.36	2056.68	2074.66
Be 234.861	Be	525.364	ug/L	77971.901	519.705	524.44	528.363
Ca 315.887	Ca	44275.76	ug/L	236788.61	43826.42	44150.81	44600.37
Cd 214.439	Cd	1046.34	ug/L	21678.79	1035.54	1043.81	1051.95
Co 228.615	Co	2133.31	ug/L	12434.02	2108.79	2126.81	2148.47
Cr 267.716	Cr	2106.17	ug/L	75911.99	2079.77	2102.91	2119.59
Cu 327.395	Cu	2090.69	ug/L	55015.89	2062.74	2084.1	2110.95
Fe 261.187	Fe	2117.4	ug/L	3736.72	2092.7	2114.29	2136.09
K 766.491	K	21384.51	ug/L	27442.66	21272.37	21400.59	21453.13
Li 670.783	Li	2059.07	ug/L	1154610.26	2038.85	2056.45	2070.05
Mg 279.078	Mg	21134.42	ug/L	54842.85	20807.92	21124.4	21377.19
Mn 257.610	Mn	2068.96	ug/L	266092.51	2036.26	2070.15	2085.36
Mo 204.598	Mo	2055.07	ug/L	7662.06	2008.84	2054.13	2062.02
Na 589.592	Na	21526.32	ug/L	175071.42	21394.31	21447.7	21678.63
Ni 231.604	Ni	2037.45	ug/L	4036.95	2009.14	2033.89	2050.77
P 213.618	P	41429.94	ug/L	31709.03	40692.38	41703.81	41785.7
Pb 220.353	Pb	2041.49	ug/L	3191.74	2022.98	2036.96	2051.62
S 181.972	S	2073.93	ug/L	80.88	2000.47	2043.69	2113
Sb 206.834	Sb	2090.13	ug/L	1621.21	2057.12	2085.03	2099.5
Se 196.026	Se	2042	ug/L	1266.58	2023.41	2034.6	2055.08
Si 251.611	Si	11056.93	ug/L	19104.76	10865.82	11035.64	11158.88
Sn 189.925	Sn	2098.38	ug/L	2231.44	2065.96	2098.07	2117.12
Sr 421.552	Sr	2097.81	ug/L	4870550.27	2074.65	2094.87	2113.74
Ti 334.941	Ti	2083.93	ug/L	520332.19	2050.17	2075.09	2100.63
Tl 190.794	Tl	2040.65	ug/L	1968.06	1985.3	2024.72	2072.83
V 292.401	V	2104.08	ug/L	40784.08	2079.36	2099.19	2117.77
Zn 206.200	Zn	2080.84	ug/L	6563.06	2016.57	2080.51	2102.76

## Agilent 5110 ICP-OES Report

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**Sample: 30483773001\_3230****Analysis Time: 5/12/2022 9:37:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	615544.96	1.07	1.07	1.08
Ag 328.068	Ag	-0.75	ug/L	-1204.34	-0.73	-1.03	-0.56
Al 396.152	Al	32.24	ug/L	1265.98	31.29	31.85	32.89
As 188.980	As	6.7	ug/L	7.65	5.51	7.02	8.98
B 249.678	B	26.49	ug/L	228.84	26.46	27.28	25.55
Ba 233.527	Ba	128.67	ug/L	5203.33	125.5	128.54	129.82
Be 234.861	Be	-0.018	ug/L	-2.565	-0.011	-0.014	-0.045
Ca 315.887	Ca	28632.23	ug/L	153126.46	28045	28623.83	28823.17
Cd 214.439	Cd	-0.03	ug/L	1.94	-0.02	0.01	-0.21
Co 228.615	Co	-0.03	ug/L	5.84	-0.31	0.78	-0.29
Cr 267.716	Cr	-0.02	ug/L	25.91	-0.01	0.2	-0.11
Cu 327.395	Cu	1.75	ug/L	-1621.97	1.69	1.84	1.96
Fe 261.187	Fe	846.97	ug/L	1485.48	821.93	849.73	854.43
K 766.491	K	1000.97	ug/L	1682.21	994.98	1024.15	981.92
Li 670.783	Li	26.56	ug/L	26277.84	26.03	26.64	26.65
Mg 279.078	Mg	11778.83	ug/L	30580.88	11510.29	11832.62	11945.34
Mn 257.610	Mn	134.56	ug/L	17305.37	131.61	135.15	135.44
Mo 204.598	Mo	2.2	ug/L	1.08	1.78	2.15	1.87
Na 589.592	Na	12336.11	ug/L	98226.08	12079.52	12351.09	12432.66
Ni 231.604	Ni	-0.43	ug/L	3.68	-1.11	-0.96	-1.57
P 213.618	P	50.16	ug/L	31.6	50.39	52.4	45.5
Pb 220.353	Pb	-2.04	ug/L	0.27	-2.88	-3.04	-1.13
S 181.972	S	2946.08	ug/L	114.42	2874.02	2998.39	2933.19
Sb 206.834	Sb	1.97	ug/L	3.71	-0.08	3.8	0.7
Se 196.026	Se	2.51	ug/L	3.5	5.25	5.64	3.88
Si 251.611	Si	12436.82	ug/L	21423.25	12031.4	12507.74	12571.72
Sn 189.925	Sn	-2.09	ug/L	0.4	-0.81	-1.97	-2.44
Sr 421.552	Sr	89.01	ug/L	207484.29	86.97	89.02	89.72
Ti 334.941	Ti	0.71	ug/L	16336.22	0.76	0.87	0.43
Tl 190.794	Tl	-0.32	ug/L	-2.53	-1.58	1.51	-0.75
V 292.401	V	0.85	ug/L	14.29	0.47	0.53	1.04
Zn 206.200	Zn	3.83	ug/L	11.82	4.38	3.2	4.57

## Agilent 5110 ICP-OES Report

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**Sample: 2439073\_3230****Analysis Time: 5/12/2022 9:39:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	595683.36	1.04	1.04	1.04
Ag 328.068	Ag	474.84	ug/L	18135.16	464.32	474.77	480.78
Al 396.152	Al	2005.08	ug/L	50963.63	1957.53	2001.73	2017.4
As 188.980	As	1815.31	ug/L	1070.41	1770.62	1803.95	1838.23
B 249.678	B	1995.31	ug/L	16478.51	1947.09	1995.33	2020.69
Ba 233.527	Ba	1916.16	ug/L	77490.13	1871.77	1915.57	1938.79
Be 234.861	Be	458.284	ug/L	68012.642	447.432	457.797	463.886
Ca 315.887	Ca	67124.09	ug/L	358918.71	65631.18	67006.08	67914.93
Cd 214.439	Cd	904.38	ug/L	18738.28	883.62	904.13	914.93
Co 228.615	Co	1817.76	ug/L	10595.54	1773.63	1818.02	1839.91
Cr 267.716	Cr	1831.78	ug/L	66024.02	1786	1831.08	1851.35
Cu 327.395	Cu	1812.35	ug/L	47469.36	1773.33	1815.16	1814.86
Fe 261.187	Fe	2693.61	ug/L	4766.12	2625.26	2696.93	2718.46
K 766.491	K	19820.89	ug/L	25470.52	19455	19825.66	19992.01
Li 670.783	Li	1836.85	ug/L	1031230.85	1794.32	1835.74	1859.41
Mg 279.078	Mg	29897.36	ug/L	77568.14	29259.61	29953.73	29964.52
Mn 257.610	Mn	1917.75	ug/L	246646.25	1871.9	1917.17	1939.25
Mo 204.598	Mo	1883.95	ug/L	7023.06	1811	1886.8	1908.45
Na 589.592	Na	30824.36	ug/L	248794.25	30286.13	30780.79	31127.18
Ni 231.604	Ni	1735.76	ug/L	3439.97	1696.62	1731.41	1758.77
P 213.618	P	36292.62	ug/L	27776.32	35327.24	36185.53	36763.08
Pb 220.353	Pb	1763.11	ug/L	2756.95	1717.71	1762.07	1782.43
S 181.972	S	4643.48	ug/L	179.79	4502.07	4622.19	4706.52
Sb 206.834	Sb	1919.54	ug/L	1488.05	1867.56	1920.83	1941.77
Se 196.026	Se	1781.59	ug/L	1105.28	1739.05	1790.46	1801.3
Si 251.611	Si	21665.98	ug/L	37352.1	21122.01	21652.35	21758.68
Sn 189.925	Sn	1818.11	ug/L	1933.59	1778.45	1810.6	1840.08
Sr 421.552	Sr	1917.85	ug/L	4453481.98	1877.57	1912.34	1937.49
Ti 334.941	Ti	1904.99	ug/L	477034.96	1839.07	1917.37	1927.15
Tl 190.794	Tl	1805.94	ug/L	1740.81	1772.82	1799.87	1825.58
V 292.401	V	1835.96	ug/L	35577.5	1793.1	1834.89	1855.04
Zn 206.200	Zn	1792.33	ug/L	5654.14	1742.09	1795.34	1800.44

## Agilent 5110 ICP-OES Report

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**Sample: 2425985\_3230****Analysis Time: 5/12/2022 9:41:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.04	Ratio	595637.35	1.04	1.04	1.04
Ag 328.068	Ag	528.24	ug/L	20307.11	517.18	529.03	532.91
Al 396.152	Al	2146.79	ug/L	54607.92	2107.49	2133.08	2159.94
As 188.980	As	2069.99	ug/L	1220.08	2025.28	2068.33	2092.33
B 249.678	B	2181.56	ug/L	18016.01	2136.75	2179.92	2203.78
Ba 233.527	Ba	2171.21	ug/L	87805.09	2125.28	2169.86	2194.08
Be 234.861	Be	522.443	ug/L	77534.18	511.067	522.116	527.934
Ca 315.887	Ca	73128.08	ug/L	391017.22	71498.26	73160.84	74000.36
Cd 214.439	Cd	1028.47	ug/L	21309.08	1007.58	1027.6	1039.64
Co 228.615	Co	2072.08	ug/L	12075.59	2027.44	2070.38	2093.72
Cr 267.716	Cr	2084.44	ug/L	75127.25	2038.46	2081.12	2106.41
Cu 327.395	Cu	2069.39	ug/L	54437.62	2022.57	2060.83	2085.31
Fe 261.187	Fe	2951.97	ug/L	5225.25	2884.66	2944.31	2989.74
K 766.491	K	22595.97	ug/L	28977.15	22232.6	22594.13	22788.08
Li 670.783	Li	2136.65	ug/L	1197729.27	2086.56	2137.39	2161.36
Mg 279.078	Mg	33014.48	ug/L	85651.85	32367.85	32943.51	33207.36
Mn 257.610	Mn	2162.31	ug/L	278096.21	2128.83	2148.77	2177.6
Mo 204.598	Mo	2074.45	ug/L	7734.18	2022.95	2075.9	2090.92
Na 589.592	Na	34177.18	ug/L	275966.48	33550.09	34145.27	34482.8
Ni 231.604	Ni	1972.35	ug/L	3908.25	1927.55	1969.3	1996.17
P 213.618	P	41303.2	ug/L	31612.46	40560.33	41086.79	41788.78
Pb 220.353	Pb	2002.81	ug/L	3131.41	1961.04	2003.51	2021.58
S 181.972	S	5102.65	ug/L	197.47	4999.14	5048.26	5215.85
Sb 206.834	Sb	2116.77	ug/L	1641.16	2061.6	2114.46	2148.25
Se 196.026	Se	2034.98	ug/L	1262.2	1991.91	2036.69	2061.53
Si 251.611	Si	23674.56	ug/L	40813.11	23180.7	23643.49	23855.83
Sn 189.925	Sn	2103.79	ug/L	2237.13	2058.95	2101.45	2126.72
Sr 421.552	Sr	2176.21	ug/L	5053360.31	2134.14	2173.71	2196.97
Ti 334.941	Ti	2089.74	ug/L	521730.05	2034.57	2086.89	2118.69
Tl 190.794	Tl	2005.42	ug/L	1933.79	1927.65	1996.12	2044.65
V 292.401	V	2093.41	ug/L	40574.08	2048.84	2092.09	2113.91
Zn 206.200	Zn	2041.55	ug/L	6440.38	1981.71	2052.23	2067.67

## Agilent 5110 ICP-OES Report

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**Sample: 2439074\_3230****Analysis Time: 5/12/2022 9:43:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	599109.75	0.97	1.07	1.08
Ag 328.068	Ag	109.8	ug/L	3290.63	113.58	108.37	108.28
Al 396.152	Al	575.12	ug/L	14768.24	605.28	560.3	563.53
As 188.980	As	423.42	ug/L	252.39	439.26	414.81	420.53
B 249.678	B	451.58	ug/L	3737.59	473.86	442.3	443.28
Ba 233.527	Ba	467.25	ug/L	18892.84	488.52	457.12	459.06
Be 234.861	Be	108.673	ug/L	16131.424	113.686	106.202	106.756
Ca 315.887	Ca	15724.03	ug/L	84134.08	16482.56	15368.23	15453.73
Cd 214.439	Cd	218.67	ug/L	4532.38	226.77	212.86	216.18
Co 228.615	Co	442.91	ug/L	2587.18	462.23	433.72	432.76
Cr 267.716	Cr	447.19	ug/L	16139.98	468.01	436.88	439.13
Cu 327.395	Cu	437.04	ug/L	10180.33	455.2	428.54	429.63
Fe 261.187	Fe	652.11	ug/L	1134.94	681.89	643.59	638.48
K 766.491	K	4553.78	ug/L	6170.23	4755.93	4446.07	4503.16
Li 670.783	Li	431.92	ug/L	251312.3	453.28	422.7	423.69
Mg 279.078	Mg	6987.85	ug/L	18156.23	7274.37	6743.08	6891.3
Mn 257.610	Mn	469.44	ug/L	60379	489.67	458.23	460.77
Mo 204.598	Mo	441.6	ug/L	1640.77	461.08	431.15	434.13
Na 589.592	Na	7082.49	ug/L	57061.84	7433.23	6931.32	6940.77
Ni 231.604	Ni	422.24	ug/L	840.12	446.29	408.01	413.72
P 213.618	P	8577.63	ug/L	6559.21	8926.06	8309.85	8427.09
Pb 220.353	Pb	435.15	ug/L	682.96	459.72	421.78	425.9
S 181.972	S	1045.44	ug/L	41.26	1117.04	980.65	1020.17
Sb 206.834	Sb	442.58	ug/L	344.97	464.99	433.43	430.59
Se 196.026	Se	421.08	ug/L	262.75	449.73	409.61	406.32
Si 251.611	Si	4989.43	ug/L	8622.31	5225.76	4887.77	4894.93
Sn 189.925	Sn	448.33	ug/L	478.84	470.95	435.98	440.01
Sr 421.552	Sr	468.99	ug/L	1089084.25	490.49	459.11	460.55
Ti 334.941	Ti	441.87	ug/L	123069.82	463.85	432.42	432.43
Tl 190.794	Tl	428.27	ug/L	411.06	435.89	413.68	425.45
V 292.401	V	441.73	ug/L	8559.84	461.75	432.3	434.43
Zn 206.200	Zn	450.02	ug/L	1418.51	470.11	439.83	442.46

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2425986\_3230****Analysis Time: 5/12/2022 9:45:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	600552.53	1.05	1.05	1.05
Ag 328.068	Ag	534.94	ug/L	20579.89	523.35	533.66	540.38
Al 396.152	Al	2179.58	ug/L	55424.97	2130.34	2163.33	2199.25
As 188.980	As	2092.6	ug/L	1233.26	2032.34	2076.92	2114.07
B 249.678	B	2199.75	ug/L	18166.26	2147.3	2194.14	2224.54
Ba 233.527	Ba	2208.24	ug/L	89302.62	2158.79	2198.74	2234.09
Be 234.861	Be	528.992	ug/L	78505.859	517.055	526.658	534.905
Ca 315.887	Ca	73663.98	ug/L	393882.31	71971.75	73417.61	74427.43
Cd 214.439	Cd	1040.2	ug/L	21552.03	1016.71	1037.73	1051.97
Co 228.615	Co	2098.43	ug/L	12229.46	2052.14	2092.05	2122.84
Cr 267.716	Cr	2104.3	ug/L	75842.42	2054.83	2096.36	2127.66
Cu 327.395	Cu	2109.11	ug/L	55514.23	2067.58	2100.93	2127.75
Fe 261.187	Fe	3010.65	ug/L	5329.64	2931.49	2998.84	3051.86
K 766.491	K	22820.8	ug/L	29261.26	22368.07	22719.02	23051.54
Li 670.783	Li	2155.04	ug/L	1207932.18	2110.51	2145.33	2184.22
Mg 279.078	Mg	33460.09	ug/L	86807.45	32833.64	33316.88	33816.59
Mn 257.610	Mn	2210.77	ug/L	284328.06	2164.69	2193.38	2241.93
Mo 204.598	Mo	2084.74	ug/L	7772.67	2004.06	2090.35	2129.27
Na 589.592	Na	34491.57	ug/L	278539.39	33790.1	34393.04	34835.51
Ni 231.604	Ni	2015.8	ug/L	3994.24	1969.44	2002.43	2040.21
P 213.618	P	42134.81	ug/L	32249.43	41240.88	42093.19	42527.95
Pb 220.353	Pb	2036.23	ug/L	3183.63	1989.12	2024.75	2058.89
S 181.972	S	5171.36	ug/L	200.12	5107.75	5197.36	5229.57
Sb 206.834	Sb	2130.46	ug/L	1652.06	2070.79	2123.78	2160
Se 196.026	Se	2066.96	ug/L	1282	2019.67	2061.87	2092.49
Si 251.611	Si	23972.58	ug/L	41326.32	23484.35	23802.82	24187.95
Sn 189.925	Sn	2130.5	ug/L	2265.52	2080.31	2114.88	2161.24
Sr 421.552	Sr	2199.2	ug/L	5106726.27	2149.87	2192.99	2221.52
Ti 334.941	Ti	2096.32	ug/L	523320.83	2030.22	2090.2	2128.72
Tl 190.794	Tl	2032.81	ug/L	1960.3	1950.54	2016.93	2071.15
V 292.401	V	2117.41	ug/L	41038.87	2069.53	2109.83	2142.45
Zn 206.200	Zn	2059.43	ug/L	6496.77	1987.41	2053.79	2091.65



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483843001 3230****Analysis Time: 5/12/2022 9:47:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	622250.03	1.08	1.09	1.09
Ag 328.068	Ag	-0.39	ug/L	-1188.68	-0.42	-0.69	-0.47
Al 396.152	Al	539.15	ug/L	13625.47	529.9	537.67	545.85
As 188.980	As	4.11	ug/L	6.09	6.07	3.16	6.07
B 249.678	B	92.48	ug/L	773.31	92.75	92.2	93.26
Ba 233.527	Ba	454.49	ug/L	18380.31	447.37	454.26	459.87
Be 234.861	Be	-0.009	ug/L	-4.073	0.07	-0.009	-0.047
Ca 315.887	Ca	21595.11	ug/L	115510.5	21165.94	21575.49	21956.27
Cd 214.439	Cd	0.13	ug/L	5.72	0.15	0.09	0.18
Co 228.615	Co	1.83	ug/L	4.9	2	2.08	1.75
Cr 267.716	Cr	1.71	ug/L	89.68	1.63	1.72	1.68
Cu 327.395	Cu	5.87	ug/L	-1509.53	5.46	5.67	6.03
Fe 261.187	Fe	1650.46	ug/L	2917.68	1617.52	1647.02	1672.7
K 766.491	K	20089.66	ug/L	25751.1	19869.28	20075.82	20295.94
Li 670.783	Li	69.16	ug/L	49937.56	68.25	69.23	69.93
Mg 279.078	Mg	1403.05	ug/L	3673.26	1369.53	1396.35	1422.89
Mn 257.610	Mn	48.22	ug/L	6206.64	47.52	48.17	48.86
Mo 204.598	Mo	5.75	ug/L	14.41	5.66	4.75	6.65
Na 589.592	Na	19249.27	ug/L	153866.34	18998.1	19251.58	19457.04
Ni 231.604	Ni	1.3	ug/L	7.03	0.92	1.64	1.46
P 213.618	P	106.4	ug/L	74.49	101.88	103.02	112.4
Pb 220.353	Pb	0.55	ug/L	4.23	1.62	0.74	1.11
S 181.972	S	508.91	ug/L	20.62	513.55	523.6	551.8
Sb 206.834	Sb	1.46	ug/L	3.37	0.36	1.78	1.66
Se 196.026	Se	4.04	ug/L	4.37	2.81	2.27	8.01
Si 251.611	Si	3329.67	ug/L	5755.27	3245.94	3312.7	3403.1
Sn 189.925	Sn	-1.43	ug/L	1.12	-2.46	-2.89	1.05
Sr 421.552	Sr	581.07	ug/L	1349394.85	572.09	580.93	588.02
Ti 334.941	Ti	1.45	ug/L	16513.91	1.61	1.37	1.59
Tl 190.794	Tl	0.73	ug/L	-1.73	1.53	0.91	1.73
V 292.401	V	10.13	ug/L	193.68	10.13	9.7	10.4
Zn 206.200	Zn	7.55	ug/L	23.09	7.07	7.34	8.03

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483843002\_3230****Analysis Time: 5/12/2022 9:49:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602876.16	1.06	1.06	1.05
Ag 328.068	Ag	-0.72	ug/L	-1202.02	-0.32	-0.68	-0.73
Al 396.152	Al	55.39	ug/L	2088.06	54.31	55.86	55.75
As 188.980	As	4.97	ug/L	6.67	1.96	9.13	5.56
B 249.678	B	55.25	ug/L	466.36	54.04	54.39	56.12
Ba 233.527	Ba	520.51	ug/L	21056.35	511.71	520.87	525.1
Be 234.861	Be	0.007	ug/L	-0.426	-0.025	0.039	0.012
Ca 315.887	Ca	78291.14	ug/L	418578.04	76247.87	77989.79	79408.8
Cd 214.439	Cd	0	ug/L	2.7	-0.07	-0.02	-0.01
Co 228.615	Co	2.08	ug/L	8.74	1.79	2.5	1.12
Cr 267.716	Cr	0.41	ug/L	42	0.54	0.48	0.42
Cu 327.395	Cu	4.96	ug/L	-1535.8	4.54	5.36	5.14
Fe 261.187	Fe	1077.38	ug/L	1896.65	1058.45	1076.91	1085.78
K 766.491	K	48466.72	ug/L	61550.44	47795.6	48494.02	48744.79
Li 670.783	Li	60.35	ug/L	44986.65	59.13	60.37	61.12
Mg 279.078	Mg	29880.82	ug/L	77525.41	29030.93	29674.98	30233.54
Mn 257.610	Mn	138.68	ug/L	17835.71	137.13	137.83	140.42
Mo 204.598	Mo	1.4	ug/L	-1.76	0.58	1.12	1.33
Na 589.592	Na	13309.55	ug/L	106728.3	13097.34	13348.52	13388.28
Ni 231.604	Ni	1.07	ug/L	6.83	1.46	2.93	0.34
P 213.618	P	54.56	ug/L	35.39	52.55	57.02	55.23
Pb 220.353	Pb	-2.39	ug/L	-0.04	-1.96	-2.09	-3.13
S 181.972	S	1794.03	ug/L	70.15	1770.63	1747.02	1823.61
Sb 206.834	Sb	0.64	ug/L	2.58	1.94	-4.35	2.33
Se 196.026	Se	2.32	ug/L	3.37	2.29	0.33	3.83
Si 251.611	Si	6826.79	ug/L	11773.18	6667.63	6767.63	6929.19
Sn 189.925	Sn	-1.53	ug/L	0.95	-2.5	0.17	-0.78
Sr 421.552	Sr	542.27	ug/L	1260930.81	533.29	542.6	546.94
Ti 334.941	Ti	0.7	ug/L	16317.19	0.56	0.71	0.69
Tl 190.794	Tl	-0.13	ug/L	-2.15	-0.48	1.04	-2.18
V 292.401	V	1.44	ug/L	25.72	0.94	1.81	1.39
Zn 206.200	Zn	10.2	ug/L	33.88	9.34	10.21	10.73

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2440286\_3246****Analysis Time: 5/12/2022 9:51:32 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602134.49	1.04	1.05	1.06
Ag 328.068	Ag	558.36	ug/L	21545.16	551.86	561.08	554.87
Al 396.152	Al	2421.98	ug/L	61482.65	2378.02	2434.51	2405.18
As 188.980	As	2312.51	ug/L	1362.68	2280.82	2313.88	2306.98
B 249.678	B	2369.03	ug/L	19556.32	2340.88	2383.53	2353.94
Ba 233.527	Ba	2427.78	ug/L	98179.98	2397.1	2435.78	2415.55
Be 234.861	Be	580.136	ug/L	86095.008	572.366	581.937	576.96
Ca 315.887	Ca	65123.97	ug/L	348241.51	64229.18	65474.35	64865.03
Cd 214.439	Cd	1152.09	ug/L	23869.16	1135.97	1158.33	1144.85
Co 228.615	Co	2544.56	ug/L	14827.67	2511.6	2555.11	2528.64
Cr 267.716	Cr	2323.15	ug/L	83439.21	2289.75	2330.51	2312.74
Cu 327.395	Cu	2319.95	ug/L	61248.45	2273.64	2327.48	2322.65
Fe 261.187	Fe	2970.55	ug/L	5258.61	2933.11	2987.7	2948.93
K 766.491	K	24827.52	ug/L	31813.19	24602.04	24939.71	24571.07
Li 670.783	Li	2294.39	ug/L	1284838.09	2258.06	2306.42	2290.58
Mg 279.078	Mg	35233.36	ug/L	91409.02	34630.93	35388.45	35125.2
Mn 257.610	Mn	17841.77	ug/L	2293916.53	17574.24	17891.84	17799.68
Mo 204.598	Mo	2302.55	ug/L	8586.33	2238.75	2282.07	2331.01
Na 589.592	Na	26637.84	ug/L	216456.89	26370.59	26762.03	26337.56
Ni 231.604	Ni	2277.84	ug/L	4512.67	2246.9	2288.77	2264.52
P 213.618	P	46456.94	ug/L	35558.9	46064.26	46791.25	46297.35
Pb 220.353	Pb	2256.9	ug/L	3531.1	2228.84	2273.68	2244.23
S 181.972	S	16268.36	ug/L	627.86	16128.51	16327.51	16116.27
Sb 206.834	Sb	2341.13	ug/L	1815.28	2286.65	2344.76	2349.23
Se 196.026	Se	2262.82	ug/L	1408.38	2240.92	2284.53	2233.01
Si 251.611	Si	14280.9	ug/L	24672.54	14002.7	14333.77	14241.48
Sn 189.925	Sn	2331.8	ug/L	2479.33	2297.48	2339.6	2317.65
Sr 421.552	Sr	2388.95	ug/L	5546910.52	2359.14	2395.67	2375.95
Ti 334.941	Ti	2321.47	ug/L	577778	2261.71	2346.55	2314.36
Tl 190.794	Tl	2259.08	ug/L	2204.03	2217.53	2265.19	2248.6
V 292.401	V	2345.7	ug/L	45456.62	2314.17	2354.29	2328.59
Zn 206.200	Zn	2314.53	ug/L	7301.32	2265.73	2303.79	2332.92

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 9:53:32 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.06	Ratio	606565.32	0.99	1.09	1.09
Ag 328.068	Ag	1027.14	ug/L	41043.07	1088.85	1002.68	1004.01
Al 396.152	Al	10002.62	ug/L	246200.79	10596.45	9761.35	9775.55
As 188.980	As	2072.4	ug/L	1221.34	2201.35	2024.54	2020.45
B 249.678	B	2121.39	ug/L	17516.51	2245.41	2069.88	2073.68
Ba 233.527	Ba	2096.97	ug/L	84799.29	2224.77	2046.51	2048.1
Be 234.861	Be	2051.672	ug/L	304502.184	2171.909	2002.78	2005.747
Ca 315.887	Ca	10536.21	ug/L	56420.77	11218.6	10262.77	10259.08
Cd 214.439	Cd	2091.97	ug/L	43348.45	2199.84	2044	2059.79
Co 228.615	Co	2115.63	ug/L	12323.99	2244.37	2066.72	2065.41
Cr 267.716	Cr	2070.79	ug/L	74639.52	2194.14	2019.81	2024.03
Cu 327.395	Cu	2015.36	ug/L	52975.37	2134.88	1968.88	1968.86
Fe 261.187	Fe	10221.58	ug/L	18186.4	10837.87	9972.84	9984.77
K 766.491	K	10124.86	ug/L	13236.04	10792.15	9887.9	9844.12
Li 670.783	Li	1940.82	ug/L	1088836.56	2065.14	1893.71	1893.42
Mg 279.078	Mg	10220.26	ug/L	26538.45	10858.4	9960.93	9976.39
Mn 257.610	Mn	2071.4	ug/L	266429.39	2207.5	2018.88	2019.98
Mo 204.598	Mo	1994.25	ug/L	7436.21	2102.91	1952.74	1954.88
Na 589.592	Na	10367.71	ug/L	86327.6	11052.29	10097.15	10085.85
Ni 231.604	Ni	2035.99	ug/L	4034.11	2162.71	1984.88	1989.82
P 213.618	P	2064.64	ug/L	1513.39	2219.91	2020.65	2005.64
Pb 220.353	Pb	2071.78	ug/L	3237.8	2199.3	2026.73	2020.71
S 181.972	S	10133.88	ug/L	390.99	10675.94	10016.21	9881.44
Sb 206.834	Sb	2067.99	ug/L	1604.45	2166.37	2036.97	2039.93
Se 196.026	Se	2085.66	ug/L	1292.9	2216.16	2037.84	2035.48
Si 251.611	Si	10861.89	ug/L	18768.84	11497.42	10597.24	10615.89
Sn 189.925	Sn	2041.82	ug/L	2172.24	2170	1991.37	1987.86
Sr 421.552	Sr	2089.43	ug/L	4849957.33	2219.68	2034.18	2042.38
Ti 334.941	Ti	2026.6	ug/L	506469.2	2128.53	1984.18	1991.05
Tl 190.794	Tl	2144.77	ug/L	2068.54	2272.4	2096.55	2094.23
V 292.401	V	2059.59	ug/L	39910.6	2181.7	2010.24	2011.27
Zn 206.200	Zn	2092.94	ug/L	6599.61	2204.62	2054.91	2048.9

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 9:55:35 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	609756	1.04	1.08	1.07
Ag 328.068	Ag	0.11	ug/L	-1169.89	0.3	0.2	0.22
Al 396.152	Al	2	ug/L	387.67	3.94	1.81	0.95
As 188.980	As	2.48	ug/L	5.12	2.09	-0.77	3.83
B 249.678	B	3.47	ug/L	38.97	5.14	3.53	2.67
Ba 233.527	Ba	0.73	ug/L	25.93	1.29	0.74	0.56
Be 234.861	Be	0.352	ug/L	56.573	0.792	0.297	0.151
Ca 315.887	Ca	8.81	ug/L	120.02	13.72	10.19	4.19
Cd 214.439	Cd	0.44	ug/L	11.48	1.05	0.25	0.38
Co 228.615	Co	0.37	ug/L	10.06	1.32	-0.52	1.1
Cr 267.716	Cr	0.48	ug/L	45.93	0.86	0.64	0.05
Cu 327.395	Cu	1.04	ug/L	-1640.73	0.75	1.91	1.07
Fe 261.187	Fe	3.81	ug/L	-18.17	4.79	4	2.7
K 766.491	K	-4.15	ug/L	407.58	5.33	2.76	-23.13
Li 670.783	Li	-1.04	ug/L	10970.52	-0.13	-1.48	-1.35
Mg 279.078	Mg	8.68	ug/L	56.94	15.69	7.08	3.75
Mn 257.610	Mn	1.23	ug/L	162.22	2.41	1.11	0.66
Mo 204.598	Mo	3.11	ug/L	4.39	2.26	3.8	3.18
Na 589.592	Na	21.98	ug/L	-24.8	31.44	17.11	16.97
Ni 231.604	Ni	0.3	ug/L	4.98	1.51	0.61	0.5
P 213.618	P	1.59	ug/L	-5.94	1.91	3.12	-2.06
Pb 220.353	Pb	-1.65	ug/L	0.72	1.83	-3.34	-1.51
S 181.972	S	3.72	ug/L	1.15	77.83	-8.49	-48.23
Sb 206.834	Sb	0.07	ug/L	2.28	-3.56	4.62	2.36
Se 196.026	Se	4.62	ug/L	4.83	-1.48	9.03	8.77
Si 251.611	Si	10.13	ug/L	43.87	15.57	11.98	4.92
Sn 189.925	Sn	-1.51	ug/L	1.04	-3.22	0.44	-1.72
Sr 421.552	Sr	0.63	ug/L	1525.66	1.21	0.5	0.37
Ti 334.941	Ti	0.96	ug/L	16404.18	2.45	0.13	0.44
Tl 190.794	Tl	1.88	ug/L	-0.69	1.65	0.89	1.13
V 292.401	V	0.63	ug/L	10.82	1.55	0.59	0.3
Zn 206.200	Zn	0.77	ug/L	1.02	0.81	0.74	0.63

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2440287\_3246****Analysis Time: 5/12/2022 9:57:35 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	590607.63	0.93	1.06	1.07
Ag 328.068	Ag	107.41	ug/L	3197	115.07	104.51	104.25
Al 396.152	Al	546.77	ug/L	14061.47	591.67	528.77	529.32
As 188.980	As	424.82	ug/L	253.33	458.3	412.04	408.73
B 249.678	B	434.52	ug/L	3595.11	470.12	421.92	420.85
Ba 233.527	Ba	461.11	ug/L	18644.59	498.03	447.55	445.71
Be 234.861	Be	106.711	ug/L	15839.901	115.15	103.69	103.089
Ca 315.887	Ca	13001.88	ug/L	69583.74	14038.26	12574.14	12642.35
Cd 214.439	Cd	215.77	ug/L	4472.28	233.13	209.93	209.89
Co 228.615	Co	481.52	ug/L	2811.97	519.14	464.1	466.11
Cr 267.716	Cr	438.97	ug/L	15779.34	473.97	425.92	424.48
Cu 327.395	Cu	423.1	ug/L	9806.45	453.55	411.88	410.17
Fe 261.187	Fe	577.03	ug/L	1001.59	626.01	560.97	554.26
K 766.491	K	4431.47	ug/L	6019.16	4813.57	4290.72	4267.34
Li 670.783	Li	412.67	ug/L	240530.99	446.83	400.43	398.76
Mg 279.078	Mg	6918.53	ug/L	17977.1	7455.1	6699.47	6739.7
Mn 257.610	Mn	4021.3	ug/L	517018.6	4347.52	3918.22	3873.16
Mo 204.598	Mo	429.78	ug/L	1596.86	463.99	416.86	415.51
Na 589.592	Na	4950.2	ug/L	40080.3	5362.11	4802.86	4780.62
Ni 231.604	Ni	421.91	ug/L	839.43	456.32	412.29	408.27
P 213.618	P	8443.38	ug/L	6456.78	9161.47	8157.42	8194.64
Pb 220.353	Pb	429.62	ug/L	674.97	466.31	419.35	414.5
S 181.972	S	3382.8	ug/L	131.36	3665.4	3266.27	3231.16
Sb 206.834	Sb	427.89	ug/L	333.55	455.63	423.36	410.71
Se 196.026	Se	418.58	ug/L	262.33	451.2	405.65	400.34
Si 251.611	Si	2645.52	ug/L	4592.69	2852.38	2571.17	2561.87
Sn 189.925	Sn	440.26	ug/L	470.28	478.26	426.3	427.57
Sr 421.552	Sr	456.37	ug/L	1059715.2	492.36	443.33	441.21
Ti 334.941	Ti	433.53	ug/L	121049.02	471.35	417.28	420.19
Tl 190.794	Tl	417.05	ug/L	405.86	437.61	403.99	404.97
V 292.401	V	434.55	ug/L	8419.64	468.06	421.62	420.67
Zn 206.200	Zn	459.52	ug/L	1448.47	495.63	447.58	443.04

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2440290\_3243****Analysis Time: 5/12/2022 9:59:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	583514.42	1.02	1.02	1.02
Ag 328.068	Ag	573.24	ug/L	22125.11	559.16	572.17	580.1
Al 396.152	Al	2609.74	ug/L	66252.12	2542.17	2600.88	2635
As 188.980	As	2290.42	ug/L	1349.93	2223.76	2285.39	2327.5
B 249.678	B	2454.71	ug/L	20269.78	2397.37	2450.38	2485.53
Ba 233.527	Ba	2265.26	ug/L	91600.02	2206.54	2261.32	2295.38
Be 234.861	Be	568.58	ug/L	84384.116	553.229	567.405	576.238
Ca 315.887	Ca	49947.6	ug/L	267111.39	48669.68	49778.01	50593.84
Cd 214.439	Cd	1119.77	ug/L	23199.83	1092.53	1115.34	1134.97
Co 228.615	Co	2278.89	ug/L	13267.2	2221.29	2269.41	2310.26
Cr 267.716	Cr	2242.94	ug/L	80839.65	2185.21	2235.14	2273.77
Cu 327.395	Cu	2326.64	ug/L	61411.72	2274.32	2317.88	2358.67
Fe 261.187	Fe	2499.55	ug/L	4416.27	2434.86	2495.92	2527.32
K 766.491	K	26002.03	ug/L	33274.62	25388.67	25948.5	26283.05
Li 670.783	Li	2561.13	ug/L	1433528.47	2497.74	2556.16	2591.85
Mg 279.078	Mg	22734.61	ug/L	58992.88	22246.93	22720.28	22926.91
Mn 257.610	Mn	2216.62	ug/L	285109.24	2167.6	2210.91	2241.08
Mo 204.598	Mo	2793.22	ug/L	10414.12	2737.44	2755.26	2836.29
Na 589.592	Na	332722.47	ug/L	2652139.41	326163.87	332006.63	336846.39
Ni 231.604	Ni	2161.74	ug/L	4282.98	2112.63	2154.66	2183.28
P 213.618	P	45952.08	ug/L	35166.7	44593.23	46090.08	46287.54
Pb 220.353	Pb	2174.9	ug/L	3399.57	2125.34	2168.13	2195.51
S 181.972	S	3930.86	ug/L	152.35	3874.73	3872.92	3984.65
Sb 206.834	Sb	2319.48	ug/L	1793.58	2257.67	2318.59	2347.24
Se 196.026	Se	2256.91	ug/L	1399.61	2199	2252.95	2282.6
Si 251.611	Si	14969.54	ug/L	25851.25	14501.96	14921.03	15203.84
Sn 189.925	Sn	2229.63	ug/L	2370.84	2173.82	2217.98	2257.14
Sr 421.552	Sr	2344.19	ug/L	5442585.35	2292.66	2344.58	2370
Ti 334.941	Ti	2277.62	ug/L	567178.68	2230.48	2237.64	2320.95
Tl 190.794	Tl	2189.38	ug/L	2109.22	2138.33	2178.33	2221.64
V 292.401	V	2271.93	ug/L	43971.57	2215.72	2264.51	2300.79
Zn 206.200	Zn	2260.99	ug/L	7131.89	2215.76	2230.02	2293.79

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2440291\_3243****Analysis Time: 5/12/2022 10:01:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	588894.87	0.95	1.06	1.06
Ag 328.068	Ag	105.52	ug/L	3113.98	110.91	102.87	103.76
Al 396.152	Al	773.42	ug/L	19636.99	820.53	750.01	758.46
As 188.980	As	418.98	ug/L	249.85	442.84	411.31	403.95
B 249.678	B	448.06	ug/L	3708.39	474.17	436.41	435.77
Ba 233.527	Ba	435.69	ug/L	17614.84	461.86	422.53	425.44
Be 234.861	Be	105.55	ug/L	15668.587	111.838	102.454	103.065
Ca 315.887	Ca	9565.16	ug/L	51212.31	10123.66	9311.87	9304.63
Cd 214.439	Cd	213.96	ug/L	4434.81	226.07	206.92	209.55
Co 228.615	Co	434.59	ug/L	2535.7	458.12	422.27	425.5
Cr 267.716	Cr	429.2	ug/L	15492.26	454.74	416.05	419.18
Cu 327.395	Cu	431.47	ug/L	10029.6	454.11	419.91	422.67
Fe 261.187	Fe	558.82	ug/L	968.44	590.06	544.57	546.82
K 766.491	K	4543.25	ug/L	6156.04	4806.93	4463.55	4441.29
Li 670.783	Li	451.55	ug/L	262217.82	479.62	438.09	440.65
Mg 279.078	Mg	4304.38	ug/L	11197.14	4537.02	4150.48	4208.62
Mn 257.610	Mn	422.63	ug/L	54365.1	447.37	409.45	411.56
Mo 204.598	Mo	547.5	ug/L	2035.46	578.87	531.83	534.45
Na 589.592	Na	74423.22	ug/L	592937.03	79069.25	72315.16	72640.6
Ni 231.604	Ni	416.33	ug/L	828.4	441.38	405.51	404.46
P 213.618	P	8367.19	ug/L	6397	8786.2	8046.27	8208.2
Pb 220.353	Pb	418.92	ug/L	657.46	438.96	404.33	413.27
S 181.972	S	738.24	ug/L	29.43	761.31	718.2	718.82
Sb 206.834	Sb	428.79	ug/L	333.3	453.2	420.61	419.44
Se 196.026	Se	412.15	ug/L	257.21	443.6	393.2	403.58
Si 251.611	Si	2978.52	ug/L	5164.47	3167.83	2892.36	2902.14
Sn 189.925	Sn	428.02	ug/L	457.3	457.77	411.88	415.35
Sr 421.552	Sr	457.57	ug/L	1062404.08	484.85	443.57	447.25
Ti 334.941	Ti	424.26	ug/L	118809.22	450.76	411.35	413.01
Tl 190.794	Tl	407.63	ug/L	390.67	421.61	391.73	405.89
V 292.401	V	428.07	ug/L	8280.99	453.38	414.67	418.42
Zn 206.200	Zn	444.72	ug/L	1401.65	470.01	433.01	433.22



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2435118\_3258****Analysis Time: 5/12/2022 10:03:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	625272.72	1.07	1.09	1.11
Ag 328.068	Ag	-0.38	ug/L	-1189.82	-0.91	-0.97	0.15
Al 396.152	Al	1.68	ug/L	378.26	1.45	2.94	1.33
As 188.980	As	3.02	ug/L	5.44	3.09	3.7	7.8
B 249.678	B	1.59	ug/L	23.5	2.48	1.75	1.14
Ba 233.527	Ba	0.42	ug/L	13.26	0.46	0.53	0.36
Be 234.861	Be	-0.001	ug/L	4.236	0.024	0.037	-0.011
Ca 315.887	Ca	9.22	ug/L	122.23	11.7	8.73	8.92
Cd 214.439	Cd	0.01	ug/L	2.55	0.06	0	-0.02
Co 228.615	Co	-0.21	ug/L	6.76	-0.3	0.33	-0.13
Cr 267.716	Cr	0.48	ug/L	46.02	0.3	0.48	0.57
Cu 327.395	Cu	1.13	ug/L	-1638.47	-0.63	1.35	1.93
Fe 261.187	Fe	2.03	ug/L	-21.32	1.14	1.49	0.53
K 766.491	K	6.87	ug/L	421.45	-16.63	20.02	-5.13
Li 670.783	Li	-2.46	ug/L	10180.77	-2.04	-2.44	-2.73
Mg 279.078	Mg	4.1	ug/L	45.07	6.6	1.05	5.9
Mn 257.610	Mn	0.31	ug/L	44.03	0.28	0.36	0.31
Mo 204.598	Mo	0.97	ug/L	-3.6	0.69	1.31	0.22
Na 589.592	Na	88.9	ug/L	507.18	92.85	98.55	81.72
Ni 231.604	Ni	0.01	ug/L	4.4	-1.44	-1.18	1.45
P 213.618	P	15.2	ug/L	4.52	12.31	19.81	16.76
Pb 220.353	Pb	-1.21	ug/L	1.42	-2.8	0.86	-0.02
S 181.972	S	-8.26	ug/L	0.69	19.33	-32.59	10.44
Sb 206.834	Sb	-0.58	ug/L	1.79	-5.12	-2.04	5.14
Se 196.026	Se	5.34	ug/L	5.28	2.35	5.47	6.51
Si 251.611	Si	27.68	ug/L	74.02	28.64	27.55	28.14
Sn 189.925	Sn	-1.41	ug/L	1.15	-3.82	-1.29	0.17
Sr 421.552	Sr	0.3	ug/L	766.58	0.29	0.37	0.3
Ti 334.941	Ti	0.78	ug/L	16360.22	2.51	0.93	-0.32
Tl 190.794	Tl	1.08	ug/L	-1.45	0.88	3.82	-0.42
V 292.401	V	0.41	ug/L	6.91	-0.41	0.76	0.26
Zn 206.200	Zn	0.25	ug/L	-0.63	0.45	0.04	0.38

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2435119\_3258****Analysis Time: 5/12/2022 10:05:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.05	Ratio	602949.55	1.07	1.02	1.06
Ag 328.068	Ag	526.05	ug/L	20217.82	512.03	543.61	522.38
Al 396.152	Al	2111.02	ug/L	53586.54	2045.1	2172.48	2099.33
As 188.980	As	2063.6	ug/L	1216.13	2008.55	2130.13	2052.55
B 249.678	B	2134.01	ug/L	17623.99	2073.81	2203.5	2123.53
Ba 233.527	Ba	2063.39	ug/L	83441.57	2004.77	2131.79	2053.17
Be 234.861	Be	524.655	ug/L	77866.829	509.836	541.585	522.2
Ca 315.887	Ca	42414.15	ug/L	226837.21	41272.48	43755.63	42194.46
Cd 214.439	Cd	1045.14	ug/L	21653.97	1015.6	1079.27	1040.45
Co 228.615	Co	2132.26	ug/L	12427.73	2072.09	2202.68	2123.66
Cr 267.716	Cr	2097.94	ug/L	75615.44	2036.93	2165.51	2088.17
Cu 327.395	Cu	2085.28	ug/L	54869.22	2027.67	2156.4	2070.4
Fe 261.187	Fe	2119.74	ug/L	3740.93	2066.07	2180.13	2105.01
K 766.491	K	21329.51	ug/L	27373.5	20797.7	22123.03	21160.98
Li 670.783	Li	2065.26	ug/L	1158049.7	2007.62	2134.93	2055.04
Mg 279.078	Mg	21078.56	ug/L	54697.99	20458.23	21727.95	20889.55
Mn 257.610	Mn	2075.29	ug/L	266907.25	2025.03	2146.03	2056.59
Mo 204.598	Mo	2061.07	ug/L	7684.41	1997.58	2091.67	2074.41
Na 589.592	Na	21553.78	ug/L	175292.28	21004.47	22337.19	21400.35
Ni 231.604	Ni	2039.38	ug/L	4040.76	1984.49	2104.79	2034.34
P 213.618	P	41646.78	ug/L	31875.47	40644.92	42806.04	41297.11
Pb 220.353	Pb	2039.87	ug/L	3189.17	1988.94	2106.08	2028.94
S 181.972	S	2104.65	ug/L	82.06	1982.82	2131.37	2110.53
Sb 206.834	Sb	2096.16	ug/L	1625.68	2022.68	2169.96	2087.7
Se 196.026	Se	2054.2	ug/L	1274.13	2001.07	2114.65	2046.31
Si 251.611	Si	11156.13	ug/L	19275.69	10789.08	11521.67	11124.54
Sn 189.925	Sn	2119.16	ug/L	2253.52	2057.26	2189.15	2110.41
Sr 421.552	Sr	2094.1	ug/L	4861948.14	2038.16	2164.74	2085.85
Ti 334.941	Ti	2086.26	ug/L	520895.86	2008.44	2158.78	2086.43
Tl 190.794	Tl	2040.57	ug/L	1967.9	1954.82	2094.76	2042.72
V 292.401	V	2098.95	ug/L	40683.22	2040.88	2165.61	2087.97
Zn 206.200	Zn	2084.35	ug/L	6574.16	2017.93	2128.72	2092.55

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30477049001 3258 x100****Analysis Time: 5/12/2022 10:07:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	617809.54	1.05	1.09	1.09
Ag 328.068	Ag	-0.27	ug/L	-1184.32	-0.37	-0.36	-0.41
Al 396.152	Al	196.65	ug/L	5183.98	197.61	194.66	197.33
As 188.980	As	3.53	ug/L	5.76	0.02	4.21	3.01
B 249.678	B	4.88	ug/L	49.6	6.64	4.98	5.28
Ba 233.527	Ba	18.51	ug/L	745.93	18.73	18.6	18.46
Be 234.861	Be	0.032	ug/L	-3.164	0.126	-0.043	0.072
Ca 315.887	Ca	11368.22	ug/L	60842.15	11496.21	11273.01	11390.25
Cd 214.439	Cd	0.15	ug/L	6.55	0.18	0.08	0.2
Co 228.615	Co	0.81	ug/L	13.36	0.61	1.09	0.84
Cr 267.716	Cr	0.29	ug/L	18.4	0.28	0.46	0.47
Cu 327.395	Cu	2.23	ug/L	-1607.44	2.03	2.6	2.53
Fe 261.187	Fe	2590.74	ug/L	4594.54	2597.12	2579.41	2589.59
K 766.491	K	171.94	ug/L	632.04	215.24	163.97	154.82
Li 670.783	Li	-1.77	ug/L	10527.73	-1.11	-1.85	-1.98
Mg 279.078	Mg	1805.36	ug/L	4716.7	1806.42	1792.75	1814.78
Mn 257.610	Mn	1173.51	ug/L	150878.68	1179.31	1168.94	1173.42
Mo 204.598	Mo	2.5	ug/L	2.21	2.48	2.81	2.51
Na 589.592	Na	9777.03	ug/L	77646.9	9860.52	9755.89	9760.44
Ni 231.604	Ni	0.94	ug/L	6.37	1.88	0.73	-0.2
P 213.618	P	10.59	ug/L	1.04	18.84	9.52	8.68
Pb 220.353	Pb	0.34	ug/L	4.07	-0.87	1.36	1.48
S 181.972	S	236.25	ug/L	10.16	223.26	267.47	222.37
Sb 206.834	Sb	1.13	ug/L	3.16	1.83	2.74	2.59
Se 196.026	Se	2.79	ug/L	3.85	-0.41	7.01	4.14
Si 251.611	Si	297.31	ug/L	539.09	305.64	293.43	295.91
Sn 189.925	Sn	-1.14	ug/L	1.44	-0.99	-2.43	0.99
Sr 421.552	Sr	42.27	ug/L	98489.73	42.72	42.1	42.16
Ti 334.941	Ti	1.21	ug/L	16459.94	1.52	1.28	0.96
Tl 190.794	Tl	-0.63	ug/L	-1.41	-3.11	2.15	-2.16
V 292.401	V	1.03	ug/L	14.56	0.44	1.35	1.02
Zn 206.200	Zn	23.54	ug/L	73.16	23.78	23.04	24.02

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

Sample: 30477049001\_3258 x1000

Analysis Time: 5/12/2022 10:09:34 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	615089.42	0.99	1.09	1.1
Ag 328.068	Ag	-0.46	ug/L	-1192.84	-1.87	-0.38	0.26
Al 396.152	Al	24.12	ug/L	930.74	26.07	24.21	23.21
As 188.980	As	1.47	ug/L	4.53	4.19	-0.27	-0.61
B 249.678	B	1.29	ug/L	20.88	1.04	1	1.12
Ba 233.527	Ba	1.94	ug/L	74.83	2.25	1.72	1.89
Be 234.861	Be	-0.042	ug/L	-3.123	-0.068	-0.046	-0.033
Ca 315.887	Ca	1156.81	ug/L	6256.68	1232.46	1139.25	1130.13
Cd 214.439	Cd	0.01	ug/L	2.62	-0.08	0.16	0
Co 228.615	Co	0.01	ug/L	8.08	-0.42	-0.32	-0.07
Cr 267.716	Cr	-0.07	ug/L	23.75	0.04	-0.2	-0.03
Cu 327.395	Cu	0.36	ug/L	-1659.22	-2.89	0.98	1.58
Fe 261.187	Fe	273.87	ug/L	463.39	288.31	272.11	267.52
K 766.491	K	14.54	ug/L	431.39	19.4	16.82	10.62
Li 670.783	Li	-2.32	ug/L	10254.37	-0.8	-2.57	-2.93
Mg 279.078	Mg	191.39	ug/L	530.79	204.53	191.61	184.37
Mn 257.610	Mn	123.25	ug/L	15850.57	131.22	121.52	120.26
Mo 204.598	Mo	1.01	ug/L	-3.43	0.91	0.9	0.73
Na 589.592	Na	1040.78	ug/L	8085.8	1107.69	1022.79	1019.39
Ni 231.604	Ni	1.61	ug/L	7.58	3.82	2	-0.98
P 213.618	P	-0.15	ug/L	-7.24	0.64	-1.03	3.03
Pb 220.353	Pb	0.2	ug/L	3.64	1.44	-0.63	1.01
S 181.972	S	24.44	ug/L	1.95	48.08	-37.72	27.67
Sb 206.834	Sb	-2.32	ug/L	0.44	-0.96	3.31	-4.75
Se 196.026	Se	3.71	ug/L	4.28	9.38	3.84	3.36
Si 251.611	Si	31.84	ug/L	81.3	32.96	32.17	31.39
Sn 189.925	Sn	-2.02	ug/L	0.51	-1.84	-2.28	-3.22
Sr 421.552	Sr	4.45	ug/L	10422.56	4.74	4.38	4.34
Ti 334.941	Ti	0.69	ug/L	16338.97	3.8	0.09	-0.54
Tl 190.794	Tl	1.06	ug/L	-1.29	-0.11	1.01	2.51
V 292.401	V	-0.19	ug/L	-5.21	-1.16	0.52	-0.41
Zn 206.200	Zn	5.84	ug/L	17.04	5.5	5.75	5.44

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30477049002\_3258 x100****Analysis Time: 5/12/2022 10:11:34 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	614521.66	1.06	1.08	1.08
Ag 328.068	Ag	-0.14	ug/L	-1178.65	-0.23	-0.01	-0.03
Al 396.152	Al	147.78	ug/L	3989.99	149.96	146.14	146.28
As 188.980	As	0.99	ug/L	4.26	5.26	-0.07	0.28
B 249.678	B	3.09	ug/L	34.87	2.93	3	3.08
Ba 233.527	Ba	17.24	ug/L	694.88	17.31	17.08	17.41
Be 234.861	Be	-0.105	ug/L	-22.562	-0.013	-0.125	-0.164
Ca 315.887	Ca	10903.84	ug/L	58359.72	10925.79	10903.8	10879.98
Cd 214.439	Cd	-0.06	ug/L	2.11	-0.03	-0.09	-0.06
Co 228.615	Co	1.1	ug/L	15.03	0.29	1.09	1.16
Cr 267.716	Cr	0.13	ug/L	13.49	0.25	0.02	0.18
Cu 327.395	Cu	1.94	ug/L	-1615.32	1.46	1.63	2.79
Fe 261.187	Fe	2396.96	ug/L	4249.01	2407.7	2390.66	2398.57
K 766.491	K	159.64	ug/L	616.45	118.83	185.24	164.73
Li 670.783	Li	-1.26	ug/L	10813.82	-0.87	-1.29	-1.39
Mg 279.078	Mg	1728.91	ug/L	4518.42	1731.43	1726.05	1729.95
Mn 257.610	Mn	1134.98	ug/L	145925.47	1140.24	1133.53	1133.56
Mo 204.598	Mo	1.04	ug/L	-3.23	1.31	0.75	0.68
Na 589.592	Na	9398.15	ug/L	74629.04	9490.14	9384.71	9363.74
Ni 231.604	Ni	1.18	ug/L	6.82	1.23	1.84	0.83
P 213.618	P	6.83	ug/L	-1.83	9.02	7.42	7.21
Pb 220.353	Pb	1	ug/L	5.1	2.64	-2.3	0.41
S 181.972	S	219.65	ug/L	9.52	260.63	239.64	220.23
Sb 206.834	Sb	-1.92	ug/L	0.79	0.36	-1.38	-3.09
Se 196.026	Se	-0.81	ug/L	1.63	3.14	-1.75	-4.6
Si 251.611	Si	221.53	ug/L	408.63	222.42	220.84	220.75
Sn 189.925	Sn	-1.58	ug/L	0.97	-1.61	-1.01	-1.92
Sr 421.552	Sr	40.57	ug/L	94533.81	40.85	40.54	40.47
Ti 334.941	Ti	-0.01	ug/L	16164.77	0.3	0.02	-0.22
Tl 190.794	Tl	1.38	ug/L	0.49	-0.56	2.37	2.12
V 292.401	V	0.32	ug/L	1.15	0.3	0.24	0.43
Zn 206.200	Zn	23.09	ug/L	71.71	23.65	23.42	22.42

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

Sample: 30477049002\_3258 x1000

Analysis Time: 5/12/2022 10:13:34 AM

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	618272.65	1.01	1.11	1.1
Ag 328.068	Ag	-0.6	ug/L	-1198.48	-1.61	-0.32	-0.28
Al 396.152	Al	16.49	ug/L	743.93	17.39	15.68	16.89
As 188.980	As	2.79	ug/L	5.31	4.55	3.73	2.84
B 249.678	B	0.64	ug/L	15.56	0.79	-0.29	1.43
Ba 233.527	Ba	1.74	ug/L	66.68	1.86	1.51	1.85
Be 234.861	Be	-0.053	ug/L	-4.729	-0.045	-0.068	-0.048
Ca 315.887	Ca	1081.37	ug/L	5853.41	1140.36	1059.31	1065.56
Cd 214.439	Cd	0.05	ug/L	3.35	0.04	0.06	0.07
Co 228.615	Co	0.02	ug/L	8.14	-0.33	-0.47	0.44
Cr 267.716	Cr	0.06	ug/L	28.62	0.24	0.14	-0.05
Cu 327.395	Cu	0.45	ug/L	-1656.67	-2.3	0.87	1.4
Fe 261.187	Fe	248.78	ug/L	418.65	261.67	243.66	247.15
K 766.491	K	26.65	ug/L	446.63	54.84	1.03	21.82
Li 670.783	Li	-2.28	ug/L	10281.54	-0.87	-2.75	-2.71
Mg 279.078	Mg	178.7	ug/L	497.88	186.05	173.71	177.45
Mn 257.610	Mn	116.43	ug/L	14973.32	122.21	113.93	114.83
Mo 204.598	Mo	0.85	ug/L	-4.04	-0.06	1.14	1.22
Na 589.592	Na	972.89	ug/L	7545.14	1028.06	954.07	952.97
Ni 231.604	Ni	-0.28	ug/L	3.84	1.21	-1.93	0.58
P 213.618	P	-0.24	ug/L	-7.31	-4.29	6.37	-1.69
Pb 220.353	Pb	-0.63	ug/L	2.34	0.58	-2.44	-1.56
S 181.972	S	49.97	ug/L	2.94	19.19	67.08	64.47
Sb 206.834	Sb	-1.06	ug/L	1.43	-0.88	-1.41	1.18
Se 196.026	Se	0.57	ug/L	2.34	-0.1	1.26	1.12
Si 251.611	Si	23.3	ug/L	66.58	24.8	25.85	19.56
Sn 189.925	Sn	-1.16	ug/L	1.42	-2.95	0.05	-3.39
Sr 421.552	Sr	4.14	ug/L	9704.1	4.35	4.06	4.06
Ti 334.941	Ti	0.33	ug/L	16251.31	3.36	-0.69	-0.63
Tl 190.794	Tl	-2.31	ug/L	-4.55	-4.94	-0.61	-5.69
V 292.401	V	0.41	ug/L	6.47	0.6	0.12	0.21
Zn 206.200	Zn	6.78	ug/L	20.02	7.32	6.49	6.73

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483167004 3258****Analysis Time: 5/12/2022 10:15:33 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	590048.64	1.03	1.03	1.03
Ag 328.068	Ag	-0.73	ug/L	-1202.87	-0.58	-0.73	-0.83
Al 396.152	Al	140.66	ug/L	4969.28	133.73	143.15	142.18
As 188.980	As	31.04	ug/L	22.29	29.57	31.43	27.37
B 249.678	B	136.94	ug/L	1139.66	133.35	137.67	137.59
Ba 233.527	Ba	102.08	ug/L	4151.44	99.64	102.43	103.15
Be 234.861	Be	-0.125	ug/L	-51.593	-0.134	-0.132	-0.119
Ca 315.887	Ca	265303.53	ug/L	1418252.4	258054.79	265387.92	268036.27
Cd 214.439	Cd	-0.14	ug/L	2.71	-0.11	-0.2	-0.16
Co 228.615	Co	-0.35	ug/L	24.13	0.23	-0.27	-0.91
Cr 267.716	Cr	-0.06	ug/L	19.15	-0.15	0.21	-0.26
Cu 327.395	Cu	13.61	ug/L	-1306.29	13.82	13.25	13.31
Fe 261.187	Fe	7188.7	ug/L	12794.02	7014.02	7212.04	7263.81
K 766.491	K	5777.95	ug/L	7759.07	5632.93	5784.09	5858.27
Li 670.783	Li	60.6	ug/L	45020.78	59.1	60.92	61.34
Mg 279.078	Mg	92098.03	ug/L	238876.11	90052.6	92347.95	93046.9
Mn 257.610	Mn	633.66	ug/L	81480.62	617.92	636.14	640.94
Mo 204.598	Mo	1.16	ug/L	-2.44	0.74	1.7	0.54
Na 589.592	Na	116711.94	ug/L	928888.22	113954.07	117333.69	117815.27
Ni 231.604	Ni	1.42	ug/L	8.43	2.04	0.27	1.29
P 213.618	P	76.8	ug/L	53.91	78.32	75.64	81.22
Pb 220.353	Pb	0.06	ug/L	4.5	-2.29	1.73	2.42
S 181.972	S	92070.17	ug/L	3544.36	90181.17	92054.25	93018.77
Sb 206.834	Sb	2.01	ug/L	3.36	3.89	-2.75	2.45
Se 196.026	Se	-0.74	ug/L	1.06	-2.61	2.95	-3.82
Si 251.611	Si	6793.56	ug/L	11720.66	6640.58	6812.2	6860.65
Sn 189.925	Sn	-0.75	ug/L	1.59	0.79	-1.8	-0.2
Sr 421.552	Sr	6657.46	ug/L	15460360.73	6514.08	6675.13	6729.11
Ti 334.941	Ti	1.71	ug/L	16518.48	1.59	1.75	1.78
Tl 190.794	Tl	-2.08	ug/L	-2.96	-0.5	-3.7	-1.08
V 292.401	V	1.81	ug/L	24.56	2.11	1.51	1.56
Zn 206.200	Zn	49.01	ug/L	163.68	46.65	48.94	50.37

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 10:17:32 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	611680.41	1.06	1.07	1.08
Ag 328.068	Ag	1019.28	ug/L	40719.22	1018.88	1015.28	1018.85
Al 396.152	Al	9922.92	ug/L	244235.71	9906.46	9891.84	9914.58
As 188.980	As	2049.26	ug/L	1207.64	2047.07	2043.04	2046.92
B 249.678	B	2104.19	ug/L	17374.62	2101.1	2096.29	2101.4
Ba 233.527	Ba	2080.59	ug/L	84136.67	2083.65	2073.16	2077.26
Be 234.861	Be	2037.361	ug/L	302378.424	2038.003	2029.042	2035.644
Ca 315.887	Ca	10433.32	ug/L	55870.56	10484.31	10392.99	10386.97
Cd 214.439	Cd	2066.84	ug/L	42827.78	2071.38	2073.66	2069.11
Co 228.615	Co	2101.17	ug/L	12240.74	2101.2	2093.69	2096.56
Cr 267.716	Cr	2051.76	ug/L	73953.88	2053.62	2042.72	2049.81
Cu 327.395	Cu	1998.17	ug/L	52509.24	1999.29	1988.87	1997.42
Fe 261.187	Fe	10180.06	ug/L	18112.42	10205.2	10132.77	10158.04
K 766.491	K	10037.05	ug/L	13124.91	10068.88	10010.69	10019.36
Li 670.783	Li	1917.85	ug/L	1076080.94	1926.78	1909.81	1913.34
Mg 279.078	Mg	10153.09	ug/L	26364.25	10158.25	10111.83	10138.08
Mn 257.610	Mn	2054.57	ug/L	264263.98	2057.5	2045.46	2051.94
Mo 204.598	Mo	1968.11	ug/L	7338.71	1942.77	1936.49	1998.27
Na 589.592	Na	10289.65	ug/L	85674.91	10338.48	10253.56	10255.3
Ni 231.604	Ni	2024.63	ug/L	4011.61	2025.52	2017.44	2021.47
P 213.618	P	2052.45	ug/L	1504.68	2018.52	2050.69	2110.36
Pb 220.353	Pb	2058.22	ug/L	3216.65	2064.65	2047.38	2055.22
S 181.972	S	10092.83	ug/L	389.41	10009.88	10031.01	10208.57
Sb 206.834	Sb	2050.59	ug/L	1591.23	2049.81	2028.67	2052.68
Se 196.026	Se	2077.1	ug/L	1287.6	2083.51	2067.66	2066.18
Si 251.611	Si	10695.32	ug/L	18481.67	10675.73	10652.53	10686.09
Sn 189.925	Sn	2028.33	ug/L	2157.9	2023.79	2017.94	2032.06
Sr 421.552	Sr	2074.25	ug/L	4814723.63	2075.26	2065.4	2070.19
Ti 334.941	Ti	2016.82	ug/L	504102.46	1996.81	2022.56	2021.33
Tl 190.794	Tl	2124.3	ug/L	2048.8	2139	2105.22	2122.64
V 292.401	V	2040.23	ug/L	39535.39	2040.1	2031.11	2040.78
Zn 206.200	Zn	2069.88	ug/L	6526.84	2054.14	2057.44	2089.77



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 10:19:32 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	614354.64	1.02	1.09	1.1
Ag 328.068	Ag	-0.14	ug/L	-1180.01	-1.13	-0.04	0.52
Al 396.152	Al	0.69	ug/L	355.4	1.63	0.39	0.52
As 188.980	As	2.02	ug/L	4.86	1.5	1.47	1.26
B 249.678	B	2.11	ug/L	27.82	3.83	1.23	1.85
Ba 233.527	Ba	0.27	ug/L	7.14	0.39	0.17	0.34
Be 234.861	Be	0.138	ug/L	24.735	0.249	0.107	0.124
Ca 315.887	Ca	-35.44	ug/L	-116.54	-37	-36.16	-33.42
Cd 214.439	Cd	0.15	ug/L	5.37	0.24	0.12	0.12
Co 228.615	Co	-0.12	ug/L	7.24	0.17	0.71	-0.32
Cr 267.716	Cr	0.2	ug/L	35.87	0.41	0.23	0.05
Cu 327.395	Cu	-0.06	ug/L	-1670.64	-2.1	0.61	0.6
Fe 261.187	Fe	2.45	ug/L	-20.59	1.78	1.56	1.97
K 766.491	K	4.09	ug/L	417.96	78.51	3.52	-29.06
Li 670.783	Li	-3.59	ug/L	9555.28	-2.79	-3.8	-3.93
Mg 279.078	Mg	2.96	ug/L	42.1	4.42	3.18	2.1
Mn 257.610	Mn	0.24	ug/L	35.64	0.35	0.23	0.23
Mo 204.598	Mo	2.88	ug/L	3.53	1.78	2.9	3.33
Na 589.592	Na	21.72	ug/L	-27.81	26.44	19.38	25.08
Ni 231.604	Ni	0.44	ug/L	5.25	1.19	0.15	-0.14
P 213.618	P	3.78	ug/L	-4.24	3.27	3.41	6.33
Pb 220.353	Pb	-0.52	ug/L	2.49	-1.46	2.69	-2.07
S 181.972	S	-28.25	ug/L	-0.08	-71.21	-34.93	-35.09
Sb 206.834	Sb	-2.55	ug/L	0.25	-2.15	-0.19	-1.89
Se 196.026	Se	-0.27	ug/L	1.81	-1.57	-3.65	3.2
Si 251.611	Si	3.74	ug/L	32.86	8.68	4.23	0.53
Sn 189.925	Sn	-2.11	ug/L	0.41	-3.48	-3.11	-2.11
Sr 421.552	Sr	0.22	ug/L	578.37	0.3	0.23	0.18
Ti 334.941	Ti	0.87	ug/L	16381.35	3.15	0.46	-0.32
Tl 190.794	Tl	1.3	ug/L	-1.25	-1.49	4.99	0.76
V 292.401	V	0.46	ug/L	7.57	0.45	0.06	0.36
Zn 206.200	Zn	0.73	ug/L	0.9	0.81	0.36	0.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2440280\_3258****Analysis Time: 5/12/2022 10:21:32 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	582592.34	1.02	1.02	1.02
Ag 328.068	Ag	465.31	ug/L	17749.14	457	465.71	468.12
Al 396.152	Al	2424.82	ug/L	62207.11	2361.38	2422.74	2448.96
As 188.980	As	2005.82	ug/L	1183.11	1936.69	2016.42	2031.08
B 249.678	B	2088.39	ug/L	17246.2	2041.99	2088.62	2103.13
Ba 233.527	Ba	1973.17	ug/L	79819.5	1927.32	1971.11	1992.48
Be 234.861	Be	494.52	ug/L	73359.233	482.412	494.35	498.794
Ca 315.887	Ca	291318.92	ug/L	1557352.41	284029.83	291474.72	294643.78
Cd 214.439	Cd	927.94	ug/L	19229.26	906.33	927.7	936.86
Co 228.615	Co	1855.58	ug/L	10832.78	1810.79	1854.93	1872.32
Cr 267.716	Cr	1903.78	ug/L	68613.56	1857.01	1902.09	1922.75
Cu 327.395	Cu	1978.7	ug/L	51970.42	1934.64	1968.25	2007.16
Fe 261.187	Fe	8900.45	ug/L	15833.93	8690.67	8886.43	8984.51
K 766.491	K	27163.38	ug/L	34779.64	26609.1	27157.75	27374.89
Li 670.783	Li	2231.08	ug/L	1250269.22	2177.66	2232.02	2249.97
Mg 279.078	Mg	108486.95	ug/L	281377.85	106102.87	107876.74	109721.57
Mn 257.610	Mn	2495.9	ug/L	320983.16	2427.47	2487.14	2529.84
Mo 204.598	Mo	1837.8	ug/L	6851.53	1786.83	1835.56	1863.08
Na 589.592	Na	132442.17	ug/L	1057664.53	129402.58	132513.42	133584.48
Ni 231.604	Ni	1778.26	ug/L	3525.15	1735.09	1774.43	1796.05
P 213.618	P	39992.74	ug/L	30613.36	38897.09	40128.38	40428.94
Pb 220.353	Pb	1838.12	ug/L	2875.19	1801.76	1837.05	1855.95
S 181.972	S	90201.87	ug/L	3472.52	88281.68	90256.8	90974.18
Sb 206.834	Sb	1898.32	ug/L	1471.86	1830.87	1895.71	1928.56
Se 196.026	Se	1949.53	ug/L	1208.82	1904.44	1950.67	1962.96
Si 251.611	Si	16947.24	ug/L	29239.27	16455.43	16944.31	17130.21
Sn 189.925	Sn	1882.59	ug/L	2001.98	1836.4	1879.63	1903.83
Sr 421.552	Sr	8202.51	ug/L	19047398	8043.38	8200.76	8259.18
Ti 334.941	Ti	1859.82	ug/L	466049.56	1796.25	1850.03	1895.88
Tl 190.794	Tl	1859.88	ug/L	1794.55	1825.66	1861.69	1873.05
V 292.401	V	1955.07	ug/L	37896.19	1907.21	1953.46	1975.6
Zn 206.200	Zn	1860.56	ug/L	5878.31	1800.81	1863.37	1880.49

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2435168\_3258****Analysis Time: 5/12/2022 10:23:31 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	579044.43	1.02	1.01	1.01
Ag 328.068	Ag	547.25	ug/L	21081.21	532.94	548.67	552.96
Al 396.152	Al	2481.15	ug/L	63914.46	2404.41	2487.68	2512.34
As 188.980	As	2214.52	ug/L	1305.7	2152.05	2216.6	2234.99
B 249.678	B	2375.54	ug/L	19615.93	2309.02	2386.23	2398.94
Ba 233.527	Ba	2195.36	ug/L	88806.39	2137.64	2203.11	2215.02
Be 234.861	Be	556.479	ug/L	82550.544	541.129	557.812	562.019
Ca 315.887	Ca	316061.02	ug/L	1689615.03	307444.37	315565.24	319484.21
Cd 214.439	Cd	1020.64	ug/L	21150.03	994.48	1024.78	1029.19
Co 228.615	Co	2076.66	ug/L	12124.12	2018.35	2084.9	2097.69
Cr 267.716	Cr	2145.38	ug/L	77317.58	2082.85	2149.74	2169.35
Cu 327.395	Cu	2227.43	ug/L	58713.77	2174.31	2238.68	2249.09
Fe 261.187	Fe	9807.53	ug/L	17449.86	9527.51	9828.64	9924.46
K 766.491	K	29619.04	ug/L	37888.67	28968.11	29723.19	29896.31
Li 670.783	Li	2499.96	ug/L	1399539	2435.36	2506.91	2525.23
Mg 279.078	Mg	119410.5	ug/L	309706.26	116988	119798.29	120553.22
Mn 257.610	Mn	2771.78	ug/L	356465.64	2702.88	2767.52	2805.97
Mo 204.598	Mo	2127.84	ug/L	7933.66	2059.81	2118.03	2163.8
Na 589.592	Na	142290.32	ug/L	1136471.12	138839.16	142636.63	143550.3
Ni 231.604	Ni	1992.78	ug/L	3949.83	1939.54	1994.17	2019.84
P 213.618	P	44496.75	ug/L	34060.53	43359.7	44752.75	44730.75
Pb 220.353	Pb	2020.37	ug/L	3159.76	1973.08	2030.02	2033.23
S 181.972	S	95543.71	ug/L	3678.11	93174.31	95912.21	96384.29
Sb 206.834	Sb	2215.13	ug/L	1716.63	2144.28	2227.35	2246.94
Se 196.026	Se	2139.39	ug/L	1326.37	2104.61	2140.43	2150.65
Si 251.611	Si	18555.25	ug/L	32014.07	17973.92	18619.56	18764.04
Sn 189.925	Sn	2115.86	ug/L	2249.61	2055.48	2125.24	2136.45
Sr 421.552	Sr	8907.27	ug/L	20683972.54	8672.09	8937.09	8996.79
Ti 334.941	Ti	2172.2	ug/L	541619	2105.72	2173.89	2196.59
Tl 190.794	Tl	1974.12	ug/L	1904.37	1890.49	1973.87	2000.77
V 292.401	V	2184.89	ug/L	42343.31	2123.06	2191.7	2207.06
Zn 206.200	Zn	2055.54	ug/L	6494.34	1984.93	2059.64	2077.91

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2440281\_3258****Analysis Time: 5/12/2022 10:25:31 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	588763.57	0.98	1.05	1.05
Ag 328.068	Ag	106.97	ug/L	3176.19	109.07	105.04	105.87
Al 396.152	Al	525.08	ug/L	13739.57	536.04	513.14	519.34
As 188.980	As	418.78	ug/L	249.85	424.66	415.93	418.95
B 249.678	B	459.8	ug/L	3805.16	469.42	449.48	454.66
Ba 233.527	Ba	430.94	ug/L	17429.11	439.86	421.18	427.4
Be 234.861	Be	102.898	ug/L	15267.746	104.996	100.357	101.974
Ca 315.887	Ca	63127.59	ug/L	337528.83	64197.83	61655.69	62643.73
Cd 214.439	Cd	204.98	ug/L	4249.53	208.94	201.05	206.02
Co 228.615	Co	402.32	ug/L	2354.65	409.17	393.83	399.47
Cr 267.716	Cr	411.73	ug/L	14861.26	419.95	401.7	408.51
Cu 327.395	Cu	410.25	ug/L	9452.65	417.22	400.88	407.63
Fe 261.187	Fe	1890.03	ug/L	3342.56	1933.99	1839.21	1879.15
K 766.491	K	5426.25	ug/L	7280	5580.7	5292.47	5349.68
Li 670.783	Li	444.72	ug/L	258423.83	454.16	433.84	441.2
Mg 279.078	Mg	22263.81	ug/L	57772.06	22850.33	21652	22043.18
Mn 257.610	Mn	537.01	ug/L	69066.08	550.79	523.19	531.25
Mo 204.598	Mo	415.75	ug/L	1544.34	422.6	406.84	412.13
Na 589.592	Na	27558.8	ug/L	219960.6	28122.64	26993.65	27293.86
Ni 231.604	Ni	390.37	ug/L	777.25	394.43	381.21	391.85
P 213.618	P	8345.15	ug/L	6382.14	8484.06	8184.1	8370.57
Pb 220.353	Pb	408.54	ug/L	641.59	411.34	403.67	404.12
S 181.972	S	18603.94	ug/L	717	19039.83	18260.27	18300.79
Sb 206.834	Sb	426.31	ug/L	332.18	429.85	417.15	421.14
Se 196.026	Se	413.6	ug/L	258.02	426.27	400.08	410.67
Si 251.611	Si	3564.91	ug/L	6172.08	3647.1	3481.52	3530.43
Sn 189.925	Sn	420.69	ug/L	449.44	425.94	407.29	418.82
Sr 421.552	Sr	1803.13	ug/L	4187108.95	1838.92	1761.1	1789.09
Ti 334.941	Ti	413.67	ug/L	116236.03	425.25	402.05	408.98
Tl 190.794	Tl	408.89	ug/L	392.5	408.77	393.61	410.97
V 292.401	V	419.24	ug/L	8122.94	427.84	409.96	415.11
Zn 206.200	Zn	420.53	ug/L	1327.37	428.89	410.36	416.67

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 2435169\_3258****Analysis Time: 5/12/2022 10:27:30 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.01	Ratio	578427.42	1.02	1.01	1.01
Ag 328.068	Ag	555.97	ug/L	21435.06	542.87	557.03	559.96
Al 396.152	Al	2567.33	ug/L	66125.34	2501.24	2569.12	2589.74
As 188.980	As	2282.09	ug/L	1345.38	2227.28	2282.78	2305.04
B 249.678	B	2434.24	ug/L	20100.5	2375.02	2436.29	2455.96
Ba 233.527	Ba	2266.49	ug/L	91683.58	2213.29	2266.91	2283.63
Be 234.861	Be	577.877	ug/L	85724.685	562.939	577.731	583.054
Ca 315.887	Ca	325762.67	ug/L	1741476.62	317778.29	326203.05	328574.01
Cd 214.439	Cd	1046.74	ug/L	21690.76	1021.74	1045.86	1055.38
Co 228.615	Co	2148.53	ug/L	12543.9	2094	2151.75	2162.46
Cr 267.716	Cr	2234.74	ug/L	80537.42	2178.94	2236.14	2250.67
Cu 327.395	Cu	2305.2	ug/L	60821.92	2236.89	2299.9	2330.96
Fe 261.187	Fe	10119.82	ug/L	18006.24	9864.37	10140.98	10197.9
K 766.491	K	30328.67	ug/L	38787.98	29648.26	30372.98	30548.31
Li 670.783	Li	2588.51	ug/L	1448699.37	2526.54	2590.83	2607.38
Mg 279.078	Mg	122689.19	ug/L	318209.03	119131.11	122629.7	123953.25
Mn 257.610	Mn	2848.95	ug/L	366391.37	2785.57	2854.92	2869.42
Mo 204.598	Mo	2209.35	ug/L	8237.79	2144.28	2209.81	2240.76
Na 589.592	Na	145715.54	ug/L	1163868.69	142766.18	145348.8	146632.42
Ni 231.604	Ni	2051.14	ug/L	4065.4	1994.65	2054.26	2070.28
P 213.618	P	45472.79	ug/L	34806.88	44303.2	45602.89	45696.64
Pb 220.353	Pb	2064.36	ug/L	3228.45	2016.14	2062.15	2082.55
S 181.972	S	96777.89	ug/L	3725.62	94615	96995.04	97409.79
Sb 206.834	Sb	2275.32	ug/L	1763.2	2224.6	2280.63	2287.26
Se 196.026	Se	2181.78	ug/L	1352.62	2129.96	2177.95	2206.09
Si 251.611	Si	19039.88	ug/L	32850.19	18499.25	19042.94	19223.93
Sn 189.925	Sn	2185.8	ug/L	2323.88	2125.42	2185.84	2207.13
Sr 421.552	Sr	9190.9	ug/L	21342628.29	8972	9201.1	9269.28
Ti 334.941	Ti	2256.92	ug/L	562113.24	2181.88	2255.49	2280.91
Tl 190.794	Tl	2009.29	ug/L	1938.35	1935.57	1999.51	2035.93
V 292.401	V	2258.28	ug/L	43764.75	2204.1	2258.31	2276.86
Zn 206.200	Zn	2133.39	ug/L	6740.33	2070.81	2122.96	2165.44

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30483987001 3258****Analysis Time: 5/12/2022 10:29:30 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.03	Ratio	588835.72	1.03	1.03	1.02
Ag 328.068	Ag	-0.69	ug/L	-1201.45	-0.67	-0.49	-0.84
Al 396.152	Al	52.73	ug/L	2009.14	51.86	53.22	52.77
As 188.980	As	6.51	ug/L	7.6	11.4	8.76	2.15
B 249.678	B	20.89	ug/L	182.88	21.6	20.72	21.44
Ba 233.527	Ba	167.93	ug/L	6795.42	165.18	167.33	169.76
Be 234.861	Be	-0.036	ug/L	-6.509	0.028	-0.024	-0.066
Ca 315.887	Ca	83579.26	ug/L	446845.91	81374.43	83802.68	84776.33
Cd 214.439	Cd	-0.02	ug/L	2.36	0.07	-0.02	0.04
Co 228.615	Co	0.06	ug/L	8.88	-0.14	-0.09	0.44
Cr 267.716	Cr	0.97	ug/L	54.42	1.2	0.93	1.07
Cu 327.395	Cu	3.04	ug/L	-1588.06	2.93	3.43	2.91
Fe 261.187	Fe	1069.56	ug/L	1881.53	1048.43	1064.17	1077.53
K 766.491	K	6232.45	ug/L	8288.84	6148.98	6202.39	6273.28
Li 670.783	Li	10.91	ug/L	17531.34	10.82	10.83	11.07
Mg 279.078	Mg	10783.89	ug/L	28001.49	10480.59	10851.72	10942.68
Mn 257.610	Mn	546.47	ug/L	70261.93	534.99	544.54	553.76
Mo 204.598	Mo	5.69	ug/L	14.13	6.16	5.97	4.98
Na 589.592	Na	517782.1	ug/L	4120928.63	510533.31	516874.15	522476.58
Ni 231.604	Ni	1.95	ug/L	8.4	1.42	2.86	1.01
P 213.618	P	294.68	ug/L	219.52	285.94	294.13	300.4
Pb 220.353	Pb	-2.18	ug/L	0.22	-0.88	-2.94	-1.95
S 181.972	S	18232.71	ug/L	702.75	17893.63	18251.16	18394.56
Sb 206.834	Sb	0.76	ug/L	2.72	1.54	2.06	-0.47
Se 196.026	Se	3.02	ug/L	3.92	-1.74	3.04	4.14
Si 251.611	Si	3279.66	ug/L	5670.58	3217.22	3269.17	3308.5
Sn 189.925	Sn	-1.36	ug/L	1.13	0.21	-3.72	-1.01
Sr 421.552	Sr	826.12	ug/L	1919921.36	812.2	823.86	834.2
Ti 334.941	Ti	1.08	ug/L	16410.51	1.04	0.94	1.07
Tl 190.794	Tl	0.83	ug/L	-0.77	-0.28	2.11	1.37
V 292.401	V	1.37	ug/L	23.33	1.19	1.25	1.57
Zn 206.200	Zn	23.06	ug/L	74.33	22.8	22.61	23.52

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484621006 3258****Analysis Time: 5/12/2022 10:31:29 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.1	Ratio	632205.19	1.1	1.11	1.1
Ag 328.068	Ag	-0.29	ug/L	-1185.84	-0.66	-0.14	-0.21
Al 396.152	Al	36.57	ug/L	1290.96	38.12	35.32	36.74
As 188.980	As	0.76	ug/L	4.12	-1.52	2.44	2.53
B 249.678	B	20.75	ug/L	181.69	21.8	20.53	21.04
Ba 233.527	Ba	41.93	ug/L	1693.41	41.24	41.47	42.05
Be 234.861	Be	-0.01	ug/L	2.818	-0.003	-0.034	0.001
Ca 315.887	Ca	13359.43	ug/L	71485.8	13259.06	13395.96	13456.11
Cd 214.439	Cd	0.04	ug/L	3.15	0.19	0.05	-0.01
Co 228.615	Co	-0.18	ug/L	6.58	-0.7	-0.28	-0.04
Cr 267.716	Cr	0.27	ug/L	38.28	0.27	-0.1	0.47
Cu 327.395	Cu	1.75	ug/L	-1621.99	1.58	1.84	1.62
Fe 261.187	Fe	46.33	ug/L	57.65	45.64	44.67	47.63
K 766.491	K	2290.78	ug/L	3304.48	2266.27	2292.35	2289.72
Li 670.783	Li	-2.56	ug/L	10113	-2.47	-2.54	-2.55
Mg 279.078	Mg	3268.78	ug/L	8511.54	3211.6	3273.39	3279.26
Mn 257.610	Mn	11.97	ug/L	1543.6	11.8	11.77	12.1
Mo 204.598	Mo	0.29	ug/L	-6.09	0.63	0.58	-0.88
Na 589.592	Na	42551.33	ug/L	338527.85	42360.99	42453.25	42742.19
Ni 231.604	Ni	0.67	ug/L	5.74	-0.05	0.7	0.12
P 213.618	P	5.75	ug/L	-2.63	6.51	7.24	1.54
Pb 220.353	Pb	-0.21	ug/L	3.03	-2.19	0.95	-0.95
S 181.972	S	4662.77	ug/L	180.45	4556.72	4632.8	4723.23
Sb 206.834	Sb	3.34	ug/L	4.81	4.23	2.27	3.37
Se 196.026	Se	1.85	ug/L	3.12	-1.43	1.22	5.62
Si 251.611	Si	2196.06	ug/L	3804.73	2162.68	2194.97	2204.64
Sn 189.925	Sn	-2.08	ug/L	0.43	-2.99	-0.33	-2.09
Sr 421.552	Sr	49.83	ug/L	116091.35	49.52	49.73	50.07
Ti 334.941	Ti	0.6	ug/L	16312.91	0.87	0.53	0.46
Tl 190.794	Tl	0.84	ug/L	-1.63	-0.71	1.57	1.67
V 292.401	V	0.55	ug/L	9.67	0.62	0.79	0.58
Zn 206.200	Zn	5.58	ug/L	16.7	5.57	5.14	5.67

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484621007\_3258****Analysis Time: 5/12/2022 10:33:27 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.1	Ratio	628935.42	1.1	1.1	1.09
Ag 328.068	Ag	-0.58	ug/L	-1197.46	-0.52	-0.6	-0.52
Al 396.152	Al	152.01	ug/L	4175.04	153.75	152.4	152.39
As 188.980	As	2.68	ug/L	5.26	2.51	2.41	-0.13
B 249.678	B	25	ug/L	216.49	24.82	25.09	25.46
Ba 233.527	Ba	31.66	ug/L	1279.53	31.24	31.68	31.87
Be 234.861	Be	-0.12	ug/L	-20.389	-0.163	-0.104	-0.12
Ca 315.887	Ca	29693.53	ug/L	158799.92	29333.7	29762.53	29864.99
Cd 214.439	Cd	0.01	ug/L	3.24	0.04	-0.13	0.18
Co 228.615	Co	0.05	ug/L	9.62	0.22	0.07	-0.04
Cr 267.716	Cr	1.15	ug/L	69.87	1.17	1.19	1.26
Cu 327.395	Cu	2.64	ug/L	-1598.06	2.03	2.86	2.49
Fe 261.187	Fe	1494.4	ug/L	2639.52	1469.06	1502.69	1505.04
K 766.491	K	6338.35	ug/L	8411.26	6252.12	6352.65	6369.94
Li 670.783	Li	-2.18	ug/L	10312.19	-2.25	-2.05	-2.06
Mg 279.078	Mg	6116.25	ug/L	15896.12	6005.48	6142.81	6158.92
Mn 257.610	Mn	30.64	ug/L	3946.64	30.2	30.75	30.78
Mo 204.598	Mo	1.05	ug/L	-3.25	1.1	1.22	0.36
Na 589.592	Na	28105.29	ug/L	223540.73	27795.74	28204.45	28278.89
Ni 231.604	Ni	1.6	ug/L	7.69	2.48	1.76	1.39
P 213.618	P	40.95	ug/L	24.45	44.08	41.47	40.43
Pb 220.353	Pb	-1.71	ug/L	0.72	0.87	-2.39	-3.18
S 181.972	S	5345.72	ug/L	206.75	5259.6	5343.37	5418.41
Sb 206.834	Sb	3.53	ug/L	4.97	8.7	2.81	0.19
Se 196.026	Se	3.91	ug/L	4.28	9.08	2.65	4.09
Si 251.611	Si	1097.46	ug/L	1915.05	1086.61	1106.33	1102.55
Sn 189.925	Sn	-2.55	ug/L	-0.08	-3.13	-2.49	-1.84
Sr 421.552	Sr	71.79	ug/L	167525.61	70.91	71.95	72.33
Ti 334.941	Ti	4.12	ug/L	17160.98	4.41	4.22	4.04
Tl 190.794	Tl	1.42	ug/L	-1.07	1.61	2.55	-0.13
V 292.401	V	2.97	ug/L	54.68	2.68	2.75	3.5
Zn 206.200	Zn	2.7	ug/L	8.16	2.79	2.85	2.96



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484621008 3258****Analysis Time: 5/12/2022 10:35:26 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.1	Ratio	631064.02	1.1	1.11	1.1
Ag 328.068	Ag	-0.45	ug/L	-1192.23	-0.51	-0.19	-0.57
Al 396.152	Al	163.82	ug/L	4513.66	163	163.44	164.58
As 188.980	As	2.33	ug/L	5.08	3.3	4.89	2.32
B 249.678	B	29.33	ug/L	252.56	28.68	29.73	29.39
Ba 233.527	Ba	27.6	ug/L	1116.25	27.74	27.37	27.67
Be 234.861	Be	-0.033	ug/L	-1.736	-0.058	-0.036	-0.009
Ca 315.887	Ca	41490.12	ug/L	221858.59	41463.89	41319.23	41548.08
Cd 214.439	Cd	0.03	ug/L	3.09	0.06	0.11	-0.1
Co 228.615	Co	-0.05	ug/L	9.94	0.59	-0.6	-0.08
Cr 267.716	Cr	0.45	ug/L	44.79	0.3	0.66	0.32
Cu 327.395	Cu	5.16	ug/L	-1530.2	4.97	5.71	4.83
Fe 261.187	Fe	263.53	ug/L	444.76	258.39	262.96	265.44
K 766.491	K	4143.49	ug/L	5646.29	4146.97	4132.66	4141.58
Li 670.783	Li	-0.91	ug/L	11013.38	-0.78	-1.04	-0.89
Mg 279.078	Mg	8334.15	ug/L	21647.92	8293.39	8191.83	8380.06
Mn 257.610	Mn	19.14	ug/L	2465.46	19.09	19.02	19.27
Mo 204.598	Mo	1.11	ug/L	-3	0.5	2.76	0.4
Na 589.592	Na	5566.29	ug/L	44156.61	5564.21	5530.47	5580.28
Ni 231.604	Ni	2.01	ug/L	8.47	1.39	2.97	1.27
P 213.618	P	35.45	ug/L	20.3	34.91	32.07	34.66
Pb 220.353	Pb	-1.75	ug/L	0.68	-2.51	-4.15	0.19
S 181.972	S	5638.5	ug/L	218.04	5655.69	5618.93	5671.44
Sb 206.834	Sb	0.71	ug/L	2.72	3	-4.25	0.59
Se 196.026	Se	4.28	ug/L	4.61	2.8	5.56	3.46
Si 251.611	Si	438.47	ug/L	781.57	437.48	434.82	440.08
Sn 189.925	Sn	-0.89	ug/L	1.66	-2.91	0.4	-1.22
Sr 421.552	Sr	93.38	ug/L	217957.17	93.06	92.8	93.71
Ti 334.941	Ti	2.61	ug/L	16794.23	2.87	2.41	2.48
Tl 190.794	Tl	-0.06	ug/L	-2.45	2.02	1.03	1.59
V 292.401	V	2.45	ug/L	46.35	2.37	2.41	2.44
Zn 206.200	Zn	6.02	ug/L	19.11	6.56	5.42	7.01

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484840002\_3258****Analysis Time: 5/12/2022 10:37:24 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	613118.5	1	1.1	1.09
Ag 328.068	Ag	-0.51	ug/L	-1194.95	-1.04	-0.26	-0.34
Al 396.152	Al	13.91	ug/L	844.38	16.27	13.3	13.08
As 188.980	As	2.43	ug/L	5.14	5.6	1.37	1.58
B 249.678	B	6.53	ug/L	64.45	7.09	6.39	6.66
Ba 233.527	Ba	1.19	ug/L	47.98	1.36	1.08	1.04
Be 234.861	Be	-0.052	ug/L	-3.766	-0.039	-0.074	-0.043
Ca 315.887	Ca	38861.07	ug/L	207804.68	41296.65	38138.47	37970.03
Cd 214.439	Cd	0	ug/L	2.4	0.09	0.01	-0.02
Co 228.615	Co	-0.67	ug/L	6.97	-1.01	-0.53	-0.78
Cr 267.716	Cr	0.03	ug/L	28.8	-0.01	-0.19	0.08
Cu 327.395	Cu	1.39	ug/L	-1632.4	0.89	2.03	1.15
Fe 261.187	Fe	16.79	ug/L	5.03	18.15	15.02	18.01
K 766.491	K	2059.9	ug/L	3018.88	2242.28	1986.79	2036.01
Li 670.783	Li	3.53	ug/L	13485.39	5.24	2.88	3.06
Mg 279.078	Mg	11185.72	ug/L	29042.88	11872.64	10991.14	11042.87
Mn 257.610	Mn	70.13	ug/L	9020.31	74.19	68.74	69.18
Mo 204.598	Mo	1.36	ug/L	-2.1	0.96	1.4	1.51
Na 589.592	Na	5947.95	ug/L	47143.3	6376.54	5809.31	5810.28
Ni 231.604	Ni	-0.33	ug/L	3.84	-0.83	-1.5	-0.53
P 213.618	P	16.63	ug/L	5.95	12.85	20.66	15.33
Pb 220.353	Pb	-2.57	ug/L	-0.56	-1.53	-3.47	-1.96
S 181.972	S	20607.71	ug/L	794.07	22127.29	20158.6	20099.83
Sb 206.834	Sb	1.23	ug/L	3.11	2.6	-1.18	3.3
Se 196.026	Se	1.78	ug/L	3.09	0.84	7.33	-2.17
Si 251.611	Si	4306.56	ug/L	7436.18	4568.57	4202.25	4279.26
Sn 189.925	Sn	-3.92	ug/L	-1.56	-4.34	-2.55	-4.73
Sr 421.552	Sr	232.13	ug/L	539928.31	247.75	226.91	227.22
Ti 334.941	Ti	-0.26	ug/L	16100.06	-0.37	-0.35	-0.14
Tl 190.794	Tl	-0.15	ug/L	-2.44	1.94	-1.59	-0.21
V 292.401	V	0.52	ug/L	9.06	-0.04	0.62	0.55
Zn 206.200	Zn	1.27	ug/L	4.1	1.83	0.45	1.2

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484840003 3258****Analysis Time: 5/12/2022 10:39:22 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	617787.47	1.08	1.09	1.08
Ag 328.068	Ag	-1.03	ug/L	-1216.01	-1.07	-0.75	-1.07
Al 396.152	Al	19.31	ug/L	1187.87	18.76	19.69	19.57
As 188.980	As	0.48	ug/L	4.05	0.6	-0.01	-2.63
B 249.678	B	27.82	ug/L	240.32	27.87	28.75	28.13
Ba 233.527	Ba	13.22	ug/L	539.01	13.04	13.25	13.17
Be 234.861	Be	-0.074	ug/L	-7.413	-0.059	-0.078	-0.081
Ca 315.887	Ca	86591.66	ug/L	462948.36	85201.91	86148.47	86706.47
Cd 214.439	Cd	0	ug/L	2.32	-0.07	-0.06	0.05
Co 228.615	Co	-1.35	ug/L	6.44	-1.02	-1.2	-1.3
Cr 267.716	Cr	-0.17	ug/L	23.24	-0.38	-0.11	-0.12
Cu 327.395	Cu	1.22	ug/L	-1638.33	0.61	1.75	1.68
Fe 261.187	Fe	9.56	ug/L	-7.56	11.25	6.46	10.43
K 766.491	K	1358.18	ug/L	2145.36	1362.68	1344.06	1367.26
Li 670.783	Li	0.36	ug/L	11687.49	0.29	0.12	0.45
Mg 279.078	Mg	29326.82	ug/L	76088.82	28714.86	28898.75	29647.82
Mn 257.610	Mn	15.39	ug/L	1983.9	15.01	15.32	15.34
Mo 204.598	Mo	-0.04	ug/L	-7.25	-0.48	0.04	-0.03
Na 589.592	Na	10893.37	ug/L	86530.94	10786.44	10840.32	10899.96
Ni 231.604	Ni	0.71	ug/L	6.09	0.08	0.7	1.65
P 213.618	P	10.76	ug/L	1.92	10.32	11.24	11.11
Pb 220.353	Pb	-5.2	ug/L	-4.5	-6.82	-5.02	-3.17
S 181.972	S	32347.08	ug/L	1245.88	31903.66	32221.15	32380.67
Sb 206.834	Sb	2.86	ug/L	4.27	3.24	2.26	2.32
Se 196.026	Se	3.18	ug/L	3.93	-1.56	3.31	3.57
Si 251.611	Si	8272.88	ug/L	14260.87	8130.35	8222.69	8266.85
Sn 189.925	Sn	-1.27	ug/L	1.21	-2.03	-0.66	-1.12
Sr 421.552	Sr	216.83	ug/L	505768.33	213.75	215.81	217.45
Ti 334.941	Ti	0.07	ug/L	16166.92	0.16	-0.03	0.07
Tl 190.794	Tl	-1.63	ug/L	-3.79	-1.22	-2.66	-3.03
V 292.401	V	1.03	ug/L	19.41	0.82	1.12	0.59
Zn 206.200	Zn	4.16	ug/L	15.17	3.77	5.12	3.84

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 10:41:22 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	614819.2	1.05	1.1	1.08
Ag 328.068	Ag	1019.23	ug/L	40717.88	1040.05	995.44	1010.47
Al 396.152	Al	9908.8	ug/L	243889.24	10092	9668.81	9834.4
As 188.980	As	2046.89	ug/L	1206.23	2086.11	1996.93	2025.6
B 249.678	B	2105.8	ug/L	17387.92	2147.79	2056.83	2089.53
Ba 233.527	Ba	2074.64	ug/L	83896.19	2117.46	2024.52	2057.42
Be 234.861	Be	2036.273	ug/L	302217.14	2074.66	1986.911	2020.958
Ca 315.887	Ca	10480.79	ug/L	56124.19	10692.47	10240.08	10395.58
Cd 214.439	Cd	2059.92	ug/L	42684.31	2094.8	2007.71	2059.58
Co 228.615	Co	2095.26	ug/L	12206.88	2137.24	2044.47	2076.43
Cr 267.716	Cr	2050.42	ug/L	73905.77	2089.97	2000.58	2033.74
Cu 327.395	Cu	1999.54	ug/L	52546.21	2041.24	1951.71	1981.06
Fe 261.187	Fe	10123.95	ug/L	18012.38	10322.99	9874.67	10024.17
K 766.491	K	10070.29	ug/L	13166.69	10337.05	9790.83	9990.93
Li 670.783	Li	1918.54	ug/L	1076465.05	1957.91	1872.69	1902.37
Mg 279.078	Mg	10107.1	ug/L	26244.97	10300.44	9856.68	10026.01
Mn 257.610	Mn	2040.15	ug/L	262410.05	2080.45	1990.99	2022.62
Mo 204.598	Mo	1967.29	ug/L	7335.64	2004.6	1911.13	1953.51
Na 589.592	Na	10332.08	ug/L	86001.14	10580.22	10082.82	10225.93
Ni 231.604	Ni	2011.43	ug/L	3985.49	2046.89	1962.82	1997
P 213.618	P	2042.48	ug/L	1496.97	2047.92	2006.24	2035.55
Pb 220.353	Pb	2048.83	ug/L	3201.97	2100.47	1997.12	2026.44
S 181.972	S	10033.47	ug/L	387.12	10208.72	9795.13	9978.59
Sb 206.834	Sb	2054.26	ug/L	1594.11	2081.33	2015.03	2044.96
Se 196.026	Se	2077.15	ug/L	1287.64	2118.89	2023.21	2065.44
Si 251.611	Si	10730.42	ug/L	18542	10948.88	10463.76	10639.44
Sn 189.925	Sn	2027.67	ug/L	2157.19	2065.28	1975.22	2008.85
Sr 421.552	Sr	2075.37	ug/L	4817320.15	2119.26	2025.14	2053.53
Ti 334.941	Ti	2015.73	ug/L	503840.67	2050.79	1959.07	1995.03
Tl 190.794	Tl	2119.02	ug/L	2043.67	2153.64	2062.44	2106.28
V 292.401	V	2039.17	ug/L	39515.12	2079.55	1992.28	2019.36
Zn 206.200	Zn	2056.71	ug/L	6485.3	2087.42	2007.65	2036.25

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 10:43:21 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	616666.66	1.04	1.09	1.08
Ag 328.068	Ag	0.05	ug/L	-1172.1	-0.16	0.11	-0.43
Al 396.152	Al	0.69	ug/L	355.43	2.53	0.99	-0.52
As 188.980	As	0.76	ug/L	4.11	1.81	1.73	-2.17
B 249.678	B	2.48	ug/L	30.82	3.66	2.63	1.1
Ba 233.527	Ba	0.28	ug/L	7.69	0.49	0.19	0.13
Be 234.861	Be	0.186	ug/L	32.009	0.331	0.152	0.143
Ca 315.887	Ca	4.79	ug/L	98.51	3.07	5.74	5.15
Cd 214.439	Cd	0.28	ug/L	8.17	0.48	0.21	0.16
Co 228.615	Co	0.02	ug/L	8.06	0.45	0.32	0.01
Cr 267.716	Cr	0.24	ug/L	37.12	0.46	0.05	0.32
Cu 327.395	Cu	0.92	ug/L	-1644.2	-0.54	1.08	0.95
Fe 261.187	Fe	4.32	ug/L	-17.25	4.72	0.2	6.24
K 766.491	K	-1.74	ug/L	410.62	-14.61	10.3	-2.67
Li 670.783	Li	-2.36	ug/L	10235.61	-1.56	-2.56	-2.57
Mg 279.078	Mg	4.07	ug/L	44.98	4.33	5.9	4.28
Mn 257.610	Mn	0.23	ug/L	34.61	0.43	0.26	0.15
Mo 204.598	Mo	2.7	ug/L	2.85	1.34	2.7	3.16
Na 589.592	Na	32.49	ug/L	57.93	33.62	30.81	32.74
Ni 231.604	Ni	-0.12	ug/L	4.16	1.28	-0.1	-0.51
P 213.618	P	0.31	ug/L	-6.92	-3.17	-1.78	3.71
Pb 220.353	Pb	1.75	ug/L	6.05	4.46	-0.67	2.15
S 181.972	S	22.03	ug/L	1.85	2.29	57.75	8.24
Sb 206.834	Sb	-3.16	ug/L	-0.22	-1.24	-4.28	-5.6
Se 196.026	Se	5.44	ug/L	5.34	1.99	0.12	3.78
Si 251.611	Si	5.81	ug/L	36.42	11.35	6.42	2.67
Sn 189.925	Sn	-1.12	ug/L	1.47	-0.55	-1.51	-2.91
Sr 421.552	Sr	0.26	ug/L	681.11	0.46	0.24	0.19
Ti 334.941	Ti	0.33	ug/L	16250.85	2.2	0.03	0.04
Tl 190.794	Tl	1.51	ug/L	-1.05	-3.55	1.5	3.07
V 292.401	V	0.47	ug/L	7.69	1.03	0.58	0.72
Zn 206.200	Zn	0.35	ug/L	-0.3	0.5	0.15	0.76

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484870001 3258****Analysis Time: 5/12/2022 10:45:20 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.1	Ratio	631725.7	1.11	1.12	1.11
Ag 328.068	Ag	-0.07	ug/L	-1176.88	-0.09	-0.34	0.21
Al 396.152	Al	93.41	ug/L	2665.25	92.15	92.74	93.59
As 188.980	As	5.17	ug/L	6.73	4.92	6.92	2.34
B 249.678	B	14.17	ug/L	127.33	12.53	14.2	15.15
Ba 233.527	Ba	30.2	ug/L	1218.96	29.66	29.88	30.07
Be 234.861	Be	-0.037	ug/L	-1.41	-0.007	-0.048	-0.039
Ca 315.887	Ca	11191.58	ug/L	59897.63	10976.39	11048.39	11212.24
Cd 214.439	Cd	0.09	ug/L	4.15	0.25	0	-0.01
Co 228.615	Co	-0.6	ug/L	4.34	-0.69	-0.97	-0.04
Cr 267.716	Cr	0.06	ug/L	30.83	-0.32	0.2	0.24
Cu 327.395	Cu	1.53	ug/L	-1627.71	1.49	1.44	1.66
Fe 261.187	Fe	82.68	ug/L	122.51	83.34	80.75	82.97
K 766.491	K	1003.11	ug/L	1680.29	965.41	1004.81	1010.62
Li 670.783	Li	-2.87	ug/L	9943.57	-2.79	-3.05	-3.13
Mg 279.078	Mg	3522.44	ug/L	9169.3	3438.89	3483.49	3526.15
Mn 257.610	Mn	7.69	ug/L	992.98	7.42	7.72	7.53
Mo 204.598	Mo	0.9	ug/L	-3.81	0.2	1.54	-0.14
Na 589.592	Na	2911.31	ug/L	23027.81	2866.05	2885.36	2891.95
Ni 231.604	Ni	0.97	ug/L	6.35	3.4	-0.11	-1.61
P 213.618	P	7.16	ug/L	-1.55	12.37	3.49	5.56
Pb 220.353	Pb	-2.58	ug/L	-0.69	-4.55	-1.52	-2.7
S 181.972	S	5098.73	ug/L	197.23	5069.06	5126.38	5010.72
Sb 206.834	Sb	0.62	ug/L	2.69	1.15	0.43	-0.2
Se 196.026	Se	2.44	ug/L	3.48	4.22	0.36	4.29
Si 251.611	Si	4078.38	ug/L	7043.01	4000.03	4032.3	4082.52
Sn 189.925	Sn	-1.59	ug/L	0.95	-1.56	-1.6	-0.77
Sr 421.552	Sr	46.98	ug/L	109416.72	46.19	46.48	46.77
Ti 334.941	Ti	0.49	ug/L	16287.78	0.74	0.57	0.31
Tl 190.794	Tl	-1.36	ug/L	-3.77	0.39	-1.28	-5.28
V 292.401	V	0.45	ug/L	7.53	0.43	0.59	0.06
Zn 206.200	Zn	1.56	ug/L	3.94	1.8	1.48	1.01

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484870002\_3258****Analysis Time: 5/12/2022 10:47:19 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.1	Ratio	632165.07	1.09	1.1	1.11
Ag 328.068	Ag	-0.19	ug/L	-1181.42	-0.09	-0.39	-0.16
Al 396.152	Al	94.06	ug/L	2732.57	94.51	94.35	93.53
As 188.980	As	0.63	ug/L	4.05	3.45	0.79	-1.35
B 249.678	B	17.8	ug/L	157.3	17.85	18.35	17.45
Ba 233.527	Ba	127.65	ug/L	5161.2	127.62	128.01	126.75
Be 234.861	Be	-0.063	ug/L	-5.465	-0.088	-0.053	-0.027
Ca 315.887	Ca	19356.69	ug/L	103544.21	19339.61	19330.24	19373.13
Cd 214.439	Cd	0.02	ug/L	2.77	0.07	0.03	0
Co 228.615	Co	0.29	ug/L	6.93	-0.6	0.92	0.79
Cr 267.716	Cr	0.15	ug/L	33.16	0.3	-0.02	0.35
Cu 327.395	Cu	1.5	ug/L	-1628.72	1.22	0.95	2.18
Fe 261.187	Fe	113.79	ug/L	177.98	111.37	114.28	111.62
K 766.491	K	1285.93	ug/L	2039.21	1307.36	1272.32	1263.51
Li 670.783	Li	0.54	ug/L	11820.11	0.65	0.61	0.47
Mg 279.078	Mg	5725.79	ug/L	14883.38	5718.15	5756.03	5701.3
Mn 257.610	Mn	63.78	ug/L	8204.37	63.38	64.1	63.91
Mo 204.598	Mo	0.24	ug/L	-6.26	0.13	0.49	0.21
Na 589.592	Na	14755.87	ug/L	117480.81	14788.23	14777.15	14705.58
Ni 231.604	Ni	1.24	ug/L	6.9	-0.67	2.78	0.74
P 213.618	P	24.21	ug/L	11.62	21.35	26.16	21.45
Pb 220.353	Pb	-1.75	ug/L	0.66	-2.41	-2.23	-2.02
S 181.972	S	4970.11	ug/L	192.29	4962.5	4949.65	4923.56
Sb 206.834	Sb	-1.91	ug/L	0.73	-3.11	-2.62	-0.67
Se 196.026	Se	-0.83	ug/L	1.47	-4.3	-3.88	2.88
Si 251.611	Si	3988.25	ug/L	6888.2	3972.29	3991.35	4006.53
Sn 189.925	Sn	-2.13	ug/L	0.37	-3.17	-1.37	-2.07
Sr 421.552	Sr	332.8	ug/L	773114.98	332.27	333.23	332.47
Ti 334.941	Ti	0.39	ug/L	16260.59	0.57	0.45	0.18
Tl 190.794	Tl	-1.7	ug/L	-3.98	-0.77	-3.71	-2.17
V 292.401	V	0.63	ug/L	11.14	0.71	0.75	0.61
Zn 206.200	Zn	1.71	ug/L	4.78	2.22	1.69	1.89

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484870003 3258****Analysis Time: 5/12/2022 10:49:18 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.11	Ratio	634592.37	1.1	1.11	1.11
Ag 328.068	Ag	-0.33	ug/L	-1187.5	-0.49	-0.14	-0.23
Al 396.152	Al	79.41	ug/L	2380.43	80.84	78.55	79.39
As 188.980	As	0.77	ug/L	4.14	0.37	1.86	-1.26
B 249.678	B	16.2	ug/L	144.13	16.76	16.32	15.94
Ba 233.527	Ba	52.69	ug/L	2129.4	52.48	52.33	53.46
Be 234.861	Be	-0.047	ug/L	-3.114	-0.029	-0.064	-0.023
Ca 315.887	Ca	23481.38	ug/L	125592.71	23390.22	23416.86	23694.07
Cd 214.439	Cd	0.01	ug/L	2.55	-0.03	0.04	0.08
Co 228.615	Co	-0.42	ug/L	5.56	0.37	-1.13	-0.09
Cr 267.716	Cr	0.09	ug/L	31.59	-0.04	-0.04	0.34
Cu 327.395	Cu	1.64	ug/L	-1625.24	1.08	1.74	1.84
Fe 261.187	Fe	102.31	ug/L	157.42	101.85	101.89	101.82
K 766.491	K	1163.54	ug/L	1885.05	1136.76	1177.07	1185.88
Li 670.783	Li	-1.62	ug/L	10626.63	-1.41	-1.65	-1.64
Mg 279.078	Mg	5286.86	ug/L	13745.14	5270.63	5245.83	5361.86
Mn 257.610	Mn	20.71	ug/L	2666.82	20.72	20.4	21.02
Mo 204.598	Mo	0.02	ug/L	-7.1	-0.63	-0.05	-0.04
Na 589.592	Na	6915.87	ug/L	54942.93	6917.65	6888.9	6946.02
Ni 231.604	Ni	0.93	ug/L	6.29	1.19	1.57	0.45
P 213.618	P	6.85	ug/L	-1.69	0.55	10.43	8.79
Pb 220.353	Pb	-1.54	ug/L	0.98	-1.67	0.61	-2.45
S 181.972	S	9812.69	ug/L	378.64	9794.09	9747.81	9927.25
Sb 206.834	Sb	0.42	ug/L	2.54	0.48	-2.85	3.48
Se 196.026	Se	-0.56	ug/L	1.62	-2.39	-0.25	0.5
Si 251.611	Si	2525.12	ug/L	4371.04	2505.65	2529.37	2553.44
Sn 189.925	Sn	-3.41	ug/L	-0.99	-6.38	-0.94	-3.99
Sr 421.552	Sr	125.16	ug/L	291232.02	124.69	124.89	125.72
Ti 334.941	Ti	0.86	ug/L	16374.6	1.21	0.74	0.7
Tl 190.794	Tl	-0.6	ug/L	-2.99	-2.25	-1.33	-3.41
V 292.401	V	0.73	ug/L	13.12	1.11	0.62	0.64
Zn 206.200	Zn	1.14	ug/L	3.09	1.49	1.31	0.39



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484870004 3258****Analysis Time: 5/12/2022 10:51:17 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.11	Ratio	632541.71	1.09	1.11	1.11
Ag 328.068	Ag	-0.4	ug/L	-1190.41	-0.31	-1.04	-0.06
Al 396.152	Al	68.51	ug/L	2115.81	68.61	69.56	68.48
As 188.980	As	2.87	ug/L	5.38	1.52	3.23	4.3
B 249.678	B	15.69	ug/L	140	16.16	16.22	15.12
Ba 233.527	Ba	45.1	ug/L	1822.38	45.14	44.68	44.73
Be 234.861	Be	-0.051	ug/L	-3.671	-0.085	-0.055	-0.05
Ca 315.887	Ca	24138.48	ug/L	129105.2	23921.01	24212.57	24086.53
Cd 214.439	Cd	-0.02	ug/L	1.97	-0.08	-0.06	-0.08
Co 228.615	Co	-0.23	ug/L	6.93	-0.41	-0.46	-0.35
Cr 267.716	Cr	-0.04	ug/L	27.07	0.07	-0.09	-0.06
Cu 327.395	Cu	1.59	ug/L	-1626.47	1.05	1.47	1.92
Fe 261.187	Fe	90.21	ug/L	135.84	90.27	92.25	92.81
K 766.491	K	1160.92	ug/L	1881.82	1162.04	1176.44	1141.47
Li 670.783	Li	-3.91	ug/L	9353.28	-3.74	-3.95	-3.99
Mg 279.078	Mg	5366.28	ug/L	13951.1	5297.47	5376.03	5421.38
Mn 257.610	Mn	12.2	ug/L	1572.82	11.81	12.31	12.3
Mo 204.598	Mo	0.23	ug/L	-6.33	0.51	0	0.8
Na 589.592	Na	8817.74	ug/L	70064.56	8779.03	8832.06	8823.32
Ni 231.604	Ni	0.52	ug/L	5.47	1.38	0.3	0.75
P 213.618	P	7.31	ug/L	-1.34	6.95	6.45	6.59
Pb 220.353	Pb	-1.77	ug/L	0.62	0.78	-3.76	-1.07
S 181.972	S	9089.82	ug/L	350.83	9069.18	9033.01	9109.12
Sb 206.834	Sb	2.25	ug/L	3.95	8.03	0.46	-2.12
Se 196.026	Se	1.09	ug/L	2.65	2.88	2.14	4.02
Si 251.611	Si	2611.85	ug/L	4520.24	2583.44	2610.03	2641.08
Sn 189.925	Sn	-1.56	ug/L	0.97	-3.23	-0.23	-0.94
Sr 421.552	Sr	115.71	ug/L	269302.6	115.22	115.76	115.85
Ti 334.941	Ti	0.56	ug/L	16302.02	0.69	0.67	0.28
Tl 190.794	Tl	-1.52	ug/L	-3.89	-3.34	-1.78	-0.56
V 292.401	V	0.81	ug/L	14.77	0.76	0.81	1.15
Zn 206.200	Zn	0.97	ug/L	2.56	0.67	0.46	0.92

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484870005 3258****Analysis Time: 5/12/2022 10:53:16 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	615387.33	1.07	1.08	1.07
Ag 328.068	Ag	-0.72	ug/L	-1201.18	-0.99	-0.54	-0.8
Al 396.152	Al	343.03	ug/L	8975.15	339.76	340.34	347.48
As 188.980	As	4.49	ug/L	6.37	5.21	7.01	0.42
B 249.678	B	55.31	ug/L	466.79	55.37	55.88	55.46
Ba 233.527	Ba	561.27	ug/L	22701.72	553.99	557.64	568.9
Be 234.861	Be	-0.004	ug/L	2.022	0.033	-0.009	0.025
Ca 315.887	Ca	49248.85	ug/L	263333.28	48966.85	48779.42	49802.61
Cd 214.439	Cd	0.2	ug/L	6.55	0.25	0.17	0.2
Co 228.615	Co	7.64	ug/L	37.39	7.09	7.8	7.79
Cr 267.716	Cr	0.41	ug/L	33.1	0.52	0.34	0.6
Cu 327.395	Cu	2.73	ug/L	-1594.73	2.92	2.21	3.06
Fe 261.187	Fe	417.11	ug/L	718.88	414.34	416.3	420.65
K 766.491	K	3137.44	ug/L	4381.95	3135.14	3101.19	3179.21
Li 670.783	Li	20.83	ug/L	23013.29	20.78	20.71	21.03
Mg 279.078	Mg	12750.37	ug/L	33100.7	12590.7	12829.96	12842.23
Mn 257.610	Mn	609.11	ug/L	78314.75	600.86	608.03	617.57
Mo 204.598	Mo	0.23	ug/L	-6.1	1.03	-0.71	-0.19
Na 589.592	Na	81477.05	ug/L	649317.21	81072.68	81043.98	82101.1
Ni 231.604	Ni	9.43	ug/L	23.17	10.91	11.75	7.12
P 213.618	P	11.33	ug/L	2	8.41	14.41	11.79
Pb 220.353	Pb	-2.23	ug/L	0.13	-0.71	-4.77	-1
S 181.972	S	8194.36	ug/L	316.43	8245.08	8068.71	8130.32
Sb 206.834	Sb	-3.06	ug/L	-0.2	-2.73	-1.3	-5.88
Se 196.026	Se	3.02	ug/L	4.01	-0.18	5.59	2.13
Si 251.611	Si	5206.47	ug/L	8985.18	5151.89	5163.22	5291.8
Sn 189.925	Sn	-1.78	ug/L	0.72	-2.92	-0.77	-2.46
Sr 421.552	Sr	1968.25	ug/L	4569983.68	1951.41	1964.2	1985.57
Ti 334.941	Ti	1	ug/L	16395.93	1.22	0.8	1
Tl 190.794	Tl	-2.23	ug/L	-3.56	-1.45	-0.88	0.48
V 292.401	V	1.07	ug/L	19.12	1.32	0.67	1.12
Zn 206.200	Zn	18.02	ug/L	57.32	17.69	17.55	17.59

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484870006 3258****Analysis Time: 5/12/2022 10:55:16 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	611376.66	1.06	1.07	1.07
Ag 328.068	Ag	-0.68	ug/L	-1197.4	-0.38	-0.92	-0.49
Al 396.152	Al	1138.16	ug/L	28443.11	1110.9	1125.73	1177.61
As 188.980	As	2.28	ug/L	5.06	0.89	2.17	4.69
B 249.678	B	95.79	ug/L	800.24	94.09	95.2	96.54
Ba 233.527	Ba	1073.9	ug/L	43436.33	1058.79	1071.92	1081.92
Be 234.861	Be	0.096	ug/L	14.185	0.066	0.097	0.126
Ca 315.887	Ca	55582.66	ug/L	297192.3	54592.77	55864.92	56117.41
Cd 214.439	Cd	0.37	ug/L	10.59	0.31	0.32	0.4
Co 228.615	Co	22.6	ug/L	107.99	22.49	22.59	22.83
Cr 267.716	Cr	0.77	ug/L	27.8	0.65	0.47	1.1
Cu 327.395	Cu	3.39	ug/L	-1575.05	3.3	3.96	3.19
Fe 261.187	Fe	1233.14	ug/L	2173.97	1212.74	1230.14	1249.57
K 766.491	K	4216.7	ug/L	5746.39	4145.36	4220.52	4242.94
Li 670.783	Li	12.24	ug/L	18144.82	12.19	12.24	12.29
Mg 279.078	Mg	12789.31	ug/L	33201.98	12582.36	12926.04	12814.67
Mn 257.610	Mn	1666.07	ug/L	214204.1	1642.56	1668.24	1674.62
Mo 204.598	Mo	0.15	ug/L	-6.19	-0.12	1	-0.31
Na 589.592	Na	133129.1	ug/L	1061373.43	131740.27	133532.45	133610.46
Ni 231.604	Ni	8.52	ug/L	21.37	8.11	8	9.24
P 213.618	P	19.25	ug/L	8.18	21.91	14.44	18.69
Pb 220.353	Pb	-1.17	ug/L	2	-2.16	0.52	-0.98
S 181.972	S	2494.57	ug/L	97.16	2484.97	2454.08	2560.85
Sb 206.834	Sb	-1.54	ug/L	1.01	-3	3.17	-3.74
Se 196.026	Se	-0.91	ug/L	1.86	-1.66	1.84	1.85
Si 251.611	Si	2958.7	ug/L	5119.39	2898.71	2982.27	2978.07
Sn 189.925	Sn	-2.57	ug/L	-0.12	-1.28	-4.31	-2.08
Sr 421.552	Sr	3697.89	ug/L	8584868.68	3652.66	3703.1	3725.99
Ti 334.941	Ti	5.04	ug/L	17365.97	4.64	4.41	6.43
Tl 190.794	Tl	-3.45	ug/L	-3.1	-1.37	-5.06	-3.67
V 292.401	V	1.42	ug/L	24.44	1.17	0.99	2.19
Zn 206.200	Zn	28.73	ug/L	91.33	28.28	28.65	29.66

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30484870007\_3258****Analysis Time: 5/12/2022 10:57:14 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	611696.51	1.04	1.08	1.08
Ag 328.068	Ag	-0.49	ug/L	-1192.99	-0.73	-0.09	-0.42
Al 396.152	Al	789.84	ug/L	19787.28	816.55	781.69	782.99
As 188.980	As	4.6	ug/L	6.43	-0.2	6.81	7.14
B 249.678	B	41.38	ug/L	351.65	42.26	40.11	41.47
Ba 233.527	Ba	204	ug/L	8251.15	207.97	201.89	203.08
Be 234.861	Be	0.003	ug/L	1.932	0.021	-0.025	-0.007
Ca 315.887	Ca	41190.28	ug/L	220256.9	41702.28	40616.5	41067.77
Cd 214.439	Cd	0.15	ug/L	5.88	0.24	0.19	0.19
Co 228.615	Co	1.92	ug/L	15.61	2.14	2.41	1.4
Cr 267.716	Cr	0.26	ug/L	28.86	0.24	0.43	0.15
Cu 327.395	Cu	3.86	ug/L	-1564.36	3.8	3.99	3.54
Fe 261.187	Fe	874.58	ug/L	1534.41	892.77	861.93	872.21
K 766.491	K	2215.37	ug/L	3215.63	2243.71	2164.61	2233.72
Li 670.783	Li	-0.29	ug/L	11323.01	0.35	-0.56	-0.46
Mg 279.078	Mg	8384.61	ug/L	21778.89	8456.39	8316.02	8349.88
Mn 257.610	Mn	552.22	ug/L	71001.52	557.08	544.87	550.98
Mo 204.598	Mo	0.22	ug/L	-6.18	-0.35	0.6	0.36
Na 589.592	Na	75760.73	ug/L	603140.06	77303.31	74846.78	75392.55
Ni 231.604	Ni	1.64	ug/L	7.73	1.39	1.44	0.45
P 213.618	P	32.59	ug/L	18.16	33.7	34.88	31.14
Pb 220.353	Pb	-1.81	ug/L	0.67	-2.94	-3.58	0.54
S 181.972	S	1834.75	ug/L	71.69	1909.3	1846.45	1757.78
Sb 206.834	Sb	-0.5	ug/L	1.81	3.45	-7.4	-0.14
Se 196.026	Se	1.57	ug/L	3.05	-0.65	-2.7	7.71
Si 251.611	Si	2155.07	ug/L	3735.32	2185.12	2147.75	2145.82
Sn 189.925	Sn	-2.05	ug/L	0.44	-1.37	-4.12	-1.69
Sr 421.552	Sr	1575.27	ug/L	3657588.02	1609.21	1557.05	1565.72
Ti 334.941	Ti	3.03	ug/L	16892.55	3.94	3.02	2.62
Tl 190.794	Tl	-1.32	ug/L	-2.87	0.38	-1.68	-0.87
V 292.401	V	1.49	ug/L	26.86	1.37	1.48	1.76
Zn 206.200	Zn	28.76	ug/L	90.81	29.72	28.23	28.42

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485551001 3258****Analysis Time: 5/12/2022 10:59:13 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.1	Ratio	626840.58	1.09	1.1	1.09
Ag 328.068	Ag	-0.48	ug/L	-1193.44	-0.5	-0.47	-0.65
Al 396.152	Al	19.71	ug/L	1053.01	18.87	19.62	20.56
As 188.980	As	4.18	ug/L	6.19	2.68	3.95	7.47
B 249.678	B	22.75	ug/L	198.36	22.03	22.63	22.65
Ba 233.527	Ba	58.82	ug/L	2380.14	57.37	58.8	59.76
Be 234.861	Be	-0.058	ug/L	-4.674	-0.052	-0.057	-0.093
Ca 315.887	Ca	52865.08	ug/L	282663.1	52214.94	52894.7	53214.65
Cd 214.439	Cd	-0.03	ug/L	1.63	0.05	-0.09	-0.09
Co 228.615	Co	-0.49	ug/L	7.13	-0.86	-0.52	-0.45
Cr 267.716	Cr	-0.03	ug/L	28.07	-0.11	-0.02	0.15
Cu 327.395	Cu	1.51	ug/L	-1629.32	0.97	1.05	2.07
Fe 261.187	Fe	21.57	ug/L	13.5	22.58	19.1	21.48
K 766.491	K	1338.61	ug/L	2112.3	1322.84	1368.47	1331.96
Li 670.783	Li	3.86	ug/L	13652.03	4.01	3.73	3.97
Mg 279.078	Mg	13830.27	ug/L	35901.15	13589.69	13918.37	13891.84
Mn 257.610	Mn	6.45	ug/L	833.39	6.26	6.48	6.36
Mo 204.598	Mo	0.08	ug/L	-6.85	0.65	0.06	0.38
Na 589.592	Na	28195.97	ug/L	224317.26	28081.68	28255.26	28227.31
Ni 231.604	Ni	0.77	ug/L	6.05	0.71	0.6	0.49
P 213.618	P	6.82	ug/L	-1.44	6.3	12.28	5.81
Pb 220.353	Pb	-2.34	ug/L	-0.17	-4.16	-1.34	-3.66
S 181.972	S	15455.88	ug/L	595.84	15356.98	15527.36	15452.75
Sb 206.834	Sb	0.39	ug/L	2.44	-2.95	3.1	-0.33
Se 196.026	Se	1.65	ug/L	2.99	-1.73	1.11	7.48
Si 251.611	Si	5339.24	ug/L	9212.98	5286.41	5330.17	5354.34
Sn 189.925	Sn	-1.74	ug/L	0.75	-1.63	-1.72	-1.78
Sr 421.552	Sr	302.6	ug/L	703894.42	300.87	303.07	303.4
Ti 334.941	Ti	-0.15	ug/L	16121.83	0.17	-0.2	-0.29
Tl 190.794	Tl	-0.87	ug/L	-3.19	0.37	-2.01	0.79
V 292.401	V	0.73	ug/L	13.4	0.85	1.13	0.46
Zn 206.200	Zn	1.68	ug/L	5.93	1.28	1.4	1.6

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485551002\_3258****Analysis Time: 5/12/2022 11:01:11 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	624739.21	1.09	1.1	1.09
Ag 328.068	Ag	-0.46	ug/L	-1192.89	-0.59	-0.7	-0.25
Al 396.152	Al	123.51	ug/L	3582.69	123.16	122.37	123.92
As 188.980	As	2.04	ug/L	4.93	-1.66	1.96	-0.49
B 249.678	B	20.88	ug/L	182.94	20.84	19.87	22.18
Ba 233.527	Ba	52.97	ug/L	2143.32	51.93	52.37	53.66
Be 234.861	Be	-0.085	ug/L	-8.775	-0.042	-0.141	-0.08
Ca 315.887	Ca	51533.68	ug/L	275546.35	50743.66	51083.97	52059.09
Cd 214.439	Cd	0.09	ug/L	4.23	0.13	0.16	0.06
Co 228.615	Co	-0.64	ug/L	6.44	-0.62	-1.07	-1.23
Cr 267.716	Cr	0.19	ug/L	35.59	0.29	0.09	0.07
Cu 327.395	Cu	1.61	ug/L	-1626.7	1.61	2.05	1.12
Fe 261.187	Fe	105.25	ug/L	162.5	102.23	104.81	108.41
K 766.491	K	1249.13	ug/L	1998.83	1244.22	1259.61	1209.74
Li 670.783	Li	3.42	ug/L	13409.41	3.35	3.15	3.49
Mg 279.078	Mg	10359.23	ug/L	26899.72	10209.92	10223.97	10434.58
Mn 257.610	Mn	25.16	ug/L	3239.25	24.73	24.83	25.54
Mo 204.598	Mo	0.44	ug/L	-5.52	0.71	1.03	-0.1
Na 589.592	Na	21771.32	ug/L	173175.2	21554.99	21693.66	21813.78
Ni 231.604	Ni	1.53	ug/L	7.51	0.72	1.8	-0.21
P 213.618	P	7.59	ug/L	-0.88	6.6	11.79	3.97
Pb 220.353	Pb	-1.22	ug/L	1.55	-3.83	-1.01	-4.3
S 181.972	S	14277.63	ug/L	550.5	14126.45	14127.29	14366.91
Sb 206.834	Sb	-1.29	ug/L	1.16	0.41	-0.21	-2.11
Se 196.026	Se	5.15	ug/L	5.16	4.92	-0.53	3.41
Si 251.611	Si	5193.49	ug/L	8962.16	5107.42	5178.42	5242.98
Sn 189.925	Sn	-2.66	ug/L	-0.23	-2.09	-2.04	-3.49
Sr 421.552	Sr	224.33	ug/L	522234.68	221.27	223.36	225.36
Ti 334.941	Ti	0.9	ug/L	16377.58	1.23	0.9	0.72
Tl 190.794	Tl	-2.2	ug/L	-4.47	-2.79	-3.29	-2.82
V 292.401	V	0.87	ug/L	15.91	0.36	0.77	1.79
Zn 206.200	Zn	1.03	ug/L	3.83	0.78	1.29	1.83

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485551003 3258****Analysis Time: 5/12/2022 11:03:10 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	621027.93	1.09	1.09	1.08
Ag 328.068	Ag	-0.52	ug/L	-1195.05	-0.4	-0.69	-0.61
Al 396.152	Al	220.37	ug/L	5951.84	218.3	220.64	221.3
As 188.980	As	1.84	ug/L	4.81	-0.58	2.77	0.55
B 249.678	B	20.7	ug/L	181.36	19.91	20.57	20.6
Ba 233.527	Ba	61.28	ug/L	2479.54	59.95	61.87	62.22
Be 234.861	Be	-0.053	ug/L	-5.056	-0.07	-0.05	-0.039
Ca 315.887	Ca	54389.72	ug/L	290813.46	53690.32	54172.48	55259.87
Cd 214.439	Cd	0.1	ug/L	4.47	0.22	0.02	0.03
Co 228.615	Co	-0.4	ug/L	7.74	-0.41	-0.57	-0.38
Cr 267.716	Cr	0.12	ug/L	29.96	-0.12	0.31	0.22
Cu 327.395	Cu	1.81	ug/L	-1621.12	2.55	1.42	1.83
Fe 261.187	Fe	329.02	ug/L	561.48	325.41	327.44	333.42
K 766.491	K	1238.97	ug/L	1986.44	1210.47	1238.63	1253.68
Li 670.783	Li	3.89	ug/L	13665.04	3.79	3.83	4.13
Mg 279.078	Mg	10594.25	ug/L	27509.25	10502.94	10539.21	10724.09
Mn 257.610	Mn	186.93	ug/L	24038.2	183.63	186.79	189.55
Mo 204.598	Mo	0.58	ug/L	-4.97	0.77	1.04	0.6
Na 589.592	Na	22037.51	ug/L	175309.84	21873.72	22019.95	22152.76
Ni 231.604	Ni	-0.19	ug/L	4.12	0.42	0.31	-0.36
P 213.618	P	11.21	ug/L	1.91	7.63	8.07	14.69
Pb 220.353	Pb	-2.74	ug/L	-0.8	-2.34	-2.86	-2.79
S 181.972	S	14521.19	ug/L	559.88	14288.37	14415.08	14708.99
Sb 206.834	Sb	-0.93	ug/L	1.44	-0.95	-1.75	1.32
Se 196.026	Se	3.85	ug/L	4.39	1.44	3.84	8.41
Si 251.611	Si	5372.46	ug/L	9270.24	5270.03	5362.77	5494.29
Sn 189.925	Sn	-3.24	ug/L	-0.84	-3.46	-3.25	-3.49
Sr 421.552	Sr	228.46	ug/L	531869.33	226.22	228.25	229.89
Ti 334.941	Ti	1.03	ug/L	16407.6	0.99	1.1	1
Tl 190.794	Tl	-1.11	ug/L	-3.19	1.24	1.59	-3.73
V 292.401	V	0.98	ug/L	17.66	1.03	0.86	1.47
Zn 206.200	Zn	2.6	ug/L	8.83	2.29	2.7	2.2

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 11:05:09 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.07	Ratio	615111.57	1.04	1.08	1.08
Ag 328.068	Ag	1019.66	ug/L	40735.31	1035.85	1013.61	1019.3
Al 396.152	Al	9918.86	ug/L	244136.19	10074.33	9851.39	9919.03
As 188.980	As	2041.8	ug/L	1203.2	2075.94	2027.94	2024.22
B 249.678	B	2102.02	ug/L	17356.77	2129.89	2089.03	2107.23
Ba 233.527	Ba	2079.96	ug/L	84111.37	2117.43	2066.93	2078.28
Be 234.861	Be	2033.077	ug/L	301742.61	2065.639	2021.064	2032.491
Ca 315.887	Ca	10380.91	ug/L	55590.32	10561.39	10315.18	10387.48
Cd 214.439	Cd	2064.7	ug/L	42783.37	2074.98	2036.54	2075.25
Co 228.615	Co	2095.27	ug/L	12207.06	2128.39	2082.53	2094.21
Cr 267.716	Cr	2045.85	ug/L	73740.9	2079.27	2033.19	2044.27
Cu 327.395	Cu	2001.06	ug/L	52587.58	2032.77	1989.11	2000.46
Fe 261.187	Fe	10184.62	ug/L	18120.53	10347.67	10131.51	10163.1
K 766.491	K	10050.03	ug/L	13141.18	10273.41	9987.76	10031.96
Li 670.783	Li	1912.93	ug/L	1073345.67	1940.68	1902.27	1913.63
Mg 279.078	Mg	10104.35	ug/L	26237.85	10272.62	10036.01	10104.45
Mn 257.610	Mn	2053.84	ug/L	264170.7	2089.25	2042.46	2051.61
Mo 204.598	Mo	1968.04	ug/L	7338.41	2001.15	1961.02	1961.9
Na 589.592	Na	10302.51	ug/L	85776.07	10493.41	10254.88	10264.72
Ni 231.604	Ni	2027.7	ug/L	4017.69	2061.16	2017.21	2021.94
P 213.618	P	2035.85	ug/L	1491.9	2059.46	2017.5	2025.97
Pb 220.353	Pb	2053.27	ug/L	3208.91	2089.33	2040.43	2054.93
S 181.972	S	10027.83	ug/L	386.91	10204.43	9994.37	9983.24
Sb 206.834	Sb	2047.04	ug/L	1588.55	2068.4	2031.78	2056.82
Se 196.026	Se	2072.65	ug/L	1284.85	2106.16	2055.74	2080.94
Si 251.611	Si	10677.74	ug/L	18451.42	10827.68	10590.65	10699.89
Sn 189.925	Sn	2022.88	ug/L	2152.09	2049.24	2016.94	2027.14
Sr 421.552	Sr	2074.72	ug/L	4815812.61	2109.94	2062.43	2070.58
Ti 334.941	Ti	2010.61	ug/L	502601.98	2044.6	1995.59	2009.59
Tl 190.794	Tl	2121.95	ug/L	2046.48	2159.03	2114.9	2114.81
V 292.401	V	2038.71	ug/L	39505.77	2069.7	2027.04	2037.33
Zn 206.200	Zn	2067.69	ug/L	6519.93	2098.21	2059.4	2058.53



## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 11:07:09 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	624295.71	1.04	1.11	1.11
Ag 328.068	Ag	0.18	ug/L	-1166.83	-0.3	0.26	0.14
Al 396.152	Al	0.25	ug/L	344.98	1.83	0.03	-0.59
As 188.980	As	-0.62	ug/L	3.3	2	-2.78	-0.92
B 249.678	B	1.67	ug/L	24.17	3.01	1.77	1.14
Ba 233.527	Ba	0.35	ug/L	10.26	0.39	0.37	0.45
Be 234.861	Be	0.125	ug/L	22.916	0.236	0.141	0.063
Ca 315.887	Ca	6.87	ug/L	109.67	8.53	7.33	5.96
Cd 214.439	Cd	0.09	ug/L	4.07	0.05	0.15	-0.03
Co 228.615	Co	-0.05	ug/L	7.65	0.3	-0.21	-0.61
Cr 267.716	Cr	0.11	ug/L	32.61	0.28	0.27	-0.12
Cu 327.395	Cu	0.67	ug/L	-1650.87	-0.45	0.95	1.4
Fe 261.187	Fe	3.01	ug/L	-19.58	-0.75	4.02	3.04
K 766.491	K	-14.68	ug/L	394.29	-4.36	-7.75	-37.58
Li 670.783	Li	-2.29	ug/L	10276.12	-1.32	-2.65	-2.55
Mg 279.078	Mg	3.52	ug/L	43.56	3.49	3.46	3.89
Mn 257.610	Mn	0.21	ug/L	31.82	0.35	0.25	0.15
Mo 204.598	Mo	2.64	ug/L	2.64	1.08	3.55	3.69
Na 589.592	Na	30.75	ug/L	44.27	34.84	31.03	27.15
Ni 231.604	Ni	0.29	ug/L	4.97	1.72	-1.13	-0.4
P 213.618	P	1.15	ug/L	-6.28	-1.54	2.47	2.75
Pb 220.353	Pb	-1.16	ug/L	1.49	-2.14	-0.42	-1.02
S 181.972	S	22.28	ug/L	1.86	-14.93	34.53	44.61
Sb 206.834	Sb	1.51	ug/L	3.39	3.4	1.19	3.43
Se 196.026	Se	0.35	ug/L	2.19	0.22	-0.2	-0.64
Si 251.611	Si	4.63	ug/L	34.41	7.26	3.86	5.12
Sn 189.925	Sn	-1.96	ug/L	0.57	-1.92	-2.23	-2.85
Sr 421.552	Sr	0.26	ug/L	671.17	0.36	0.25	0.23
Ti 334.941	Ti	-0.01	ug/L	16170.26	1.74	-0.3	-0.75
Tl 190.794	Tl	2.64	ug/L	0.04	0.67	4.49	1.49
V 292.401	V	0.52	ug/L	8.76	0.69	0.41	0.75
Zn 206.200	Zn	0.62	ug/L	0.54	0.68	0.94	-0.21

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: 30485551004 3258****Analysis Time: 5/12/2022 11:09:08 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.09	Ratio	623703.53	1.09	1.09	1.09
Ag 328.068	Ag	-0.5	ug/L	-1194.38	-0.76	-0.77	-0.08
Al 396.152	Al	164.46	ug/L	4596.14	162.82	163.24	166.11
As 188.980	As	2.6	ug/L	5.26	3.5	0.1	1.43
B 249.678	B	21.13	ug/L	185.08	20.04	21.22	21.25
Ba 233.527	Ba	56.13	ug/L	2271.36	54.64	56.24	56.88
Be 234.861	Be	-0.048	ug/L	-3.58	-0.014	-0.064	-0.04
Ca 315.887	Ca	56356.99	ug/L	301329.38	55568.66	56198.12	57083.8
Cd 214.439	Cd	0.1	ug/L	4.39	0.1	0.12	0.14
Co 228.615	Co	-0.6	ug/L	6.81	-0.89	-0.44	-0.19
Cr 267.716	Cr	0.22	ug/L	36.19	0.41	0.16	-0.2
Cu 327.395	Cu	1.48	ug/L	-1630.37	1.11	1.74	1.18
Fe 261.187	Fe	170.83	ug/L	279.37	168.45	171.85	173.75
K 766.491	K	1224.04	ug/L	1967.77	1213.61	1222.01	1217.76
Li 670.783	Li	4.11	ug/L	13792.82	4.11	3.92	4.13
Mg 279.078	Mg	10174.46	ug/L	26420.59	9961.09	10284.66	10166.98
Mn 257.610	Mn	42.49	ug/L	5468.27	42.1	42.49	42.64
Mo 204.598	Mo	0.5	ug/L	-5.28	-0.27	1.11	0.44
Na 589.592	Na	21522.52	ug/L	171201.62	21411.02	21494.15	21607.32
Ni 231.604	Ni	0.02	ug/L	4.54	-0.24	0.72	0.04
P 213.618	P	16.96	ug/L	6.34	18.81	15.37	21.11
Pb 220.353	Pb	-1.7	ug/L	0.81	-1.07	-1.79	-0.78
S 181.972	S	14522.84	ug/L	559.94	14521.45	14454.26	14532.19
Sb 206.834	Sb	-0.13	ug/L	2.06	-0.28	-2.52	-0.19
Se 196.026	Se	-1.34	ug/L	1.14	-4.45	6.36	-5.62
Si 251.611	Si	5431.81	ug/L	9372.21	5334.85	5459.98	5449.56
Sn 189.925	Sn	-2.25	ug/L	0.2	-2.35	-4.23	0.08
Sr 421.552	Sr	220.38	ug/L	513150.63	218.76	219.84	221.58
Ti 334.941	Ti	0.87	ug/L	16367.26	0.86	0.96	0.71
Tl 190.794	Tl	-0.77	ug/L	-3.06	5.87	-5.59	-1.77
V 292.401	V	0.91	ug/L	16.58	1.11	0.98	0.77
Zn 206.200	Zn	1.16	ug/L	4.34	1.51	1.41	0.58

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCV****Analysis Time: 5/12/2022 11:11:07 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.02	Ratio	585234.07	1.06	1.08	1.06
Ag 328.068	Ag	1072.9	ug/L	42923.96	1012.01	1005.87	1031.56
Al 396.152	Al	10441.06	ug/L	256975.37	9828.62	9770.45	10034.98
As 188.980	As	2154.77	ug/L	1270.04	2034.77	2016.54	2081.63
B 249.678	B	2212.9	ug/L	18271.29	2084.14	2071.14	2131.65
Ba 233.527	Ba	2189.51	ug/L	88541.41	2069.2	2046.43	2104.97
Be 234.861	Be	2138.371	ug/L	317369.553	2018.908	2000.445	2054.131
Ca 315.887	Ca	10900.03	ug/L	58366.64	10330.58	10214.93	10457.39
Cd 214.439	Cd	2148.01	ug/L	44509.7	2013.6	2012.75	2079.92
Co 228.615	Co	2206.33	ug/L	12849.48	2081.14	2060.26	2122.8
Cr 267.716	Cr	2152.03	ug/L	77566.61	2031.92	2012.54	2067.81
Cu 327.395	Cu	2105.87	ug/L	55429.29	1985.83	1974.75	2024.64
Fe 261.187	Fe	10717.15	ug/L	19069.74	10088.9	10019.18	10297.31
K 766.491	K	10569.25	ug/L	13798.6	10045.13	9877.97	10115.23
Li 670.783	Li	2016.5	ug/L	1130844.61	1902.49	1890.28	1936.4
Mg 279.078	Mg	10620.97	ug/L	27577.66	10026.51	9940.79	10218.77
Mn 257.610	Mn	2164.44	ug/L	278396.19	2039.99	2021.7	2081.18
Mo 204.598	Mo	2073.72	ug/L	7732.81	1930.3	1933.04	2009.5
Na 589.592	Na	10833.13	ug/L	90208.81	10196.45	10135.86	10405.88
Ni 231.604	Ni	2128.56	ug/L	4217.33	2010.69	1989.63	2049.18
P 213.618	P	2141.93	ug/L	1569.94	2004.69	1987.57	2099.45
Pb 220.353	Pb	2158.96	ug/L	3373.9	2036.71	2024.58	2072
S 181.972	S	10531.48	ug/L	406.29	9993.79	9855.48	10063.23
Sb 206.834	Sb	2159.21	ug/L	1674.32	2027.87	2035.66	2070.19
Se 196.026	Se	2177.71	ug/L	1349.87	2046.2	2045.45	2092.03
Si 251.611	Si	11236.38	ug/L	19415.5	10563.89	10516.21	10820.75
Sn 189.925	Sn	2123.59	ug/L	2259.1	2008.19	1985.58	2045.98
Sr 421.552	Sr	2186.46	ug/L	5075174.2	2060.79	2047.89	2101.66
Ti 334.941	Ti	2121.28	ug/L	529372.75	1984.44	1987.09	2036.01
Tl 190.794	Tl	2233.01	ug/L	2153.67	2107.35	2093.44	2150.72
V 292.401	V	2145.52	ug/L	41579.21	2025.44	2008.14	2065.6
Zn 206.200	Zn	2168.97	ug/L	6839.46	2016.09	2021.89	2102.69

## Agilent 5110 ICP-OES Report

Analyst:

File: Worksheet exported from: 05-11-2022A Leave it to Beaver Water 73IP04.esws

Report Generation Time: 7/26/2022 12:56:22 PM

**Sample: CCB****Analysis Time: 5/12/2022 11:13:07 AM**

Element	Element Label	Calc. Conc.	Unit	Intensity (c/s)	Conc. Rep. 1	Conc. Rep. 2	Conc. Rep. 3
Y 371.029	371 Y	1.08	Ratio	616633.86	1.03	1.09	1.09
Ag 328.068	Ag	0.15	ug/L	-1168	-0.75	0.6	0.37
Al 396.152	Al	0.35	ug/L	347.1	0.76	0.87	0.01
As 188.980	As	2.91	ug/L	5.38	3.72	0.48	6.19
B 249.678	B	1.88	ug/L	25.92	3.44	2.12	1.38
Ba 233.527	Ba	0.34	ug/L	9.8	0.28	0.24	0.34
Be 234.861	Be	0.17	ug/L	29.742	0.147	0.118	0.177
Ca 315.887	Ca	-1.24	ug/L	66.33	-0.63	-3.45	-1.61
Cd 214.439	Cd	0.1	ug/L	4.3	0.14	0.14	0.03
Co 228.615	Co	0.13	ug/L	8.69	-0.85	1.62	-0.44
Cr 267.716	Cr	0.19	ug/L	35.44	0.2	0.06	0.24
Cu 327.395	Cu	0.7	ug/L	-1650.01	-0.39	1.39	0.34
Fe 261.187	Fe	2.62	ug/L	-20.27	6.06	0.55	2.1
K 766.491	K	-25.15	ug/L	381.09	-45.38	-0.63	-19.35
Li 670.783	Li	-2.45	ug/L	10189.48	-1.58	-2.77	-2.63
Mg 279.078	Mg	1.77	ug/L	39.02	3.29	-0.73	1.67
Mn 257.610	Mn	0.2	ug/L	30.85	0.2	0.19	0.23
Mo 204.598	Mo	2.52	ug/L	2.18	2.41	1.34	3.83
Na 589.592	Na	26.56	ug/L	10.84	24.68	28.56	30.64
Ni 231.604	Ni	-0.39	ug/L	3.61	0.61	-0.94	-0.25
P 213.618	P	0.12	ug/L	-7.07	-4.51	-1.72	4.59
Pb 220.353	Pb	-0.52	ug/L	2.5	1.93	-2.25	-2.59
S 181.972	S	-1.95	ug/L	0.93	25.87	-46.3	27.71
Sb 206.834	Sb	0.65	ug/L	2.72	2.1	0.82	1.39
Se 196.026	Se	6.27	ug/L	5.85	3.28	9.68	6.8
Si 251.611	Si	2.9	ug/L	31.43	7.63	3.52	1.08
Sn 189.925	Sn	-1.67	ug/L	0.88	-1.47	-0.91	-0.45
Sr 421.552	Sr	0.19	ug/L	520.25	0.13	0.17	0.22
Ti 334.941	Ti	0.41	ug/L	16271.27	1.44	-0.49	0.35
Tl 190.794	Tl	0.9	ug/L	-1.63	-1.49	3.32	1.55
V 292.401	V	0.54	ug/L	9.15	0.85	0.61	1.05
Zn 206.200	Zn	0.24	ug/L	-0.66	0.48	0.33	-0.77



# Prep Log Report

Batch Information: BMPR 2007 WBV\_P HBN 502031

Template Version: F-PA-I-001-Rev.02 (21Nov2021)

Prep Method	EPA 200.7	Analysis Method	EPA 200.7	Prepared By	TPL	Block ID	73HB05
Thermometer ID	73TM1A	Correction Factor (C)	-0.3	Block Temp (C)	94.2	Corrected Temp. (C)	93.90
Therm. Position	g7	Acceptance Range	90-95 C	Digestion Start Date/Time	05/04/2022 13:56:15:046	Digestion End Date/Time	05/04/2022 16:56:17:135
Digestion Vessel	185730	pH Test Strips	178902	Metals Pipette 1	73PP62	Metals Pipette 2	73PP63
Metals Pipette 3	73PP13	Dispenser ID 1		Dispenser ID 2		Dispenser ID 3	
Dispenser ID 4		Reviewed By	AGB	Reviewed By Date	05/11/2022 16:30	Batch Notes	

Sample Information:

QC Rule	Sample Type	Lab Sample ID	Select	Matrix	pH < 2	Initial Volume (mL)	Conc. HNO3 (mL)	Conc. HCL (mL)	Final Volume (mL)	Filtered	Container ID	Sample Notes	ICPBV-SPK1 (mL)	ICPBV-SPK2 (mL)
2007 WBV_P	BLANK	2430096	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	LCS	2430097	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1		177336 (.2)	177338 (.2)
2007 WBV_P	PS	30484028001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	MS	2430145	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1		177336 (.2)	177338 (.2)
2007 WBV_P	MSD	2430146	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1		177336 (.2)	177338 (.2)
2007 WBV_P	PS	30484028003	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484028004	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484145001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484158001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484158002	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484211001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484248002	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484249002	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484253002	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30484256003	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30485042001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			



# Prep Log Report

QC Rule	Sample Type	Lab Sample ID	Select	Matrix	pH < 2	Initial Volume (mL)	Conc. HNO3 (mL)	Conc. HCL (mL)	Final Volume (mL)	Filtered	Container ID	Sample Notes	ICPBV-SPK1 (mL)	ICPBV-SPK2 (mL)
2007 WBV_P	PS	30485371001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30483781001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30483803001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	MS	2430147	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1		177336 (.2)	177338 (.2)
2007 WBV_P	MSD	2430148	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1		177336 (.2)	177338 (.2)
2007 WBV_P	PS	30483821001	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30483821002	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			
2007 WBV_P	PS	30483821003	Y	Water	Yes	10	181830 (0.4)	183073 (0.5)	10	No	1			

QC Rule	Sample Type	Lab Sample ID	ICPBV-SPK3 (mL)
2007 WBV_P	BLANK	2430096	
2007 WBV_P	LCS	2430097	177340 (.2)
2007 WBV_P	PS	30484028001	
2007 WBV_P	MS	2430145	177340 (.2)
2007 WBV_P	MSD	2430146	177340 (.2)
2007 WBV_P	PS	30484028003	
2007 WBV_P	PS	30484028004	
2007 WBV_P	PS	30484145001	
2007 WBV_P	PS	30484158001	
2007 WBV_P	PS	30484158002	
2007 WBV_P	PS	30484211001	
2007 WBV_P	PS	30484248002	



# Prep Log Report

QC Rule	Sample Type	Lab Sample ID	ICPBV-SPK3 (mL)
2007 WBV_P	PS	30484249002	
2007 WBV_P	PS	30484253002	
2007 WBV_P	PS	30484256003	
2007 WBV_P	PS	30485042001	
2007 WBV_P	PS	30485371001	
2007 WBV_P	PS	30483781001	
2007 WBV_P	PS	30483803001	
2007 WBV_P	MS	2430147	177340 (.2)
2007 WBV_P	MSD	2430148	177340 (.2)
2007 WBV_P	PS	30483821001	
2007 WBV_P	PS	30483821002	
2007 WBV_P	PS	30483821003	

**Standard Notes:**

177336: BMET ICP SPIKE A

177338: BMET ICP SPIKE B

177340: BMET ICP SPIKE ALT-METS



# Prep Log Report

Batch Information: BMPR 501539 6010D SBVP

Template Version: F-PA-I-002-Rev.02 (21Nov2021)

Prep Method	EPA 3050B	Analysis Method	EPA 6010D	Prepared By	SLL	Instrument	73BL12
Block ID	73HB04	Thermometer ID	73TM0S	Correction Factor (C)	.6	Block Temp (C)	94.3
Corrected Temp. (C)	94.90	Therm. Position	A1	Acceptance Range	90-95 C	Digestion Start Date/Time	05/03/2022 08:39:00
Digestion End Date/Time	05/03/2022 11:49:14:601	Digestion Vessel	185730	Boiling Chips	183909	Metals Pipette 1	73PP07
Metals Pipette 2	N/A	Dispenser ID 1	N/A	Dispenser ID 2	N/A	Dispenser ID 3	N/A
Dispenser ID 4	N/A	Reviewed By	MFC	Reviewed By Date	05/03/2022 12:44	Batch Notes	

Sample Information:

QC Rule	Sample Type	Lab Sample ID	Select	Matrix	Initial Weight (g)	Conc. HNO3 (mL)	H2O2 (mL)	Conc. HCL (mL)	Final Volume (mL)	Container ID	Sample Notes	ICPBV-SPK1 (mL)	ICPBV-SPK2 (mL)	ICPBV-SPK3 (mL)
6010D SBVP	PS	30470762001	Y	Solid	1	184553 (7.5)	181427 (2.5)	184551 (5)	50	1				
6010D SBVP	BLANK	2427569	Y	Solid	1	184553 (7.5)	181427 (2.5)	184551 (5)	50	1				
6010D SBVP	LCS	2427570	Y	Solid	1	184553 (7.5)	181427 (2.5)	184551 (5)	50	1		177336 (1)	177338 (1)	177340 (1)
6010D SBVP	DUP	2427571	Y	Solid	1	184553 (7.5)	181427 (2.5)	184551 (5)	50	1				
6010D SBVP	PS	30481063008	Y	Solid	0.98	184553 (7.5)	181427 (2.5)	184551 (5)	50	1				
6010D SBVP	DUP	2427572	Y	Solid	0.98	184553 (7.5)	181427 (2.5)	184551 (5)	50	1				
6010D SBVP	PS	30485042002	Y	Solid	1	184553 (7.5)	181427 (2.5)	184551 (5)	50	1				
6010D SBVP	MS	2427573	Y	Solid	1	184553 (7.5)	181427 (2.5)	184551 (5)	50	1		177336 (1)	177338 (1)	177340 (1)
6010D SBVP	MSD	2427574	Y	Solid	0.98	184553 (7.5)	181427 (2.5)	184551 (5)	50	1		177336 (1)	177338 (1)	177340 (1)
6010D SBVP	PS	30485094001	Y	Solid	1	184553 (7.5)	181427 (2.5)	184551 (5)	50	1				

Standard Notes:

177336: BMET ICP SPIKE A

177338: BMET ICP SPIKE B

177340: BMET ICP SPIKE ALT-METS



FORM I INORGANIC-1  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-1

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001  
Lab Sample ID: 30485042002 Percent Moisture: 20.7

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
18540-29-9	Chromium, Hexavalent	0.92	J	mg/kg	1	05/06/2022 17:52

FORM II INORGANIC-1  
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Initial Calibration Verification Source: 181475

Continuing Calibration Verification Source: 186340

Concentration Units: mg/L Instrument ID: 30WETF

	Initial Calibration Verification				Continuing Calibration Verification						
	03/23/2022 15:27				05/06/2022 17:48			05/06/2022 17:56			Control Limit
Analyte	True	Found	%R	Control Limit	True	Found	%R	True	Found	%R	
Chromium, Hexavalent	0.5	0.50	100.1	80-120	0.1	0.10	100.7	0.1	0.10	101.9	90-110

FORM III INORGANIC-1  
BLANKS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract : 768569-001

Method Blank Matrix: Solid Instrument ID: 30WETF

Method Blank Concentration Units: mg/kg

Analyte	Initial Calibration Blank (mg/L)		Continuing Calibration Blank (mg/L)						Method Blank	
	03/23/2022 15:28	C	05/06/2022 17:49	C	05/06/2022 17:56	C		C	2431334	C
Chromium, Hexavalent	0.018	J	0.018	J	0.017	J			0.66	J

FORM V INORGANIC-1  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

2431336MS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Solid Basis: Dry Parent Sample ID: SED-1

Percent Moisture: 20.7

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Chromium, Hexavalent	mg/kg	75-125	ND	0.92J	25.0	-1*

\* Spike Recovery outside QC Limits

07/19/2022 08:38

FORM V INORGANIC-2  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

2431337MSD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Solid Basis: Dry Parent Sample ID: SED-1

Percent Moisture: 20.7

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Chromium, Hexavalent	mg/kg	75-125	0.87J	0.92J	25.8	0*

\* Spike Recovery outside QC Limits

07/19/2022 08:38

FORM VI INORGANIC-1  
DUPLICATES

SAMPLE NO.

2431337MSD

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Solid Concentration Units: mg/kg

Percent Moisture: 20.7 Basis: Dry

Analyte	RPD Control Limit	Sample	Duplicate	RPD
Chromium, Hexavalent	20	ND	0.87J	

FORM VII INORGANIC-1  
LABORATORY CONTROL SAMPLE

SAMPLE NO.

2431335LCS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Matrix: Solid

Analyte	Units	True	Found	%R	Limits	
Chromium, Hexavalent	mg/kg	19.5	20.3	104	80	120

FORM IX INORGANIC-1  
INSTRUMENT DETECTION LIMITS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Preparation Method: None Instrument ID: 30WETF

Concentration Units: mg/L

Analyte	PQL	IDL	IDL Date
Chromium, Hexavalent	0.025	0.0035	01/01/2016



FORM IX INORGANIC-2  
METHOD DETECTION LIMITS

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Preparation Method: EPA 3060A Instrument ID: 30WETF

Concentration Units: mg/kg

Analyte	PQL	MDL	MDL Date
Chromium, Hexavalent	1.0	0.65	10/19/2021

FORM XII INORGANIC-1  
PREPARATION LOG

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Preparation Method: EPA 3060A Batch: WET 69961

Lab Sample ID	Sample Name	Preparation Date	Initial Weight (g)	Final Volume (mL)
2431334	2431334BLANK	05/05/2022	2.55	100
2431335	2431335LCS	05/05/2022	2.57	100
2431336	2431336MS	05/05/2022	2.52	100
2431337	2431337MSD	05/05/2022	2.44	100
2431338	2431338MS	05/05/2022	2.46	100
30485042002	SED-1	05/05/2022	2.47	100

FORM XIII INORGANIC-1  
ANALYSIS RUN LOG

Lab Name: Pace Analytical - Pittsburgh SDG No. : 30485042 Contract: 768569-001

Instrument ID: 30WETF Analysis Method: EPA 7196A

Start Date: 03/23/2022 15:24 End Date: 05/06/2022 17:56

Sample Name	Lab Sample ID	D/F	Date	Time	Cr6
16097356CAL0	16097356CAL0	1	03/23/2022	15:24	X
16097357CAL1	16097357CAL1	1	03/23/2022	15:24	X
16097358CAL2	16097358CAL2	1	03/23/2022	15:24	X
16097359CAL3	16097359CAL3	1	03/23/2022	15:24	X
16097365CAL4	16097365CAL4	1	03/23/2022	15:24	X
16097361CAL5	16097361CAL5	1	03/23/2022	15:25	X
16097362CAL6	16097362CAL6	1	03/23/2022	15:25	X
16097363CAL7	16097363CAL7	1	03/23/2022	15:25	X
16097364ICV	16097364ICV	1	03/23/2022	15:27	X
16097360ICB	16097360ICB	1	03/23/2022	15:28	X
16480160CCV	16480160CCV	1	05/06/2022	17:48	X
16480161CCB	16480161CCB	1	05/06/2022	17:49	X
2431334BLANK	2431334	1	05/06/2022	17:50	X
2431335LCS	2431335	1	05/06/2022	17:50	X
SED-1	30485042002	1	05/06/2022	17:52	X
2431336MS	2431336	1	05/06/2022	17:53	X
2431337MSD	2431337	1	05/06/2022	17:53	X
2431338MS	2431338	50	05/06/2022	17:54	X
2431339PDS	2431339	1	05/06/2022	17:55	X
16480163CCV	16480163CCV	1	05/06/2022	17:56	X
16480164CCB	16480164CCB	1	05/06/2022	17:56	X



**Curve Group Name:** WET 4924107196S CURVE A

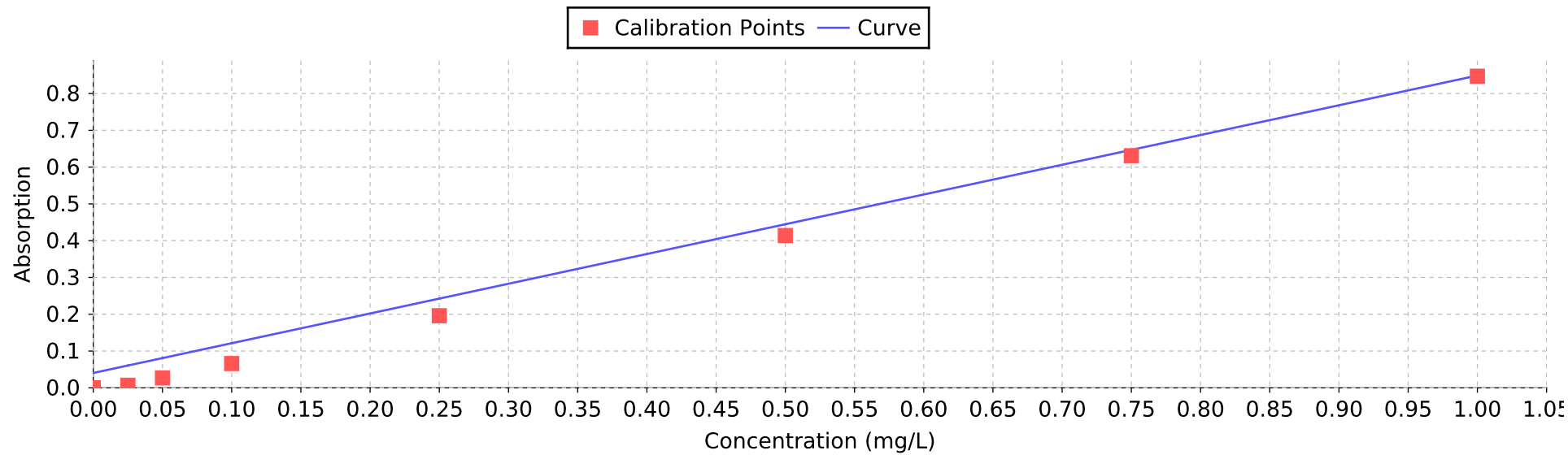
**Curve Group Number:** 119670

**Curve Creation Date:** 03/23/2022 15:26

**Instrument ID:** 30WETF

**Analyst:** JLM

<u>SAMPLE_TYPE</u>	<u>SCHEDULE SEQ</u>	<u>RUN DATE</u>	<u>STANDARD SOURCE</u>	<u>SPIKE VOL.</u>	<u>SPIKE VOL. UNITS</u>	<u>ABSORBANCE</u>	<u>CONC.</u>	<u>TV</u>	<u>UNITS</u>	<u>%REL. ERROR</u>
CAL0	16097356	03/23/2022 15:24:04	180494	1	mL	0	0.016	0	mg/L	
CAL1	16097357	03/23/2022 15:24:14	181468	1	mL	0.007	0.024	0.025	mg/L	-4.0
CAL2	16097358	03/23/2022 15:24:19	181469	1	mL	0.027	0.047	0.05	mg/L	-6.0
CAL3	16097359	03/23/2022 15:24:32	181470	1	mL	0.066	0.093	0.1	mg/L	-7.0
CAL4	16097365	03/23/2022 15:24:51	181471	1	mL	0.196	0.24	0.25	mg/L	-4.0
CAL5	16097361	03/23/2022 15:25:10	181472	1	mL	0.414	0.50	0.5	mg/L	0.0
CAL6	16097362	03/23/2022 15:25:26	181473	1	mL	0.631	0.75	0.75	mg/L	0.0
CAL7	16097363	03/23/2022 15:25:40	181474	1	mL	0.847	1.0	1	mg/L	0.0
ICV	16097364	03/23/2022 15:27:42	181475	1	mL	0.416	0.50		mg/L	
ICB	16097360	03/23/2022 15:28:30	180494	1	mL	0.002	0.018		mg/L	





# Prep Log Report

Batch Information: WET 4924107196S CURVE A

Template Version: [SOLID] F-PA-I-016-Rev.01 (09May2021)

Curve-r	0.9998203801290585	Curve-m	0.8581932541866499	Curve-y	-0.013458369368661072	Curve-seq	1207
Curve Date	03/23/2022 15:20	Analysis Method	7196A	Analyzed By	JLM	Instrument	30WETF
diphenylcarbazine soln. (mL)	181099 (2)	Pipette ID 1	PIP021	Pipette ID 2	N/A	Pipette ID 3	N/A
Reviewed By	BM1	Reviewed By Date	03/23/2022 15:36	Batch Notes			

Sample Information:

QC Rule	Sample Type	Lab Sample ID	Select	Matrix	Run Date/Time	pH (su)	Initial Amount (g/mL)	Final Volume (mL)	Initial Abs	Final Abs	Absorbance	Cr6 Conc.	Units	Dilution
WET CR6S_Q	CAL0	CAL0	Y	Water	03/23/2022 15:24:04		1	1	0	0	0.0000	0.0157	mg/L	1.00
WET CR6S_Q	CAL1	CAL1	Y	Water	03/23/2022 15:24:14		1	1	0	0.007	0.0070	0.0238	mg/L	1.00
WET CR6S_Q	CAL2	CAL2	Y	Water	03/23/2022 15:24:19		1	1	0	0.027	0.0270	0.0471	mg/L	1.00
WET CR6S_Q	CAL3	CAL3	Y	Water	03/23/2022 15:24:32		1	1	0	0.066	0.0660	0.0926	mg/L	1.00
WET CR6S_Q	CAL4	CAL4	Y	Water	03/23/2022 15:24:51		1	1	0	0.196	0.1960	0.2441	mg/L	1.00
WET CR6S_Q	CAL5	CAL5	Y	Water	03/23/2022 15:25:10		1	1	0	0.414	0.4140	0.4981	mg/L	1.00
WET CR6S_Q	CAL6	CAL6	Y	Water	03/23/2022 15:25:26		1	1	0	0.631	0.6310	0.7509	mg/L	1.00
WET CR6S_Q	CAL7	CAL7	Y	Water	03/23/2022 15:25:40		1	1	0	0.847	0.8470	1.0026	mg/L	1.00
WET CR6S_Q	ICV	ICV	Y	Water	03/23/2022 15:27:42		1	1	0	0.416	0.4160	0.5004	mg/L	1.00
WET CR6S_Q	ICB	ICB	Y	Water	03/23/2022 15:28:30		1	1	0	0.002	0.0020	0.0180	mg/L	1.00

QC Rule	Sample Type	Lab Sample ID	Final Cr6	Final Units	Sample Notes	CAL-STD
WET CR6S_Q	CAL0	CAL0	0.0157	mg/L		180494 (1)
WET CR6S_Q	CAL1	CAL1	0.0238	mg/L		181468 (1)
WET CR6S_Q	CAL2	CAL2	0.0471	mg/L		181469 (1)
WET CR6S_Q	CAL3	CAL3	0.0926	mg/L		181470 (1)



# Prep Log Report

QC Rule	Sample Type	Lab Sample ID	Final Cr6	Final Units	Sample Notes	CAL-STD
WET CR6S_Q	CAL4	CAL4	0.2441	mg/L		181471 (1)
WET CR6S_Q	CAL5	CAL5	0.4981	mg/L		181472 (1)
WET CR6S_Q	CAL6	CAL6	0.7509	mg/L		181473 (1)
WET CR6S_Q	CAL7	CAL7	1.0026	mg/L		181474 (1)
WET CR6S_Q	ICV	ICV	0.5004	mg/L		181475 (1)
WET CR6S_Q	ICB	ICB	0.0180	mg/L		180494 (1)

Standard Notes:

- 180494: WET Solid HexCr Cal 0/ICB/CCB
- 181471: WET Hexachrome Curve Point 4 (0.250)
- 181475: WET Solid HexCr ICV
- 181468: WET Hexachrome Curve Point 1 (0.025)
- 181472: WET Hexachrome Curve Point 5 (0.500)
- 181469: WET Hexachrome Curve Point 2 (0.050)
- 181473: WET Hexachrome Curve Point 6 (0.750)
- 181470: WET Hexachrome Curve Point 3 (0.100)
- 181474: WET Hexachrome Curve Point 7 (1.00)



# Prep Log Report

Batch Information: WET 502194 7196 CR6 S\_P

Template Version: F-PA-I-042-Rev.02 (10Aug2021)

Prep Method	EPA 3060A	Prepared By	BM1	Extracted Date/Time	05/05/2022 12:14:33:223	Instrument	30BA14
ORP Meter ID	ORP 15A	Conc. HNO3	181360	1:1 H2SO4	174161	Cr6 Digestion Soln (mL)	182948 (50)
Phosphate Buffer (mL)	181421 (0.5)	Magnesium Chloride (g)	148538 (0.4)	FilterMate Filter	170189	Plastic Beads	162315
pH strips (wide range)	178997	Thermometer ID	HB006	Correction Factor (C)	-.1	Block Temp (C)	91.6
Corrected Temp. (C)	91.50	Dist./Dig. Start Date/Time	05/05/2022 13:41:00:136	Dist./Dig. End Date/Time	05/05/2022 14:41:18:822	Block End Temp (C)	92.5
Corrected End Temp. (C)	92.40	Pipette ID 1	PIP022	Pipette ID 2	PIP021	Pipette ID 3	PIP020
Dispenser ID	BTD075	Reviewed By	JLM	Reviewed By Date	05/09/2022 14:14	Batch Notes	

Sample Information:

QC Rule	Sample Type	Lab Sample ID	Select	Matrix	Initial Weight (g)	Final Volume (mL)	Ox. Reduct. Potential	Initial pH	Block ID	Spike Soln Type	Sample Notes	HEXCR-SPK (mL)	CAL-STD
7196 S_P	BLANK	2431334	Y	Solid	2.55	100		7.1	HB006				
7196 S_P	LCS	2431335	Y	Solid	2.57	100		7.46	HB006			170164 (0.05)	
7196 S_P	PS	30485042002	Y	Solid	2.47	100	-63mV @ 21.8, pH = 6.35	7.15	HB006				
7196 S_P	MS	2431336	Y	Solid	2.52	100		7.92	HB006	Soluble		170164 (0.05)	
7196 S_P	MSD	2431337	Y	Solid	2.44	100		7.04	HB006	Soluble		170164 (0.05)	
7196 S_P	MS	2431338	Y	Solid	2.46	100		7.59	HB006	Insoluble			
7196 S_P	PDS	2431339	Y	Solid	2.52	100		7.02	HB006				
7196 S_P	PS	30480037008	Y	Solid	2.56	100		7.33	HB006				
WET CR6S_Q	CCV	CCV	Y	Water	1	1		7.06	HB006				186340 (1)
WET CR6S_Q	CCB	CCB	Y	Water	1	1		7.17	HB006				186339 (1)

Standard Notes:

170164: Hexavalent Chromium Secondary Stock

186339: WET Solid HexCr Cal 0/ICB/CCB

186340: WET Hexachrome Curve Point 3 (0.100)





# Prep Log Report

Batch Information: WET 502787 7196 CR6 S\_A

Template Version: [SOLID] F-PA-I-016-Rev.01 (09May2021)

Curve-r	0.9998203801290585	Curve-m	0.8581932541866499	Curve-y	-0.013458369368661072	Curve-seq	1207
Curve Date	03/23/2022 15:26	Analysis Method	EPA 7196A	Analyzed By	BM1	Instrument	30WETF
1:1 H2SO4	174161	diphenylcarbazine soln. (mL)	186342 (2)	Pipette ID 1	PIP019	Pipette ID 2	PIP020
Pipette ID 3		Reviewed By	JLM	Reviewed By Date	05/27/2022 15:58	Batch Notes	

Sample Information:

QC Rule	Sample Type	Lab Sample ID	Select	Matrix	Run Date/Time	pH (su)	Initial Amount (g mL)	Final Volume (mL)	Initial Abs	Final Abs	Absorbance	Cr6 Conc.	Units	Dilution from Prep
WET CR6S_Q	CCV	CCV	Y	Water	05/06/2022 17:48:17	<2	1	1	0	0.073	0.0730	0.1007	mg/L	1
WET CR6S_Q	CCB	CCB	Y	Water	05/06/2022 17:49:17	<2	1	1	0	0.002	0.0020	0.0180	mg/L	1
7196 S	BLANK	2431334	Y	Solid	05/06/2022 17:50:02	<2	2.55	100	0	0.001	0.0010	0.0168	mg/L	39.22
7196 S	LCS	2431335	Y	Solid	05/06/2022 17:50:48	<2	2.57	100	0.001	0.435	0.4340	0.5214	mg/L	38.91
7196 S	PS	30480037008	Y	Solid	05/06/2022 17:51:15	<2	2.56	100	0	0.013	0.0130	0.0308	mg/L	39.06
7196 S	PS	30485042002	Y	Solid	05/06/2022 17:52:43	<2	2.47	100	0.006	0.008	0.0020	0.0180	mg/L	40.49
7196 S	MS	2431336	Y	Solid	05/06/2022 17:53:16	<2	2.52	100	0.007	0.007	0.0000	0.0157	mg/L	39.68
7196 S	MSD	2431337	Y	Solid	05/06/2022 17:53:49	<2	2.44	100	0.005	0.006	0.0010	0.0168	mg/L	40.98
7196 S	MS	2431338	Y	Solid	05/06/2022 17:54:22	<2	2.46	100	0.001	0.251	0.2500	0.3070	mg/L	40.65
7196 S	PDS	2431339	Y	Solid	05/06/2022 17:55:32	<2			0.002	0.406	0.4040	0.4864	mg/L	
WET CR6S_Q	CCV	CCV	Y	Water	05/06/2022 17:56:11	<2	1	1	0	0.074	0.0740	0.1019	mg/L	1
WET CR6S_Q	CCB	CCB	Y	Water	05/06/2022 17:56:49	<2	1	1	0	0.001	0.0010	0.0168	mg/L	1

QC Rule	Sample Type	Lab Sample ID	Dilution	Final Cr6	Final Units	Sample Notes	HEXCR-SPK (mL)	CAL-STD
WET CR6S_Q	CCV	CCV	1.00	0.1007	mg/L			186340 (1)
WET CR6S_Q	CCB	CCB	1.00	0.0180	mg/L	1*		186339 (1)



# Prep Log Report

QC Rule	Sample Type	Lab Sample ID	Dilution	Final Cr6	Final Units	Sample Notes	HEXCR-SPK (mL)	CAL-STD
7196 S	BLANK	2431334	1	0.6589	mg/kg	1*		
7196 S	LCS	2431335	1	20.2877	mg/kg			
7196 S	PS	30480037008	1	1.2030	mg/kg			
7196 S	PS	30485042002	1	0.7288	mg/kg			
7196 S	MS	2431336	1	0.6230	mg/kg	ML		
7196 S	MSD	2431337	1	0.6885	mg/kg	ML		
7196 S	MS	2431338	50	623.9775	mg/kg			
7196 S	PDS	2431339			mg/kg		170164 (0.05)	
WET CR6S_Q	CCV	CCV	1.00	0.1019	mg/L			186340 (1)
WET CR6S_Q	CCB	CCB	1.00	0.0168	mg/L	1*		186339 (1)

**Sample Notes:**

1\*: > MDL, < PRL

**Standard Notes:**

170164: Hexavalent Chromium Secondary Stock

186339: WET Solid HexCr Cal 0/ICB/CCB

186340: WET Hexachrome Curve Point 3 (0.100



# Prep Log Report

Batch Information: PMST 11168/501628

Template Version: F-PA-I-008-Rev.04 (21Nov2021)

Analysis Method	SM 2540G-2015	Analyzed By	SRW	Instrument	30BA12	Oven ID	OVN006
Thermometer ID	864193	Oven Correction Factor (C)	0.0	Oven Temp In1 (C)   Corr   Date/Time   Init	103.0   103.0   05/03/2022 16:56   SRW	Oven Temp Out1 (C)   Corr   Date/Time   Init	105.0   105.0   05/04/2022 08:00   SRW
Oven Temp In2 (C)   Corr   Date/Time   Init	105.0   105.0   05/04/2022 09:18   SRW	Oven Temp Out2 (C)   Corr   Date/Time   Init	103.0   103.0   05/04/2022 10:20   SRW	Reviewed By	OMZ	Reviewed By Date	05/08/2022 10:28
Batch Notes							

Sample Information:

QC Rule	Sample Type	Lab Sample ID	Select	ID	TS Posted (%)	Percent Moisture	Run Date/Time	Posted Dry Weight /w Dish (g)	Dish Weight (g)	Wet Weight /w Dish (g)	Dry Weight 1 (g)	Dry Wt Use 1	Dry Weight 2 (g)	Dry Wt Use 2
DRY WEIGHT	PS	30485222001	Y		96.74	3.257		3.99	1.02	4.09	3.99	M	3.99	Y
DRY WEIGHT	DUP	2427893	Y		96.25	3.746		7.68	1	7.94	7.68	M	7.68	Y
DRY WEIGHT	PS	30485224001	Y		2.860	97.14		1.22	1.01	8.34	1.22	M	1.22	Y
DRY WEIGHT	DUP	2427894	Y		3.030	96.97		1.22	1	8.27	1.22	M	1.21	Y
DRY WEIGHT	PS	30484092001	Y		33.51	66.49		2.84	0.99	6.51	2.84	M	2.85	Y
DRY WEIGHT	PS	30484093001	Y		34.47	65.53		4.32	0.98	10.67	4.32	M	4.33	Y
DRY WEIGHT	PS	30484552001	Y		82.08	17.92		13.76	0.98	16.55	13.76	M	13.76	Y
DRY WEIGHT	PS	30484552002	Y		83.02	16.98		10.63	1	12.6	10.63	M	10.63	Y
DRY WEIGHT	PS	30484552003	Y		84.84	15.16		14.88	1	17.36	14.88	M	14.88	Y
DRY WEIGHT	PS	30484552004	Y		82.65	17.35		8.28	0.99	9.81	8.28	M	8.28	Y
DRY WEIGHT	PS	30484552005	Y		82.73	17.27		15.59	0.98	18.64	15.59	M	15.59	Y
DRY WEIGHT	PS	30484552006	Y		82.42	17.58		15.94	0.98	19.13	15.94	M	15.93	Y
DRY WEIGHT	PS	30484552007	Y		83.01	16.99		9.59	0.99	11.35	9.59	M	9.58	Y
DRY WEIGHT	PS	30484463001	Y		89.30	10.70		9.85	1	10.91	9.85	M	9.85	Y
DRY WEIGHT	PS	30484463002	Y		87.77	12.23		12.26	0.99	13.83	12.26	M	12.26	Y
DRY WEIGHT	PS	30485167001	Y		17.41	82.59		2.72	1	10.88	2.72	M	2.72	Y
DRY WEIGHT	PS	30484906001	Y		92.11	7.893		13.02	1	14.05	13.02	M	13.02	Y
DRY WEIGHT	PS	30484964001	Y		22.04	77.96		4.06	1.01	14.85	4.06	M	4.06	Y
DRY WEIGHT	PS	30485042002	Y		79.31	20.69		17.1	1	21.3	17.1	M	17.11	Y
DRY WEIGHT	PS	30484965001	Y		3.070	96.93		1.3	1.01	10.46	1.3	M	1.3	Y



Prep Log Report

QC Rule	Sample Type	Lab Sample ID	Select	ID	TS Posted (%)	Percent Moisture	Run Date/Time	Posted Dry Weight /w Dish (g)	Dish Weight (g)	Wet Weight /w Dish (g)	Dry Weight 1 (g)	Dry Wt Use 1	Dry Weight 2 (g)	Dry Wt Use 2
DRY WEIGHT	PS	30485256001	Y		77.97	22.03		8.82	1	11.03	8.82	M	8.78	Y
DRY WEIGHT	PS	30485256002	Y		82.09	17.91		10.49	1	12.56	10.49	M	10.49	Y

QC Rule	Sample Type	Lab Sample ID	Dry Wt Diff 1&2	Dry %Diff 1&2	Sample Notes
DRY WEIGHT	PS	30485222001	0.0000	0	
DRY WEIGHT	DUP	2427893	0.0000	0	
DRY WEIGHT	PS	30485224001	0.0000	0	
DRY WEIGHT	DUP	2427894	0.0100	4.6512	
DRY WEIGHT	PS	30484092001	0.0100	0.5391	
DRY WEIGHT	PS	30484093001	0.0100	0.2990	
DRY WEIGHT	PS	30484552001	0.0000	0	
DRY WEIGHT	PS	30484552002	0.0000	0	
DRY WEIGHT	PS	30484552003	0.0000	0	
DRY WEIGHT	PS	30484552004	0.0000	0	
DRY WEIGHT	PS	30484552005	0.0000	0	
DRY WEIGHT	PS	30484552006	0.0100	0.0669	
DRY WEIGHT	PS	30484552007	0.0100	0.1163	
DRY WEIGHT	PS	30484463001	0.0000	0	
DRY WEIGHT	PS	30484463002	0.0000	0	
DRY WEIGHT	PS	30485167001	0.0000	0	
DRY WEIGHT	PS	30484906001	0.0000	0	
DRY WEIGHT	PS	30484964001	0.0000	0	
DRY WEIGHT	PS	30485042002	0.0100	0.0621	
DRY WEIGHT	PS	30484965001	0.0000	0	



# Prep Log Report

QC Rule	Sample Type	Lab Sample ID	Dry Wt Diff 1&2	Dry %Diff 1&2	Sample Notes
DRY WEIGHT	PS	30485256001	0.0400	0.5128	
DRY WEIGHT	PS	30485256002	0.0000	0	



# Analytical Data Package

**Prepared by:**

**Pace Analytical Services**

**Pace Project No.: 92604145**

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## InOrganic

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May 16, 2022

Steven Smith  
Pace Analytical Pittsburgh  
1638 Roseytown Road  
Suites 2, 3, & 4  
Greensburg, PA 15601

RE: Project: [REDACTED]  
Pace Project No.: 92604145

Dear Steven Smith:

Enclosed are the analytical results for sample(s) received by the laboratory on May 12, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Asheville

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Sara Poulson  
sara.poulson@pacelabs.com  
(704)875-9092  
Project Manager

Enclosures

cc: Client Services, Pace Analytical Pittsburgh



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project:



Pace Project No.: 92604145

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### **Pace Analytical Services Asheville**

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Laboratory ID: 99030

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: [REDACTED]

Pace Project No.: 92604145

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30485042001	LAKE-1	Water	04/26/22 11:45	05/12/22 10:30

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE ANALYTE COUNT

Project:



Pace Project No.: 92604145

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30485042001	LAKE-1	EPA 218.7 Rev 1.0 2011	JCM	1	PASI-A

PASI-A = Pace Analytical Services - Asheville

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project:

Pace Project No.: 92604145

<b>Sample: LAKE-1</b>		<b>Lab ID: 30485042001</b>	Collected: 04/26/22 11:45		Received: 05/12/22 10:30		Matrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>218.7 Chromium, Hexavalent</b>		Analytical Method: EPA 218.7 Rev 1.0 2011 Pace Analytical Services - Asheville							
Chromium, Hexavalent	<b>0.049</b>	ug/L	0.025	0.012	1		05/14/22 17:50	18540-29-9	

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: XXXXXXXXXX

Pace Project No.: 92604145

QC Batch:	698011	Analysis Method:	EPA 218.7 Rev 1.0 2011
QC Batch Method:	EPA 218.7 Rev 1.0 2011	Analysis Description:	218.7 Chromium, Hexavalent
		Laboratory:	Pace Analytical Services - Asheville
Associated Lab Samples:	30485042001		

METHOD BLANK: 3644709 Matrix: Water

Associated Lab Samples: 30485042001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	ND	0.025	0.012	05/14/22 17:17	

LABORATORY CONTROL SAMPLE: 3644710

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	ug/L	0.1	0.086	86	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3644711 3644712

Parameter	Units	92604269001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium, Hexavalent	ug/L	ND	0.1	0.1	0.094	0.081	88	75	90-110	15	10	M1, R1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3644713 3644714

Parameter	Units	92603566005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium, Hexavalent	ug/L	ND	0.1	0.1	0.091	0.097	89	95	90-110	6	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

## REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project:

Pace Project No.: 92604145

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:




Pace Project No.: 92604145

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30485042001	LAKE-1	EPA 218.7 Rev 1.0 2011	698011		

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
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	Document Name:	Document Revised: November 15, 2021
	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.08	Issuing Authority: Pace Carolinas Quality Office

**Laboratory receiving samples:**

Asheville ☒ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☐ Kernersville ☐

Sample Condition  
Upon Receipt

Client Name:

Pace PA

Project #:

**WO# : 92604145**



92604145

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client  
☐ Commercial ☐ Pace ☐ Other: \_\_\_\_\_

Custody Seal Present? ☐ Yes ☒ No Seals Intact? ☐ Yes ☒ No

Date/Initials Person Examining Contents: JACS/12/22

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other

Thermometer: ☒ IR Gun ID: \_\_\_\_\_ Type of Ice: ☐ Wet ☐ Blue ☐ None

Biological Tissue Frozen?

☐ Yes ☐ No ☒ N/A

Cooler Temp: 36 Correction Factor: .1  
Add/Subtract (°C)

Temp should be above freezing to 6°C

☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 37

USDA Regulated Soil ( ☒ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?  
☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

			Comments/Discrepancy:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Short Hold Time Analysis (<72 hr.)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	3.	
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	4.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Dissolved analysis; Samples Field Filtered?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.	
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
Includes Date/Time/ID/Analysis Matrix: <u>WT</u>			
Headspace in VOA Vials (>5-6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10.	
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		

COMMENTS/SAMPLE DISCREPANCY:

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager SCURF Review: \_\_\_\_\_ Date: \_\_\_\_\_

Project Manager SRF Review: \_\_\_\_\_ Date: \_\_\_\_\_





Document Name:  
Sample Condition Upon Receipt (SCUR)  
Document No.:  
F-CAR-CS-033-Rev.08

Document Revised: November 15, 2021  
Page 2 of 2  
Issuing Authority:  
Pace Carolinas Quality Office

\*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHG

\*\*Bottom half of box is to list number of bottles

Project: **W0# : 92604145**

PM: SC

Due Date: 05/23/22

CLIENT: 92-Pace PA

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4B-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFL-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A/DG3A-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (3 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	GN1	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

#### pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers).

[illegible]

State Of Origin: VA  
 Cert. Needed: ☐ Yes ☐ No



**Pace Analytical**  
www.pacelabs.com

**Workorder Name:** 768569-001

Report To:

Subcontract To

**Requested Analysis:**

Results Requested By: 5/10/2022

**Pace Analytical Asheville**  
2225 Riverside Dr.  
Asheville, NC 28804  
Phone (828)254-7176

УЧЕБНИК

### Preserved Containers

92604145  
LAB USE ONLY

[illegible]

## Comments

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Bernard Jordan	5/1/22 1120	James Chan AVL	5/12/22 1030	
2					
3					

Samples Intact (Y) or N

*This chain of custody is considered complete as is since this information is available in the owner laboratory.*

FORM I INORGANIC-1  
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

LAKE-1

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: 30485042 XXXXXXXXXX Companies   
Lab Sample ID: 30485042001 Percent Moisture:

CAS No.	Analyte	Concentration	Q	Units	DF	Analysis Date/Time
18540-29-9	Chromium, Hexavalent	0.049		ug/L	1	05/14/2022 17:50

FORM II INORGANIC-1  
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: 30485042 XXXXXXXXXX Companies LLC Ro

Initial Calibration Verification Source: 177281

Continuing Calibration Verification Source: 177277

Concentration Units: mg/L Instrument ID: 93WTA3

	Initial Calibration Verification				Continuing Calibration Verification						
	05/12/2022 12:30				05/12/2022 12:48			05/14/2022 10:27			Control Limit
Analyte	True	Found	%R	Control Limit	True	Found	%R	True	Found	%R	
Chromium, Hexavalent	0.1	0.091	91.0	90-110	0.1	0.091	91.0	0.1	0.098	98.0	85-115

FORM II INORGANIC-2  
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: XXXXXXXXXX

Initial Calibration Verification Source: \_\_\_\_\_

Continuing Calibration Verification Source: 177277

Concentration Units: mg/L Instrument ID: 93WTA3

	Continuing Calibration Verification									
	05/14/2022 15:23			05/14/2022 19:28			05/15/2022 14:59			Control Limit
Analyte	True	Found	%R	True	Found	%R	True	Found	%R	
Chromium, Hexavalent	0.1	0.099	99.0	0.1	0.096	96.0	0.1	0.10	100.0	85-115

FORM II INORGANIC-3  
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: XXXXXXXXXX

Initial Calibration Verification Source: \_\_\_\_\_

Continuing Calibration Verification Source: 177277

Concentration Units: mg/L Instrument ID: 93WTA3

	Continuing Calibration Verification			
	05/15/2022 19:04			Control Limit
Analyte	True	Found	%R	
Chromium, Hexavalent	0.1	0.097	97.0	85-115

FORM II INORGANIC-1  
CRDL CHECK STANDARD

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract:

CRDL Check Standard Source: 177275 Analysis Date/Time: 05/12/2022 12:12

Concentration Units: mg/L

Analyte	CRDL Check Standard			
	True	Found	%R	Control Limit %R
Chromium, Hexavalent	0.025	0.019	76	50 - 100

FORM II INORGANIC-1  
CRDL CHECK STANDARD

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract:

CRDL Check Standard Source: 177275 Analysis Date/Time: 05/14/2022 10:11

Concentration Units: mg/L

Analyte	CRDL Check Standard			
	True	Found	%R	Control Limit %R
Chromium, Hexavalent	0.025	0.034	136	50 - 100



FORM III INORGANIC-1  
BLANKS

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract :

Method Blank Matrix: Water Instrument ID: 93WTA3

Method Blank Concentration Units: ug/L

Analyte	Initial Calibration Blank (mg/L)		Continuing Calibration Blank (mg/L)						Method Blank	
	05/12/2022 11:35	C	05/12/2022 13:07	C	05/14/2022 10:44	C	05/14/2022 15:39	C	3644709	C
Chromium, Hexavalent	0.012	U	0.012	U	0.012	U	0.012	U	ND	U

FORM III INORGANIC-2  
BLANKS

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract :

Method Blank Matrix:  Instrument ID: 93WTA3

Method Blank Concentration Units:

Analyte	Initial Calibration Blank		Continuing Calibration Blank (mg/L)					
		C	05/14/2022 19:44	C	05/15/2022 15:15	C	05/15/2022 19:21	C
Chromium, Hexavalent			0.012	U	0.012	U	0.012	U

FORM V INORGANIC-1  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

3644711MS

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract:

Matrix: Water Basis: Wet Parent Sample ID: 92604269001

Percent Moisture:

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Chromium, Hexavalent	ug/L	90-110	0.094	ND	0.10	88*

\* Spike Recovery outside QC Limits

08/01/2022 15:56

FORM V INORGANIC-2  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

3644712MSD

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract:

Matrix: Water Basis: Wet Parent Sample ID: 92604269001

Percent Moisture:

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Chromium, Hexavalent	ug/L	90-110	0.081	ND	0.10	75*

\* Spike Recovery outside QC Limits

08/01/2022 15:56

553 of 1643

FORM V INORGANIC-3  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

3644713MS

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract:

Matrix: Water Basis: Wet Parent Sample ID: 92603566005

Percent Moisture:

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Chromium, Hexavalent	ug/L	90-110	0.091	ND	0.10	89*

\* Spike Recovery outside QC Limits

08/01/2022 15:56

FORM V INORGANIC-4  
MATRIX SPIKE SAMPLE RECOVERY

SAMPLE NO.

3644714MSD

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract:

Matrix: Water Basis: Wet Parent Sample ID: 92603566005

Percent Moisture:

Analyte	Units	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R
Chromium, Hexavalent	ug/L	90-110	0.097	ND	0.10	95

SAMPLE NO.

FORM VI INORGANIC-1  
DUPLICATES

3644712MSD

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: Matrix: Water Concentration Units: ug/LPercent Moisture:                      Basis: Wet

Analyte	RPD Control Limit	Sample	Duplicate	RPD
Chromium, Hexavalent	10	0.094	0.081	15*

\* RPD outside QC Limits

08/01/2022 15:56

556 of 1643

SAMPLE NO.

FORM VI INORGANIC-2  
DUPLICATES

3644714MSD

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: Matrix: Water Concentration Units: ug/LPercent Moisture:  Basis: Wet


Analyte	RPD Control Limit	Sample	Duplicate	RPD
Chromium, Hexavalent	10	0.091	0.097	6



FORM VII INORGANIC-1  
LABORATORY CONTROL SAMPLE

SAMPLE NO.


3644710LCS

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: 

Matrix: Water

Analyte	Units	True	Found	%R	Limits	
Chromium, Hexavalent	ug/L	0.10	0.086	86	85	115

FORM IX INORGANIC-1  
INSTRUMENT DETECTION LIMITS

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: 

Preparation Method: None Instrument ID: 93WTA3

Concentration Units: mg/L

Analyte	PQL	IDL	IDL Date
Chromium, Hexavalent	0.012	0.012	01/01/2018

FORM IX INORGANIC-2  
METHOD DETECTION LIMITS

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract:

Preparation Method: EPA 218.7 Rev 1.0 2011 Instrument ID: 93WTA3

Concentration Units: ug/L

Analyte	PQL	MDL	MDL Date
Chromium, Hexavalent	0.025	0.012	05/07/2020

FORM XII INORGANIC-1  
PREPARATION LOG

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract:

Preparation Method: EPA 218.7 Rev 1.0 2011 Batch: WETA 77585

Lab Sample ID	Sample Name	Preparation Date	Initial Volume (mL)	Final Volume (mL)
3644709	3644709BLANK	05/14/2022	50	50
3644710	3644710LCS	05/14/2022	50	50
3644711	3644711MS	05/14/2022	50	50
3644712	3644712MSD	05/14/2022	50	50
3644713	3644713MS	05/15/2022	50	50
3644714	3644714MSD	05/15/2022	50	50
30485042001	LAKE-1	05/14/2022	50	50

FORM XIII INORGANIC-1  
ANALYSIS RUN LOG

Lab Name: Pace Analytical - Charlotte SDG No. : 92604145 Contract: XXXXXXXXXX

Instrument ID: 93WTA3 Analysis Method: EPA 218.7 Rev 1.0 2011

Start Date: 05/12/2022 08:56 End Date: 05/15/2022 19:21

Sample Name	Lab Sample ID	D/F	Date	Time	Cr6
24018909CAL0	24018909CAL0	1	05/12/2022	08:56	X
24018911CAL1	24018911CAL1	1	05/12/2022	09:14	X
24018912CAL2	24018912CAL2	1	05/12/2022	09:33	X
24018913CAL3	24018913CAL3	1	05/12/2022	09:51	X
24018914CAL4	24018914CAL4	1	05/12/2022	10:10	X
24018915CAL5	24018915CAL5	1	05/12/2022	10:28	X
24018916CAL6	24018916CAL6	1	05/12/2022	10:46	X
24018917ICB	24018917ICB	1	05/12/2022	11:35	X
24022606CRDL	24022606CRDL	1	05/12/2022	12:12	X
24018919ICV	24018919ICV	1	05/12/2022	12:30	X
24022607CCV	24022607CCV	1	05/12/2022	12:48	X
24022608CCB	24022608CCB	1	05/12/2022	13:07	X
24029312CRDL	24029312CRDL	1	05/14/2022	10:11	X
24029313CCV	24029313CCV	1	05/14/2022	10:27	X
24029314CCB	24029314CCB	1	05/14/2022	10:44	X
24029315CCV	24029315CCV	1	05/14/2022	15:23	X
24029316CCB	24029316CCB	1	05/14/2022	15:39	X
3644709BLANK	3644709	1	05/14/2022	17:17	X
3644710LCS	3644710	1	05/14/2022	17:34	X
LAKE-1	30485042001	1	05/14/2022	17:50	X
92604269001	92604269001	1	05/14/2022	18:06	X
3644711MS	3644711	1	05/14/2022	18:23	X
24029317CCV	24029317CCV	1	05/14/2022	19:28	X
24029318CCB	24029318CCB	1	05/14/2022	19:44	X
3644712MSD	3644712	1	05/14/2022	20:01	X
92603566005	92603566005	1	05/15/2022	13:53	X
24029319CCV	24029319CCV	1	05/15/2022	14:59	X
24029320CCB	24029320CCB	1	05/15/2022	15:15	X
3644713MS	3644713	1	05/15/2022	15:31	X
3644714MSD	3644714	1	05/15/2022	15:48	X
24029321CCV	24029321CCV	1	05/15/2022	19:04	X
24029322CCB	24029322CCB	1	05/15/2022	19:21	X

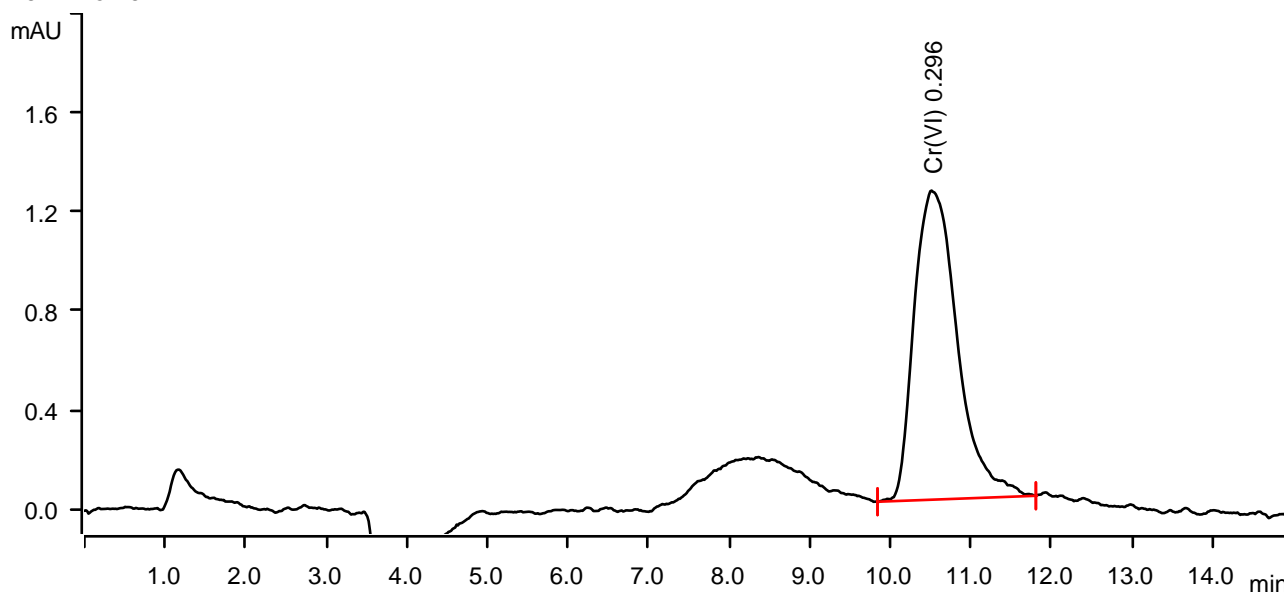
## Sample data

Ident . . . . . CAL6  
 Sample type . . . . . Standard 7  
 Determination start . . . . . 2022-05-12 10:46:59 UTC-4  
 Method . . . . . Hexavalent Chromium Pace 1min  
 Operator . . . . .

## HexChrome

Data source . . . . . Detector (944 Professional UV/VIS Detector Vario 1)  
 Channel . . . . . Channel 1 (530 nm)  
 Recording time . . . . . 15.0 min  
 Integration . . . . . Automatically  
 Column type . . . . . Metrosep A Supp 10 - 250/2.0  
 Eluent composition . . . . . not defined  
 Flow . . . . . 0.250 mL/min  
 Maximum flow monitored . . . . . yes  
 Pressure . . . . . 13.96 MPa  
 Maximum pressure monitored . . . . . yes  
 Temperature . . . . . 50.0 °C

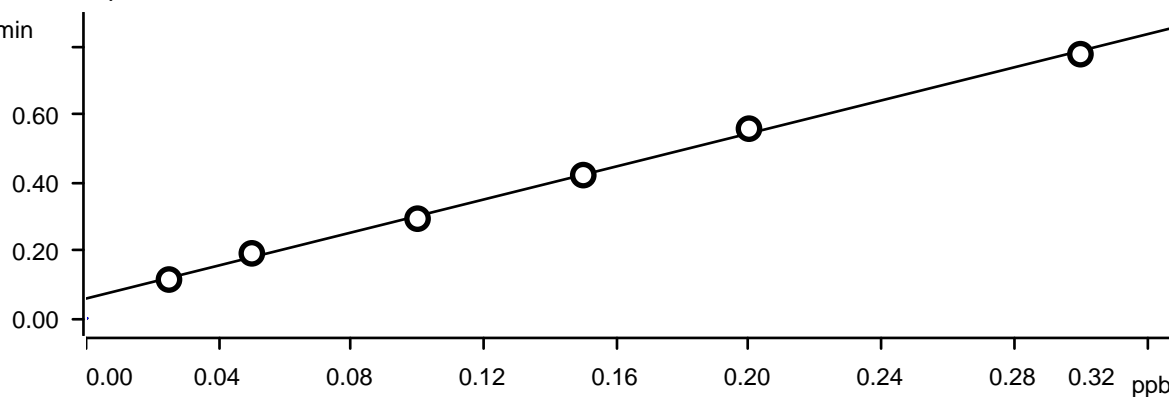
## HexChrome



Peak number	Retention time	Area	Height	Concentration	Component name
	min	(mAU) x min	mAU	ppb	
1	10.399	0.7772	1.248	0.296	Cr(VI)

## Cr(VI) (HexChrome)

(mAU) x min

Function: . . . . .  $A = 0.0581105 + 2.42973E-3 \times Q$ 

Relative standard deviation . . . . . 2.881398 %

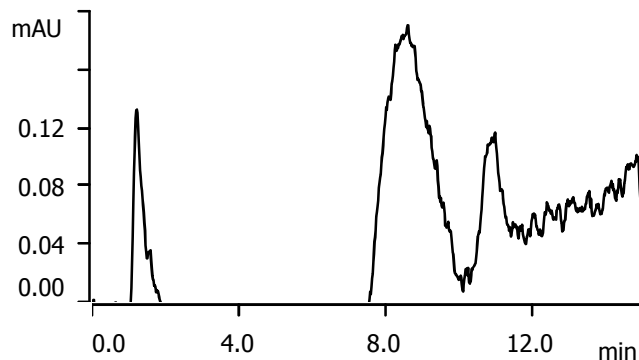
Correlation coefficient . . . . . 0.999159

Sample type	Index	Conc.	Volume	Dilution	Sample amount	Area	Ident	Date	Used
Standard 1	1	0.000	1000.0	1.0	1.0	n. d.	CAL0	2022-05-12 08:56:22 UTC-4	used
Standard 2	1	0.025	1000.0	1.0	1.0	0.114	CAL1	2022-05-12 09:14:49 UTC-4	used
Standard 3	1	0.050	1000.0	1.0	1.0	0.191	CAL2	2022-05-12 09:33:17 UTC-4	used
Standard 4	1	0.100	1000.0	1.0	1.0	0.293	CAL3	2022-05-12 09:51:42 UTC-4	used
Standard 5	1	0.150	1000.0	1.0	1.0	0.421	CAL4	2022-05-12 10:10:08 UTC-4	used
Standard 6	1	0.200	1000.0	1.0	1.0	0.558	CAL5	2022-05-12 10:28:33 UTC-4	used
Standard 7	1	0.300	1000.0	1.0	1.0	0.777	CAL6	2022-05-12 10:46:59 UTC-4	used

## Sample data

Ident . . . . . CAL0  
Sample type . . . . . Standard 1  
Determination start . . . . . 2022-05-12 08:56:22

## HexChrome

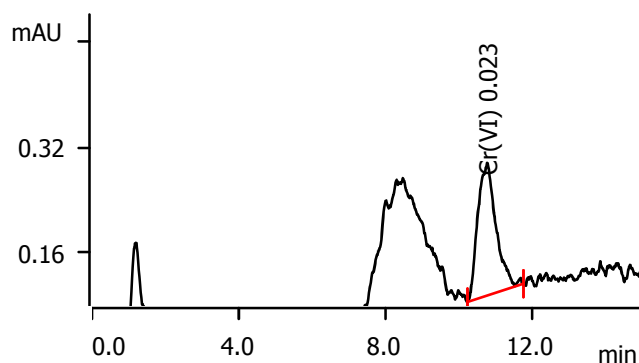


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . CAL1  
Sample type . . . . . Standard 2  
Determination start . . . . . 2022-05-12 09:14:49

## HexChrome

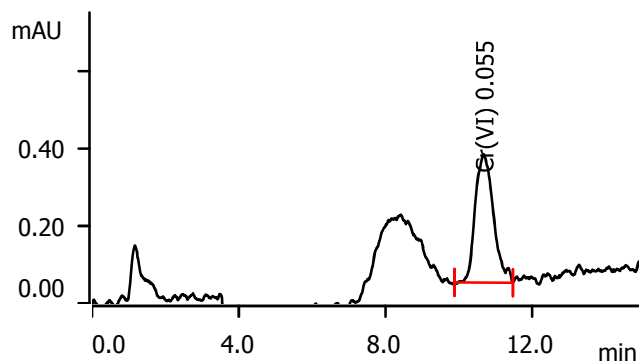


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.11	1	ppb 0.023	10.75

## Sample data

Ident . . . . . CAL2  
Sample type . . . . . Standard 3  
Determination start . . . . . 2022-05-12 09:33:17

## HexChrome



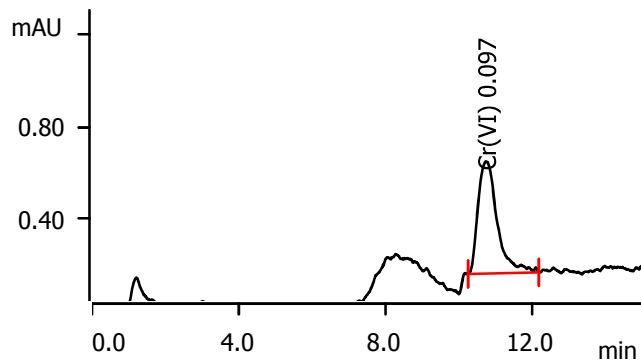
Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.19	1	ppb 0.055	10.67



## Sample data

Ident . . . . . CAL3  
Sample type . . . . . Standard 4  
Determination start . . . . . 2022-05-12 09:51:42

## HexChrome

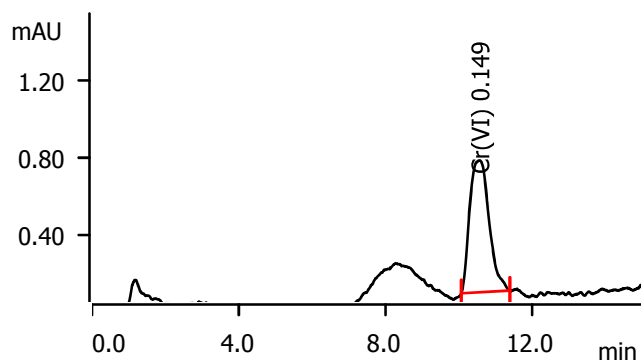


Component	Area	Dil.Factor	Final Conc ppb	Ret.Time
Cr(VI)	0.29	1	0.097	10.74

## Sample data

Ident . . . . . CAL4  
Sample type . . . . . Standard 5  
Determination start . . . . . 2022-05-12 10:10:08

## HexChrome

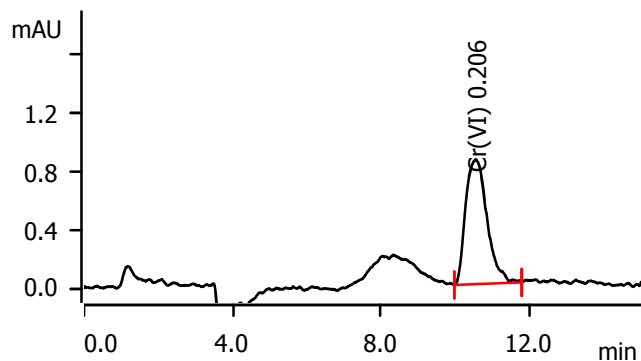


Component	Area	Dil.Factor	Final Conc ppb	Ret.Time
Cr(VI)	0.42	1	0.149	10.53

## Sample data

Ident . . . . . CAL5  
Sample type . . . . . Standard 6  
Determination start . . . . . 2022-05-12 10:28:33

## HexChrome

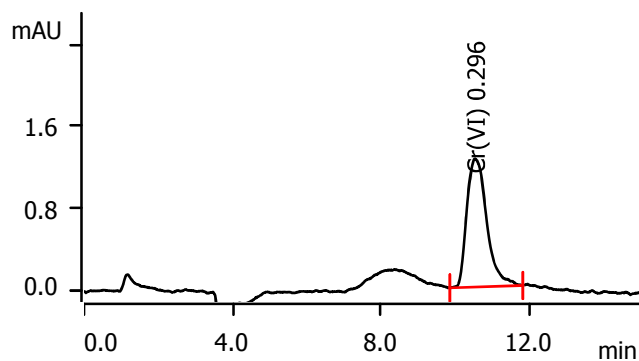


Component	Area	Dil.Factor	Final Conc ppb	Ret.Time
Cr(VI)	0.55	1	0.206	10.55

## Sample data

Ident . . . . . CAL6  
Sample type . . . . . Standard 7  
Determination start . . . . . 2022-05-12 10:46:59

## HexChrome

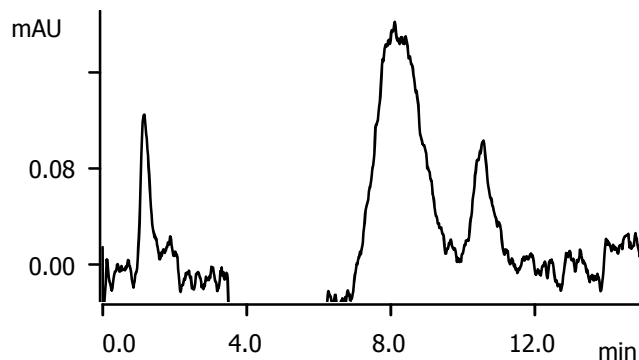


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.77	1	ppb 0.296	10.40

## Sample data

Ident . . . . . ICB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 11:35:38

## HexChrome

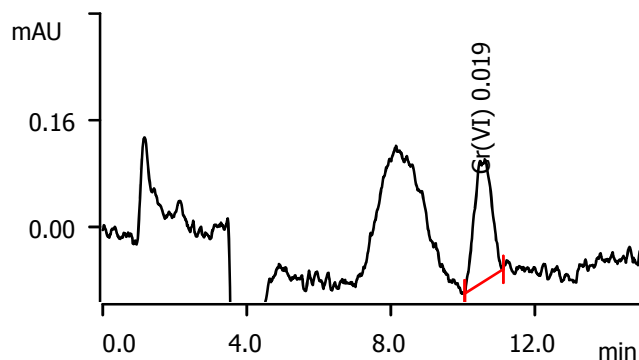


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . CRDL  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 12:12:21

## HexChrome

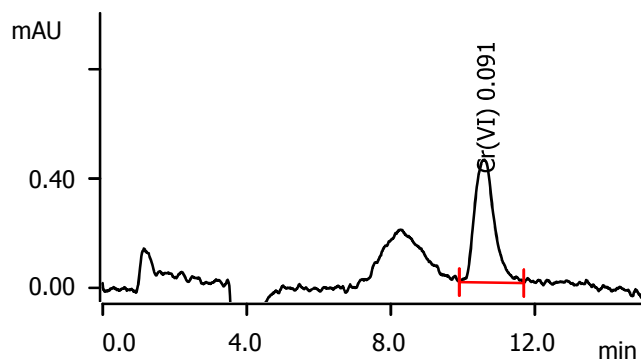


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.10	1	ppb 0.019	10.57

## Sample data

Ident . . . . . ICV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 12:30:39

## HexChrome

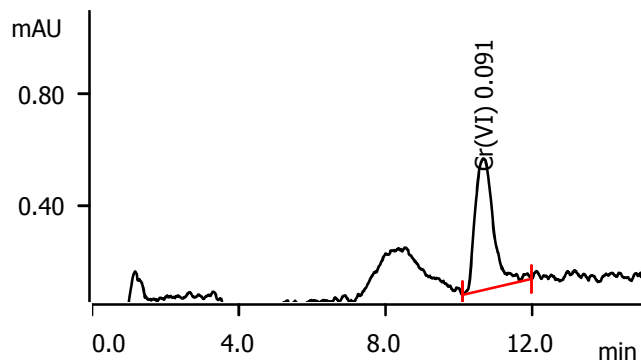


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.27	1	ppb 0.091	10.60

## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 12:48:59

## HexChrome

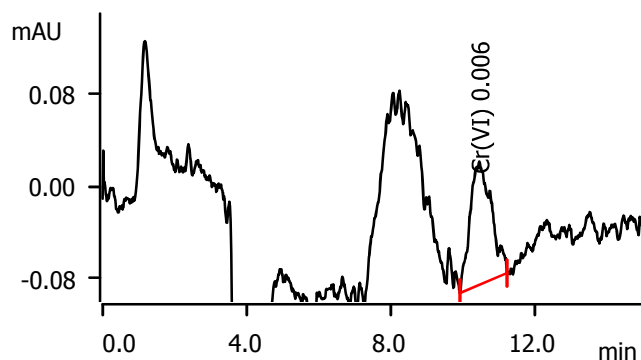


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.27	1	ppb 0.091	10.67

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 13:07:17

## HexChrome

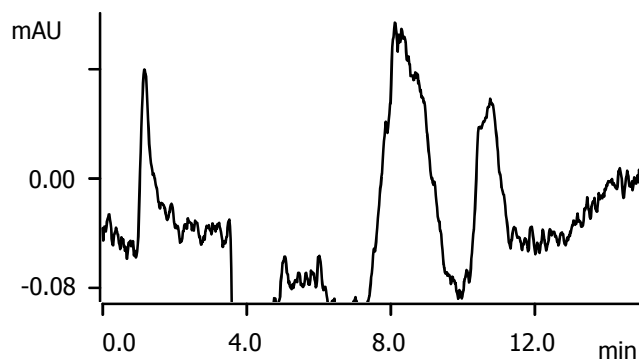


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.07	1	ppb 0.006	10.47

## Sample data

Ident . . . . . 3640170  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 13:25:35

## HexChrome



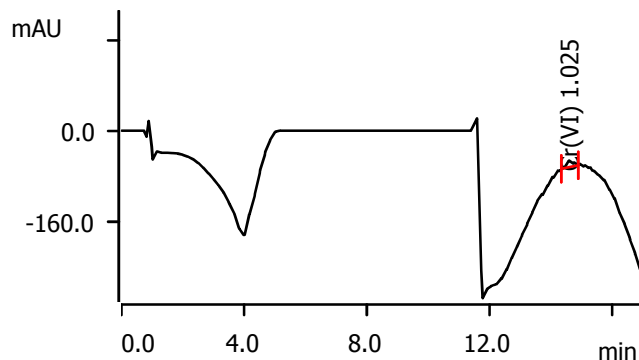
Component	Area	Dil.Factor	Final Conc	Ret.Time
-----------	------	------------	------------	----------

1				
---	--	--	--	--

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 14:39:54

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
-----------	------	------------	------------	----------

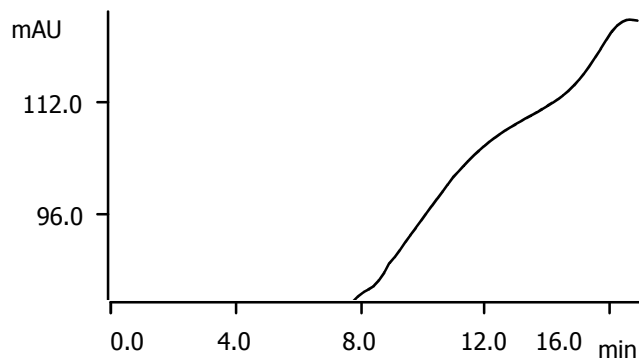
Cr(VI)	2.82	1	ppb	
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1.025	14.65
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## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 15:00:13

## HexChrome



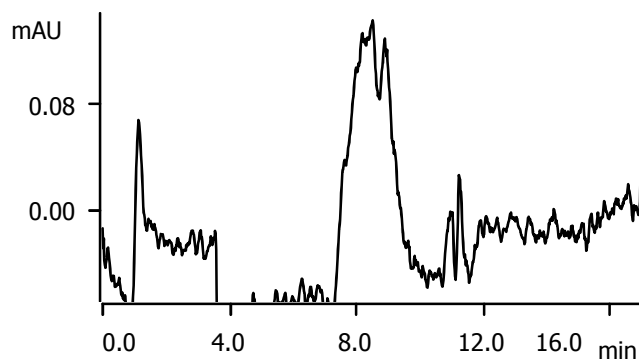
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 15:20:31

## HexChrome



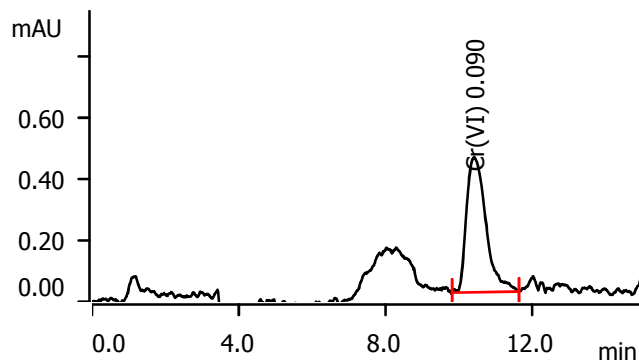
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . 3640171  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 15:40:50

## HexChrome



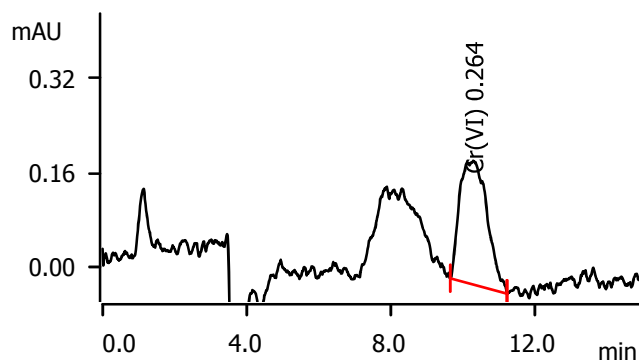
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.27	1	ppb 0.090	10.45
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## Sample data

Ident . . . . . 30485370001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 16:35:51

## HexChrome



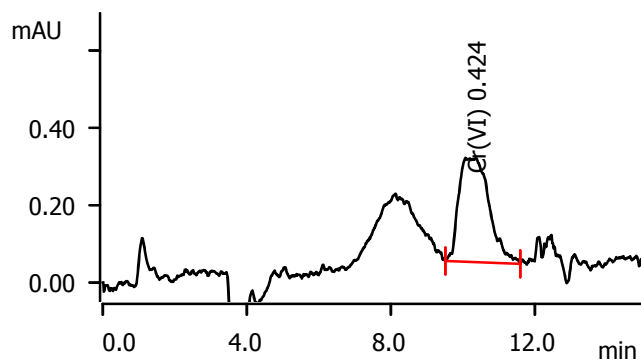
Component	Area	Dil.Factor	Final Conc	Ret.Time
-----------	------	------------	------------	----------

Cr(VI)	0.18	5	ppb 0.264	10.32
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## Sample data

Ident . . . . . 3640172  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 16:54:10

## HexChrome

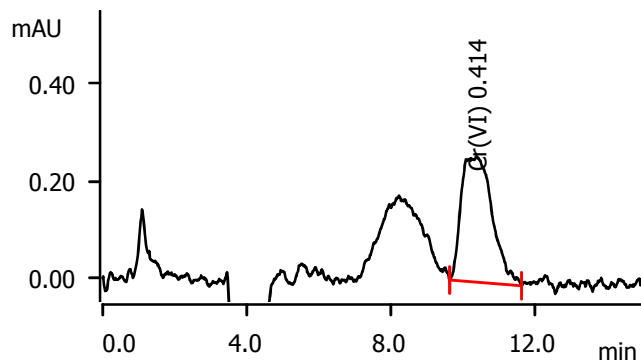


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.26	5	ppb 0.424	10.21

## Sample data

Ident . . . . . 3640173  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 17:12:31

## HexChrome

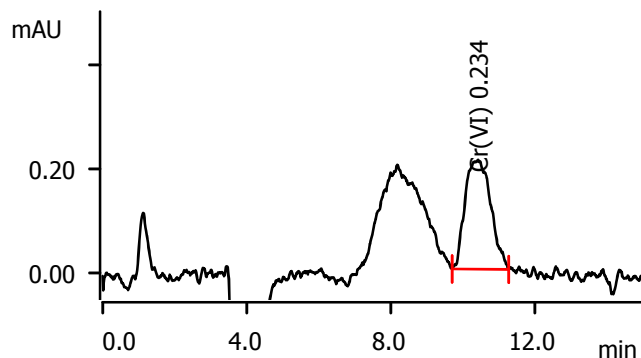


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.26	5	ppb 0.414	10.40

## Sample data

Ident . . . . . 30485371001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 17:30:51

## HexChrome

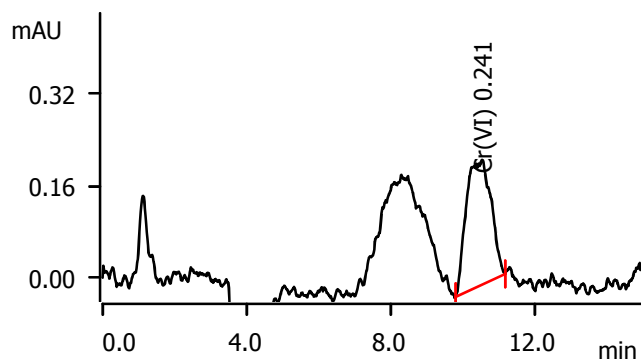


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.17	5	ppb 0.234	10.47

## Sample data

Ident . . . . . 30485362001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 17:49:11

## HexChrome

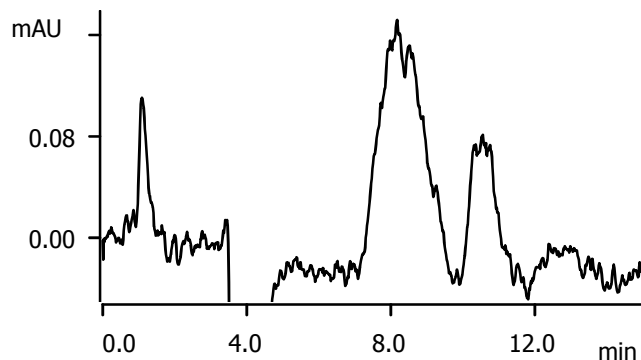


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.17	5	ppb 0.241	10.55

## Sample data

Ident . . . . . 3641590  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 18:07:33

## HexChrome

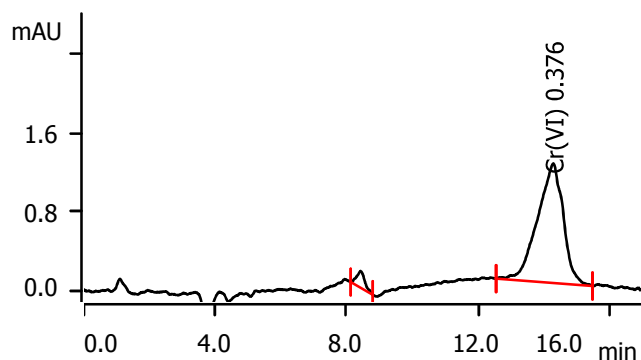


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	1.09	1	ppb 0.376	14.30

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 18:25:52

## HexChrome

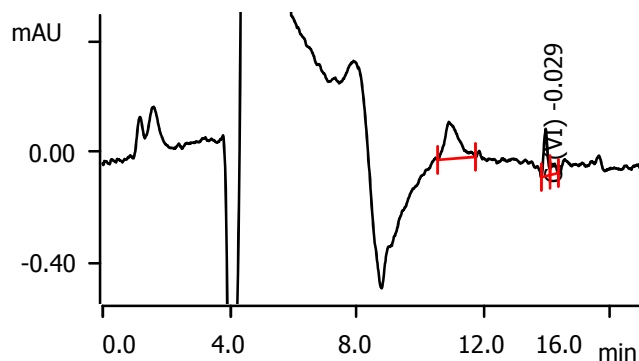


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	1.09	1	ppb 0.376	14.30

## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 18:46:11

## HexChrome

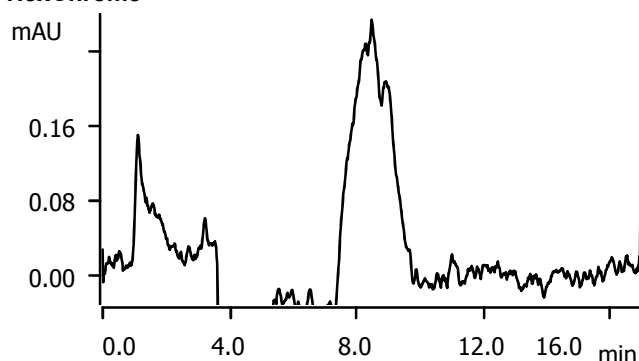


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.00	1	ppb -0.029	14.23

## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 19:06:29

## HexChrome

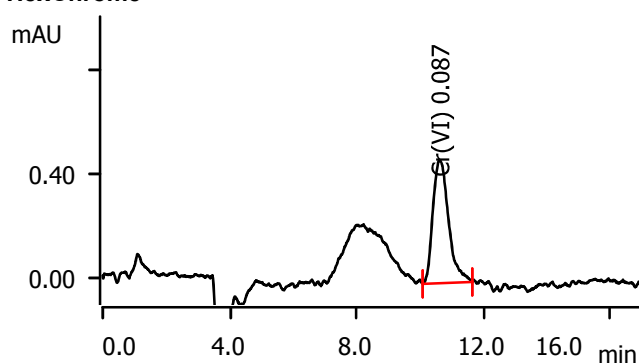


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.27	1	ppb 0.087	10.60

## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 19:26:48

## HexChrome



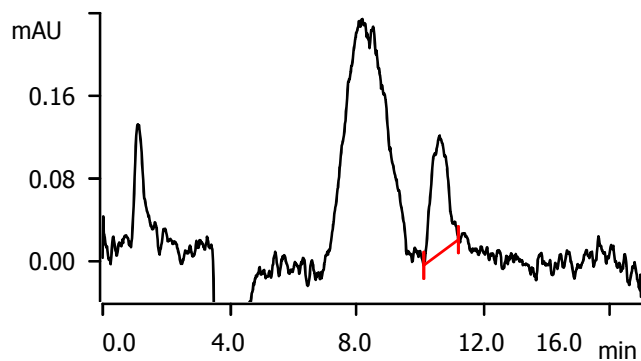
Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.27	1	ppb 0.087	10.60



## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 19:47:05

## HexChrome



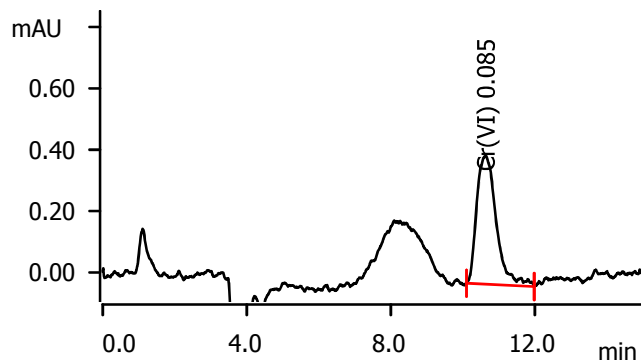
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . 3641591  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 20:07:24

## HexChrome



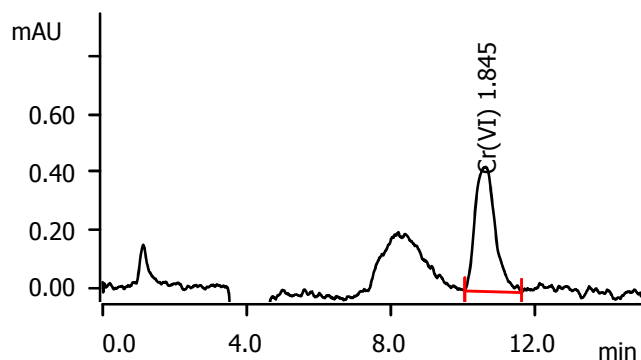
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.26	1	ppb 0.085	10.62
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## Sample data

Ident . . . . . 92603175001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 20:25:43

## HexChrome



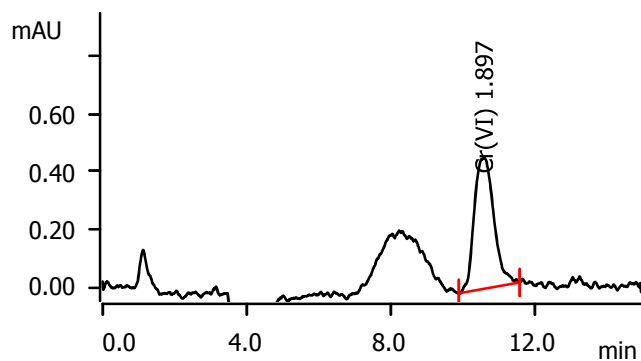
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.28	20	ppb 1.845	10.63
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## Sample data

Ident . . . . . 3641592  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 20:44:04

## HexChrome

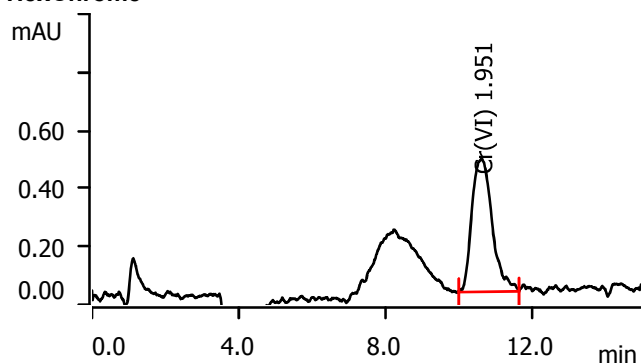


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.28	20	ppb 1.897	10.60

## Sample data

Ident . . . . . 3641593  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 21:02:25

## HexChrome

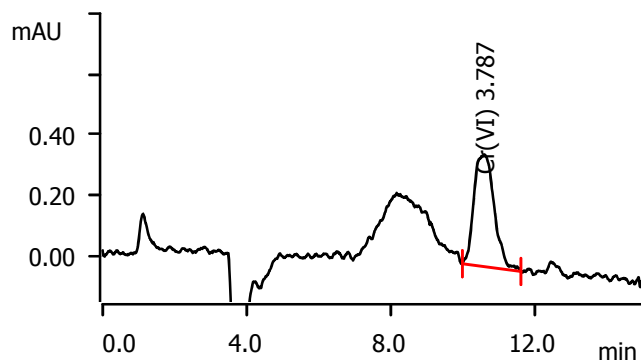


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	20	ppb 1.951	10.63

## Sample data

Ident . . . . . 92603175002  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 21:20:48

## HexChrome

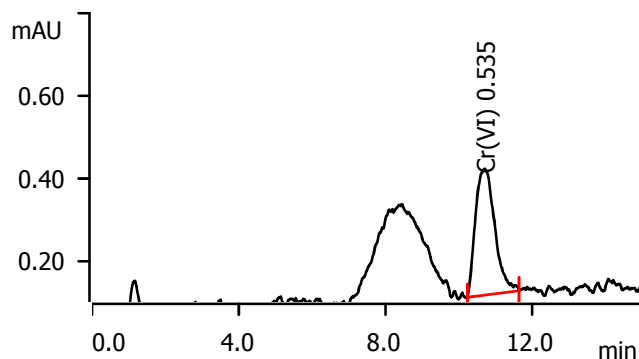


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.24	50	ppb 3.787	10.62

### Sample data

Ident . . . . . 92603175003  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-12 21:39:10

### HexChrome

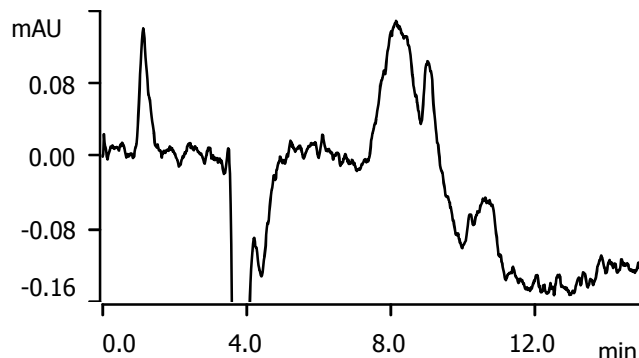


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.18	10	ppb 0.535	10.72

### Sample data

Ident . . . . . 92603178001  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-12 21:57:32

### HexChrome

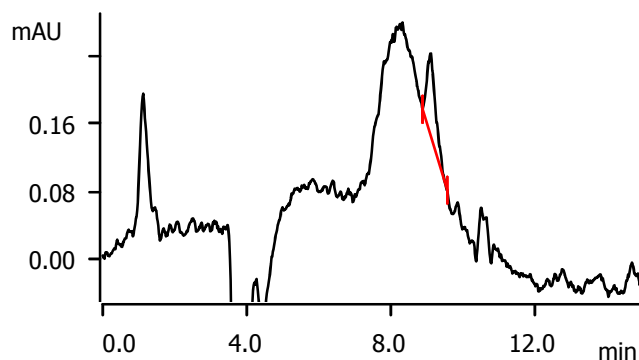


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

### Sample data

Ident . . . . . 92603178002  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-12 22:15:54

### HexChrome

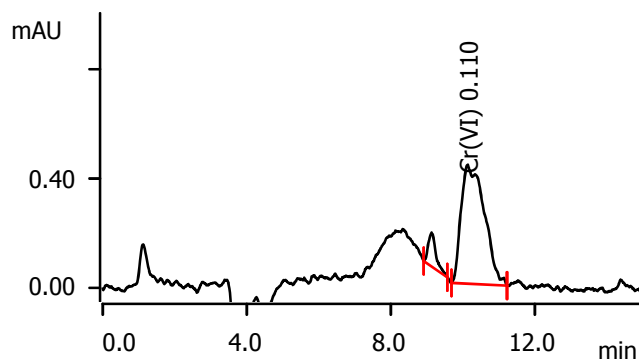


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . 92603178003  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 22:34:17

## HexChrome

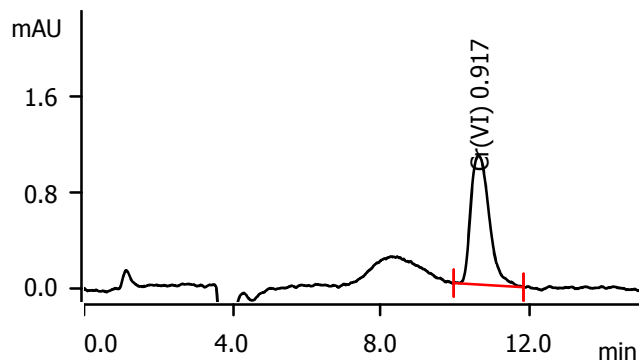


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.32	1	ppb 0.110	10.15

## Sample data

Ident . . . . . 92603178004  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 22:52:41

## HexChrome

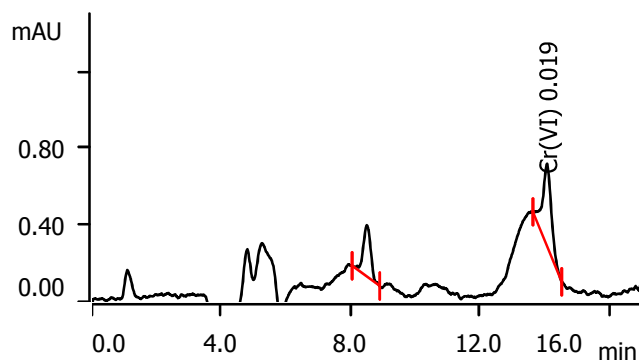


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.61	4	ppb 0.917	10.63

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 23:11:05

## HexChrome

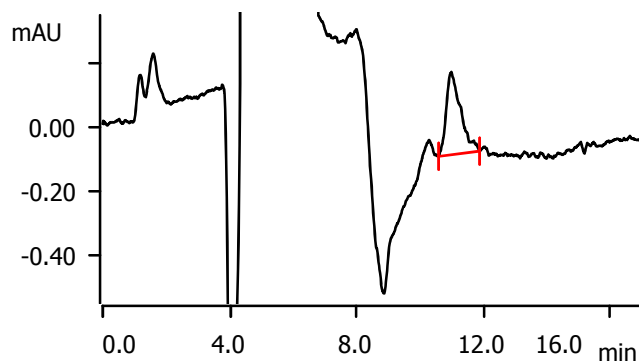


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.13	1	ppb 0.019	14.10

## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 23:31:23

## HexChrome



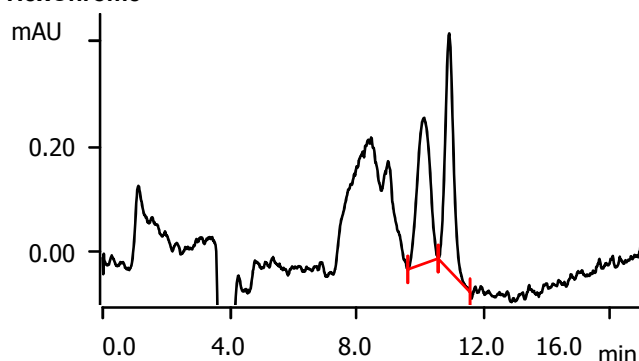
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-12 23:51:41

## HexChrome



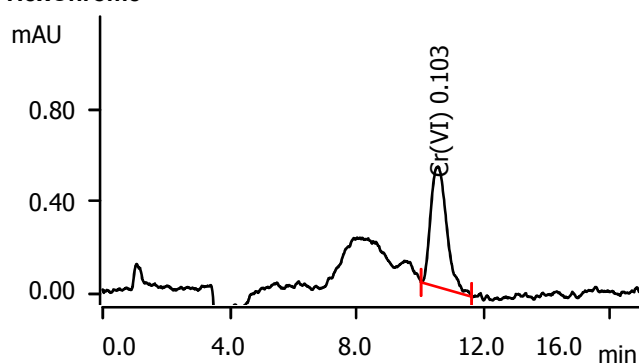
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 00:12:01

## HexChrome



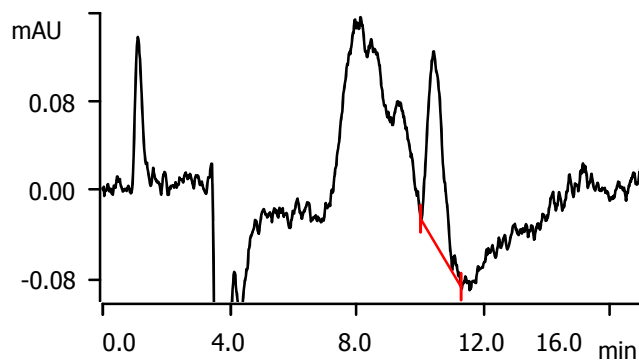
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.30	1	ppb 0.103	10.55
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## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 00:32:19

## HexChrome



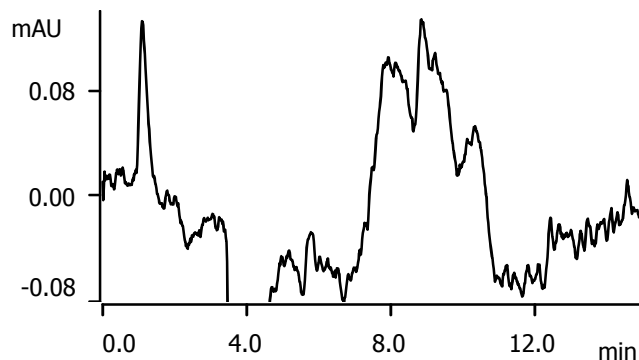
Component	Area	Dil.Factor	Final Conc	Ret.Time
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		1		
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## Sample data

Ident . . . . . 92603178005  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 00:52:38

## HexChrome



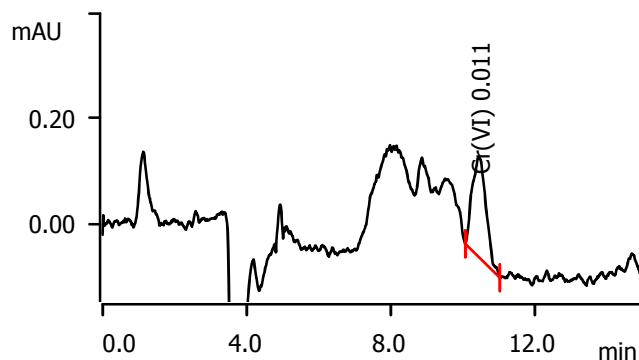
Component	Area	Dil.Factor	Final Conc	Ret.Time
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		1		
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## Sample data

Ident . . . . . 92603178006  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 01:11:02

## HexChrome



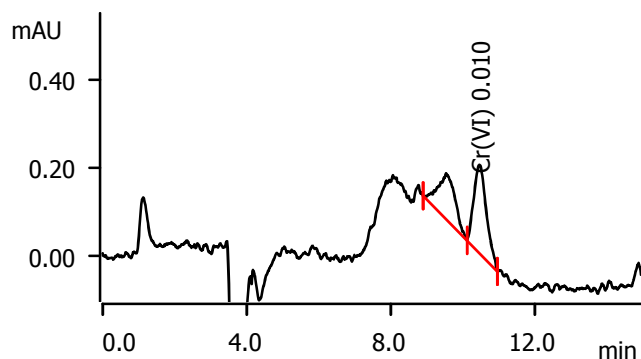
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.08	1	ppb 0.011	10.48
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### Sample data

Ident . . . . . 92603178007  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-13 01:29:26

### HexChrome

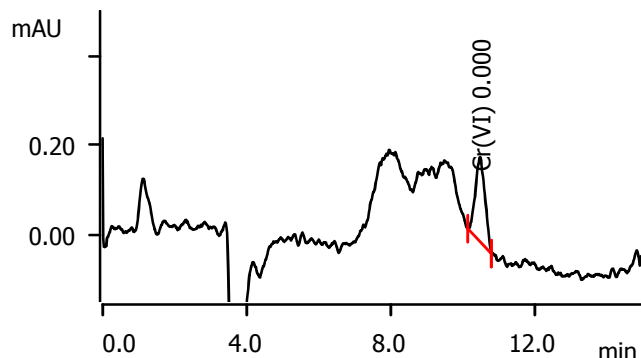


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.08	1	ppb 0.010	10.50

### Sample data

Ident . . . . . 92603178008  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-13 01:47:50

### HexChrome

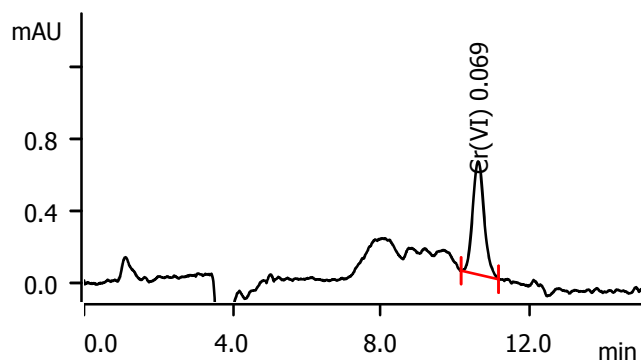


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.05	1	ppb 0.000	10.50

### Sample data

Ident . . . . . 3641594  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-13 02:06:15

### HexChrome

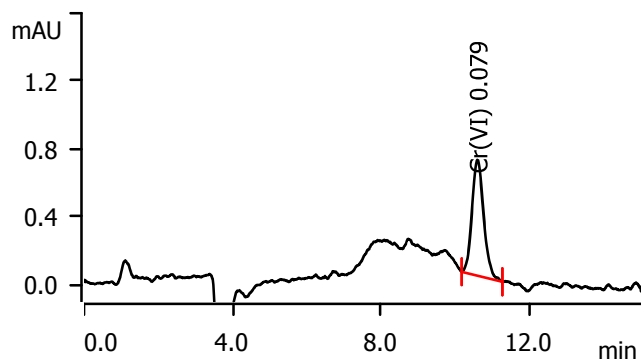


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.22	1	ppb 0.069	10.60

## Sample data

Ident . . . . . 3641595  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 02:24:41

## HexChrome

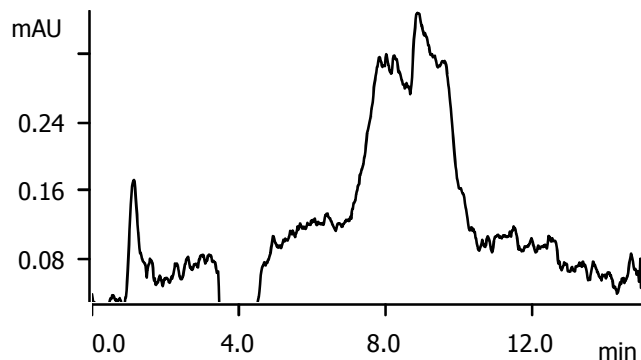


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.25	1	ppb 0.079	10.60

## Sample data

Ident . . . . . 92603178009  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 02:43:06

## HexChrome

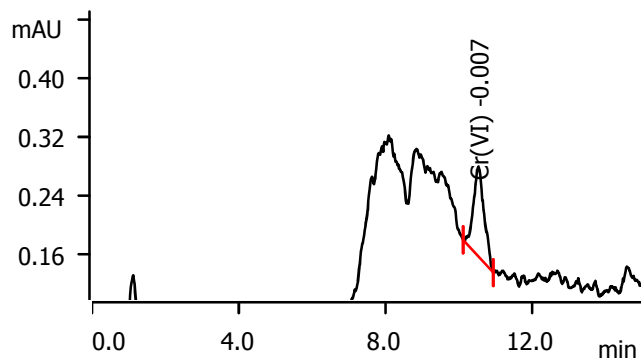


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . 92603121001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 03:01:31

## HexChrome



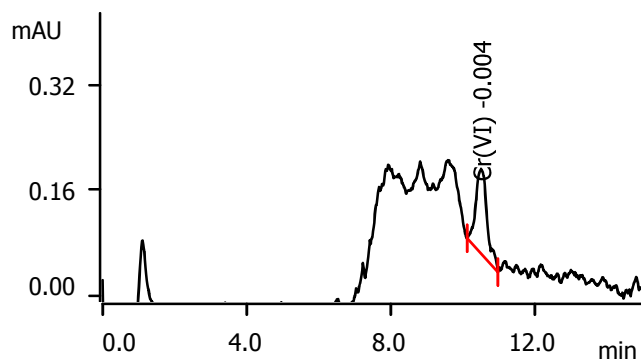
Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.04	1	ppb -0.007	10.53



## Sample data

Ident . . . . . 92603121002  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 03:19:56

## HexChrome

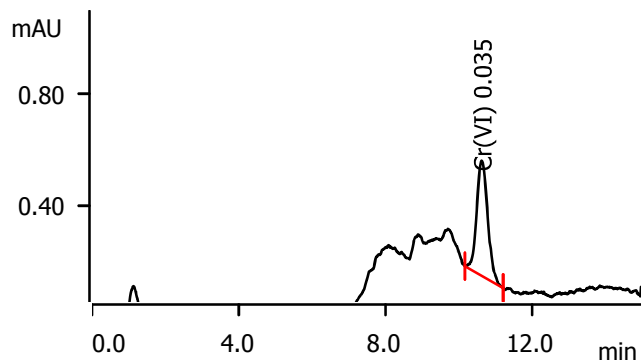


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.04	1	ppb -0.004	10.50

## Sample data

Ident . . . . . 92603761001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 03:38:22

## HexChrome

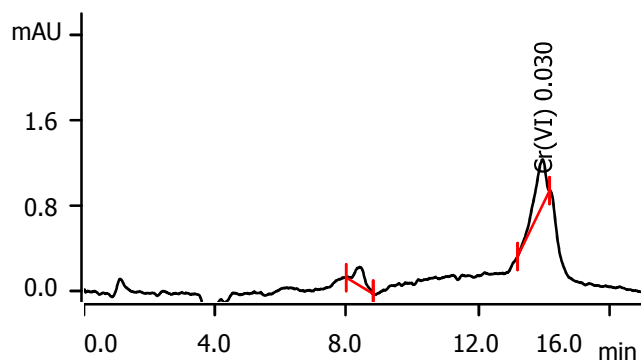


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.14	1	ppb 0.035	10.65

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 03:56:47

## HexChrome

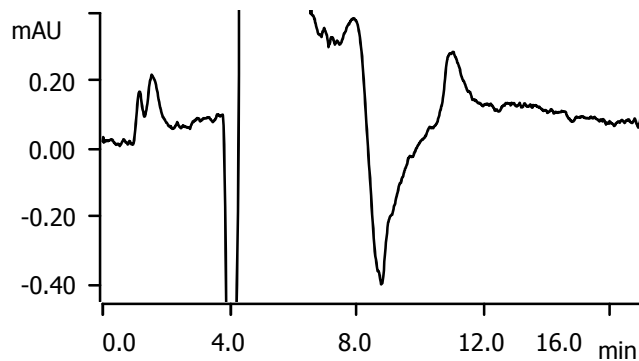


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.16	1	ppb 0.030	13.91

## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 04:17:07

## HexChrome



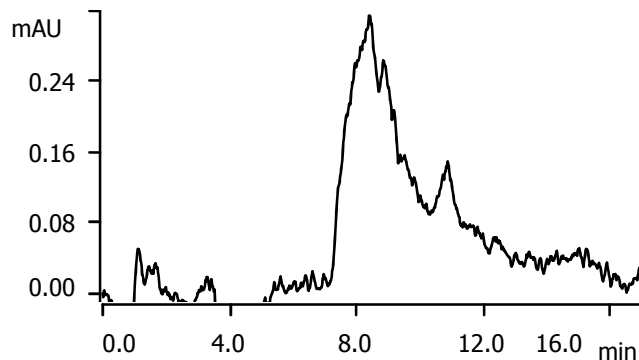
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 04:37:27

## HexChrome



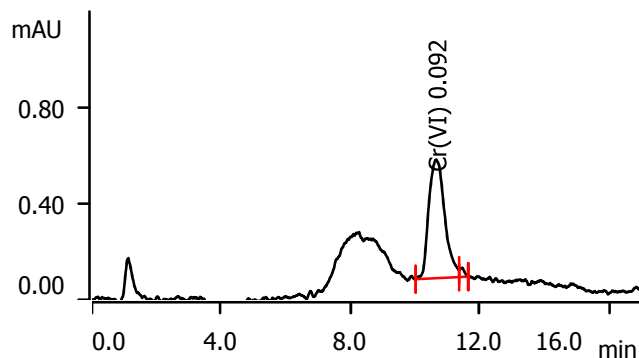
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 04:57:47

## HexChrome



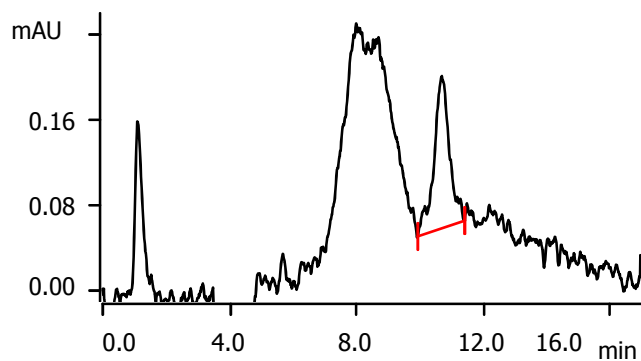
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.28	1	ppb 0.092	10.67
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## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 05:18:05

## HexChrome



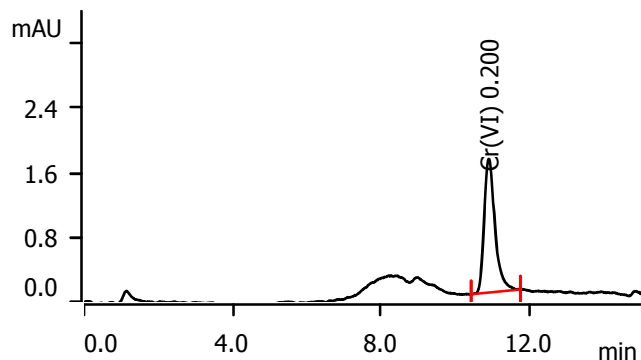
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . 92603764001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 05:38:24

## HexChrome



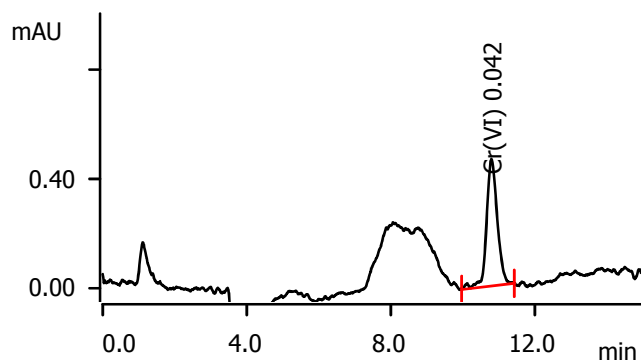
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.54	1	ppb 0.200	10.85
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## Sample data

Ident . . . . . 92603313002  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 05:56:49

## HexChrome



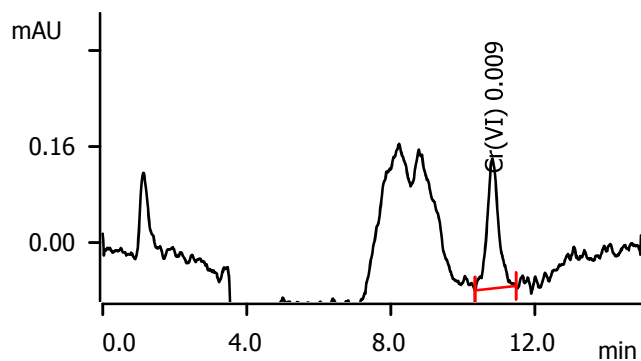
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.16	1	ppb 0.042	10.82
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## Sample data

Ident . . . . . 92603313014  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 06:15:13

## HexChrome

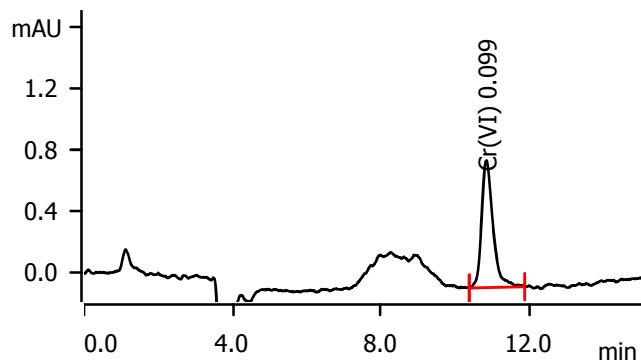


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.08	1	ppb 0.009	10.87

## Sample data

Ident . . . . . 92603313015  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 06:33:36

## HexChrome

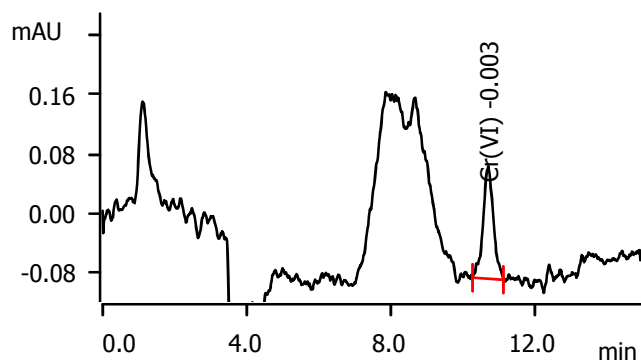


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	1	ppb 0.099	10.84

## Sample data

Ident . . . . . 92603313016  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 06:51:59

## HexChrome

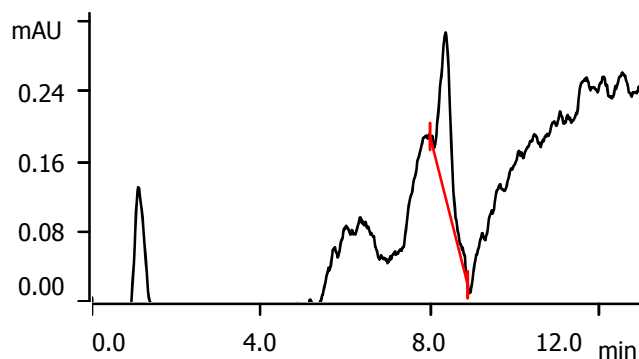


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.05	1	ppb -0.003	10.70

### Sample data

Ident . . . . . Oxalic Acid Rinse  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-13 08:38:09

### HexChrome

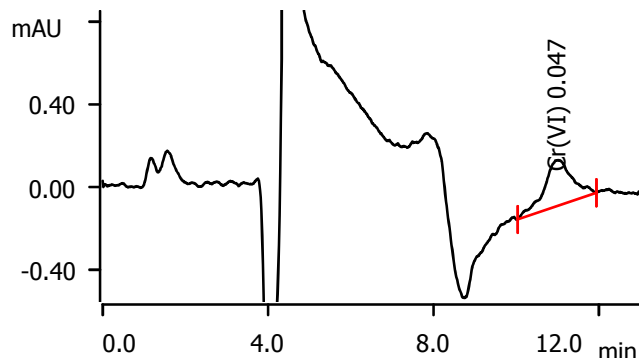


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

### Sample data

Ident . . . . . MeOH Rinse  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-13 08:54:29

### HexChrome

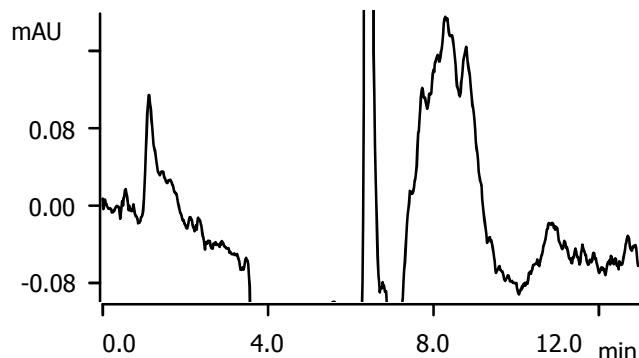


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.17	1	ppb 0.047	10.97

### Sample data

Ident . . . . . Di H2O Rinse  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-13 09:10:49

### HexChrome

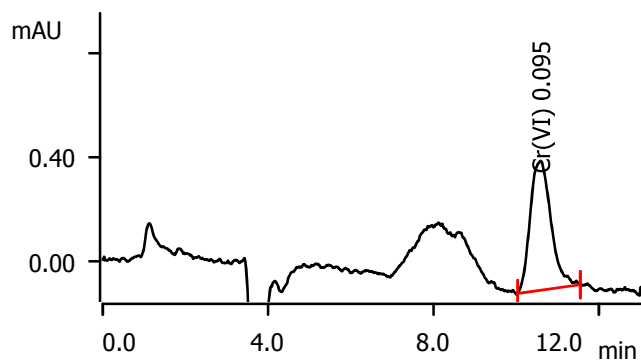


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 09:27:09

## HexChrome

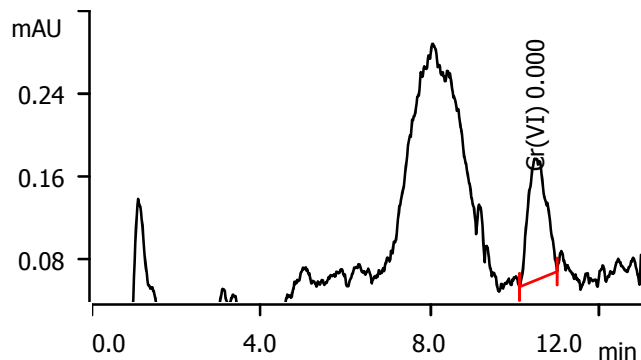


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.28	1	ppb 0.095	10.58

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-13 09:43:28

## HexChrome

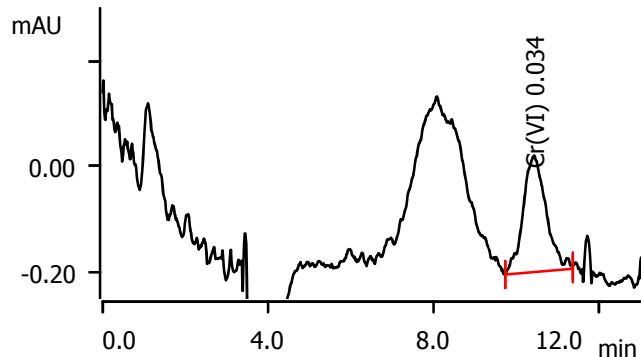


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.05	1	ppb 0.000	10.45

## Sample data

Ident . . . . . CRDL  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 10:11:33

## HexChrome

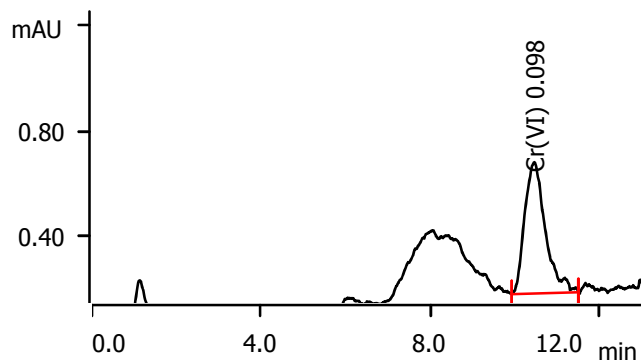


Component	Area	Dil.Factor	Final Conc ppb	Ret.Time
Cr(VI)	0.14	1	0.034	10.42

## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 10:27:57

## HexChrome

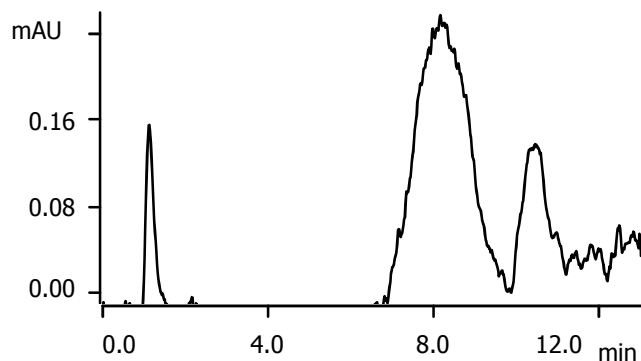


Component	Area	Dil.Factor	Final Conc ppb	Ret.Time
Cr(VI)	0.27	1	0.098	10.47

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 10:44:16

## HexChrome

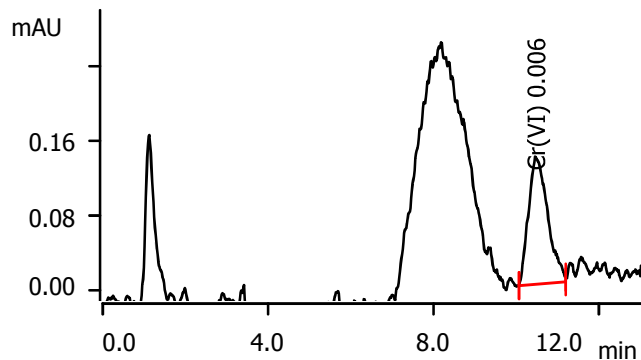


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . 3644705  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 11:34:28

## HexChrome

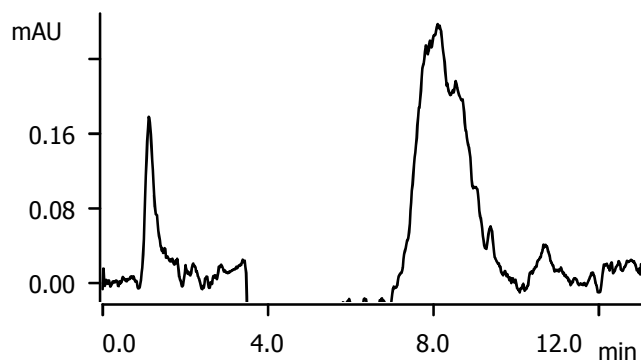


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.07	1	ppb 0.006	10.38

## Sample data

Ident . . . . . 92604073016  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 12:07:06

## HexChrome

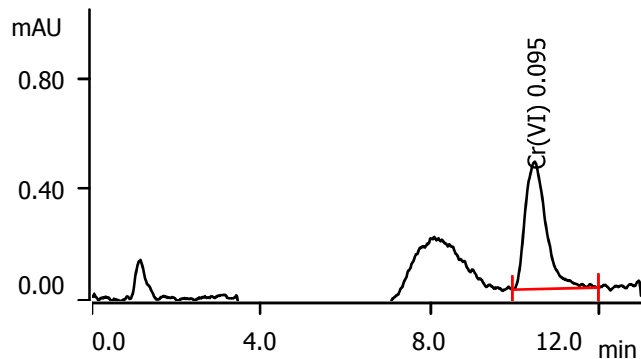


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.26	1	ppb 0.095	10.50

## Sample data

Ident . . . . . 3644706  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 12:23:25

## HexChrome



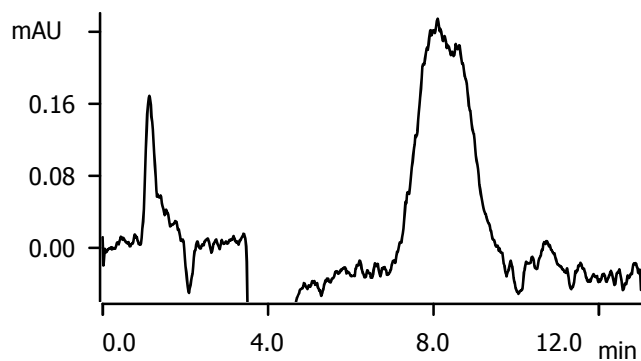
Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.26	1	ppb 0.095	10.50



## Sample data

Ident . . . . . 92604073017  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 12:40:09

## HexChrome



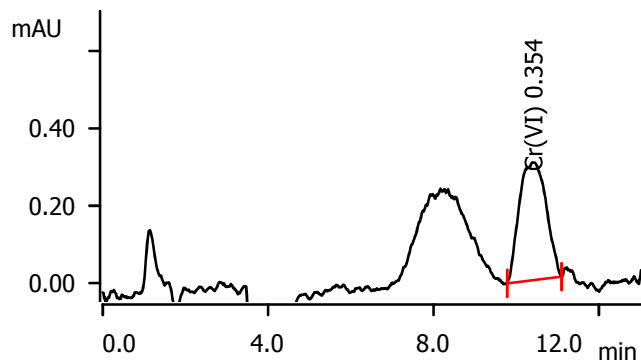
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . 30487529001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 12:56:28

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
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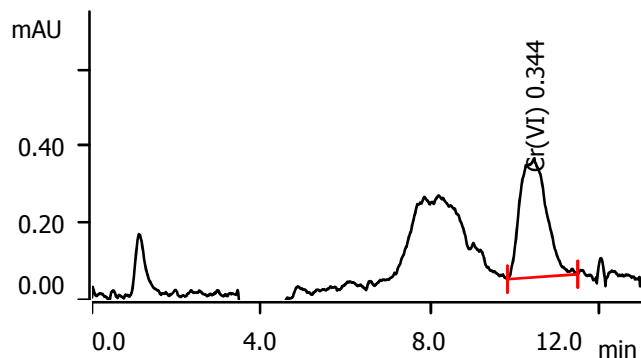
Cr(VI)	0.23	5	ppb	
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			0.354	10.35
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## Sample data

Ident . . . . . 30487526001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 13:29:08

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
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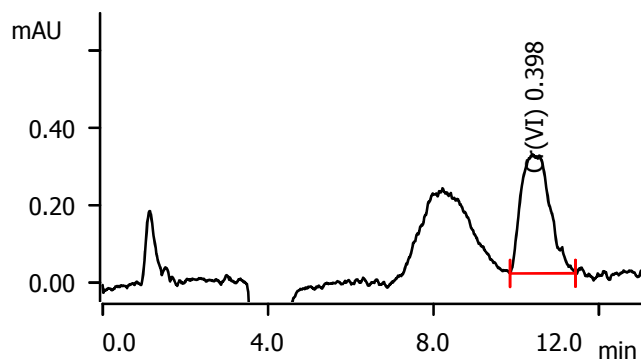
Cr(VI)	0.22	5	ppb	
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			0.344	10.43
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## Sample data

Ident . . . . . 30487532001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 13:45:28

## HexChrome

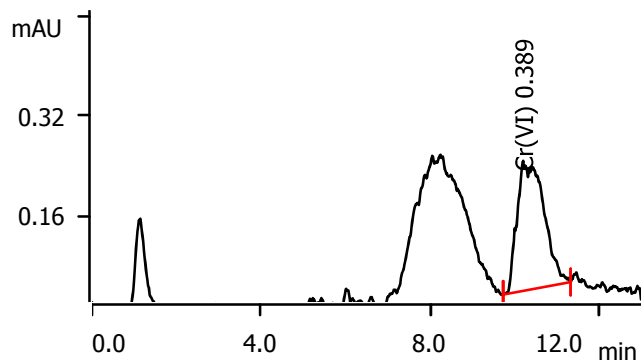


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.25	5	ppb 0.398	10.37

## Sample data

Ident . . . . . 30487177005  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 14:01:48

## HexChrome

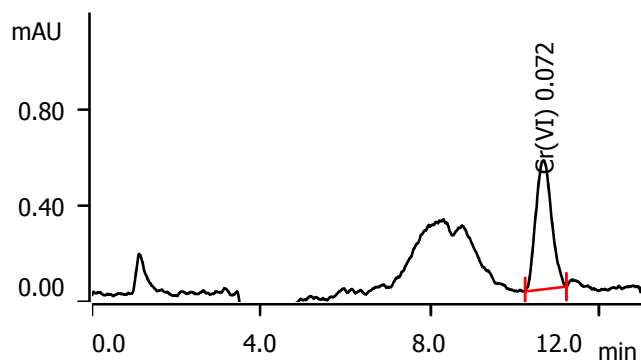


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.15	10	ppb 0.389	10.21

## Sample data

Ident . . . . . 30486763001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 14:18:09

## HexChrome

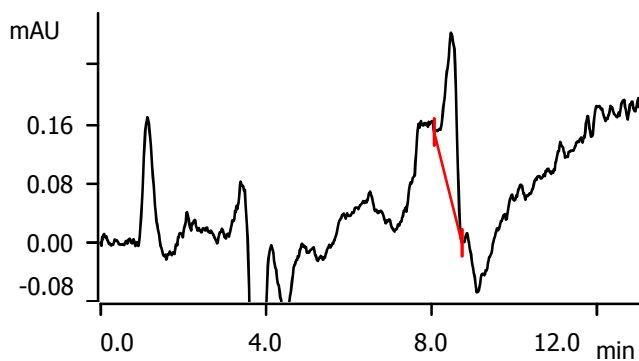


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.23	1	ppb 0.072	10.63

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 14:34:30

## HexChrome



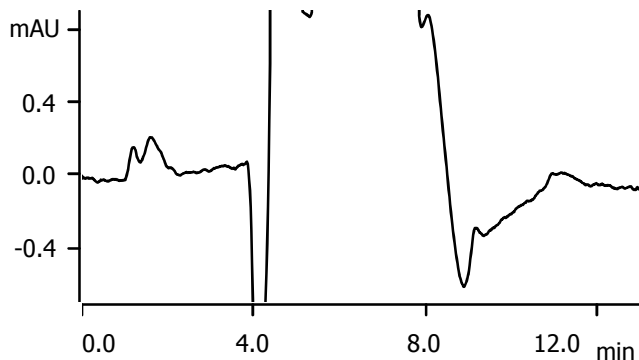
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 14:50:48

## HexChrome



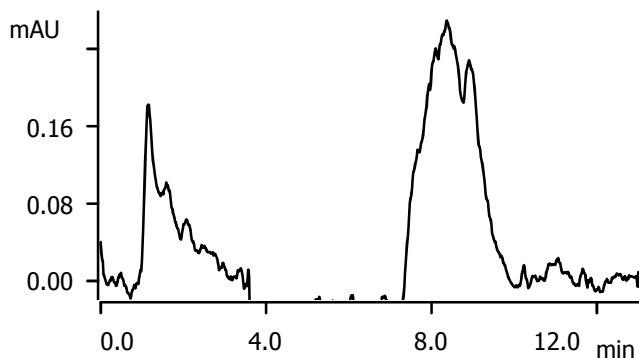
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 15:07:06

## HexChrome



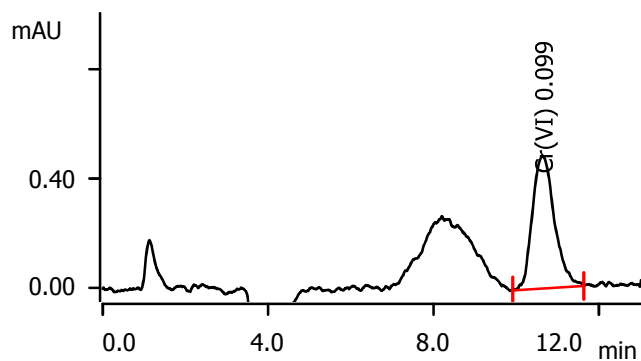
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 15:23:26

## HexChrome

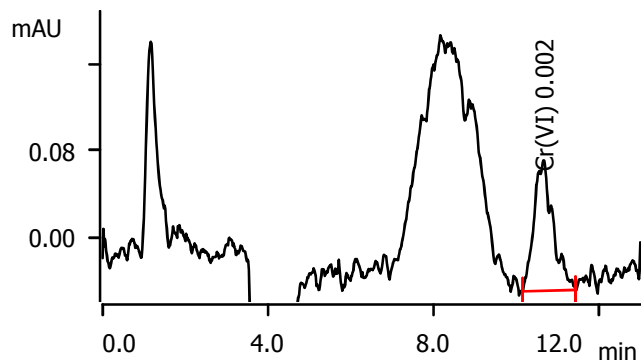


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	1	ppb 0.099	10.60

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 15:39:44

## HexChrome

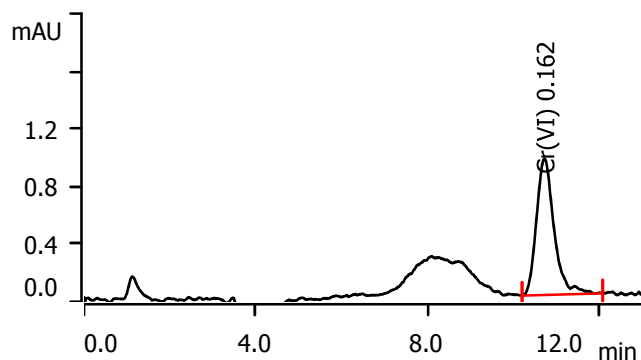


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.002	10.58

## Sample data

Ident . . . . . 3644707  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 15:56:02

## HexChrome

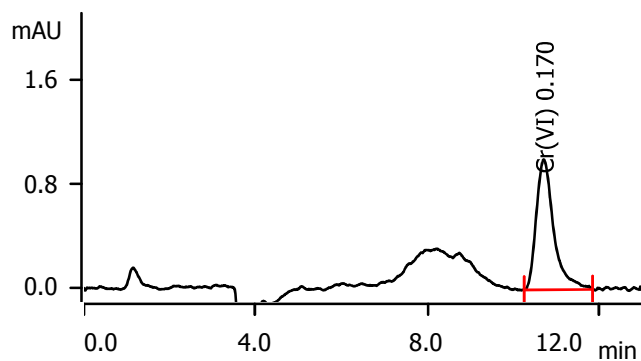


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.45	1	ppb 0.162	10.75

## Sample data

Ident . . . . . 3644708  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 16:12:24

## HexChrome

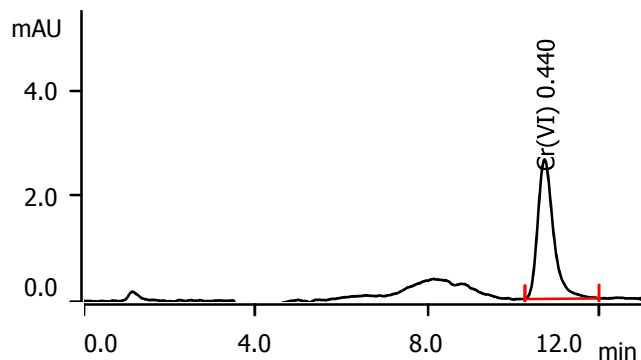


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.47	1	ppb 0.170	10.70

## Sample data

Ident . . . . . 30487178004  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 16:28:45

## HexChrome

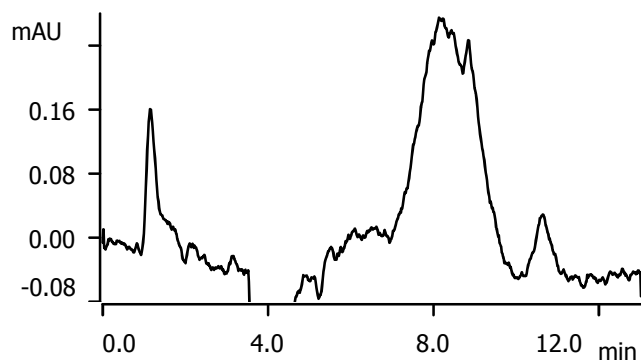


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	1.12	1	ppb 0.440	10.70

## Sample data

Ident . . . . . 30487077005  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 16:45:07

## HexChrome

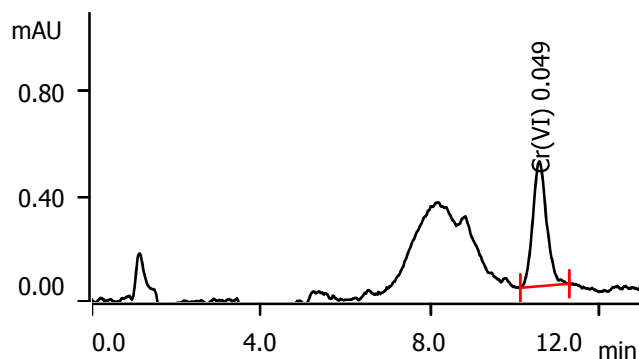


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . 30487175001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 17:01:29

## HexChrome

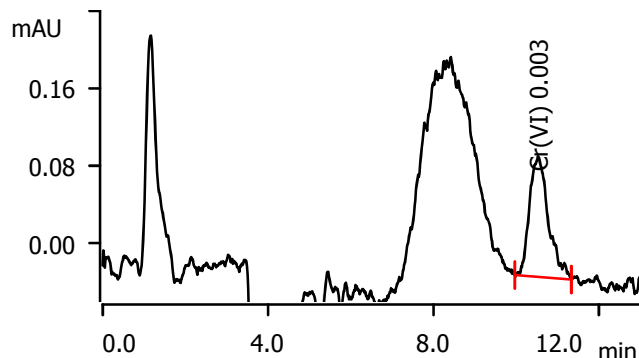


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.17	1	ppb 0.049	10.58

## Sample data

Ident . . . . . 3644709  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 17:17:52

## HexChrome

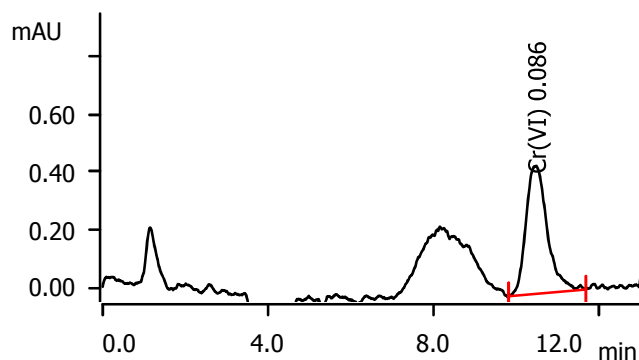


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.003	10.45

## Sample data

Ident . . . . . 3644710  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 17:34:11

## HexChrome

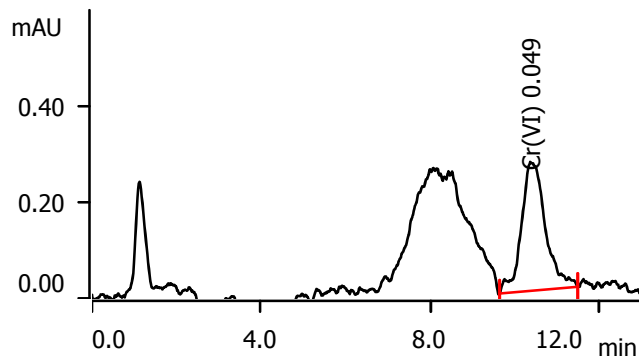


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.26	1	ppb 0.086	10.47

## Sample data

Ident . . . . . 30485042001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 17:50:30

## HexChrome

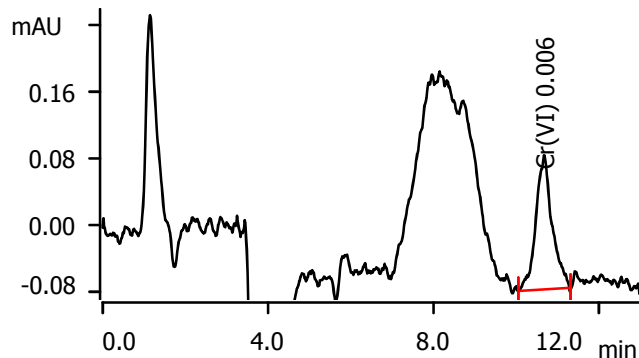


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.17	1	ppb 0.049	10.33

## Sample data

Ident . . . . . 92604269001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 18:06:53

## HexChrome

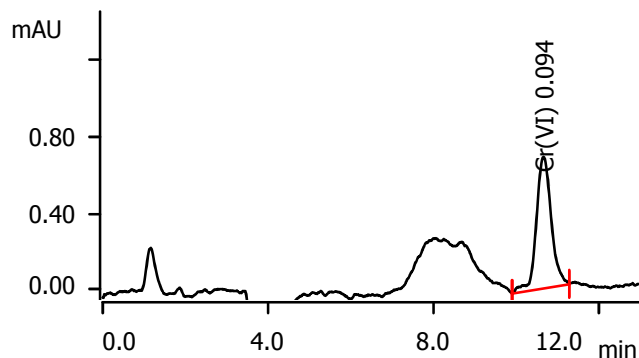


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.07	1	ppb 0.006	10.67

## Sample data

Ident . . . . . 3644711  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 18:23:17

## HexChrome

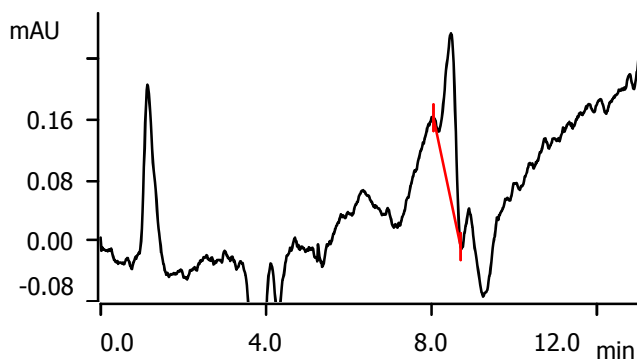


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.28	1	ppb 0.094	10.63

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 18:39:40

## HexChrome



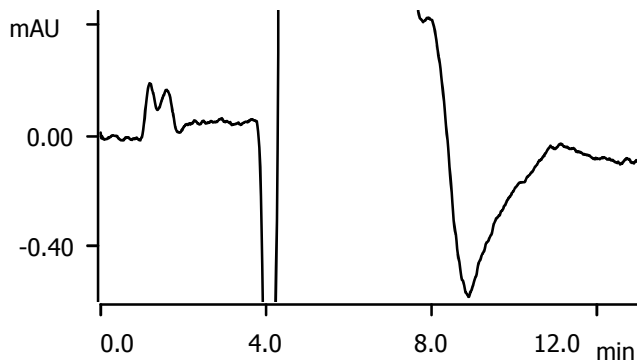
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 18:55:58

## HexChrome



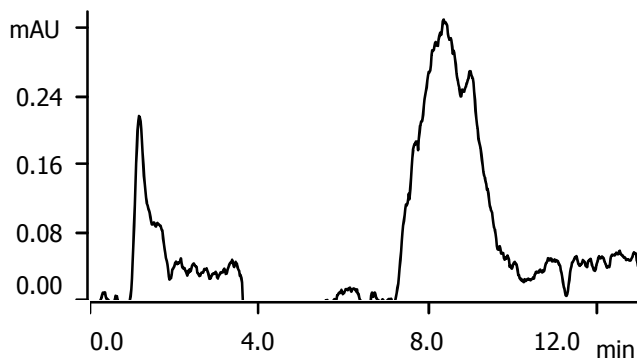
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 19:12:16

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
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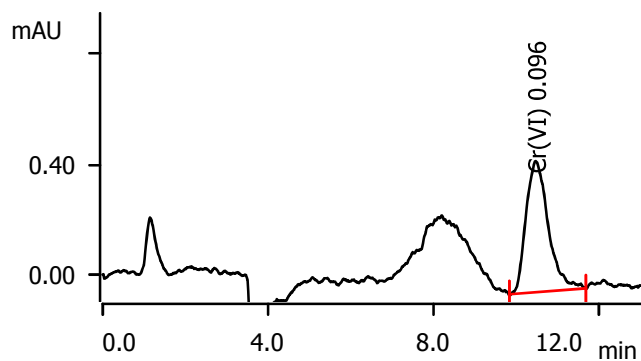
1				
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## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 19:28:35

## HexChrome

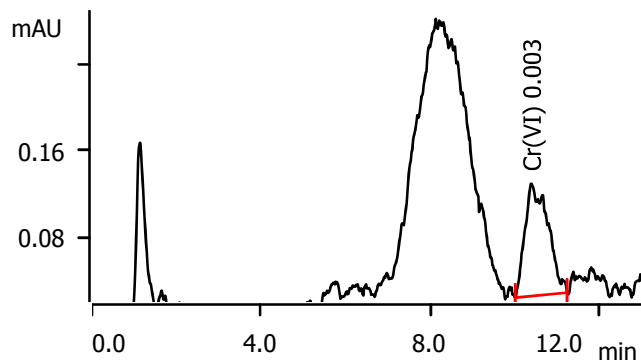


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	1	ppb 0.096	10.45

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 19:44:53

## HexChrome

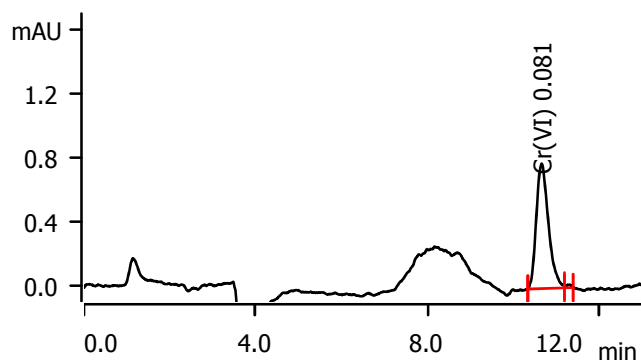


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.003	10.38

## Sample data

Ident . . . . . 3644712  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 20:01:11

## HexChrome

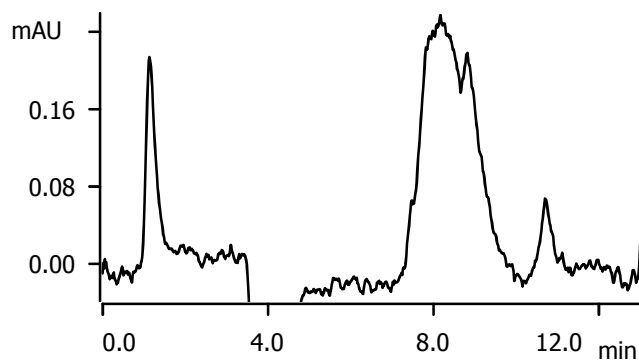


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.25	1	ppb 0.081	10.67

## Sample data

Ident . . . . . 92604274001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 20:17:35

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . 92604274002  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-14 20:33:59

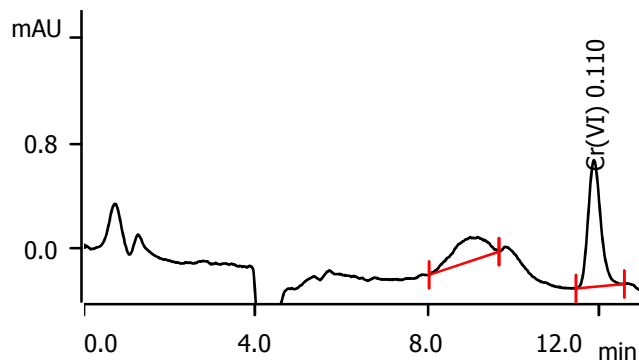
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . 92604309001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 12:14:35

## HexChrome



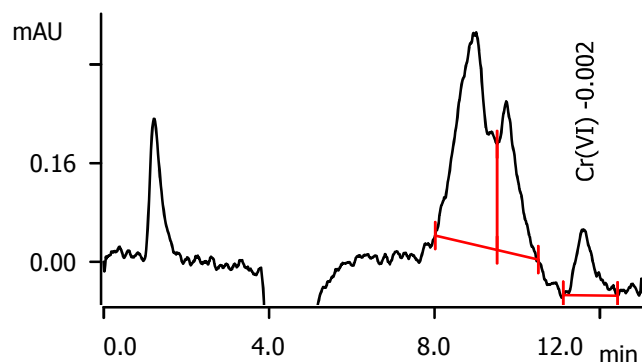
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.32	1	ppb 0.110	11.88
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## Sample data

Ident . . . . . 92604309002  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 12:31:41

## HexChrome

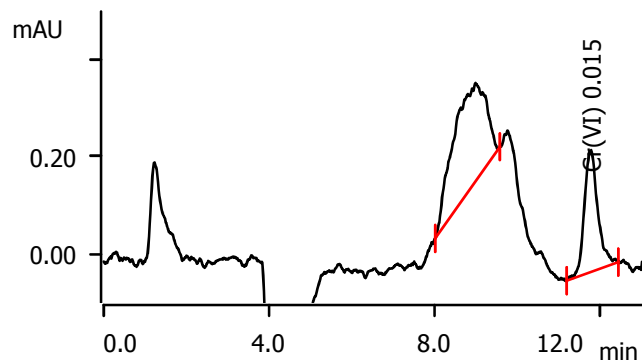


Component	Area	Dil.Factor	Final Conc ppb	Ret.Time
Cr(VI)	0.05	1	-0.002	11.58

## Sample data

Ident . . . . . 92604312001  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 12:48:07

## HexChrome

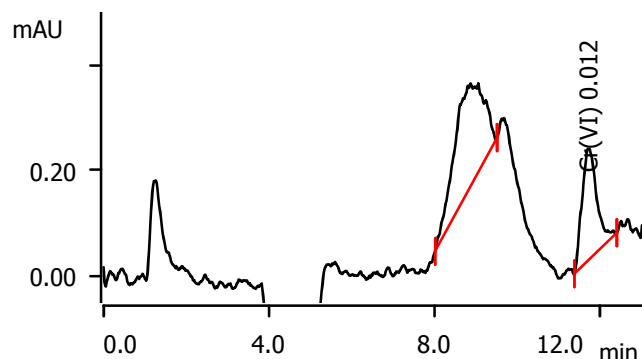


Component	Area	Dil.Factor	Final Conc ppb	Ret.Time
Cr(VI)	0.09	1	0.015	11.71

## Sample data

Ident . . . . . 92604312002  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 13:04:33

## HexChrome



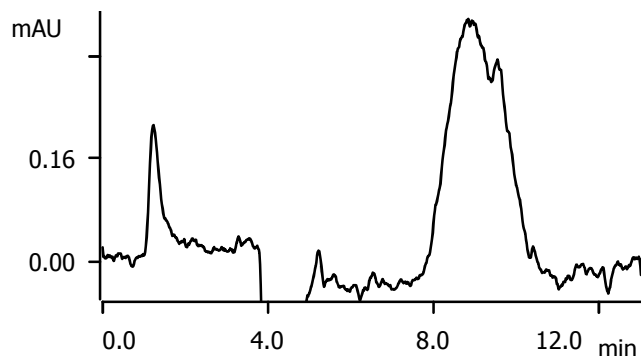
Component	Area	Dil.Factor	Final Conc ppb	Ret.Time
Cr(VI)	0.08	1	0.012	11.68

## Sample data

Ident . . . . . 92604314001  
Sample type . . . . . Sample

Determination start . . . . . 2022-05-15 13:20:59

## HexChrome

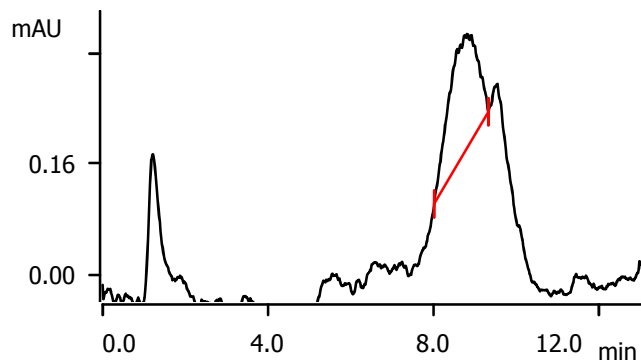


Component	Area	Dil.Factor	Final Conc	Ret.Time
1				

## Sample data

Ident . . . . . 92604314002  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 13:37:24

## HexChrome

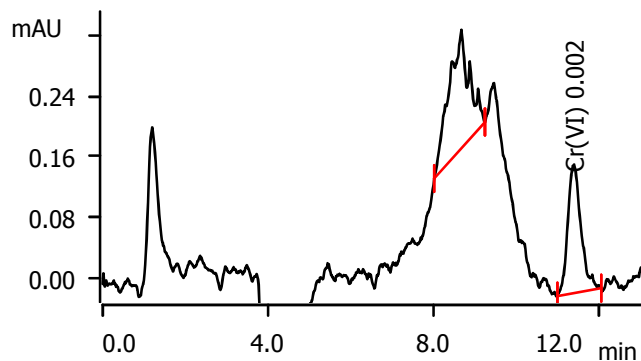


Component	Area	Dil.Factor	Final Conc	Ret.Time
1				

## Sample data

Ident . . . . . 92603566005  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 13:53:49

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.002	11.36

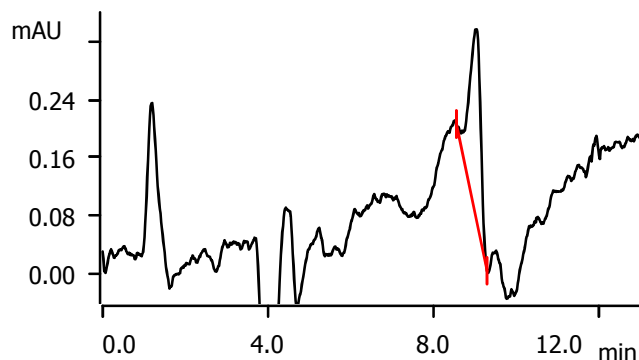
## Sample data

Ident . . . . . Oxalic Acid Rinse

Sample type . . . . . Sample

Determination start . . . . . 2022-05-15 14:10:15

HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
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1

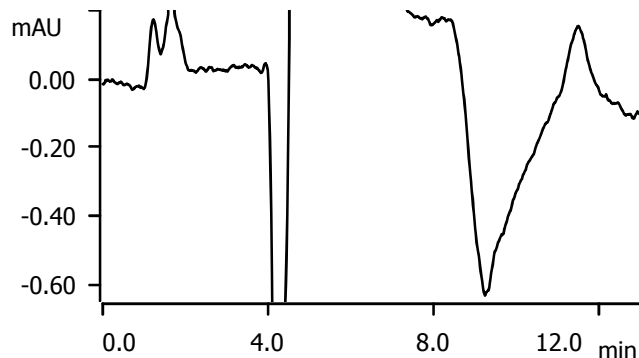
Sample data

Ident . . . . . MeOH Rinse

Sample type . . . . . Sample

Determination start . . . . . 2022-05-15 14:26:34

HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
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1

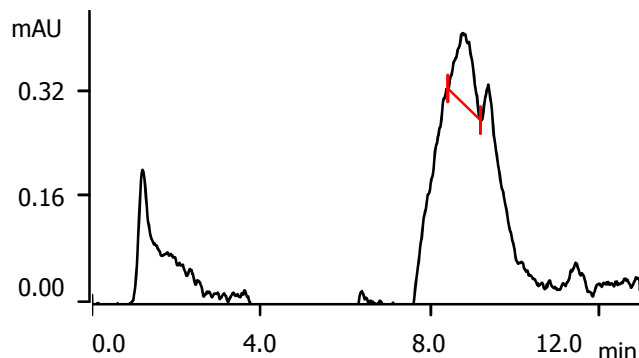
Sample data

Ident . . . . . Di H2O Rinse

Sample type . . . . . Sample

Determination start . . . . . 2022-05-15 14:42:54

HexChrome



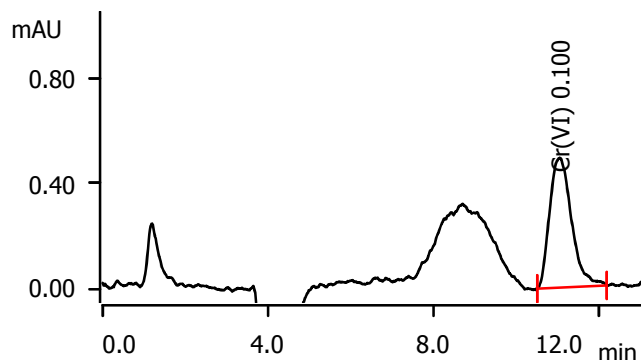
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1

Sample data

Ident . . . . . CCV  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-15 14:59:15

HexChrome

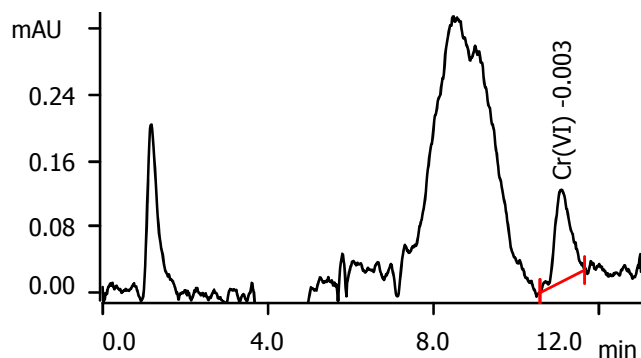


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.30	1	ppb 0.100	11.04

Sample data

Ident . . . . . CCB  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-15 15:15:33

HexChrome

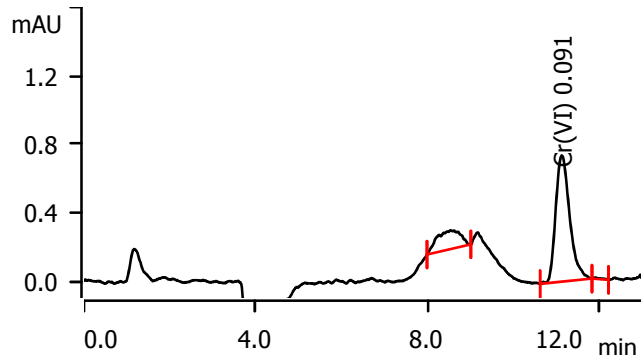


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.05	1	ppb -0.003	11.07

Sample data

Ident . . . . . 3644713  
 Sample type . . . . . Sample  
 Determination start . . . . . 2022-05-15 15:31:52

HexChrome

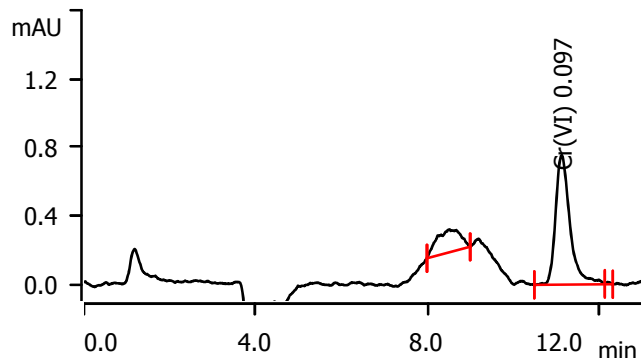


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.28	1	ppb 0.091	11.12

## Sample data

Ident . . . . . 3644714  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 15:48:18

## HexChrome

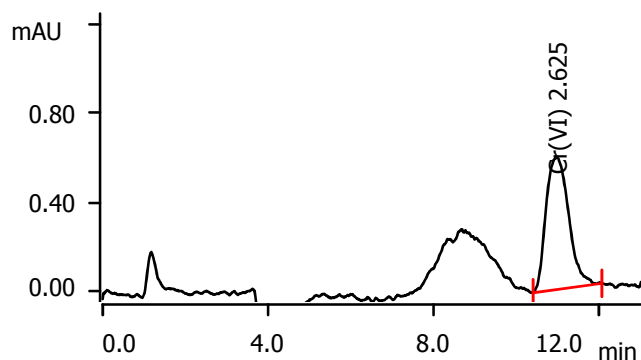


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	1	ppb 0.097	11.12

## Sample data

Ident . . . . . 92603566006  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 16:04:43

## HexChrome

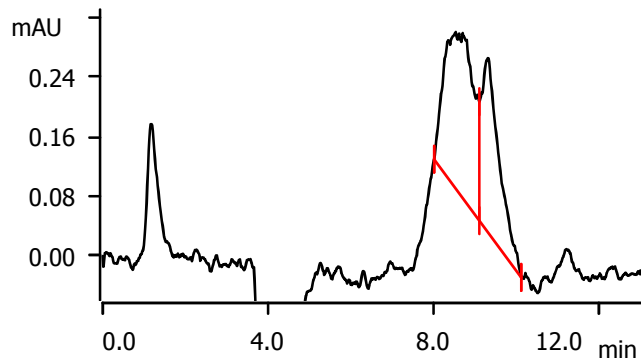


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.37	20	ppb 2.625	10.97

## Sample data

Ident . . . . . 92603566007  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 16:21:07

## HexChrome

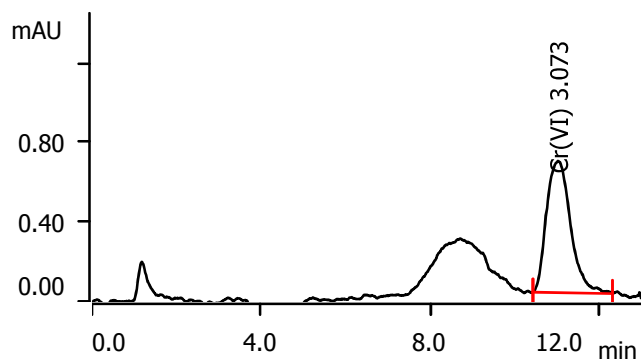


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.37	1	ppb 2.625	10.97

## Sample data

Ident . . . . . 92603566008  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 16:37:32

## HexChrome

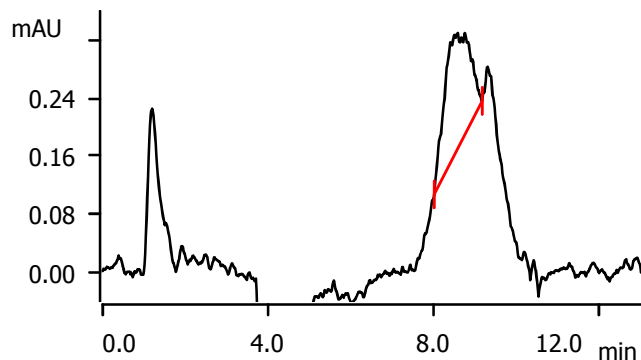


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.43	20	ppb 3.073	11.00

## Sample data

Ident . . . . . 92603566009  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 16:53:55

## HexChrome

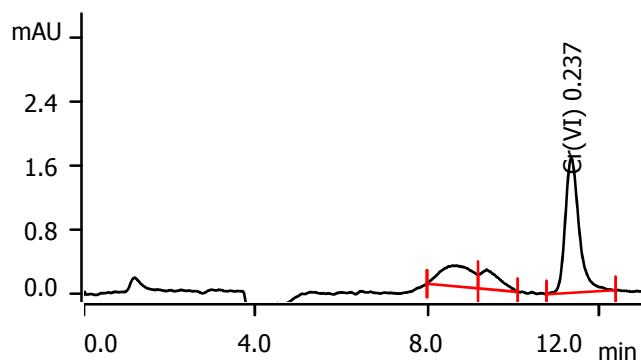


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.43	20	ppb 3.073	11.00

## Sample data

Ident . . . . . 92603566010  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 17:10:29

## HexChrome



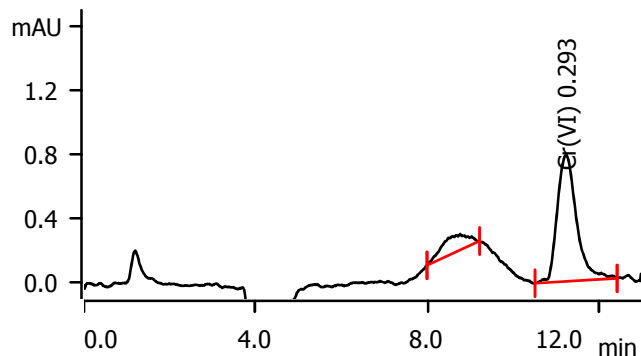
Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.63	1	ppb 0.237	11.36



## Sample data

Ident . . . . . 92603566011  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 17:26:53

## HexChrome

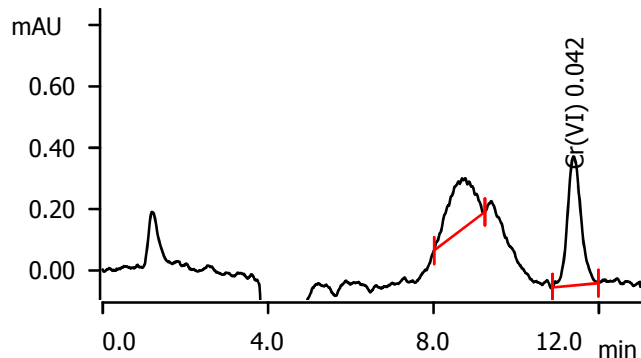


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.41	2	ppb 0.293	11.22

## Sample data

Ident . . . . . 92603566012  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 17:43:15

## HexChrome

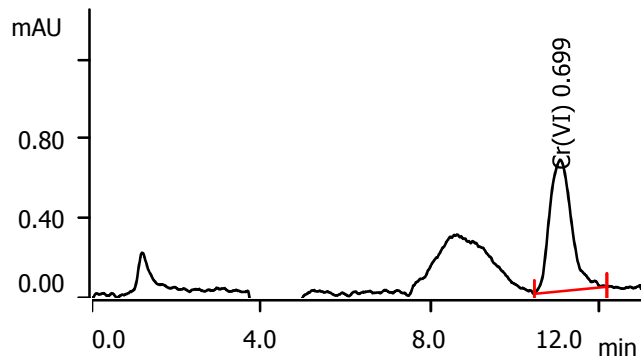


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.16	1	ppb 0.042	11.27

## Sample data

Ident . . . . . 92603566013  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 17:59:38

## HexChrome

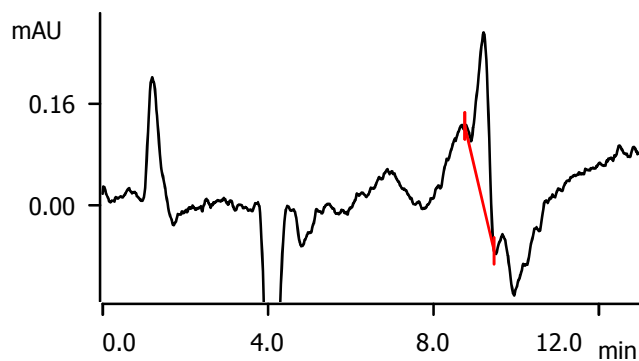


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.39	5	ppb 0.699	11.05

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 18:16:00

## HexChrome



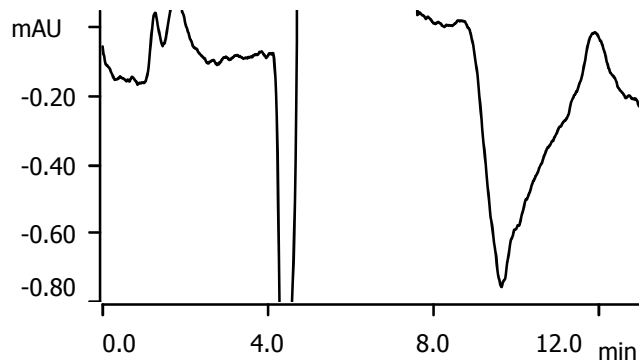
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 18:32:19

## HexChrome



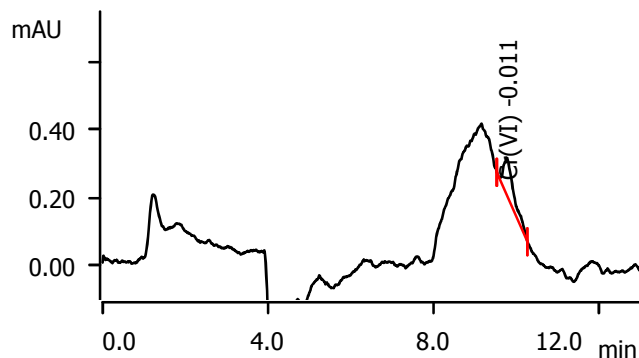
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 18:48:39

## HexChrome



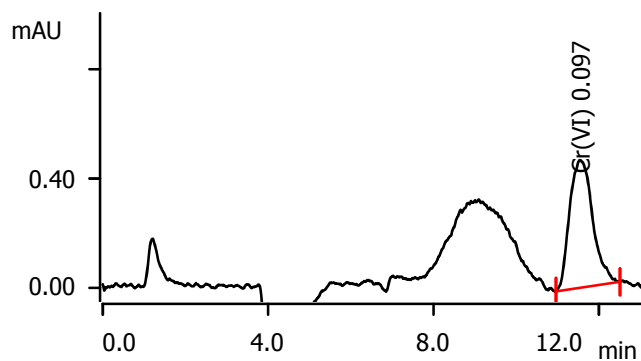
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.03	1	ppb -0.011	9.76
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## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 19:04:59

## HexChrome

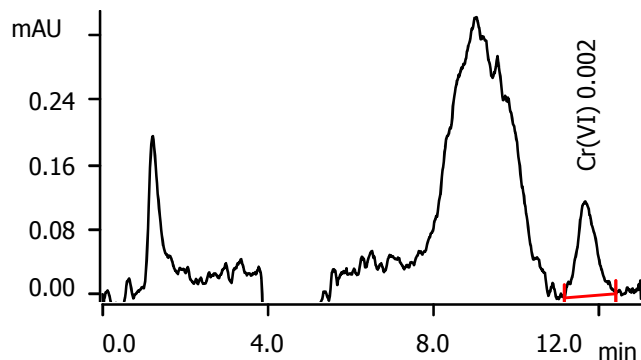


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	1	ppb 0.097	11.52

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 19:21:18

## HexChrome

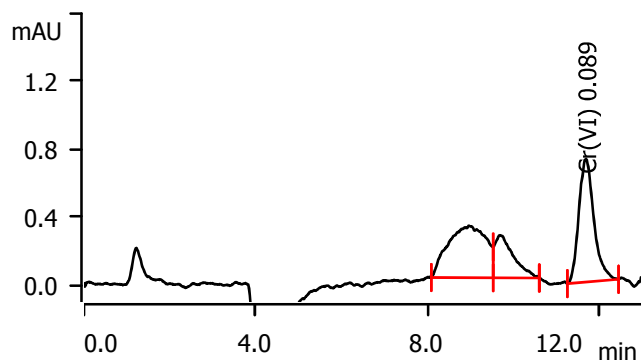


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.002	11.61

## Sample data

Ident . . . . . 92603566014  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 19:37:37

## HexChrome

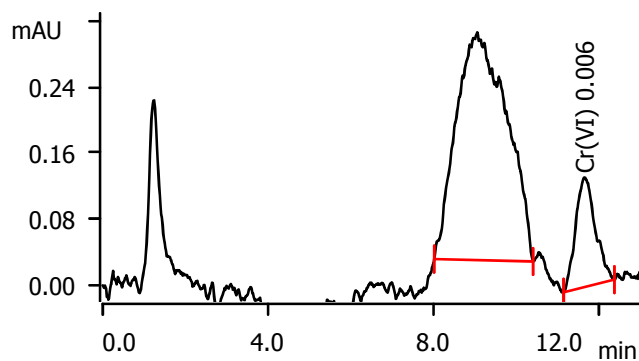


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.27	1	ppb 0.089	11.66

## Sample data

Ident . . . . . 3644715  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 19:53:59

## HexChrome

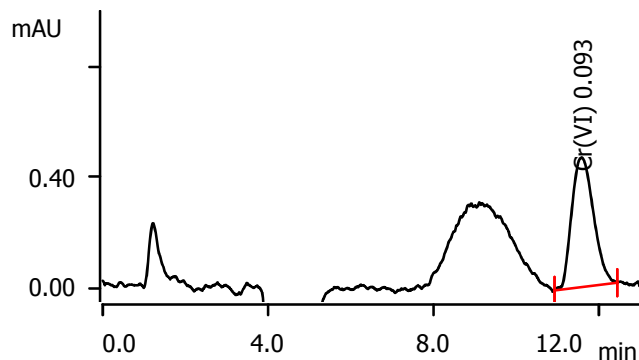


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.07	1	ppb 0.006	11.64

## Sample data

Ident . . . . . 3644716  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 20:10:18

## HexChrome

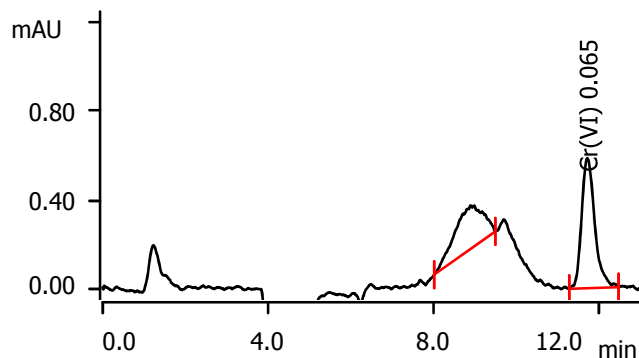


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.28	1	ppb 0.093	11.56

## Sample data

Ident . . . . . 92604073012  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 20:26:37

## HexChrome

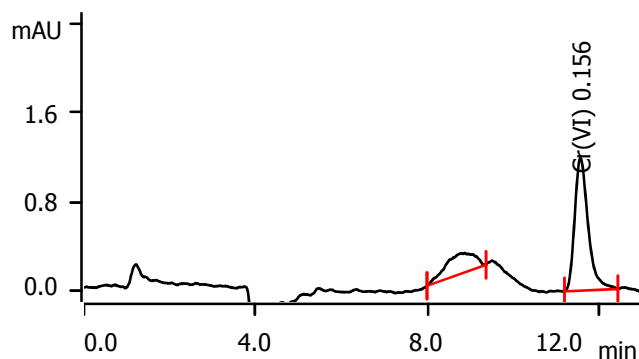


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.21	1	ppb 0.065	11.69

## Sample data

Ident . . . . . 3644717  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 20:42:59

## HexChrome

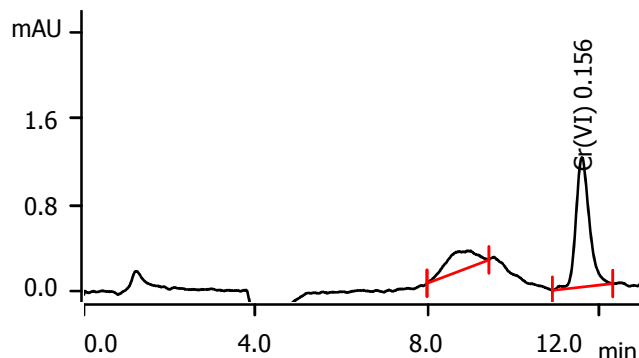


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.43	1	ppb 0.156	11.56

## Sample data

Ident . . . . . 3644718  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 20:59:20

## HexChrome

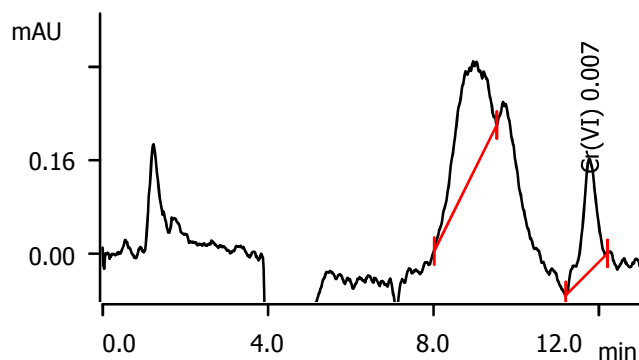


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.43	1	ppb 0.156	11.61

## Sample data

Ident . . . . . 92604073013  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 21:15:41

## HexChrome

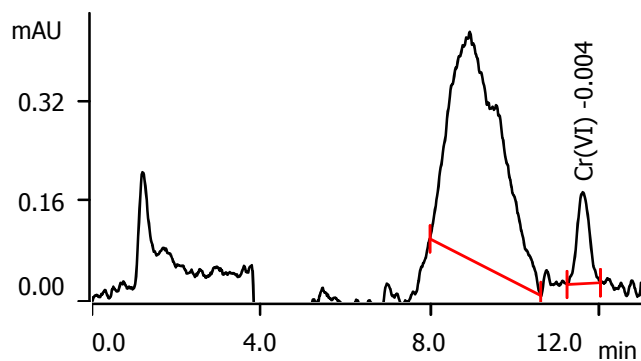


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.07	1	ppb 0.007	11.69

## Sample data

Ident . . . . . 92604073014  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 21:32:01

## HexChrome

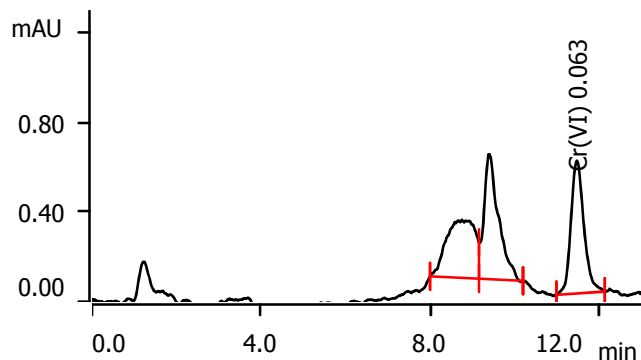


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.04	1	ppb -0.004	11.59

## Sample data

Ident . . . . . 92604073015  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 21:48:22

## HexChrome

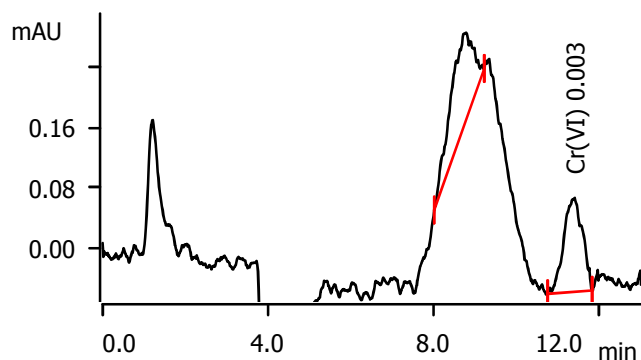


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.21	1	ppb 0.063	11.46

## Sample data

Ident . . . . . 3644723  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 22:04:39

## HexChrome

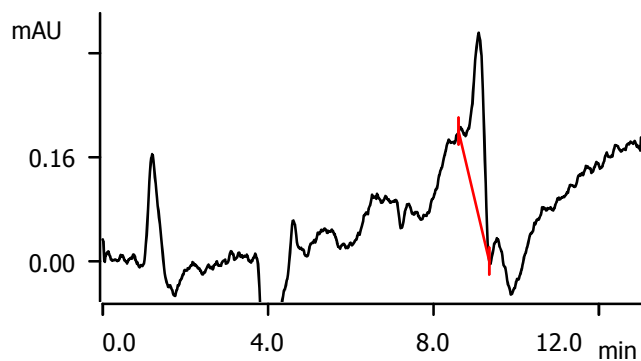


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.003	11.37

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 22:20:58

## HexChrome



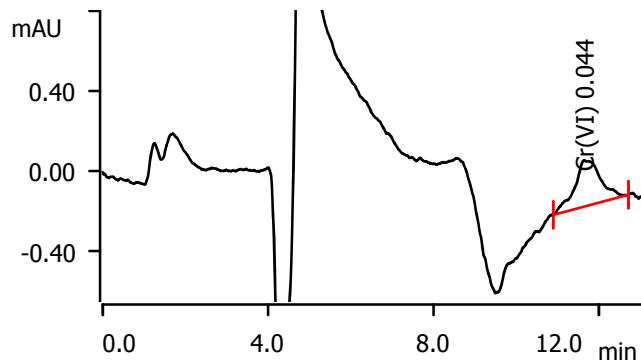
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 22:37:19

## HexChrome



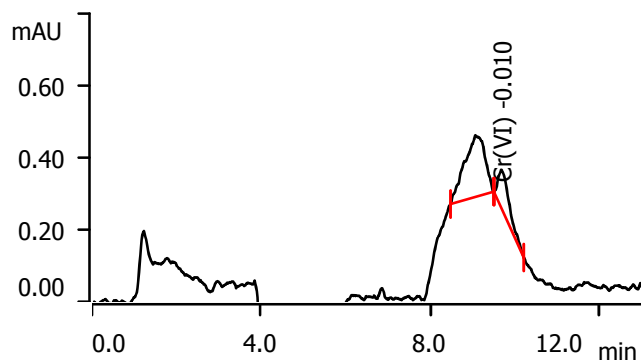
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.16	1	ppb 0.044	11.61
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## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 22:53:40

## HexChrome



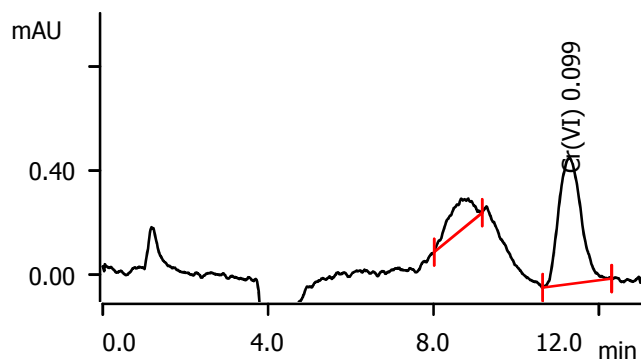
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.03	1	ppb -0.010	9.66
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## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 23:10:01

## HexChrome

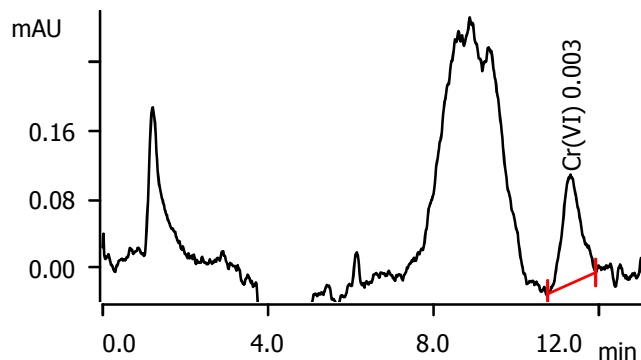


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	1	ppb 0.099	11.24

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 23:26:20

## HexChrome

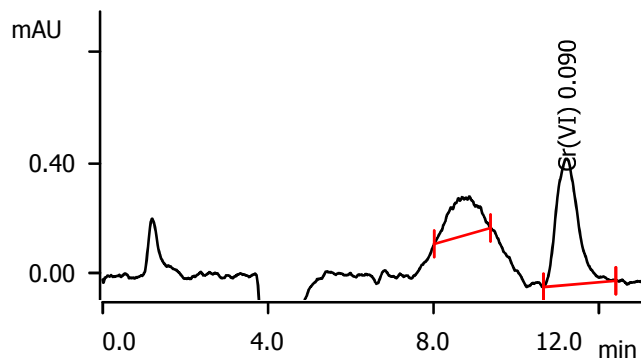


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.003	11.27

## Sample data

Ident . . . . . 3644724  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 23:42:40

## HexChrome



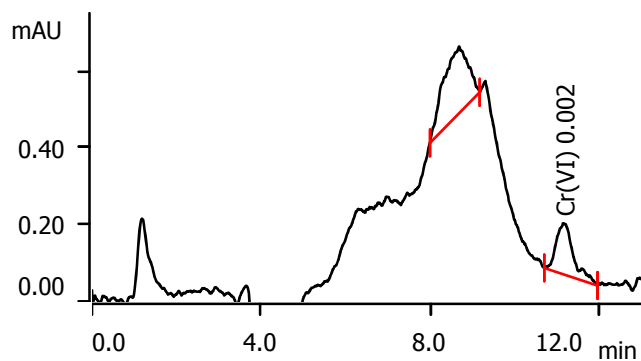
Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.27	1	ppb 0.090	11.14



## Sample data

Ident . . . . . 92603566015  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-15 23:58:59

## HexChrome

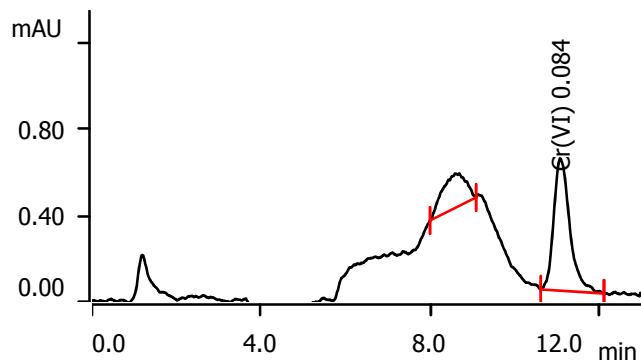


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.002	11.19

## Sample data

Ident . . . . . 3644725  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 00:15:18

## HexChrome

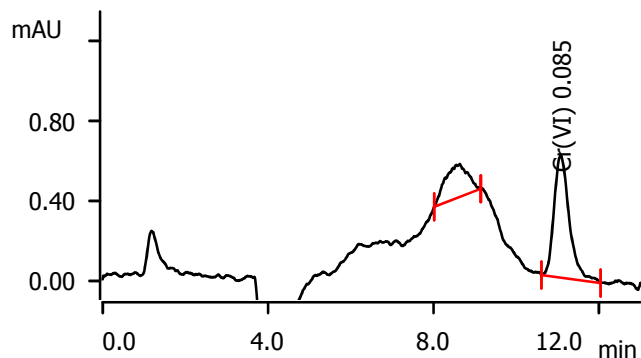


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.26	1	ppb 0.084	11.04

## Sample data

Ident . . . . . 3644726  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 00:31:38

## HexChrome

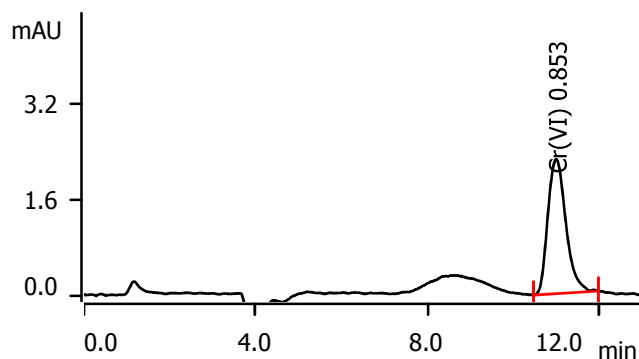


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.26	1	ppb 0.085	11.07

## Sample data

Ident . . . . . 92603566016  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 00:47:57

## HexChrome

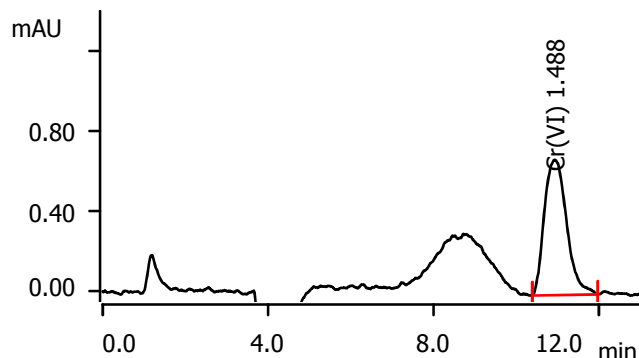


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	1.09	2	ppb 0.853	10.97

## Sample data

Ident . . . . . 92603566017  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 01:04:17

## HexChrome

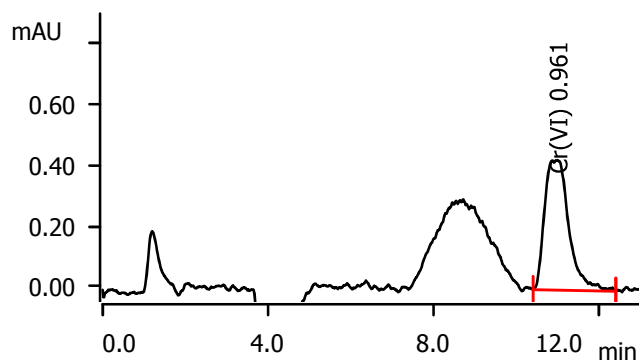


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.42	10	ppb 1.488	10.90

## Sample data

Ident . . . . . 92603566018  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 01:20:38

## HexChrome

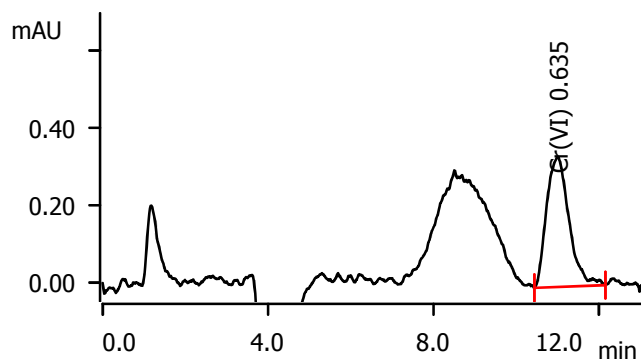


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	10	ppb 0.961	10.99

## Sample data

Ident . . . . . 92603566019  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 01:36:58

## HexChrome

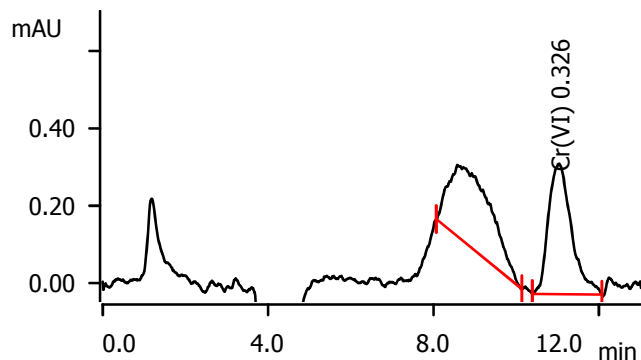


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.21	10	ppb 0.635	10.99

## Sample data

Ident . . . . . 92603566020  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 01:53:19

## HexChrome

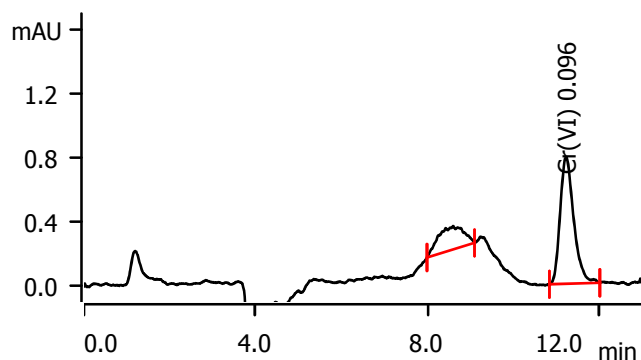


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.21	5	ppb 0.326	10.99

## Sample data

Ident . . . . . 92603566021  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 02:09:40

## HexChrome

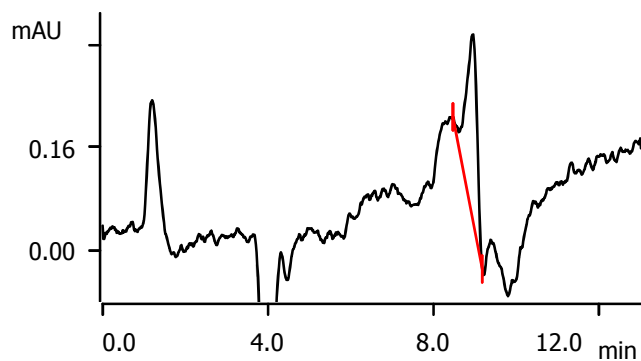


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.29	1	ppb 0.096	11.24

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 02:26:02

## HexChrome



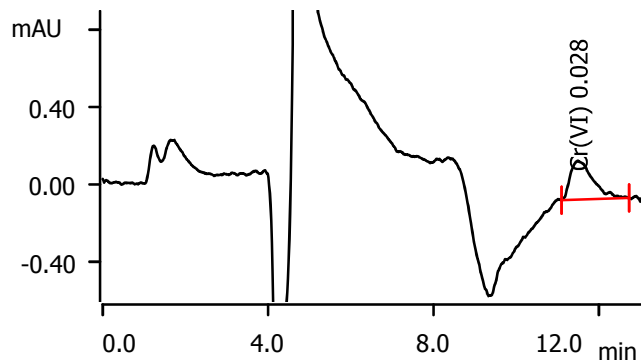
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 02:42:22

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
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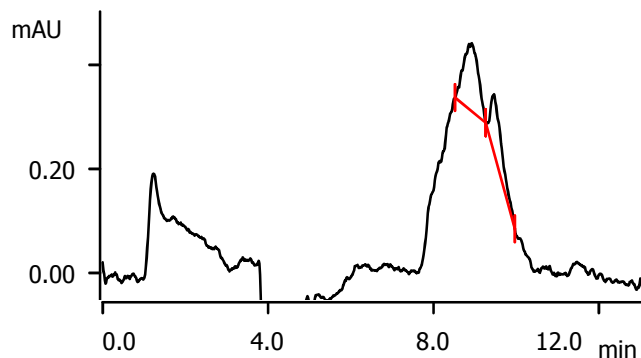
Cr(VI)	0.12	1	ppb	
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0.028	11.47
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## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 02:58:43

## HexChrome



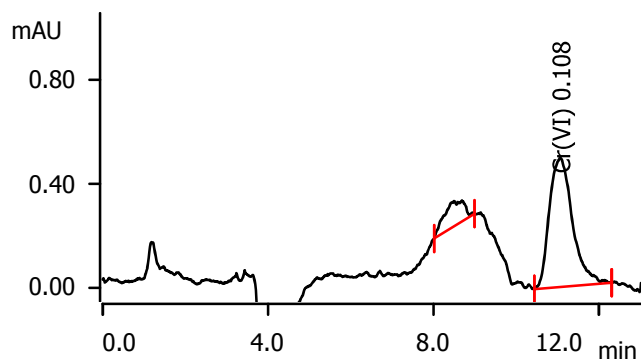
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 03:15:05

## HexChrome

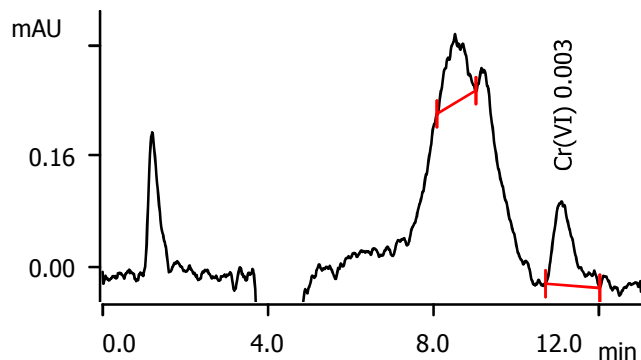


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.31	1	ppb 0.108	11.02

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 03:31:24

## HexChrome

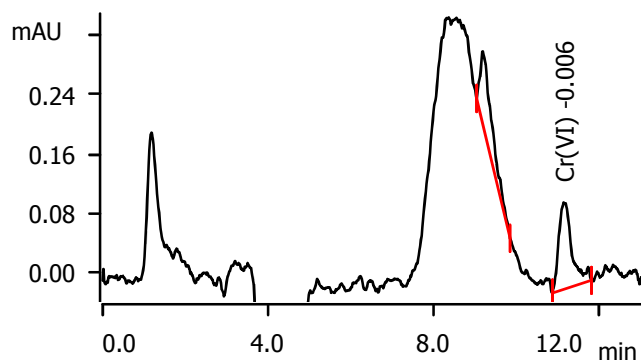


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.003	11.07

## Sample data

Ident . . . . . 92604274002  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 03:47:43

## HexChrome

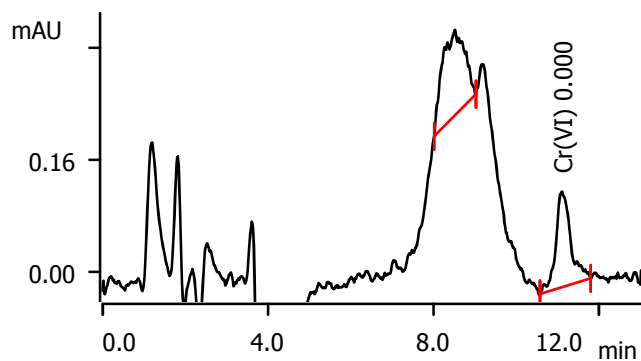


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.04	1	ppb -0.006	11.10

## Sample data

Ident . . . . . 92603566023  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 04:04:08

## HexChrome

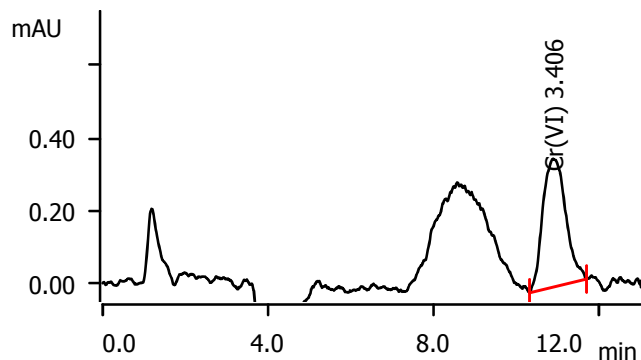


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.05	1	ppb 0.000	11.10

## Sample data

Ident . . . . . 92603566024  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 04:20:30

## HexChrome

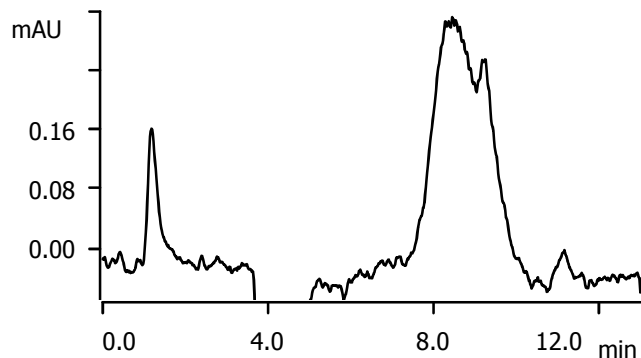


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.22	50	ppb 3.406	10.89

## Sample data

Ident . . . . . 92603566025  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 04:36:52

## HexChrome

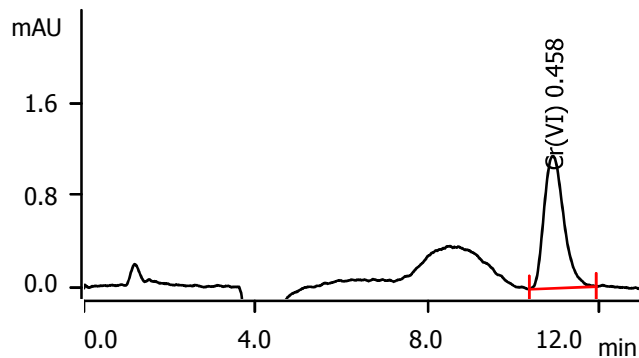


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . 30487178004  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 04:53:14

## HexChrome

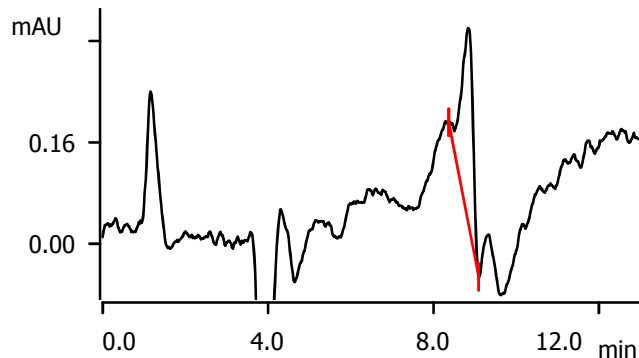


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.61	2	ppb 0.458	10.95

## Sample data

Ident . . . . . Oxalic Acid Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 05:09:37

## HexChrome

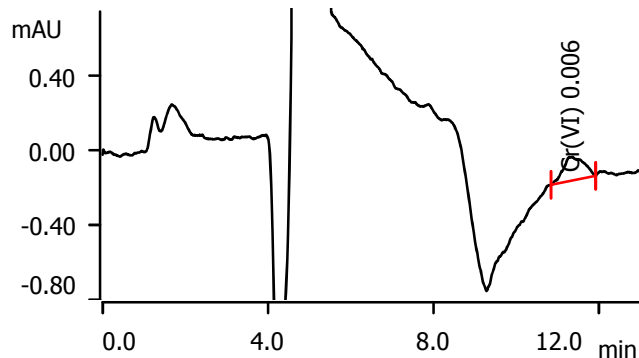


Component	Area	Dil.Factor	Final Conc	Ret.Time
		1		

## Sample data

Ident . . . . . MeOH Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 05:25:55

## HexChrome

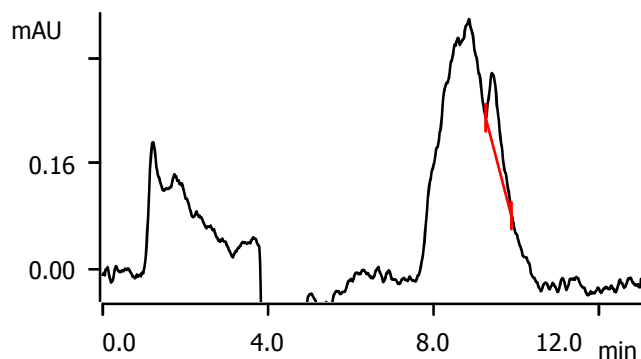


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.07	1	ppb 0.006	11.36

## Sample data

Ident . . . . . Di H2O Rinse  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 05:42:14

## HexChrome



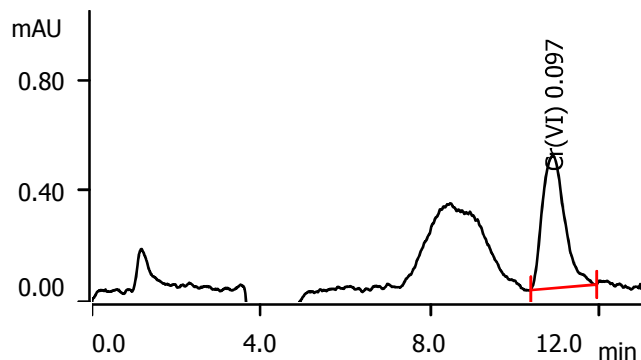
Component	Area	Dil.Factor	Final Conc	Ret.Time
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1				
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## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 05:58:33

## HexChrome



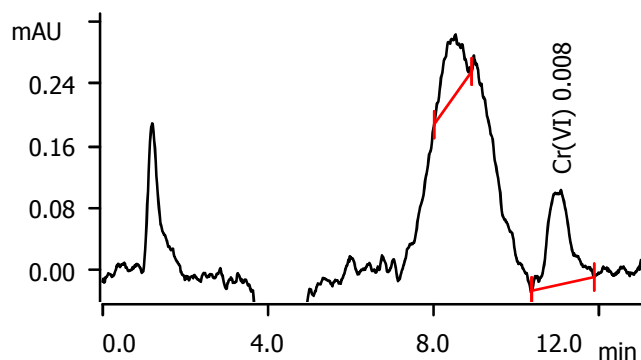
Component	Area	Dil.Factor	Final Conc	Ret.Time
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Cr(VI)	0.29	1	ppb 0.097	10.92
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## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 06:14:51

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
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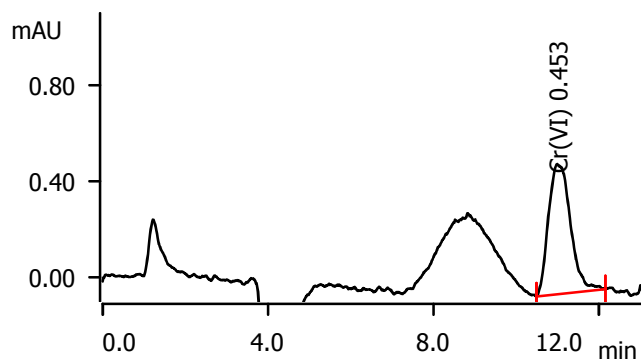
Cr(VI)	0.07	1	ppb 0.008	11.02
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## Sample data

Ident . . . . . 92603566016  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 16:45:25

## HexChrome

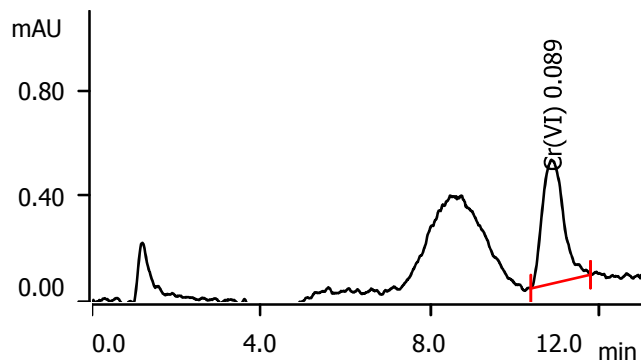


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.33	4	ppb 0.453	10.97

## Sample data

Ident . . . . . CCV  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 17:01:46

## HexChrome

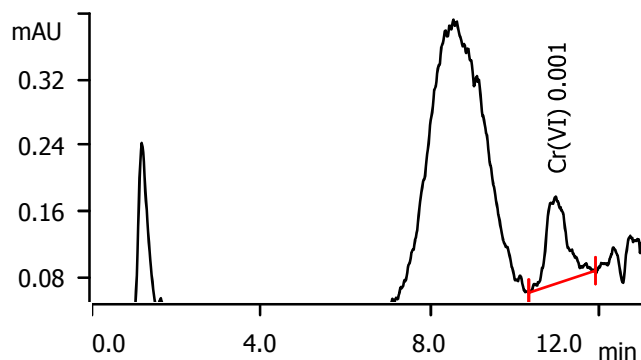


Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.27	1	ppb 0.089	10.85

## Sample data

Ident . . . . . CCB  
Sample type . . . . . Sample  
Determination start . . . . . 2022-05-16 17:18:05

## HexChrome



Component	Area	Dil.Factor	Final Conc	Ret.Time
Cr(VI)	0.06	1	ppb 0.001	10.97



# Prep Log Report

Batch Information : WETA\_77584,77585,77586,77587

Template Version: F-CAR-I-050-Rev.04 (05Nov2020)

Prep Method	EPA 218.6 Rev 3.3 1994
Instrument	93WTA3
IC Rinse	178109
Column Lot #	
Reviewed By	MDW

Analysis Method	EPA 218.6 Rev 3.3 1994
pH Test Strips	None Added
Ammonium Sulfate Buffer	178732
Pipette ID 1	93P020
Reviewed By Date	05/16/2022 22:17

Prepared By	JCM	Prep Date/Time	05/14/2022 10:11:33:426
Eluent	179170	FlipMate Filter	None Added
diphenyl/carbazide soln.	179169	Methanol Solution	178110
Pipette ID 2		Pipette ID 3	
Batch Notes			

## Sample Information:

QC Rule	Sample Type	Lab Sample ID	Initial Amount (g   mL   wipe)	Initial pH	Final Volume (mL)	Filtered	Matrix	Sample Notes	LLCR-STK (mL)
2186 W	BLANK	3644705	50		50		Water		
2186 W	LCS	3644706	50		50		Water		173874 (.5)
2186 W	PS	30487529001	2		10		Water		
2186 W	PS	30487177005	1		10		Water		
2186 W	PS	30487526001	2		10		Water		
2186 W	PS	30487532001	2		10		Water		
2186 W	PS	30486763001	50		50		Water		
2186 W	MS	3644707	50		50		Water		173874 (.5)
2186 W	MSD	3644708	50		50		Water		173874 (.5)
2186 W	PS	30487178004	5		5		Water		
2186 W	PS	30487077005	50		50		Water		
2186 W	PS	30487175001	50		50		Water		
2187 W	BLANK	3644709	50		50		Water		
2187 W	LCS	3644710	50		50		Water		173874 (.5)
2187 W	PS	30485042001	50		50		Water		
2187 W	PS	92604269001	50		50		Water		
2187 W	MS	3644711	50		50		Water		173874 (.5)
2187 W	MSD	3644712	50		50		Water		173874 (.5)
2187 W	PS	92604274001	50		50		Water		
2187 W	PS	92604274002	50		50		Water		



Prep Log Report

QC Rule	Sample Type	Lab Sample ID	Initial Amount (g   mL   wipe)	Initial pH	Final Volume (mL)	Filtered	Matrix	Sample Notes	LLCR-STK (mL)
2187 W	PS	92604309001	50		50		Water		
2187 W	PS	92604309002	50		50		Water		
2187 W	PS	92604312001	50		50		Water		
2187 W	PS	92604312002	50		50		Water		
2187 W	PS	92604314001	50		50		Water		
2187 W	PS	92604314002	50		50		Water		
2187 W	PS	92603566005	50		50		Water		
2187 W	MS	3644713	50		50		Water		173874 (.5)
2187 W	MSD	3644714	50		50		Water		173874 (.5)
2187 W	PS	92603566006	0.5		10		Water		
2187 W	PS	92603566007	50		50		Water		
2187 W	PS	92603566008	0.5		10		Water		
2187 W	PS	92603566009	50		50		Water		
2187 W	PS	92603566010	50		50		Water		
2187 W	PS	92603566011	5		10		Water		
2187 W	PS	92603566012	50		50		Water		
2187 W	PS	92603566013	2		10		Water		
2187 W	PS	92603566014	50		50		Water		
2186 WD	BLANK	3644715	50		50		Water		
2186 WD	LCS	3644716	50		50		Water		173874 (.5)
2186 WD	PS	92604073012	50		50		Water		
2186 WD	MS	3644717	50		50		Water		173874 (.5)
2186 WD	MSD	3644718	50		50		Water		173874 (.5)
2186 WD	PS	92604073013	50		50		Water		
2186 WD	PS	92604073014	50		50		Water		
2186 WD	PS	92604073015	50		50		Water		
2186 WD	PS	92604073016	50		50		Water		



# Prep Log Report

QC Rule	Sample Type	Lab Sample ID	Initial Amount (g   mL   wipe)	Initial pH	Final Volume (mL)	Filtered	Matrix	Sample Notes	LLCR-STK (mL)
2186 WD	PS	92604073017	50		50		Water		
2187 W	BLANK	3644723	50		50		Water		
2187 W	LCS	3644724	50		50		Water		173874 (.5)
2187 W	PS	92603566015	50		50		Water		
2187 W	MS	3644725	50		50		Water		173874 (.5)
2187 W	MSD	3644726	50		50		Water		173874 (.5)
2187 W	PS	92603566016	2.5		10		Water		
2187 W	PS	92603566017	1		10		Water		
2187 W	PS	92603566018	1		10		Water		
2187 W	PS	92603566019	1		10		Water		
2187 W	PS	92603566020	2		10		Water		
2187 W	PS	92603566021	50		50		Water		
2187 W	PS	92603566023	50		50		Water		
2187 W	PS	92603566024	0.2		10		Water		
2187 W	PS	92603566025	50		50		Water		

025 off 1643

## Standard Notes:

173874: AVL WETA LLCR6 10ug/L Intermediate



# Standard Log Report

## Standards Log Information for Standard #177281

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	04/26/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	12/31/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR6-ICV

### Notes:

AVL WETA LLCR6 ICV

## Compound Name and Concentration for Standard #177281

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	.1 ug/L	Chromium, Hexavalent,	.1 ug/L
DI Water	ug/L	Hexavalent Chromium	.1 ug/L

## Composed of Information for Standard #177281

Composed of Standard Seq	Volume	Units
173874	0.5	mL
2739	49.5	mL



# Standard Log Report

## Standards Log Information for Standard #177280

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	04/26/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR6-CAL6

### Notes:

AVL WETA LLCR6 CAL6

## Compound Name and Concentration for Standard #177280

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	.3 ug/L	Chromium, Hexavalent,	.3 ug/L
DI Water	ug/L		

## Composed of Information for Standard #177280

Composed of Standard Seq	Volume	Units
173873	1.5	mL
2739	48.5	mL



# Standard Log Report

## Standards Log Information for Standard #177279

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	04/26/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR6-CAL5

### Notes:

AVL WETA LLCR6 CAL5

## Compound Name and Concentration for Standard #177279

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	.2 ug/L	Chromium, Hexavalent,	.2 ug/L
DI Water	ug/L		

## Composed of Information for Standard #177279

Composed of Standard Seq	Volume	Units
173873	1	mL
2739	49	mL



# Standard Log Report

## Standards Log Information for Standard #177278

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	04/26/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR6-CAL4

### Notes:

WETA AVL LLCR6 CAL4

## Compound Name and Concentration for Standard #177278

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	.15 ug/L	Chromium, Hexavalent,	.15 ug/L
DI Water	ug/L		

## Composed of Information for Standard #177278

Composed of Standard Seq	Volume	Units
173873	0.75	mL
2739	49.25	mL





# Standard Log Report

## Standards Log Information for Standard #177277

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	04/26/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR6-CAL3

### Notes:

AVL WETA LLCR6 CAL3

## Compound Name and Concentration for Standard #177277

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	.1 ug/L	Chromium, Hexavalent,	.1 ug/L
DI Water	ug/L		

## Composed of Information for Standard #177277

Composed of Standard Seq	Volume	Units
173873	0.5	mL
2739	49.5	mL



# Standard Log Report

## Standards Log Information for Standard #177276

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	04/26/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR6-CAL2

### Notes:

AVL WETA LLCR6 CAL2

## Compound Name and Concentration for Standard #177276

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	.05 ug/L	Chromium, Hexavalent,	.05 ug/L
DI Water	ug/L		

## Composed of Information for Standard #177276

Composed of Standard Seq	Volume	Units
173873	0.25	mL
2739	49.75	mL



# Standard Log Report

## Standards Log Information for Standard #177275

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	04/26/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR6-CAL1

### Notes:

AVL WETA LLCR6 CAL1

## Compound Name and Concentration for Standard #177275

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	.025 ug/L	Chromium, Hexavalent,	.025 ug/L
DI Water	ug/L		

## Composed of Information for Standard #177275

Composed of Standard Seq	Volume	Units
173873	0.125	mL
2739	49.875	mL



# Standard Log Report

## Standards Log Information for Standard #177274

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	04/26/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR6-CAL0

### Notes:

AVL WETA LLCR6 CAL0

## Compound Name and Concentration for Standard #177274

Compound Name	Concentration	Compound Name	Concentration
DI Water	ug/L		

## Composed of Information for Standard #177274

Composed of Standard Seq	Volume	Units
2739	null	mL



# Standard Log Report

## Standards Log Information for Standard #173874

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	03/29/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	12/31/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR-STK

### Notes:

AVL WETA LLCR6 10ug/L Intermediate (ICV)

## Compound Name and Concentration for Standard #173874

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	10 ug/L	Chromium, Hexavalent,	10 ug/L
DI Water	ug/L	Hexavalent Chromium	10 ug/L

## Composed of Information for Standard #173874

Composed of Standard Seq	Volume	Units
173872	0.5	mL
2739	49.5	mL



# Standard Log Report

## Standards Log Information for Standard #173873

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	03/29/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR-SPK

### Notes:

AVL WETA LLCR6 10ug/L Intermediate (CCV)

## Compound Name and Concentration for Standard #173873

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	10 ug/L	Chromium, Hexavalent,	10 ug/L
DI Water	ug/L		

## Composed of Information for Standard #173873

Composed of Standard Seq	Volume	Units
173871	0.5	mL
2739	49.5	mL



# Standard Log Report

## Standards Log Information for Standard #173872

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	03/29/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	12/31/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR-INT2

### Notes:

AVL WETA 1mg/L Intermediate (ICV)

## Compound Name and Concentration for Standard #173872

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	1 mg/L	Chromium, Hexavalent,	1 mg/L
DI Water	mg/L	Hexavalent Chromium	1 mg/L

## Composed of Information for Standard #173872

Composed of Standard Seq	Volume	Units
170611	0.05	mL
2739	49.95	mL



# Standard Log Report

## Standards Log Information for Standard #173871

### WORKING STANDARD

Created By:	CDC	Volume of Standard:	50 mL	Lot ID:	NONE
Create Date:	03/29/2022	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	06/30/2022	Manufacturer Lot ID:	PACE	Standard ID:	LLCR-INT1

### Notes:

AVL WETA LLCR6 1mg/L Intermediate (CAL)

## Compound Name and Concentration for Standard #173871

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	1 mg/L	Chromium, Hexavalent,	1 mg/L
DI Water	mg/L		

## Composed of Information for Standard #173871

Composed of Standard Seq	Volume	Units
151200	0.05	mL
2739	49.95	mL





# Standard Log Report

## Standards Log Information for Standard #170611

### INDIVIDUAL STANDARD

Created By:	CDC	Volume of Standard:	120 mL	Lot ID:	928088
Create Date:	03/01/2022	Manufacturer:	Environmental Express	Part ID:	HP100012-7-100
Expire Date:	12/31/2022	Manufacturer Lot ID:	2118223-100EE	Standard ID:	CR6-CALSTK

#### Notes:

WET CR6 ICV Stk Sol

## Compound Name and Concentration for Standard #170611

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	1000 mg/L	Chromium, Hexavalent,	1000 mg/L
Hexavalent Chromium	1000 mg/L		



# Standard Log Report

## Standards Log Information for Standard #151200

### INDIVIDUAL STANDARD

Created By:	MEM1	Volume of Standard:	120 mL	Lot ID:	925782
Create Date:	10/02/2021	Manufacturer:	Environmental Express	Part ID:	2095-4
Expire Date:	06/30/2022	Manufacturer Lot ID:	2031534-100	Standard ID:	CR6-CALSTK

#### Notes:

WET CR6 ICV Stk Sol

## Compound Name and Concentration for Standard #151200

Compound Name	Concentration	Compound Name	Concentration
Chromium, Hexavalent	1000 mg/L	Chromium, Hexavalent,	1000 mg/L



# Standard Log Report

## Standards Log Information for Standard #2739

### STOCK STANDARD

Created By:	DMN	Volume of Standard:	1000000 mL	Lot ID:	NA
Create Date:	01/01/2017	Manufacturer:	PACE	Part ID:	N/A
Expire Date:	11/29/2025	Manufacturer Lot ID:	NA	Standard ID:	RGNT389

#### Notes:

DI Water

## Compound Name and Concentration for Standard #2739

Compound Name	Concentration	Compound Name	Concentration
DI Water			

# Certificate of Analysis

**Hexavalent Chromium Standard, 100 ppm Cr<sup>6+</sup>**

**Lot Number:** 4008H89

**Product Number:** 2095

**Manufacture Date:** AUG 19, 2020

**Expiration Date:** FEB 2022

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Dichromate	7778-50-9	ACS

Test	Specification	Result	NIST SRM#
Appearance	Orange liquid	Passed	
Assay (vs. Sodium Thiosulfate/Starch)	99.5-100.5 ppm Cr	100.5 ppm Cr	136

Specification	Reference
---------------	-----------

Cr(VI) stock solution, 100 mg/L Cr<sup>6+</sup>

APHA (3500-Cr C)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
2095-16	500 mL natural poly	18 months
2095-4	120 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)



Chris Collins (08/19/2020)

Quality Control Supervisor

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This test report shall not be reproduced, except in full, without the written approval of Ricca Chemical Company.



## Certificate of Analysis

### Reference Material

**Product Description:** Hexavalent Chromium, Cr(VI)

**Product Number:** HP100012-7-100

**Lot Number:** 2118223-100

**Matrix:** H<sub>2</sub>O

**Density:** 1.000 g/mL  $\pm$  0.002 g/mL @ 21.7°C  $\pm$  0.3°C

**Certified Value:**

Element	$\mu\text{g/mL}$
Cr(VI)	1000 $\pm$ 20

The Certified value is based on gravimetric and volumetric preparation, and total Cr concentration is verified against SRM 3112a via inductively coupled plasma optical emission spectrometry (ICP-OES) and Cr(VI) concentration is verified against second source via Ion Chromatography and Ion Chromatography with inductively coupled plasma mass spectrometry (IC-ICPMS) using an internal laboratory-developed method. The uncertainty in the certified value is calculated for a 95% confidence interval and coverage factor k is about 2.

\* Refer to Traceability Information, Section 4



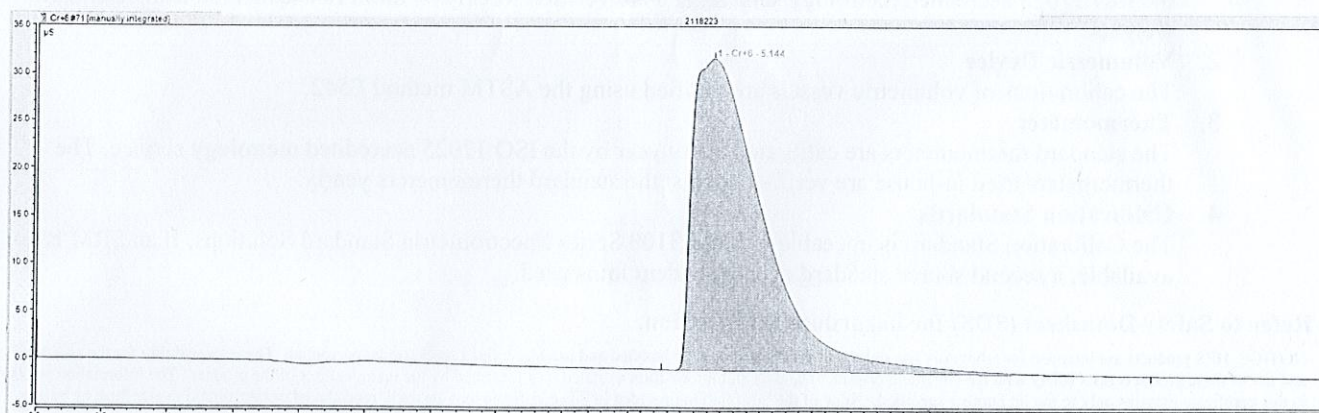
ISO 17034:2016 (RMP)  
Accreditation  
Certificate Number  
AR-1436



ISO/IEC 17025:2005  
Accreditation  
Certificate Number  
AT-1529

**Reference:**

Hexavalent Chromium, Cr(VI) Chromatogram by IC-ICPMS



**Packaging and Storage Conditions:**

The standard is packaged in a pre-cleaned polyethylene bottle. To maintain the integrity of this product, the solution should be kept tightly capped and stored under normal laboratory conditions.

**Expiration Information:**

The expiry date is guaranteed to be valid for twelve months from the shipping date provided and is guaranteed through the month of expiration. For this reason, standards from the same lot may have different expiration dates.

**Shipped Date:** December 2021

**Expiration Date:**

**Certificate Issue Date:** October 21, 2021

928088  
REC. 01/06/22 BY CD  
Exp. --/--/-- By --  
Open --/--/-- By --

*Moven Mututuvuri*

Moven Mututuvuri, Ph. D, VP Manufacturing

Lot Number: 2118223-250

Revision: 0

Page 1 of 2



## **Attachment 3**

### **Human Health and Ecological Checklists**

## ATTACHMENT 2

### Checklist to Determine Applicable Remediation Standards Part 1: Ecological Standards

STEP 1: Determine Whether a De Minimis Ecological Screening Evaluation is Appropriate for the Site		
1.1	Are there any undeveloped terrestrial areas on or adjacent to the site (e.g., areas that are not under intensive landscape or agricultural control)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1.2	Are there any potential wetlands (including vernal pools) on or adjacent to the site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1.3	Are there any surface water bodies (i.e., lotic or lentic habitat) on or adjacent to the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1.4	Are there any terrestrial, wetland, or aquatic habitats off-site, but situated downstream, downwind, or downgradient from the site that may be affected by site-related stressors?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1.5	Are there any projected land uses for the site that would result in undeveloped areas, wetland habitat, lotic habitat, or lentic habitat?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p><i>If "Yes" to any: A complete exposure pathway may exist for potential ecological receptors of concern. Proceed to Step 2.</i>  <i>If "No" to all: No further ecological evaluation is required. File this completed form with the Risk Assessment Report.</i></p>		

STEP 2: Identify any Readily Apparent Harm or Exceedances of Surface Water Quality Standards		
2.1	Have there been any incidents where harm to wildlife attributable to contaminants originating from the site has been readily apparent?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p><i>If "Yes": Proceed to Question 2.2.</i>  <i>If "No": Skip to Question 2.3.</i></p>		
2.2	Has the cause of such harm been eliminated?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><i>If "Yes": Briefly describe the action taken and complete the rest of the checklist.</i>  <i>If "No": Proceed directly to the remedy evaluation or, alternately, proceed with a determination of a Uniform or Site-Specific Ecological Standard, as described in the VRP Guidance Manual, prior to implementation of the remedy. File this form with the Risk Assessment Report.</i></p>		
<b>Action Taken:</b>		
2.3	Is the site contributing to exceedances of surface water quality standards established for the protection of aquatic life (see W. Va. Legislative Rule 47CSR2)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p><i>If "Yes": Proceed directly to the remedy evaluation or, alternately, proceed with a determination of a Uniform or Site-Specific Ecological Standard, as described in the VRP Guidance Manual, prior to implementation of the remedy.</i>  <i>If "No": Proceed to Step 3.</i></p>		



## ATTACHMENT 2

STEP 3: Identify Contamination Associated with Ecological Habitats		
3.1	Have the environmental media (e.g., soil, surface water, sediment, biota) associated with the ecological habitat(s) identified in Questions 1.2 through 1.5 been sampled and analyzed with regard to potential site-related contaminants of concern?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	<i>If "Yes": Proceed to Question 3.2.</i> <i>If "No": Skip to Step 4.</i>	
3.2	Have any site-related contaminants been detected above natural background concentrations in environmental media collected from terrestrial habitat?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> n/a
3.3	Have any site-related contaminants been detected above natural background concentrations in environmental media collected from wetland or aquatic habitats (lotic or lentic habitats)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> n/a
	<i>If "Yes" or "Unknown" to 3.2 and/or 3.3: Proceed to Question 3.4.</i> <i>If "No" or "n/a" to both 3.2 and 3.3: Skip to Question 3.6.</i>	
3.4	Are site-related contaminants presenting an ecological risk over and above "local" condition?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
	<i>If "Yes": Skip to Step 4.</i> <i>If "No" or "Unknown": Proceed to Question 3.5.</i>	
3.5	Have site-related releases of contaminants been stopped?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	<i>If "Yes": Proceed to Question 3.6.</i> <i>If "No": Skip to Part 4.</i>	
3.6	Are site-related contaminants currently or likely to be migrating to aquatic habitat (e.g., lotic, lentic, or wetland habitat)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a
	<i>If "Yes": Proceed to Step 4.</i> <i>If "No" or "n/a": No further ecological evaluation is required. File this completed form with the Risk Assessment Report.</i>	

# ATTACHMENT 2

## STEP 4: Characterize the Potential Ecological Habitat

4.1	Describe the general land use in the immediate vicinity of the site. <input type="checkbox"/> Commercial/Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Rural/Agricultural <input type="checkbox"/> Rural/Undeveloped <input type="checkbox"/> Urban <input type="checkbox"/> Other:																																																										
4.2	<p>For all affected areas that fulfill the descriptions in Step 1, answer the following and attach a site map identifying the potential ecological habitat.</p> <p><b>4.2.1 Outline characteristics for potential terrestrial habitats.</b></p> <table border="1"> <tr><td>Location:</td><td></td></tr> <tr><td>Contiguous Area:</td><td></td></tr> <tr><td>General Topography:</td><td></td></tr> <tr><td>Primary Soil Type:</td><td></td></tr> <tr><td>Predominant Vegetation Species:</td><td></td></tr> </table> <p><b>4.2.2 Outline characteristics for potential wetland habitats (e.g., vernal pools, marshes, etc.).</b></p> <table border="1"> <tr><td>Location:</td><td></td></tr> <tr><td>Contiguous Area:</td><td></td></tr> <tr><td>General Topography:</td><td></td></tr> <tr><td>Primary Soil Type:</td><td></td></tr> <tr><td>Predominant Vegetation Species:</td><td></td></tr> </table> <p><b>4.2.3 Outline characteristics for potential lotic habitats (e.g., flowing water habitat such as rivers and streams).</b></p> <table border="1"> <tr><td>Location:</td><td></td></tr> <tr><td>Typical Width and Depth:</td><td></td></tr> <tr><td>Typical Flow Rate:</td><td></td></tr> <tr><td>Typical Gradient (m/km):</td><td></td></tr> <tr><td>Type of River/Creek Bottom:</td><td></td></tr> <tr><td>Types of Aquatic Vegetation Present:</td><td></td></tr> <tr><td>Topography of the Riparian Zone:</td><td></td></tr> <tr><td>Predominant Riparian Vegetation:</td><td></td></tr> <tr><td>Human Utilization of Lotic Habitat:</td><td></td></tr> <tr><td>Local Conditions:</td><td></td></tr> </table> <p><b>4.2.4 Outline characteristics for potential lentic habitats (e.g., standing water habitats such as lakes and ponds).</b></p> <table border="1"> <tr><td>Location:</td><td></td></tr> <tr><td>Is the lentic habitat...?</td><td><input type="checkbox"/> Natural    <input type="checkbox"/> Man-made</td></tr> <tr><td>Area of Lentic Habitat</td><td></td></tr> <tr><td>Typical and Maximum Depth:</td><td></td></tr> <tr><td>Description of Sources &amp; Drainage:</td><td></td></tr> <tr><td>Predominant Aquatic Vegetation:</td><td></td></tr> <tr><td>Topography of Littoral Zone:</td><td></td></tr> <tr><td>Predominant Littoral Zone Vegetation:</td><td></td></tr> <tr><td>Human Utilization of Lentic Habitat:</td><td></td></tr> </table>	Location:		Contiguous Area:		General Topography:		Primary Soil Type:		Predominant Vegetation Species:		Location:		Contiguous Area:		General Topography:		Primary Soil Type:		Predominant Vegetation Species:		Location:		Typical Width and Depth:		Typical Flow Rate:		Typical Gradient (m/km):		Type of River/Creek Bottom:		Types of Aquatic Vegetation Present:		Topography of the Riparian Zone:		Predominant Riparian Vegetation:		Human Utilization of Lotic Habitat:		Local Conditions:		Location:		Is the lentic habitat...?	<input type="checkbox"/> Natural <input type="checkbox"/> Man-made	Area of Lentic Habitat		Typical and Maximum Depth:		Description of Sources & Drainage:		Predominant Aquatic Vegetation:		Topography of Littoral Zone:		Predominant Littoral Zone Vegetation:		Human Utilization of Lentic Habitat:	
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Human Utilization of Lentic Habitat:																																																											

## ATTACHMENT 2

	Local Conditions:	
4.3	<p>Indicate if the site contains or is adjacent to any of the following types of valued terrestrial habitats:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Climax Community (e.g., old growth forest)</li> <li><input type="checkbox"/> Federal Wilderness Area (designated or administratively proposed)</li> <li><input type="checkbox"/> National or State Forest</li> <li><input type="checkbox"/> National or State Park</li> <li><input type="checkbox"/> National or State Wildlife Refuge</li> <li><input type="checkbox"/> National Preserve Area</li> <li><input type="checkbox"/> State designated natural area</li> <li><input type="checkbox"/> Federal land designated for protection of natural ecosystems</li> <li><input type="checkbox"/> Federal or State land designated for wildlife or game management</li> <li><input type="checkbox"/> Area utilized for breeding by large or dense aggregations of wildlife</li> <li><input type="checkbox"/> Feeding, breeding, nesting, cover, or wintering habitat for migratory birds</li> <li><input type="checkbox"/> Area important to the maintenance of unique biotic communities (e.g., high proportion of endemic species)</li> </ul> <p><i>Threatened or Endangered Species</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Critical habitat for federally designated threatened or endangered species</li> <li><input type="checkbox"/> Habitat known to be used or potentially used by Federal or State designated threatened or endangered species, or species in the State Wildlife Action Plan</li> </ul>	
4.4	<p>Indicate if the site contains or is adjacent to any of the following types of valued wetlands:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Area important to the maintenance of unique biotic communities (e.g., high proportion of endemic species)</li> <li><input type="checkbox"/> Area utilized for breeding by large or dense aggregations of wildlife</li> <li><input type="checkbox"/> Spawning or nursery areas critical to the maintenance of fish/shellfish species</li> <li><input type="checkbox"/> Feeding, breeding, nesting, cover, or wintering habitat for migratory waterfowl or other aquatic birds</li> <li><input type="checkbox"/> Area important to the maintenance of unique biotic communities (e.g., high proportion of endemic species)</li> </ul> <p><i>Threatened or Endangered Species</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Critical habitat for federally designated threatened or endangered species</li> <li><input type="checkbox"/> Habitat known to be used or potentially used by Federal or State designated threatened or endangered species, or species in the State Wildlife Action Plan</li> </ul>	
4.5	<p>Indicate if the site is within or adjacent to any of the following valued aquatic habitats:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Federal or State Fish Hatchery</li> <li><input type="checkbox"/> Federal or State designated Scenic or Wild River</li> <li><input type="checkbox"/> National River Reach designated as recreational</li> <li><input type="checkbox"/> Critical areas identified under the Clean Lakes Program</li> <li><input type="checkbox"/> Trout-stocked streams or wild trout streams with verified trout production</li> <li><input type="checkbox"/> Spawning or nursery areas critical the maintenance of fish/shellfish species</li> <li><input type="checkbox"/> Feeding, breeding, nesting, cover, or wintering habitat for migratory waterfowl or other aquatic birds</li> <li><input type="checkbox"/> Area important to the maintenance of unique biotic communities (e.g., high proportion of endemic species)</li> </ul> <p><i>Threatened or Endangered Species</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Critical habitat for federally designated threatened or endangered species</li> <li><input type="checkbox"/> Habitat known to be used or potentially used by Federal or State designated threatened or endangered species, or species in the State Wildlife Action Plan</li> </ul>	
4.6	<p>Have valued terrestrial, wetland, or aquatic habitats been identified within or adjacent to this site? <i>(A list of agencies that can provide information that should assist in determining whether the site is located within or adjacent to the areas listed in 4.3, 4.4, and 4.5 is provided at the end of this checklist.)</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

# ATTACHMENT 2

## STEP 5: Identify Any Potential Ecological Receptors of Concern

5.1	<u>Threatened and Endangered Species</u> Were any potential habitats within or adjacent to the site identified as critical habitat for federally designated threatened or endangered species listed in 50CFS17.95 or 17.96, or areas known to be used by federal or state designated threatened or endangered species?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b>If “Yes”, indicate which species*:</b></p> <p><i>Amphibians</i></p> <p><input type="checkbox"/> Cheat Mountain salamander (<i>Plethodon nettingi</i>)</p> <p><i>Birds</i></p> <p><input type="checkbox"/> Bald eagle (<i>Haliaeetus leucocephalus</i>)</p> <p><i>Clams</i></p> <p><input type="checkbox"/> Clubshell (<i>Pleurobema clava</i>)</p> <p><input type="checkbox"/> Fanshell (<i>Cyprogenia stegaria</i>)</p> <p><input type="checkbox"/> James spiny mussel (<i>Pleurobeam collina</i>)</p> <p><input type="checkbox"/> Northern riffleshell (<i>Epioblasma torulosa rangiana</i>)</p> <p><input type="checkbox"/> Pink mucket pearly mussel (<i>Lampsilis abrupta</i>)</p> <p><input type="checkbox"/> Tubercled blossom pearly mussel (<i>Epioblasma torulosa torulosa</i>)</p> <p><i>Flowering Plants</i></p> <p><input type="checkbox"/> Harperella (<i>Ptilimnium nodosum</i>)</p> <p><input type="checkbox"/> Northeastern bulrush (<i>Scirpus ancistrochaetus</i>)</p> <p><input type="checkbox"/> Running buffalo cover (<i>Trifolium stoloniferum</i>)</p> <p><input type="checkbox"/> Shale barren rock cress (<i>Arabis perstellata</i>)</p> <p><input type="checkbox"/> Small whorled pogonia (<i>Isotria medeoloides</i>)</p> <p><input type="checkbox"/> Virginia spiraea (<i>Spiraea virginiana</i>)</p> <p><i>Mammals</i></p> <p><input type="checkbox"/> Eastern cougar (<i>Felis concolor couguar</i>)</p> <p><input type="checkbox"/> Gray bat (<i>Myotis grisescens</i>)</p> <p><input type="checkbox"/> Indiana bat (<i>Myotis sodalis</i>)</p> <p><input type="checkbox"/> Virginia big-eared bat (<i>Corynorhinus townsendii virginiaus</i>)</p> <p><input type="checkbox"/> Virginia northern flying squirrel (<i>Glaucomys sabrinus fuscus</i>)</p> <p><i>Snails</i></p> <p><input type="checkbox"/> Flat-spined three-toothed land snail (<i>Triodopsis platysayoides</i>)</p>		
5.2	<u>Local Populations Providing Important Natural or Economic Resources, Functions, and Values</u> Were any valued terrestrial, wetland, or aquatic habitats listed in 4.3, 4.4, or 4.5 identified within or adjacent to the site?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><i>If “Yes” to 5.1 and/or 5.2 and/or surface water bodies are not in compliance with applicable water quality standards: The site does not pass the De Minimis ecological risk screening, since a complete exposure pathway may exist for potential ecological receptors of concern. Further evaluation of the site is required using either the Uniform Ecological Standard or the Site-Specific Ecological Standard.</i></p> <p><i>If “No” to 5.1 and 5.2 and surface water bodies are in compliance with applicable water quality standards: No further ecological evaluation is required. File this completed form with the Risk Assessment Report.</i></p>		

\*The list contains those federally designated threatened and endangered species that are indigenous to WV. WVDNR, Wildlife Resources Section should be consulted to ensure the list is correct. WV has not established a list of state designated threatened or endangered species; however, the WVDNR has developed a [“Species of Greatest Conservation Need” list](#) in the [State Wildlife Action Plan](#). Species listed in the in the State Wildlife Action Plan should also be considered in any Ecological Risk Assessment.

# ATTACHMENT 2

## Checklist to Determine Applicable Remediation Standards Part 2: Human Health Standards

### STEP 1: Determine Whether the De Minimis Standard is Appropriate for the Site

The De Minimis Standard applies to contaminants for which the primary exposure routes will be ingestion, dermal contact, and/or inhalation of soil or groundwater. For soil, the De Minimis Standard is either the risk-based concentration (RBC) (Table 60-3B of the Rule) or the natural background level of the contaminant, whichever is higher. The potential for vapor intrusion also needs to be screened by comparing site groundwater, soil gas, or indoor air concentrations to the relevant RBC in the USEPA Vapor Intrusion Screening Levels (VISL).

Evaluating a site based on the De Minimis Standard consists of aggregating site data and comparing either maximum concentrations detected, or the 95% upper confidence limit (UCL) concentration, known as the exposure point concentration (EPC), to establish RBCs. If site EPCs do not exceed the RBC or site-specific background, then no further evaluation or remediation of the site is required. Similarly, if the site EPCs do exceed the RBC or site-specific background but presumptive remedies can be shown to sever the potential exposure route, then no further evaluation is needed, and the Applicant can proceed to implementing the presumptive remedies. (Completing Worksheet 4-1 at the end of this checklist may aid in this process.)

The De Minimis approach is limited to particular compounds and is appropriate only for residential or industrial exposure scenarios. Below are several questions that will help to determine whether a site may be evaluated under the De Minimis Standard.

1.1	Have media representing all potentially complete pathways in the conceptual site model been sampled?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1.2	Are there fewer than 10 chemicals present at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1.3	If any concentration of chemicals of potential concern exceed the RBC, are there presumptive remedies that can sever the exposure pathways and that are acceptable to the Applicant and impacted off-site property owners?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1.4	Is the future use of the site expected to only be residential and/or industrial?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1.5	Does Part 1 (Ecological Standards) of this checklist indicate that there are no ecological receptors of concern at the site (e.g., wetlands or endangered species)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

*If "Yes" to all: The De Minimis Standard is likely appropriate for the site.*

*If "No" to any: The De Minimis Standard may not be appropriate for the site, and more site-specific characterization may be needed; however, the Applicant may consult with WVDEP to confirm the determination.*

*If "No" to all: The De Minimis Standard is not appropriate for the site. The Uniform Standard or Site-Specific Standard should be considered instead.*

## ATTACHMENT 2

### STEP 2: Determine Whether the Uniform Standard is Appropriate for the Site

The Uniform Standard is based on the use of WVDEP-approved methodologies to calculate remediation standards. Advantages to using the Uniform Standard include the fact that this methodology can be used to determine remediation standards for some contaminants and receptors not included under the De Minimis Standards or De Minimis Risk Assessment process (e.g., recreators and construction workers), and that, with adequate documentation, site-specific information can be incorporated into the calculations. The disadvantages of the approach defined under the Uniform Standard are that exposure scenarios and potential exposure pathways included in these calculations are limited to those available in the USEPA Regional Screening Levels methodology.

Note that if site-specific modeling will be used in determining EPCs for media at a site, a site-specific risk assessment should be used.

2.1	Is future use of the site potentially other than residential or industrial use?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2.2	Do potentially impacted sediments exist at the site that you feel should not be held to residential or industrial soil cleanup standards?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2.3	Do home vegetable gardens potentially exist in the vicinity of the site, and is homegrown produce potentially impacted by site-related chemicals?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2.4	Are there any dairy farms or livestock grazing areas within the area of impact of the site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2.5	Is impacted groundwater or surface water used for irrigation or any use other than drinking water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2.6	Are construction/utility workers potentially exposed to contaminated groundwater in a trench?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

*If "Yes" to any: There are potential pathways for human exposure to site-related chemicals that are not addressed in the methodology provided for determining a Uniform Standard. Therefore, a Site-Specific Standard is more appropriate for the site.*

*If "No" to all: The Uniform Standard is likely appropriate for the site.*



Department of Administration  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Centralized Request for Quote  
Service - Prof

<b>Proc Folder:</b> 1468037			<b>Reason for Modification:</b>
<b>Doc Description:</b> Environmental Risk Assessor			
<b>Proc Type:</b> Central Master Agreement			
<b>Date Issued</b>	<b>Solicitation Closes</b>	<b>Solicitation No</b>	<b>Version</b>
2024-09-04	2024-09-19 13:30	CRFQ 0313 DEP2500000004	1

BID RECEIVING LOCATION

BID CLERK  
DEPARTMENT OF ADMINISTRATION  
PURCHASING DIVISION  
2019 WASHINGTON ST E  
CHARLESTON WV 25305  
US

VENDOR

**Vendor Customer Code:**

**Vendor Name :** Strategic Risk Services, LLC

**Address :** PO Box 262

**Street :**

**City :** Bellefonte

**State :** Pennsylvania

**Country :** United States

**Zip :** 16823

**Principal Contact :** Sarah Leininger

**Vendor Contact Phone:** (540) 818-8578

**Extension:**

FOR INFORMATION CONTACT THE BUYER

Joseph E Hager III  
(304) 558-2306  
joseph.e.hageriii@wv.gov

Vendor  
Signature X

FEIN#

DATE

9/19/2024

All offers subject to all terms and conditions contained in this solicitation

<b>ADDITIONAL INFORMATION</b>
The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Department of Environmental Protection to establish an open-end contract for an Environmental Risk Assessor to determine ecological and human health risks that may be associated with projects managed by the WVDEP per the attached specifications and terms and conditions.

<b>INVOICE TO</b>		<b>SHIP TO</b>	
ENVIRONMENTAL PROTECTION OFFICE OF ENVIRONMENTAL REMEDIATION 601 57TH ST SE CHARLESTON WV US		ENVIRONMENTAL PROTECTION 601 57TH ST  CHARLESTON WV US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Risk or hazard assessment	700.00000	HOURL	\$75	\$52,500

<b>Comm Code</b>	<b>Manufacturer</b>	<b>Specification</b>	<b>Model #</b>
77101501			

**Extended Description:**  
Environmental Risk Assessor Open end contract for service, bid sheet represents an estimated number of hours for bidding purposes to establish a contracted set price per hour.

<b>SCHEDULE OF EVENTS</b>		
<u>Line</u>	<u>Event</u>	<u>Event Date</u>



## INSTRUCTIONS TO VENDORS SUBMITTING BIDS

**1. REVIEW DOCUMENTS THOROUGHLY:** The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

**2. MANDATORY TERMS:** The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

**3. PREBID MEETING:** The item identified below shall apply to this Solicitation.

☒ A pre-bid meeting will not be held prior to bid opening

☐ A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one individual is permitted to represent more than one vendor at the pre-bid meeting. Any individual that does attempt to represent two or more vendors will be required to select one vendor to which the individual's attendance will be attributed. The vendors not selected will be deemed to have not attended the pre-bid meeting unless another individual attended on their behalf.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

**4. VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submitted emails should have the solicitation number in the subject line.

Question Submission Deadline: 9/11/2024 @ 4:00 PM ET

Submit Questions to: Josh Hager  
2019 Washington Street, East  
Charleston, WV 25305  
Fax: (304) 558-3970  
Email: Joseph.E.HagerIII@wv.gov

**5. VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

**6. BID SUBMISSION:** All bids must be submitted on or before the date and time of the bid opening listed in section 7 below. Vendors can submit bids electronically through wvOASIS, in paper form delivered to the Purchasing Division at the address listed below either in person or by courier, or in facsimile form by faxing to the Purchasing Division at the number listed below. Notwithstanding the foregoing, the Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via email. Bids submitted in paper or facsimile form must contain a signature. Bids submitted in wvOASIS are deemed to be electronically signed.

Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason.

**For Request for Proposal ("RFP") Responses Only:** Submission of a response to a Request for Proposal is not permitted in wvOASIS. In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal prior to the bid opening date and time identified in Section 7 below, plus \_\_\_\_\_convenience copies of each to the Purchasing Division at the address shown below. Additionally, the Vendor should clearly identify and segregate the cost proposal from the technical proposal in a separately sealed envelope.

**Bid Delivery Address and Fax Number:**

Department of Administration, Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130  
Fax: 304-558-3970

A bid submitted in paper or facsimile form should contain the information listed below on the face of the submission envelope or fax cover sheet. Otherwise, the bid may be rejected by the Purchasing Division.

VENDOR NAME: Strategic Risk Services, LLC  
BUYER: Josh Hager  
SOLICITATION NO.: CRFQ 0313 DEP2500000004  
BID OPENING DATE: See section 7  
BID OPENING TIME: See section 7  
FAX NUMBER: 304-558-3970

**7. BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by *wvOASIS* (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time: 9/19/2024 @ 1:30 PM ET

Bid Opening Location: Department of Administration, Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130

**8. ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**9. BID FORMATTING:** Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

**10. ALTERNATE MODEL OR BRAND:** Unless the box below is checked, any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

☐ This Solicitation is based upon a standardized commodity established under W. Va. Code § 5A-3-61. Vendors are expected to bid the standardized commodity identified. Failure to bid the standardized commodity will result in your firm's bid being rejected.

**11. EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

**12. COMMUNICATION LIMITATIONS:** In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

**13. REGISTRATION:** Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee, if applicable.

**14. UNIT PRICE:** Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

**15. PREFERENCE:** Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code § 5A-3-37, and must include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at: [www.state.wv.us/admin/purchase/vrc/Venpref.pdf](http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf).

**15A. RECIPROCAL PREFERENCE:** The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. Any request for reciprocal preference must include with the bid any information necessary to evaluate and confirm the applicability of the preference. A request form to help facilitate the request can be found at: [www.state.wv.us/admin/purchase/vrc/Venpref.pdf](http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf).

**16. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37 and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women- owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

**17. WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

**18. ELECTRONIC FILE ACCESS RESTRICTIONS:** Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

**19. NON-RESPONSIBLE:** The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform or lacks the integrity and reliability to assure good-faith performance.”

**20. ACCEPTANCE/REJECTION:** The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b.”

**21. YOUR SUBMISSION IS A PUBLIC DOCUMENT:** Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

**22. WITH THE BID REQUIREMENTS:** In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Director of the Purchasing Division reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under W. Va. CSR § 148-1-4.6. This authority does not apply to instances where state law mandates receipt with the bid.

**23. EMAIL NOTIFICATION OF AWARD:** The Purchasing Division will attempt to provide bidders with e-mail notification of contract award when a solicitation that the bidder participated in has been awarded. For notification purposes, bidders must provide the Purchasing Division with a valid email address in the bid response. Bidders may also monitor WV OASIS or the Purchasing Division's website to determine when a contract has been awarded.

**24. ISRAEL BOYCOTT CERTIFICATION:** Vendor's act of submitting a bid in response to this solicitation shall be deemed a certification from bidder to the State that bidder is not currently engaged in, and will not for the duration of the contract, engage in a boycott of Israel. This certification is required by W. Va. Code § 5A-3-63.

## **GENERAL TERMS AND CONDITIONS:**

**1. CONTRACTUAL AGREEMENT:** Issuance of an Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance by the State of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid, or on the Contract if the Contract is not the result of a bid solicitation, signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

**2. DEFINITIONS:** As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

**2.1. "Agency" or "Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

**2.2. "Bid" or "Proposal"** means the vendors submitted response to this solicitation.

**2.3. "Contract"** means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

**2.4. "Director"** means the Director of the West Virginia Department of Administration, Purchasing Division.

**2.5. "Purchasing Division"** means the West Virginia Department of Administration, Purchasing Division.

**2.6. "Award Document"** means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

**2.7. "Solicitation"** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

**2.8. "State"** means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

**2.9. "Vendor" or "Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

**3. CONTRACT TERM; RENEWAL; EXTENSION:** The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☒ **Term Contract**

**Initial Contract Term:** The Initial Contract Term will be for a period of one (1) year. The Initial Contract Term becomes effective on the effective start date listed on the first page of this Contract, identified as the State of West Virginia contract cover page containing the signatures of the Purchasing Division, Attorney General, and Encumbrance clerk (or another page identified as \_\_\_\_\_), and the Initial Contract Term ends on the effective end date also shown on the first page of this Contract.

**Renewal Term:** This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to three (3) successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

☐ **Alternate Renewal Term** – This contract may be renewed for \_\_\_\_\_ successive \_\_\_\_\_ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

**Delivery Order Limitations:** In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within \_\_\_\_\_ days.



☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within \_\_\_\_\_ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that:

☐ the contract will continue for \_\_\_\_\_ years;

☐ the contract may be renewed for \_\_\_\_\_ successive \_\_\_\_\_ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's Office (Attorney General approval is as to form only).

☐ **One-Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Construction/Project Oversight:** This Contract becomes effective on the effective start date listed on the first page of this Contract, identified as the State of West Virginia contract cover page containing the signatures of the Purchasing Division, Attorney General, and Encumbrance clerk (or another page identified as \_\_\_\_\_), and continues until the project for which the vendor is providing oversight is complete.

☐ **Other:** Contract Term specified in \_\_\_\_\_

**4. AUTHORITY TO PROCEED:** Vendor is authorized to begin performance of this contract on the date of encumbrance listed on the front page of the Award Document unless either the box for "Fixed Period Contract" or "Fixed Period Contract with Renewals" has been checked in Section 3 above. If either "Fixed Period Contract" or "Fixed Period Contract with Renewals" has been checked, Vendor must not begin work until it receives a separate notice to proceed from the State. The notice to proceed will then be incorporated into the Contract via change order to memorialize the official date that work commenced.

**5. QUANTITIES:** The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☒ **Open End Contract:** Quantities listed in this Solicitation/Award Document are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One-Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

☐ **Construction:** This Contract is for construction activity more fully defined in the specifications.

**6. EMERGENCY PURCHASES:** The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute a breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One-Time Purchase contract.

**7. REQUIRED DOCUMENTS:** All of the items checked in this section must be provided to the Purchasing Division by the Vendor as specified:

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits upon request and in a form acceptable to the State. The request may be prior to or after contract award at the State's sole discretion.

☐☐☐☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications regardless of whether or not that requirement is listed above.

**8. INSURANCE:** The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether that insurance requirement is listed in this section.

Vendor must maintain:

☒ **Commercial General Liability Insurance** in at least an amount of: \$1,000,000.00 per occurrence.

☐ **Automobile Liability Insurance** in at least an amount of: \_\_\_\_\_ per occurrence.

☒ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: \$1,000,000.00 per occurrence. Notwithstanding the forgoing, Vendor's are not required to list the State as an additional insured for this type of policy.

☐ **Commercial Crime and Third Party Fidelity Insurance** in an amount of: \_\_\_\_\_ per occurrence.

☐ **Cyber Liability Insurance** in an amount of: \_\_\_\_\_ per occurrence.

☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.

☐ **Pollution Insurance** in an amount of: \_\_\_\_\_ per occurrence.

☐ **Aircraft Liability** in an amount of: \_\_\_\_\_ per occurrence.

☐☐☐☐

**9. WORKERS' COMPENSATION INSURANCE:** Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

**10. VENUE:** All legal actions for damages brought by Vendor against the State shall be brought in the West Virginia Claims Commission. Other causes of action must be brought in the West Virginia court authorized by statute to exercise jurisdiction over it.

**11. LIQUIDATED DAMAGES:** This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

☐ \_\_\_\_\_ for \_\_\_\_\_.

☐ Liquidated Damages Contained in the Specifications.

☒ Liquidated Damages Are Not Included in this Contract.

**12. ACCEPTANCE:** Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

**13. PRICING:** The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the State and invoice at the lower of the contract price or the publicly advertised sale price.

**14. PAYMENT IN ARREARS:** Payments for goods/services will be made in arrears only upon receipt of a proper invoice, detailing the goods/services provided or receipt of the goods/services, whichever is later. Notwithstanding the foregoing, payments for software maintenance, licenses, or subscriptions may be paid annually in advance.

**15. PAYMENT METHODS:** Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

**16. TAXES:** The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

**17. ADDITIONAL FEES:** Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia, included in the Contract, or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

**18. FUNDING:** This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available. If that occurs, the State may notify the Vendor that an alternative source of funding has been obtained and thereby avoid the automatic termination. Non-appropriation or non-funding shall not be considered an event of default.

**19. CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

**20. TIME:** Time is of the essence regarding all matters of time and performance in this Contract.

**21. APPLICABLE LAW:** This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code, or West Virginia Code of State Rules is void and of no effect.

**22. COMPLIANCE WITH LAWS:** Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

**SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

**23. ARBITRATION:** Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

**24. MODIFICATIONS:** This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

**25. WAIVER:** The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

**26. SUBSEQUENT FORMS:** The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

**27. ASSIGNMENT:** Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

**28. WARRANTY:** The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

**29. STATE EMPLOYEES:** State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

**30. PRIVACY, SECURITY, AND CONFIDENTIALITY:** The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in [www.state.wv.us/admin/purchase/privacy](http://www.state.wv.us/admin/purchase/privacy).

**31. YOUR SUBMISSION IS A PUBLIC DOCUMENT:** Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

**DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.**

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

**32. LICENSING:** In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

**SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

**33. ANTITRUST:** In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

**34. VENDOR NON-CONFLICT:** Neither Vendor nor its representatives are permitted to have any interest, nor shall they acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency.

**35. VENDOR RELATIONSHIP:** The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

**36. INDEMNIFICATION:** The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

**37. NO DEBT CERTIFICATION:** In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State. By submitting a bid, or entering into a contract with the State, Vendor is affirming that (1) for construction contracts, the Vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, neither the Vendor nor any related party owe a debt as defined above, and neither the Vendor nor any related party are in employer default as defined in the statute cited above unless the debt or employer default is permitted under the statute.

**38. CONFLICT OF INTEREST:** Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.



**39. REPORTS:** Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☐ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at [purchasing.division@wv.gov](mailto:purchasing.division@wv.gov).

**40. BACKGROUND CHECK:** In accordance with W. Va. Code § 15-2D-3, the State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check. Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

**41. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS:** Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

- a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open hearth, basic oxygen, electric furnace, Bessemer or other steel making process.
- c. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:
  1. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or
  2. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

**42. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL:** In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a “substantial labor surplus area”, as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

**43. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE:** W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$1 million, the Vendor must submit to the Agency a disclosure of interested parties prior to beginning work under this Contract. Additionally, the Vendor must submit a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-work interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

**44. PROHIBITION AGAINST USED OR REFURBISHED:** Unless expressly permitted in the solicitation published by the State, Vendor must provide new, unused commodities, and is prohibited from supplying used or refurbished commodities, in fulfilling its responsibilities under this Contract.

**45. VOID CONTRACT CLAUSES:** This Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law.

**46. ISRAEL BOYCOTT:** Bidder understands and agrees that, pursuant to W. Va. Code § 5A-3-63, it is prohibited from engaging in a boycott of Israel during the term of this contract.

**DESIGNATED CONTACT:** Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Sarah Leininger

(Address) PO Box 262, Bellefonte, PA 16823

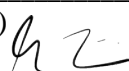
(Phone Number) / (Fax Number) 540.818.8578

(email address) sarah@strategicrisksvcs.com

**CERTIFICATION AND SIGNATURE:** By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

Strategic Risk Services LLC

(Company) 

(Signature of Authorized Representative)

Sarah Leininger / Sr. Risk Assessment Specialist

(Printed Name and Title of Authorized Representative) (Date)

540.818.8578

(Phone Number) (Fax Number)

sarah@strategicrisksvcs.com

(Email Address)

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.:**

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

*(Check the box next to each addendum received)*

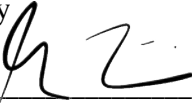
- ☐ Addendum No. 1
- ☐ Addendum No. 2
- ☐ Addendum No. 3
- ☐ Addendum No. 4
- ☐ Addendum No. 5

- ☐ Addendum No. 6
- ☐ Addendum No. 7
- ☐ Addendum No. 8
- ☐ Addendum No. 9
- ☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

**Strategic Risk Services LLC**

Company



Authorized Signature

**09/19/24**

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

REQUEST FOR QUOTATION  
Environmental Risk Assessor

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**SPECIFICATIONS**

- 1. PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Department of Environmental Protection to establish an open-end contract for an Environmental Risk Assessor to determine ecological and human health risks that may be associated with projects managed by the WVDEP.
- 2. DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.
  - 2.1 “Agency”** means West Virginia Department of Environmental Protection (WVDEP).
  - 2.2 “Contract Item” or “Contract Items”** means the list of items identified in Section 3.1 below and on the Pricing Pages.
  - 2.3 “Environmental Risk Assessor”** means a person who evaluates the exposure of human and ecological receptors to contaminants in environmental media (i.e. soil, groundwater, air, sediments, and surface water) and determines the likelihood that such exposure would result in an adverse impact to the health of the receptor. Risk assessments are dependent upon mathematical constructs of interactions between living organisms and contaminants in their environment. Risk assessors must possess knowledge of toxicology, statistics, biology, and chemistry as well as the ability to apply computer models simulating contaminant behavior in environmental media and/or contamination uptake and distribution within a biological system. Risk assessors must also be able to perform complex calculations using appropriate environmental data and Agency-approved exposure parameters and to present the information in tabular form and figures according to OER’s Voluntary Remediation Program Guidance Manual.
  - 2.4 “LRS”** means Licensed Remediation Specialist
  - 2.5 “OER”** means the Office of Environmental Remediation
  - 2.6 “Pricing Pages”** means the schedule of prices, estimated order quantity, and totals contained in wvOASIS and used to evaluate the Solicitation responses.
  - 2.7 “Solicitation”** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.
  - 2.8 “TCAU”** means the Tanks Corrective Action Unit.
  - 2.9 “VRP”** means the Voluntary Remediation Program.

REQUEST FOR QUOTATION  
Environmental Risk Assessor

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**2.10 “WVDEP”** means the West Virginia Department of Environmental Protection

**3. GENERAL REQUIREMENTS:**

**3.1 Contract Items and Mandatory Requirements:** Vendor shall provide Agency with the Contract Items listed below on an open-end and continuing basis. Contract Items must meet or exceed the mandatory requirements as shown below.

**3.1.1 Background, Qualifications, Record Retention, Confidentiality, Testimony**

**3.1.1.1 Background:** There are several sections within the WVDEP that use Risk Assessments within their Programs. The majority of the Risk Assessment work is related to the WVDEP Division of Land Restoration, Office of Environmental Remediation (OER), which oversees the Voluntary Remediation Program (VRP), UECA-LUST Program, Brownfields Assistance Program, and CERCLA Programs. The WVEP TCAU section also utilizes Risk Assessments.

Within these programs, human health and ecological risks are assessed by use of one or more levels of evaluation in order to determine suitability of these sites for reuse and the need for applying controls to mitigate remaining site risks. Guidance for WVDEP Risk Assessments can be found in OER’s Voluntary Remediation Program Guidance Manual located on OER’s website:

<https://dep.wv.gov/dlr/oer/technicalguidanceandtemplates/Documents/VRP%20Guidance%20Manual.pdf>

The primary responsibility for providing an accurate assessment of site risks resides with the Licensed Remediation Specialist (LRS), who is retained by the property owner or interested party to oversee the site evaluation.

In addition, an Agency risk assessor/toxicologist is often consulted during the early stages of a site investigation to assist in developing a preliminary conceptual site model supported by an appropriate sampling and analysis plan.

## REQUEST FOR QUOTATION

### Environmental Risk Assessor

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Currently, risk assessments are most often evaluated by the Agency's risk assessor/toxicologist, but the Agency may experience a temporary need for additional capacity in order to meet required review deadlines for risk assessment and related documents.

The Agency also requires a third-party contractor to review updates to the De Minimis Standards, as applicable:

<https://dep.wv.gov/dlr/oer/technicalguidanceandtemplates/Documents/De%20Minimis%20and%20Relevant%20Benchmarkmarks.xlsx>

**3.1.1.2 Qualifications:** Vendor or Vendor's staff if requirements are inherently limited to individuals rather than corporate entities, shall have the following minimum qualifications:

**3.1.1.2.1** A doctoral degree in a relevant field of study from an accredited university and a minimum of three (3) years of relevant professional experience; **OR**

**3.1.1.2.2** A Master of Science degree in a relevant field of study from an accredited university and a minimum of five (5) years of relevant professional experience.

**3.1.1.2.3** Relevant professional experience must consist of work related directly to risk assessment, risk characterization, and risk management activities.

**3.1.1.2.4** At the discretion of the Vendor, an employee of the Vendor with knowledge in the applicable disciplines of toxicology, statistics, biology, and chemistry may conduct the review. The final report, however, must be prepared by, or under the direction of, an Environmental Risk Assessor.

**3.1.1.2.5** Compliance with experience requirements will be determined prior to contract award



REQUEST FOR QUOTATION  
Environmental Risk Assessor

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by the State through references provided by the Vendor with its bid or upon request, through knowledge or documentation of the Vendor's past projects, or some other method that the State determines to be acceptable. Vendors should submit a current resume' which includes information regarding the number of years of qualification, experience and training, and relevant professional education for each individual that will be assigned to this project. Vendor must provide any documentation requested by the State to assist in confirmation of compliance with this provision. References, documentation, or other information to confirm compliance with this experience requirement are preferred with the bid submission; but may be requested prior to award.

- 3.1.1.2.6** An example risk assessment report or a risk assessment review prepared by the Vendor demonstrating evidence of relevant professional experience must also be provided prior to award. Submission of the sample document(s) may be in electronic format. Redaction of confidential information regarding site/client names on the sample documents is acceptable.

The WVDEP reserves the right to request and approve credentials of any person assigned to perform work under this contract.

- 3.1.1.3 Record Retention:** The Vendor shall maintain such records a minimum of five (5) years and make available all records to Agency personnel at the Vendor's location during normal business hours, 8:00AM to 5:00PM, upon written request by the Agency within ten (10) calendar days after receipt of the request.

- 3.1.1.4 Confidentiality:** The Vendor shall have access to private and confidential data maintained by the Agency to the

REQUEST FOR QUOTATION  
Environmental Risk Assessor

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extent required for the Vendor to carry out the duties and responsibilities defined in this contract. Documents will be sent to the Vendor through a secured server. Failure to maintain confidentiality will result in cancellation of the contract.

The Vendor agrees to maintain confidentiality and security of the data made available and shall indemnify and hold harmless the State and Agency against any and all claims brought by any party attributed to actions of breach of confidentiality by the Vendor, subcontractors, or individuals permitted access by the Vendor.

**3.1.1.5 Testimony:** Should the Agency request additional assistance from the contractor for testimony in any state or federal court or before any board of other administrative body associated with a document prepared under this agreement, such assistance shall be considered to be within the scope of work for this contract and thus billed at the same hourly rate as the rest of the items in this contract. An estimated number of times this might occur is twice a year. Meetings/testimony would likely take place in Charleston, WV; however, other locations are possible.

#### **4. CONTRACT AWARD:**

**4.1 Contract Award:** The Contract is intended to provide the Agency with a purchase price on all Contract Items. The Contract shall be awarded to the two (2) lowest bid Vendors that provide the Contract Items meeting the required specifications for the lowest overall TOTAL BID AMOUNT as shown on the commodity lines in wvoasis. Vendors must provide resumes for verification of qualifications with their bid. Selection will be based on the lowest qualified bids. However, if the Vendor has a conflict of interest on the job, the next Vendor will be selected to avoid the conflict of interest.

**4.2 Pricing Pages:** Vendor should complete the Pricing Pages by bidding on the price per hour (x) multiplied by the Estimated Quantity of Hours needed (=) equals the extended cost. Vendor should complete the Pricing Pages in their entirety as failure to do so may result in Vendor's bids being disqualified.

The Pricing Pages contain a list of the Contract Items and estimated purchase volume. The estimated purchase volume for each item represents the

REQUEST FOR QUOTATION  
Environmental Risk Assessor

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approximate volume of anticipated purchases only. No future use of the Contract or any individual item is guaranteed or implied.

Vendor should type or electronically enter the information into the Pricing Pages through wvOASIS, if available, or as an electronic document. Vendors can download the electronic copy of the Pricing Pages from the wvOASIS Vendor Self-Service (VSS) website. If responding with paper bid, Vendors should download and/or print the assembled CRFQ document (with the highest version number) from wvOASIS and insert their unit price and extended cost for each item.

## **5. ORDERING AND PAYMENT:**

**5.1 Ordering:** Vendor shall accept orders through wvOASIS, regular mail, facsimile, e-mail, or any other written form of communication. Vendor may, but is not required to, accept on-line orders through a secure internet ordering portal/website. If Vendor has the ability to accept on-line orders, it should include in its response a brief description of how Agencies may utilize the on-line ordering system. Vendor shall ensure that its on-line ordering system is properly secured prior to processing Agency orders on-line.

**5.1.1 Work Directives:** Work will be ordered by issuance of a work Directive. The Work Directive will contain the location of the project site, the specific problem, the work to be performed, and the time frame during which the work must be completed.

**5.1.1.1** Provided there is no conflict of interest in review of a specific project, the Work Directive shall be awarded in the following manner:

**5.1.1.1.1** The Work Directive award will go to the first lowest successful Vendor.

**5.1.1.1.2** If the Vendor accepts the Work Directive, a work plan and cost proposal will be required from the Vendor as specified in the Work Directive. The Vendor will have five (5) working days to accept or refuse the project. The work plan/cost proposal will consist of a brief description of the work to be performed, the number of hours, and the total dollar amount it will cost to perform each task included in the Work Directive. This can be provided in a simple email. Vendors will not be reimbursed for providing the work plan/cost estimate.

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**5.1.1.1.3** If the Vendor refused the Work Directive, it will be offered to the second lowest successful Vendor and so on.

**5.1.1.1.4** The Vendor's submitted work plan and cost estimate, containing the quantity estimates, shall be in accordance with the unit process provided in the response to this RFQ. If the work plan and cost estimate are approved, the WVDEP will issue a Notice to Proceed which will specify the cost of the project and the starting and ending dates. Deliverables will be submitted electronically.

**5.1.1.1.5** The Vendor shall not begin work until a signed Notice to Proceed has been issued by the WVDEP.

**5.2 Payment:** Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.

**5.2.1 Invoice:** A flat rate per hour will be the total charge to the state and will cover the full cost of all work hours including labor, travel, and materials. The Vendor will be contacted to provide Risk Assessor services on an "as needed" basis only. The Vendor will invoice the WVDEP on a monthly basis. All Invoices must be accompanied by a sworn statement detailing actual hours worked.

**6. DELIVERY AND RETURN:**

**6.1 Delivery Time:** Vendor shall deliver standard orders as stated in the Work Directive. The Notice to Proceed will specify the starting and ending dates for each Work Directive. Deliverables shall be submitted electronically, unless a specific request is made.

**6.2 Late Delivery:** The Agency placing the order under this Contract must be notified in writing if orders will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the delayed order, and/or obtaining the items ordered from a third party.

Any Agency seeking to obtain items from a third party under this provision must first obtain approval of the Purchasing Division.

**6.3 Delivery Payment/Risk of Loss:** Standard order delivery shall be F.O.B. destination

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to the Agency's location. Vendor shall include the cost of standard order delivery charges in its bid pricing/discount and is not permitted to charge the Agency separately for such delivery. The Agency will pay delivery charges on all emergency orders provided that Vendor invoices those delivery costs as a separate charge with the original freight bill attached to the invoice.

**6.4 Return of Unacceptable Items:** If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.

**6.5 Return Due to Agency Error:** Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.

**7. VENDOR DEFAULT:**

**7.1** The following shall be considered a vendor default under this Contract.

- 7.1.1** Failure to provide Contract Items in accordance with the requirements contained herein.
- 7.1.2** Failure to comply with other specifications and requirements contained herein.
- 7.1.3** Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.
- 7.1.4** Failure to remedy deficient performance upon request.

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**7.2** The following remedies shall be available to Agency upon default.

**7.2.1** Immediate cancellation of the Contract.

**7.2.2** Immediate cancellation of one or more release orders issued under this Contract.

**7.2.3** Any other remedies available in law or equity.

**8. MISCELLANEOUS:**

**8.1 No Substitutions:** Vendor shall supply only Contract Items submitted in response to the Solicitation unless a contract modification is approved in accordance with the provisions contained in this Contract.

**8.2 Vendor Supply:** Vendor must carry sufficient inventory of the Contract Items being offered to fulfill its obligations under this Contract. By signing its bid, Vendor certifies that it can supply the Contract Items contained in its bid response.

**8.3 Reports:** Vendor shall provide quarterly reports and annual summaries to the Agency showing the Agency's items purchased, quantities of items purchased, and total dollar value of the items purchased. Vendor shall also provide reports, upon request, showing the items purchased during the term of this Contract, the quantity purchased for each of those items, and the total value of purchases for each of those items. Failure to supply such reports may be grounds for cancellation of this Contract.

**8.4 Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

**Contract Manager:** Sarah Leining  
**Telephone Number:** (540) 818-8578  
**Fax Number:** N/A  
**Email Address:** sarah@strategicrisksvcs.com



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/19/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> First National Insurance Agency, LLC 12 Federal Street Suite 405 One North Shore Center Pittsburgh PA 15212	<b>CONTACT</b> <b>NAME:</b> Brandi Piccolino-Viltro <b>PHONE</b> (A/C. No. Ext): 800-252-4850 <b>E-MAIL</b> <b>ADDRESS:</b> info@fnb-corp.com	<b>FAX</b> (A/C. No): 412-231-0249
<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAIC #</b>
<b>INSURER A:</b> Hartford Underwriters Ins. Co.		30104
<b>INSURER B:</b> Trumbull Insurance Company		27120
<b>INSURER C:</b> Lloyds of London		
<b>INSURER D:</b>		
<b>INSURER E:</b>		
<b>INSURER F:</b>		

**COVERAGES****CERTIFICATE NUMBER:** 887899763**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> <input type="checkbox"/> GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER:	Y	Y	40SBAAF7TTV	4/3/2024	4/3/2025	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
A	<input type="checkbox"/> <b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	Y	Y	40SBAAF7TTV	4/3/2024	4/3/2025	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000	Y	Y	40SBAAF7TTV	4/3/2024	4/3/2025	EACH OCCURRENCE \$ 2,000,000 AGGREGATE \$ 2,000,000 \$
B	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/>	N/A	40WECAF8SFX	4/3/2024	4/3/2025	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000
C	Professional Liability			MPL4441340.24	4/3/2024	4/3/2025	Each Claim Aggregate Retention \$ 1,000,000 1,000,000 2,500

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES** (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)  
Services relative to Contract DEP210000007-Environmental Risk Assessment

**CERTIFICATE HOLDER****CANCELLATION**

West Virginia Department of Environmental Protection  
Office of Environmental Remediation  
2031 Pleasant Valley Road  
Fairmount WV 26554

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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