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

# Request for Quotation

| RFQ NUMBER | PAGE |
|---|---|
| DEP15706 | 1 |

ADDRESS CORRESPONDENCE TO ATTENTION OF:
GUY NISBET
304-558-8802

VENDOR
*626144827 304-757-8954
BIO CHEM TESTING INC
PO BOX 634
PUTNAM VILLAGE SHOPPING CTR
TEAYS WV 25569-0634

SHIP TO
ENVIRONMENTAL PROTECTION
DEPARTMENT OF
ENVIRONMENTAL ENFORCEMENT
601 57TH STREET
CHARLESTON, WV
25304 304-926-0499

| DATE PRINTED | TERMS OF SALE | SHIP VIA | F.O.B. | FREIGHT TERMS |
|---|---|---|---|---|
| 12/23/2011 | Net 30 | Best Way | - | - |

BID OPENING DATE: 02/02/2012 BID OPENING TIME 01:30PM

| LINE | QUANTITY | UOP | CAT. NO. | ITEM NUMBER | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| | | | | OPEN END CONTRACT | | |
| 0001 | 1 | LS | | 961-48 | | |

ORGANIC ANALYSIS OF WATER AND SOIL FIELD TESTING

THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, WEST VIRGINIA DEPARTMENT OF ENVIROMENTAL PROTECTION'S DEPARTMENT OF ENVIROMENTAL ENFORCEMENT DIVISION, IS SOLICITING BIDS FROM QUALIFIED VENDOR'S TO PROVIDETHE AGENCY WITH ORGANIC ANALYSIS OF WATER AND SOIL PER THE FOLLOWING SPECIFICATIONS, SCOPE OF WORK, TERMS & CONDITIONS AND BID REQUIREMENTS AS ATTACHED.

INQUIRIES:

WRITTEN QUESTIONS SHALL BE ACCEPTED THROUGH CLOSE OF BUSINESS ON THURSDAY, JANUARY 19,2012. QUESTIONS MAY BE SENT VIA: USPS, FAX, COURIER OR EMAIL. IN ORDER TO ASSURE NO VENDOR RECEIVES AN UNFAIR ADVANTAGE, NO SUBSTANTIVE QUESTIONS WILL BE ANSWERED ORALLY. IF POSSIBLE, EMAIL QUESTIONS ARE PREFERRED. ANY TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY FORMAL WRITTEN ADDENDUM TO BE ISSUED BY THE PURCHASING DIVISION AFTER THE DEADLINE HAS LAPSED.
ADDREES INQUIRIES TO:

GUY NISBET

RECEIVED
2012 FEB -2 A 10:25
WV PURCHASING DIVISION

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE [signature] TELEPHONE 304-757-8954 DATE 02-01-12

TITLE President FEIN 55-0732395

ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

# GENERAL TERMS & CONDITIONS
# REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.

2. The State may accept or reject in part, or in whole, any bid.

3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required $125 fee.

4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.

5. Payment may only be made after the delivery and acceptance of goods or services.

6. Interest may be paid for late payment in accordance with the ***West Virginia Code.***

7. Vendor preference will be granted upon written request in accordance with the ***West Virginia Code.***

8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.

10. The laws of the State of West Virginia and the ***Legislative Rules*** of the Purchasing Division shall govern the purchasing process.

11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.

12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.

13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at www.state.wv.us/admin/purchase/vrc/hipaa.html and is hereby made part of the agreement provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

14. **CONFIDENTIALITY:** The vendor agrees that he or she 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 http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf.

15. **LICENSING:** Vendors 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, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will 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 the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or Fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

## INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.

2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as EQUAL to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.

3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.

4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130

5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).

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DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON STREET, EAST
CHARLESTON, WV. 25305
FAX: 304.558.4115
EMAIL: GUY.L.NISBET@WV.GOV

EXHIBIT 3

LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE ON AWARD..... AND EXTENDS FOR A PERIOD OF ONE (1 YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS WRITTEN NOTICE.

UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE IN THIS CONTRACT DOCUMENT, THE TERMS, CONDITIONS AND PRICING SET HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT.

RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS.

CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICE

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

| SIGNATURE | TELEPHONE | DATE |
|---|---|---|
| | 304-757-8954 | 02-01-12 |

| TITLE | FEIN | ADDRESS CHANGES TO BE NOTED ABOVE |
|---|---|---|
| President | 55-0732395 | |

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

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SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.

OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANSPORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME OF WORK.)

QUANTITIES: QUANTITIES LISTED IN THE REQUISITION ARE APPROXIMATIONS ONLY, BASED ON ESTIMATES SUPPLIED BY THE STATE SPENDING UNIT. 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.

ORDERING PROCEDURE: SPENDING UNIT(S) SHALL ISSUE A WRITTEN STATE CONTRACT ORDER (FORM NUMBER WV-39) TO THE VENDOR FOR COMMODITIES COVERED BY THIS CONTRACT. THE ORIGINAL COPY OF THE WV-39 SHALL BE MAILED TO THE VENDOR AS AUTHORIZATION FOR SHIPMENT, A SECOND COPY MAILED TO THE PURCHASING DIVISION, AND A THIRD COPY RETAINED BY THE SPENDING UNIT.

BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.

THE TERMS AND CONDITIONS CONTAINED IN THIS CONTRACT SHALL SUPERSEDE ANY AND ALL SUBSEQUENT TERMS AND CONDITIONS WHICH MAY APPEAR ON ANY ATTACHED PRINTED DOCUMENTS SUCH AS PRICE LISTS, ORDER FORMS, SALES

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

| SIGNATURE | TELEPHONE | DATE |
|---|---|---|
| | 304 757 8954 | 02-01-12 |

| TITLE | FEIN | ADDRESS CHANGES TO BE NOTED ABOVE |
|---|---|---|
| President | 55-0732395 | |

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AGREEMENTS OR MAINTENANCE AGREEMENTS, INCLUDING ANY ELECTRONIC MEDIUM SUCH AS CD-ROM.

REV. 05/26/2009

EXHIBIT 10

REQUISITION NO.: DEP15706....

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NO.'S:

NO. 1 ...NA...

NO. 2 ...NA...

NO. 3 ...NA...

NO. 4 ...NA...

NO. 5 ...NA...

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.

VENDOR MUST CLEARLY 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.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

| SIGNATURE | TELEPHONE | DATE |
|---|---|---|
| [signature] | 304-757-8954 | 02-01-12 |

| TITLE | FEIN | ADDRESS CHANGES TO BE NOTED ABOVE |
|---|---|---|
| President | 55-0732395 | |

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|---|---|---|---|---|---|---|

SIGNATURE

Bio-Chem Testing Inc.
COMPANY

02-01-12
DATE

NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTED WITH THE BID.

REV. 09/21/2009

PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINI CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE AGENCY AS A CONDITION OF AWARD.

NOTICE

A SIGNED BID MUST BE SUBMITTED TO:

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

| SIGNATURE | TELEPHONE | DATE |
|---|---|---|
| | 304 757 8954 | 02-01-12 |
| TITLE President | FEIN 55-0732395 | ADDRESS CHANGES TO BE NOTED ABOVE |

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THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:

SEALED BID

BUYER:----------GN----------

RFQ. NO.:----------DEP15706----------

BID OPENING DATE:----------02/02/2012----------

BID OPENING TIME:----------1:30PM----------

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:

---------- 304-757-9676 ----------

CONTACT PERSON (PLEASE PRINT CLEARLY):

---------- Mukesh Shah ----------

****** THIS IS THE END OF RFQ DEP15706 ****** TOTAL: $81059

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE [signature] TELEPHONE 304 757 8954 DATE 02-01-12

TITLE President FEIN 55-0732395 ADDRESS CHANGES TO BE NOTED ABOVE

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AREA OF WORK

Bids should be submitted by vendors in connection with the costs associated with collection from all Department of Environmental Protection (DEP) offices as listed herein. **DEP reserves the right to make multiple awards based on the need to have vendors located throughout the state in close proximity to the various DEP offices.** Up to five (5) vendors will be selected.

Bidding should be done for every method as a whole and for each analyte within a specific method. Prices should also be given for liquid samples and solid /tissue samples.

QUALIFICATIONS

The DEP conducts inspections of permitted and non-permitted facilities, investigates complaints, monitors ambient quality of surface water, groundwater and sediments, performs studies, and provides water quality information to the citizens of West Virginia and other government agencies. Legal action based upon analytic results is possible. Therefore, the vendor or vendors selected must have a quality control program in place and meet the following qualifications:

1. Chemist on staff experienced in organic water/soil analysis and its interpretation.
2. The laboratory must be certified by the Water Resources Quality Assurance Program. This includes any laboratories to which analyses are subcontracted.
3. Be accessible by telephone **24 hours per day, 7 days per week.**
4. Capable of attending and providing expert testimony in legal proceeding, upon request.
5. **Proof of certification and staff chemist(s) resume(s) must be provided at the time of bid.**

SCOPE

In administering and enforcing most of the pollution control laws of the state, the importance of quality control cannot be overstated. Quality control measures must be strictly adhered to in all phases of sample collection, preservation, transportation, and analysis. The quality control and analytical work, as they relate to the contractor's responsibility, is divided into four (4) major steps:

STEP 1 - Collection of sample from specified office.
STEP 2 - Conduct specified analysis on samples in a timely and professional manner.
STEP 3 - Establishment of continuing program to ensure the reliability of analytical data.
STEP 4 - Legal Testimony

**Step 1 - Collection of Samples from Specified Office**

The sampling for the DEP shall be conducted by Department personnel. The vendor shall be notified of the date sampling occurs /is to occur and from which DEP office the sample can be obtained. The vendor shall be notified when the sample was taken (time/date) and the person who collected the sample. The vendor shall be responsible for obtaining the sample from the specified office and delivery of sample to the laboratory within 24 hours from the time of sampling. The vendor shall indicate the time the sample was obtained from the specified office and its condition and the time the sample was delivered to the laboratory. The vendor shall be responsible for holding times, preservation of the sample and the internal chain of custody from the time the vendor obtained the sample until the time the analysis is accepted by the Department. The vendor shall also maintain records of the results of analysis for a minimum of five (5) years. If samples are to be shipped to the vendor by mail courier, then the vendor shall supply all shipping containers, labels and shall cover all costs of shipping from the sample location or from any WV/DEP office.

**Step 2 - Conduct Specified Analysis on Samples**

The methods used by the laboratory for the analysis shall be either **1)** Methods described in 40 CFR-136 for organic analysis and Standard Methods for the Examination of Water and Waste Water, current edition, but must be an approved method per 40 CFR Part 36 or **2)** Test Methods for Evaluating Solid Waste - Physical/Chemical Methods (SW-846) Third Edition, with updates. The sampler shall be responsible for specifying either 1 or 2 above, and in the event the method is not specified, Method 1 shall be used.

In the event a compound is requested by a method which has greater than ten compounds in the compound list, any compounds detected at or above three times the PQL, in addition to the requested compound, shall be reported and invoiced as individual compounds up to a maximum of ten compounds total. If ten or more compounds are detected and reported, the total list cost will be in effect.

Analysis of samples is not deemed completed until the data has been submitted to and accepted by DEP. Should the DEP not provide notice of acceptance within four weeks of the date results were mailed, the vendor may consider the data to be acceptable by the Department. The vendor shall be responsible for maintaining preservation of the samples until the holding time is exceeded. Any samples with a sheen, discoloration or odor shall be maintained by the vendor until DEP's notification that the sample can be properly disposed of. DEP will advise the vendor which samples fall into this category. The vendor shall be responsible for the proper disposal of all samples submitted to them by the DEP unless otherwise notified. The vendor shall dispose of the sample no earlier that four weeks after DEP accepts the results. The results of the analysis shall be submitted to the DEP no more that two (2) weeks after receipt of samples.

**Step 3 - Quality Control**

Three programs are to be utilized to assure reliable laboratory data: (1) the use and documentation of standard analytical methods, (2) analysis of duplicate and spiked (where the concept applies) samples at regular intervals each day to check analytical precision and accuracy,

and (3) analysis of reference samples a 6 (six) month intervals*. Regardless of which analytical methods are used in a laboratory, the methodology must be carefully documented. Standard methods which have been modified or entirely replaced because of recent advances in the state of art may only be used when it has been given approval in the Federal Register. Documentation of procedures must be clear, honest, and adequately referenced; and the procedures shall be applied exactly as documented. The responsibility for results obtained from these procedures rests with the analyst and supervisor, both as representatives of the firm.

All testing must be conducted using approved methods: (1) 40-CFR-136, Organic test Methods for NPDES samples or 2) SW-846 Methods for all other samples. Where an NPDES method is not available, the laboratory may substitute an SW-846 method. The laboratory will be advised as to the type of sample being tested so that the proper test methods may be applied.

Further, the laboratory may substitute capillary column technology for packed column technology for NPDES test methods.

To check the laboratory analytical precision, duplicate analysis of samples shall be performed at regular intervals. Duplicate samples must be carried through the complete analytical process. For all analyses, the interval shall be every tenth (10th) sample. When less than ten (10) samples are tested in one day, at least one duplicate sample shall be analyzed, and that sample must be a DEP sample. The difference between the replicates for each analysis are to be plotted on Shewart precision quality control charts. "Out-of -Control" samples are to be repeated and appropriate steps shall be taken to locate and remedy the error.

To check the laboratory analytical accuracy, samples containing a known addition of the target analyte (spike) shall be analyzed at regular intervals. Spiked samples must be carried through the complete analytical process. For all analyses, the interval shall be every tenth (10th) sample. Where less than ten samples are tested in one day, at least one spiked sample shall be analyzed, and that sample must be a DEP sample. The percent recovery must be plotted out on Shewart accuracy quality control charts. "Out of Control" samples are to be repeated and appropriate steps taken to locate and remedy the source of error.

Periodic submission of samples with known composition will occur. No notice of this activity will be provided unless results indicate an anomaly.

*These analyses shall be conducted under the vendor's performance evaluation test number through the Analytical Products Group.

**Practical Quantitation Limits**

PQLs have been listed where possible and is defined as the lowest concentration of analytes that can be reliably determined within specified limits of precision and accuracy by a particular method under routine laboratory conditions. If the PQL for a particular method is higher value than the regulatory limit for that parameter, then an alternate method with a PQL lower that the regulatory limit shall be used. The laboratory shall provide DEP with one complete set of PQLs and Method Detection Limits upon being awarded the contract. If a certain PQL is desired by the sampler, the laboratory may substitute the requested method with another method that meets the necessary PQL upon approval of the sampler.

**Step 4 - Legal Testimony**

The selected vendor or vendors may be requested by the DEP to testify concerning the validity of the laboratory analysis. The vendor will only be required to testify to the following areas:

1. Time of notification by Department of sampling and by whom.
2. When and where samples were collected by the firm.
3. Condition of sample.
4. How sample was preserved by the firm.
5. Date and time(s) of analysis and by whom.
6. Chain of Custody procedures within the laboratory
7. Methods used.
8. Results of analysis.

At no time will the firm respond to questions concerning interpretation of results. The Department shall reimburse the vendor for the costs of any such testimony. The vendor must provide a detailed invoice of actual costs incurred.

## PRIME VENDOR RESPONSIBILITIES

A vendor who is awarded a contract, when performing work under the terms and conditions of this contract, is solely responsible for the satisfactory completion of the work. The vendor shall be responsible for ensuring that any subcontractor have all the necessary permits, certifications (including WV State Laboratory Certification) and insurance to perform the work. DEP will consider the prime vendor to be the sole point of contact with regard to authorized work under the contract.

## SUBCONTRACTORS

The prime vendor shall not be allowed to subcontract any work or services under this contract to any other person, company, corporation, firm, organization or agency without prior written approval of the DEP.

## CONFIDENTIALITY

The vendor agrees that any and all data, analyses, materials, reports or other information, oral or written, prepared by the vendor with respect to this requisition shall, except for information which has been made publicly available, be treated as confidential and shall not be utilized, released, published, or disclosed, by the vendor at any time for any purpose whatsoever other than to provide consultation or other service to DEP.

## MISCELLANEOUS PROVISIONS

1. All analytical data submitted to DEP must be reported in MDLs, not PQLs.

2. The vendor shall provide necessary sample containers and field preservatives to the WV/DEP if requested by the Department.

3. The DEP may, at their discretion, choose to deliver samples to the vendor's establishment rather than having them picked up by or delivered to the vendor.

4. If samples are to be shipped to the vendor by mail courier, then the vendor shall supply all shipping containers, labels and shall cover all costs of shipping from the sample location or from any WV/DEP office.

5. Upon awarding the contract, the vendor shall provide one copy of the method detection limits (MDLs) for all analytes for which the contract is awarded. Any updates to the MDLs during the life of this contract shall be provided to the DEP, in writing, within one week of the update(s) completion.

6. The vendor shall provide at no additional cost, any requested quality control/calibration information associated with a particular sample. Quality control/calibration information includes but is not limited to: values of standards used in calibration, date of last calibration, correlation coefficients of calibrations curves, instrument blank values, check standard values, spike/recovery values, duplicate values, dilution volumes, bench sheets, calculations and Shewart quality control charts.

7. Notice of any changes to the vendor's certification status with regard to any of the parameters that the vendor is certified to analyze for, must be submitted to DEP, in writing, within ten (10) days of the time of status change.

8. The laboratory will provide blank water to the DEP, at no charge, upon request.

9. Should MDLs lower than those listed on the contract be available, the Vendor shall provide these lower detection levels when conducting analyses.

10. If requested on the Chain of Custody, soil sample analytical results shall be reported on a dry-weight basis.

**Quality Control Deliverables**

Level I Contents
Laboratory Analysis Reports
Chain of Custody Form

Level II Contents
Laboratory Analysis reports
Case Narrative
Chain of Custody Form
Initial Calibration summaries, CLP Form 6
Continuing Calibration Verification summaries, CLP Form 7
Raw method blank data
Matrix Spike/Matrix Spike Duplicate Summary (MS/MSD), CLP form 3
Surrogate Summary, CLP Form 2
Raw Sample data

Level III Contents, Organic
- Laboratory Analysis reports
- Chain of Custody Form
- Case Narrative
- Retention Time Summary (if applicable)
- Extraction Logs (if applicable)
- Analytical Run Logs
- MS Tuning Summary, CLP form 5 (if applicable)
- Initial Calibration Summaries, CLP Form 6
- Continuing Calibration Verification Summaries, CLP Form 7
- Method Blank Summary, CLP Form 4
- Raw method blank data
- Matrix Spike/Matrix Spike Duplicate Summary (MS/MSD), CLP form 3
- Surrogate Summary, CLP Form 2 (if applicable)
- Internal Standard Summary, CLP form 8 (if applicable)
- All associated Raw QC data, including calibrations
- Form 1 results Summaries for samples and blanks
- Raw Sample data
- MDL Statements
- Electronic Date Deliverable

Level IV (Inorganic/Metals)
- Laboratory Analysis reports
- Chain of Custody Form
- Case Narrative
- Analysis Data Sheet, CLP form 1
- Initial and continuing Calibration Verification, CLP Form II, Part 1
- CRDL Standard for AA and ICP, CLP Form II , Part 2
- Blanks, CLP Form III
- ICP Interference Check Sample, CLP Form IV
- Spike Sample Recovery, CLP Form V, Part 1
- Post Digest Spike Sample Recovery, CLP Form V, Part 2
- Duplicates, CLP Form VI
- Laboratory Control Sample, CLP Form VII
- Standard Addition Results, CLP Form VIII
- ICP Serial Dilutions, CLP Form IX
- Preparation Logs, CLP Form XIII
- Analysis Run Logs, CLP Form XIV
- All associated raw data
- MDL statements
- Electronic Date Deliverable

## Parameters detected with EPA 600 Series Organic Analyses

| Method 601, Purgeable Halocarbons | MDLs | SOLID |
|---|---|---|
| Bromodichloroethane | 1.0 ug/l | |
| Bromoform | 1.0 ug/l | |
| Bromomethane | 1.0 ug/l | |
| Carbon Tetrachloride | 1.0 ug/l | |
| Chlorobenzene | 1.0 ug/l | |
| Chloroethane | 1.0 ug/l | |
| 2-Chloroethylvinyl ether | 1.0 ug/l | |
| Chloroform | 1.0 ug/l | |
| Chloromethane | 1.0 ug/l | |
| Dibromochloromethane | 1.0 ug/l | |
| 1,2-Dichlorobenzene | 1.0 ug/l | |
| 1,3-Dichlorobenzene | 1.0 ug/l | |
| 1,4-Dichlorobenzene | 1.0 ug/l | |
| Dichlorodifluoromethane | | |
| 1,1-Dichloroethane | 1.0 ug/l | |
| 1,2-Dichloroethane | 1.0 ug/l | |
| trans-1,2-Dichloroethene | 1.0 ug/l | |
| 1,2-Dichloropropane | 1.0 ug/l | |
| cis-1,3-Dichloropropene | 1.0 ug/l | |
| trans-1,3-Dichloropropene | 1.0 ug/l | |
| Methylene chloride | 1.0 ug/l | |
| 1,1,2,2-Tetrachloroethane | 1.0 ug/l | |
| Tetrachloroethene | 1.0 ug/l | |
| 1,1,1-Trichloroethane | 1.0 ug/l | |
| 1,1,2-Trichloroethane | 1.0 ug/l | |
| Tetrachloroethylene | 1.0 ug/l | |
| Trichlorofluoromethane | 1.0 ug/l | |
| Vinyl Chloride | 1.0 ug/l | |
| 1,1-Dichloroethene | 1.0 ug/l | |
| Full Suite | | |

| Method 602, Purgeable Aromatics | MDLs | SOLID |
|---|---|---|
| Benzene | 1.0 ug/l | |
| Chlorobenzene | 1.0 ug/l | |
| 1,2-Dichlorobenzene | 1.0 ug/l | |
| 1,3-Dichlorobenzene | 1.0 ug/l | |
| 1,4-Dichlorobenzene | 1.0 ug/l | |
| Ethylbenzene | 1.0 ug/l | |
| Toluene | 1.0 ug/l | |

| Method 603, Acrolein and Acrylonitrile | MDLs | SOLID |
|---|---|---|
| Acrylonitrile | | |
| Acrolein | | |

| Method 604, Phenols | MDLs | SOLID |
|---|---|---|
| 4-Chloro-3-methylphenol | | |
| 2-Chlorophenol | | |
| 2,4-Dichlorophenol | | |
| 2,4-Dimethylphenol | | |
| 2,4-Dinitrophenol | | |
| 2-Methyl-4,6-dinitrophenol | | |
| 2-Nitrophenol | | |
| 4-Nitrophenol | | |
| Pentachlorophenol | | |
| Phenol | | |
| 2,4,6-Trichlorophenol | | |

| Method 605, Benzidines | MDLs | SOLID |
|---|---|---|
| Benzidines | | |
| 3,3'-Dichlorobenzidine | | |

| Method 606 Phthalate Esters | MDLs | SOLID |
|---|---|---|
| Bis(2-ethylhexyl) phthalate | | |
| Butyl benzyl phthalate | | |
| Di-n-butyl phthalate | | |
| Diethyl phthalate | | |
| Dimethyl phthalate | | |
| Di-n-octyl phthalate | | |

| Method 607, Nitrosamines | MDLs | SOLID |
|---|---|---|
| N-Nitrosodimethylamine | | |
| N-Nitrosodiphenylamine | | |
| N-Nitrosodi-n-propylamine | | |

| Method 608, Organochlorine Pesticides and PCBs | MDLs | SOLID |
|---|---|---|
| Aldrin | 0.3 ug/l | |
| α -BHC | 0.3 ug/l | |
| β -BHC | 0.3 ug/l | |
| δ -BHC | 0.3 ug/l | |
| γ -BHC | 0.3 ug/l | |
| Chlorodane | 0.5 ug/l | |
| 4,4'-DDD | 0.3 ug/l | |
| 4,4'-DDE | 0.3 ug/l | |
| 4,4'-DDT | 0.3 ug/l | |
| Dieldrin | 0.3 ug/l | |
| Endosulfan I | 0.3 ug/l | |
| Endosulfan II | 0.3 ug/l | |

**Method 608, Organochlorine Pesticides and PCBs continued**

| | MDLs | SOLID |
|---|---|---|
| Endosulfan sulfate | 0.5 ug/l | |
| Eldrin | 0.5 ug/l | |
| Endrin aldehyde | 0.5 ug/l | |
| Heptacholr | 0.5 ug/l | |
| Heptachlor epoxide | 0.3 ug/l | |
| Toxaphene | 1.5 ug/l | |
| PCB-1016 | 0.5 ug/l | |
| PCB-1221 | 0.5 ug/l | |
| PCB-1232 | 0.5 ug/l | |
| PCB-1242 | 0.5 ug/l | |
| PCB-1248 | 0.5 ug/l | |
| PCB-1254 | 0.5 ug/l | |
| PCB-I260 | 0.5 ug/l | |

**Method 609, Nitroaromatics and Isophorone**

| | MDLs | SOLID |
|---|---|---|
| 2,4-Dinitrotoluene | | |
| 2,6-Dinitrotoluene | | |
| Isophorone | | |
| Nitrobenzene | | |

**Method 610, Polynuclear Aromatic Hydrocarbons**

| | MDLs | SOLID |
|---|---|---|
| Acenaphthene | 10 ug/l | |
| Acenaphthylene | 10 ug/l | |
| Anthracene | 10 ug/l | |
| Benzo(a)anthracene | 10 ug/l | |
| Benzo(a)pyrene | 10 ug/l | |
| Benzo(b)fluoranthene | 10 ug/l | |
| Benzo(ghi)perylene | 10 ug/l | |
| Benzo(k)fluoranthene | 10 ug/l | |
| Chrysene | 10 ug/l | |
| Dibenzo(a,h)anthracene | 10 ug/l | |
| Fluoranthene | 10 ug/l | |
| Fluorene | 10 ug/l | |
| Indeno(1,2,3-cd)pyrene | 10 ug/l | |
| Naphthalene | 10 ug/l | |
| Phenanthrene | 10 ug/l | |
| Pyrene | 10 ug/l | |

| **Method 611, Haloethers** | **MDLs** | **SOLID** |
|---|---|---|
| Bis(2-chloroethyl) ether | | |
| Bis(2-chloroethoxy) methane | | |
| Bis(2-chloroisopropyl) ether | | |
| 4-Bromophenyl phenyl ether | | |
| 4-Chlorophenyl phenyl ether | | |

**Method 612, Chlorinated Hydrocarbons continued**

| | MDLs | SOLID |
|---|---|---|
| 2-Chloronaphthalene | | |
| 1,2-Dichlorobenzene | | |
| 1,3-Dichlorobenzene | | |
| 1,4-Dichlorobenzene | | |
| Hexachlorobenzene | | |
| Hexachlorobutadiene | | |
| Hexachlorocyclopentadiene | | |
| Hexachloroethane | | |
| 1,2,4-Trichlorobenzene | | |

**Method 613 2,3,7,8-Tetrachlorldibenzo-P-dioxin**

| | MDLs | SOLID |
|---|---|---|
| 2,3,7,8-Tetrachlorldibenzo-P-dioxin | | |

**Method 613 Tetra-through Octa-Chlorinated Dibenzo-P-dioxins (CDDs) and Dibenzofurans (CDFs)**

**Method 624, Purgeables**

| | MDLs | SOLID |
|---|---|---|
| Benzene | 10 ug/l | |
| Bromodichloromethane | 10 ug/l | |
| Bromoform | 10 ug/l | |
| Bromomethane | 10 ug/l | |
| Carbon Tetrachloride | 10 ug/l | |
| Chlorobenzene | 10 ug/l | |
| Chloroethane | 10 ug/l | |
| 2-Chloroethylvinyl ether | 20 ug/l | |
| Chloroform | 10 ug/l | |
| Chloromethane | 10 ug/l | |
| Dibromochloromethane | 10 ug/l | |
| 1,2-Dichlorobenzene | 10 ug/l | |
| 1.3-Dichlorobenzene | 10 ug/l | |
| 1,4-Dichlorobenzene | 10 ug/l | |
| 1,1-Dichloroethane | 10 ug/l | |
| 1,2-Dichloroethane | 10 ug/l | |
| trans-1,2-Dichloroethene | 10 ug/l | |
| 1,2-Dichloropropane | 10 ug/l | |
| cis-1,3-Dichloropropene | 10 ug/l | |
| trans-1,3-Dichloropropene | 10 ug/l | |
| Ethyl benzene | 10 ug/l | |
| Methylene chloride | 10 ug/l | |
| 1,1,2,2-Tetrachloroethane | 10 ug/l | |
| Tetrachloroethene | 10 ug/l | |
| Toluene | 10 ug/l | |
| 1,1,1-Trichloroethene | 10 ug/l | |

**Method 624, Purgeables continued**

| | MDLs | SOLID |
|---|---|---|
| 1,1,2-Trichloroethene | 10 ug/l | |
| Trichlorethane | 10 ug/l | |
| Trichlorofluoromethane | 10 ug/l | |
| Vinyl chloride | 10 ug/l | |
| 1,1-Dichloroethene | 10 ug/l | |

**Method 625, Base/Neutrals Extractables**

| | MDLs | SOLID |
|---|---|---|
| Acenaphthene | 10 ug/l | |
| Acenaphthylene | 10 ug/l | |
| Anthracene | 10 ug/l | |
| Aldrin | 10 ug/l | |
| Benzo(a)anthracene | | |
| Benzo(b)fluoranthene | 10 ug/l | |
| Benzo(k)fluoranthene | 10 ug/l | |
| Benzo(a)pyrene | 10 ug/l | |
| Benzo(ghi)perylene | 20 ug/l | |
| Benzyl butyl phthalate | 10 ug/l | |
| 3 -BHC | | |
| δ -BHC | | |
| Bis(2-chloroethyl) ether | 10 ug/l | |
| Bis(2-chloroethoxy) methane | 10 ug/l | |
| Bis(2-ethylhexyl) phthalate | | |
| Bis(2-chloroisopropyl) ether | 10 ug/l | |
| 4-Bromophenyl phenyl ether | 10 ug/l | |
| Chlordane | | |
| 2-chloronaphthalene | 10 ug/l | |
| 4-chlorophenyl phenyl ether | | |
| Chrysene | 10 ug/l | |
| 4,4'-DDD | | |
| 4,4'-DDE | | |
| 4,4'-DDT | | |
| Dibenzo(a,h) anthracene | 20 ug/l | |
| Di-n-butlyphthalate | 10 ug/l | |
| 1,2-Dichlorobenzene | 10 ug/l | |
| 1,3-Dichlorobenzene | 10 ug/l | |
| 1,4-Dichlorobenzene | 10 ug/l | |
| 3,3'-dichlorobenzidine | 50 ug/l | |
| Dieldrin | | |
| Diethyl phthalate | 10 ug/l | |
| Dimethyl phthalate | 10 ug/l | |
| 2,4-dinitrotoluene | 10 ug/l | |
| 2,6-dinitrotoluene | 10 ug/l | |
| Di-n-octylphthalate | 10 ug/l | |
| Endosulfan sulfate | | |
| Endrin aldehyde | | |

**Method 625, Base/Neutrals Extractables continued**

| | MDLs | SOLID |
|---|---|---|
| Fluoranthene | 10 ug/l | |
| Fluorene | 10 ug/l | |
| Heptachlor | | |
| Heptchlor epoxide | | |
| Hexachlorobenzene | | |
| Hexachlorobutadiene | 10 ug/l | |
| Hexachloroethane | 10 ug/l | |
| Indeno(1,2,3-cd) pyrene | 10 ug/l | |
| Isophorone | | |
| Naphthalene | 10 ug/l | |
| Nitrobenzene | 10 ug/l | |
| N-nitrosodi-n-propylamine | 10 ug/l | |
| PCB-1016 | | |
| PCB-1221 | | |
| PCB-1232 | | |
| PCB-1242 | | |
| PCB-1248 | | |
| PCB-1254 | | |
| PCB-1260 | | |
| Phenanthrene | 10 ug/l | |
| Pyrene | 10 ug/l | |
| Toxaphene | | |
| 1,2,4-trichlorobenzene | 10 ug/l | |

**625 Acid Extractables**

| | MDLs | SOLID |
|---|---|---|
| 4-chloro-3-methylphenol | | |
| 2-chlorophenol | | |
| 2,4-Dichlorophenol | | |
| 2,4-Dimethylphenol | | |
| 2,4-dintrophenol | | |
| 2-methyl-4,6-dinitrophenol | | |
| 2-nitrophenol | | |
| 4-nitrophenol | | |
| Pentachlorophenol | | |
| Phenol | | |
| 2,4,6-trichlorophenol | | |

**METHOD 8015B**

| | MDLs | SOLID |
|---|---|---|
| Acetone | 10 ug/l | |
| Acetonitrile | 10 ug/l | |
| Acrolein | 10 ug/l | |
| Acrylonitrile | 10 ug/l | |
| Allyl alcohol | 10 ug/l | |
| 1-Butanol (n-Butyl alcohol) | 10 ug/l | |

**Method 8015B continued**

| | MDLs | SOLID |
|---|---|---|
| t-Butyl alcohol | 10 ug/l | |
| 2-Chloroacylonitrile | 10 ug/l | |
| 2-Chloroethyl vinyl ether | 10 ug/l | |
| Crotonaldehyde | 10 ug/l | |
| Diethyl ether | 10 ug/l | |
| 1,4-Dioxane | 10 ug/l | |
| Epichlorohydrin | 10 ug/l | |
| Ethanol | 10 ug/l | |
| Ethyl acetate | 10 ug/l | |
| Ethyl glycol | 10 ug/l | |
| Ethylene oxide | 10 ug/l | |
| Hexafluoro-2-propanol (I.S.) | 10 ug/l | |
| Hexafluoro-2-methyl 2-propanol (I.S.) | 10 ug/l | |
| Isobutyl alcohol | 10 ug/l | |
| Isopropyl alcohol | 10 ug/l | |
| Methanol | 10 ug/l | |
| Methyl ethyl ketone (MEK) | 10 ug/l | |
| Methyl isobutyl ketone (MIBK) | 10 ug/l | |
| N-Nitroso-di-n-butylamine | 10 ug/l | |
| Paraldehyde | 10 ug/l | |
| 2-Pentanone | 10 ug/l | |
| 2-Picoline | 10 ug/l | |
| 1-Propanol | 10 ug/l | |
| Propionitrile | 10/ug/l | |
| DRO | 10/ug/l | |
| GRO | 10/ug/l | |
| ORO | 10/ug/l | |

**METHOD 8041 Phenols by GC**

| | MDLs | SOLID |
|---|---|---|
| 4-Chloro-3-metyhlphenol | | |
| 2-Chlorophenol | | |
| 2-Cyclohexyl-4,6-dinitrophenol | | |
| 2,4-Dichlorophenol | | |
| 2,6-Dichlorophenol | | |
| 2,4-Dimethylphenol | | |
| Dinoseb (DNBP) | | |
| 2,4-Dintrophenol | | |
| 2-Methyl-4,6-dinitrophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 3-Methylphenol (m-Cresol) | | |
| 4-Methylphenol (p-Cresol) | | |
| 2-Nitrophenol | | |
| 4-Nitrophenol | | |
| Pentachlorophenol | | |

**Method 8041 Phenols by GC continued**

| | MDLs | SOLID |
|---|---|---|
| Phenol | | |
| 2,3,4,5-Tetrachlorophenol | | |
| 2,3,4,6-Tetrachlorophenol | | |
| 2,3,5,6-Tetrachlorophenol | | |
| 2,4,5-Trichlorophenol | | |
| 2,4,6-Trichlorophenol | | |
| 2-Chloro-5-methylphenol | | |
| 4-chloro-2-methylphenol | | |
| 3-Chlorophenol | | |
| 4-Chlorophenol | | |
| 2,3-Dichlorophenol | | |
| 2,5-Dichlorophenol | | |
| 3,4-Dichlorophenol | | |
| 3,5-dichlorophenol | | |
| 2,3-Dimethylphenol | | |
| 2,5-Dimethylphenol | | |
| 2,6-Dimethylphenol | | |
| 3,4-Dimethylphenol | | |
| 2,5-Dinitrophenol | | |
| 3-Nitrophenol | | |
| 2,3,4-Trichlorophenol | | |
| 2,3,5-Trichlorophenol | | |
| 2,3,6-Trichlorophenol | | |

**METHOD 8100 Polynuclear Aromatic Hydrocarbons**

| | MDLs | SOLID |
|---|---|---|
| Acenaphthene | | |
| Acenaphthylene | | |
| Anthracene | | |
| Benzo(a)anthracene | | |
| Benzo(a)pyrene | | |
| Benzo(b)fluoranthene | | |
| Benzo(j)fluoranthene | | |
| Benzo(k)fluoranthene | | |
| Benzo(ghi)perylene | | |
| Chrysene | | |
| Dibenz(a,h,)acridine | | |
| Dibenz(a,j)acrodome | | |
| Dibenzo(a,h)anthracene | | |
| 7H-Dibenzo(c,g)carbazole | | |
| Dibenzo(a,e)pyrene | | |
| Dibenzo(a,h)pyrene | | |
| Dibenzo(a,1)pyrene | | |
| Fluoranthene | | |
| Fluorene | | |

**Method 8100 Polynuclear Aromatic Hydrocarbons continued**

| | MDLs | SOLID |
|---|---|---|
| Indo(1,2,3-cd)pyrene | | |
| 3-Methhylcholanthrene | | |
| Naphthalene | | |
| Phenanthrene | | |
| Pyrene | | |

**METHOD 8121, Chlorinated Hydrocarbons**

| | MDLs | SOLID |
|---|---|---|
| Benzal chloride | 10ug/l | |
| Benzotrichloride | 10ug/l | |
| Benzyl chloride | 10ug/l | |
| 2-Chloronaphthalene | 10ug/l | |
| 1,2-Dichlorobenzene | 10ug/l | |
| 1,3-Dichlorobenzene | 10ug/l | |
| 1,4-Dichlorobenzene | 10ug/l | |
| Hexachlorobenzene | 10ug/l | |
| Hexachlorobutadiene | 10ug/l | |
| α-Hexachlorocyclohexane (α-BHC) | 10ug/l | |
| β-Hexachlorocyclohexane (β-BHC) | 10ug/l | |
| γ-Hexachlorocyclohexane (γ-BHC) | 10ug/l | |
| δ-Hexachlorocyclohexane (δ-BHC) | 10ug/l | |
| Hexachlorocyclopentadiene | 10ug/l | |
| Hexachloroethane | 10ug/l | |
| Pentachlorobenzene | 10ug/l | |
| 1,2,3,4-Tetrachlorobenzene | 10ug/l | |
| 1,2,3,5-Tetrachlorobenzene | 10ug/l | |
| 1,2,4,5-Tetrachlorobenzene | 10ug/l | |
| 1,2,4-Trichlorobenzene | 10ug/l | |
| 1,2,3,-Trichlorobenzene | 10ug/l | |
| 1,3,5-Trichlorobenzene | 10ug/l | |

**METHOD 8151A, Chlorinated Herbicides**

| | MDLs | SOLID |
|---|---|---|
| 2,4-D | | |
| 2,4-DB | | |
| 2,4,5-TP(Silvex) | | |
| 2,4,5-T | | |
| Dalapon | | |
| Dicamba | | |
| Dichloroprop | | |
| Dinoseb | | |
| MCPA | | |
| MCPP | | |
| 4-Nitrophenol | | |
| Pentachlorophenol | | |
| Aciflouorfen | | |

**Method 8151A, Chlorinated Herbicides continued**

| | MDLs | SOLID |
|---|---|---|
| Bentazon | | |
| Chloramben | | |
| DCPA diacid | | |
| 3,5-Dichlorobenzoic Acid | | |
| 5-Hydroxydicamba | | |
| Picloram | | |

**METHOD 8260**

| | MDLs | SOLID |
|---|---|---|
| Acetone | 10 ug/l | |
| Acetonitrile | 10 ug/l | |
| Acrolein (Propenal) | 10 ug/l | |
| Acrylonitrile | 10 ug/l | |
| Allyl alcohol | 10 ug/l | |
| Allyl chloride | 10 ug/l | |
| Benzene | 10 ug/l | |
| Benzyl chloride | 10 ug/l | |
| Bis(2-chloroethyl)sulfide | 10 ug/l | |
| Bromoacetone | 10 ug/l | |
| Bromochloromethane | 10 ug/l | |
| Bromodichloromethane | 10 ug/l | |
| 4-Bromofluorobenzene | 10 ug/l | |
| Bromoform | 10 ug/l | |
| Bromomethane | 10 ug/l | |
| n-Butanol | 10 ug/l | |
| 2-Butanone (MEK) | 10 ug/l | |
| t-Butylalcohol | 10 ug/l | |
| Carbon disulfide | 10 ug/l | |
| Carbon tetrachloride | 10 ug/l | |
| Chloral hydrate | 10 ug/l | |
| Chlorobenzene | 10 ug/l | |
| Chlorodibromomethane | 10 ug/l | |
| Chloroethane | 10 ug/l | |
| 2-Chloroethanol | 10 ug/l | |
| 2-Chloroethyl vinyl ether | 10 ug/l | |
| Chloroform | 10 ug/l | |
| Chloromethane | 10 ug/l | |
| Chloroprene | 10 ug/l | |
| 3-Chloropropionitrile | 10 ug/l | |
| Crotonaldehyde | 10 ug/l | |
| 1,2-Dibromo-3-chloropropane | 10 ug/l | |
| 1,2-Dibromoethane | 10 ug/l | |
| Dibromomethane | 10 ug/l | |
| 1,2-Dichlorobenzene | 10 ug/l | |
| 1,3-Dichlorobenzene | 10 ug/l | |
| 1,4-Dicholorbenzene | 10 ug/l | |

**METHOD 8260 continued**

| | MDLs | SOLID |
|---|---|---|
| cis-1,4-Dichloro-2-butene | 10 ug/l | |
| trans-1,4-Dichloro-2-butene | 10 ug/l | |
| Dichlorodifluoromethane | 10 ug/l | |
| 1,1-Dichloroethane | 10 ug/l | |
| 1,2-Dichloroethane | 10 ug/l | |
| 1,1-Dichloroethene | 10 ug/l | |
| trans-1,2-Dichloroethene | 10 ug/l | |
| 1,2-Dichloropropane | 10 ug/l | |
| 1,3-Dichloro-2-propanol | 10 ug/l | |
| cis-1,3-Dicholopropene | 10 ug/l | |
| trans-1,3-Dicholoropropene | 10 ug/l | |
| 1,2,3,4-Dipoxybutane | 10 ug/l | |
| Diethyl ether | 10 ug/l | |
| 1,4-Difouorobenzene | 10 ug/l | |
| 1,4-Dioxane | 10 ug/l | |
| Epichlorohydrin | 10 ug/l | |
| Ethanol | 10 ug/l | |
| Ethyl acetate | 10 ug/l | |
| Ethylbenzene | 10 ug/l | |
| Ethylene oxide | 10 ug/l | |
| Ethyl methacrylate | 10 ug/l | |
| Fluorobenzene | 10 ug/l | |
| Hexachlorobutadiene | 10 ug/l | |
| Hexachloroetane | 10 ug/l | |
| 2-Hexanone | 10 ug/l | |
| 2-Hydroxypropionitrile | 10 ug/l | |
| Iodometane | 10 ug/l | |
| Isobutyl alcohol | 10 ug/l | |
| Isopropylbenzene | 10 ug/l | |
| Malononitrile | 10 ug/l | |
| Methacrylonitrile | 10 ug/l | |
| Methanol | 10 ug/l | |
| Methlylene chloride | 10 ug/l | |
| Methyl methacrylate | 10 ug/l | |
| 4-Methyl-2-pentanone (MIBK) | 10 ug/l | |
| Naphthalene | 10 ug/l | |
| Nitrobenzene | 10 ug/l | |
| 2-Nitropropane | 10 ug/l | |
| N-Nitroso-di-n-butylamine | 10 ug/l | |
| Paraldehyde | 10 ug/l | |
| Pentachloroethane | 10 ug/l | |
| 2-Pentanone | 10 ug/l | |
| 2-Picoline | 10 ug/l | |
| 1-Propanol | 10 ug/l | |
| 2-Propanol | 10 ug/l | |
| Propargyl alcohol | 10 ug/l | |

**METHOD 8260 continued**

| | MDLs | SOLID |
|---|---|---|
| β-Propiolactone | 10 ug/l | |
| Propionitrile (ethyl cyanide) | 10 ug/l | |
| n-Propylamine | 10 ug/l | |
| Pyridine | 10 ug/l | |
| Styrene | 10 ug/l | |
| 1,1,1,2-Tetrachloroethane | 10 ug/l | |
| 1,1,2,2-Tetrachloroethane | 10 ug/l | |
| Tetrachloroethene | 10 ug/l | |
| Toluene | 10 ug/l | |
| o-Touidine | 10 ug/l | |
| 1,2,4-Trichlorobenzene | 10 ug/l | |
| 1,1,1-Trichloroethane | 10 ug/l | |
| 1,1,2-Trichloroethane | 10 ug/l | |
| Trichloroethene | 10 ug/l | |
| Trichlorofluoromethane | 10 ug/l | |
| 1,2,3-Trichloropropane | 10 ug/l | |
| Vinyl acetate | 10 ug/l | |
| Vinyl Chloride | 10 ug/l | |
| o-Xylene | 10 ug/l | |
| m-Xylene | 10 ug/l | |
| p-Xylene | 10 ug/l | |

**Method 8270**

| | MDLs | SOLID |
|---|---|---|
| Acenaphthene | 10 | |
| Acenaphthylene | 10 | |
| Acetophenone | 10 | |
| 2-Acetylaminofluorene | 20 | |
| 1-Acetyl-2-thiourea | 1000 | |
| 2-Aminoanthraquinone | 20 | |
| Aminoazobenzene | 10 | |
| 4-Aminobiphenyl | 20 | |
| Anilazine | 100 | |
| Aniline | | |
| o-Anisidine | 10 | |
| Anthracene | 10 | |
| Aramite | 20 | |
| Azinphos-methyl | 100 | |
| Benzidine | | |
| Benzoic acid | 50 | |
| Benz(a)anthracene | 10 | |
| Benzo(b)fluoranthene | 10 | |
| Benzo(k)fluoranthene | 10 | |
| Benzo(g,h,i,)perylene | 10 | |
| Benzo(a)pyrene | 10 | |
| p-Benzoquinone | 10 | |

**METHOD 8270 continued**

| | MDLs | SOLID |
|---|---|---|
| Benzyl alcohol | 20 | |
| Bis(2-chloroethoxy)methane | 10 | |
| Bis(2-chloroethyl)ether | 10 | |
| Bis(2-chloroisoproply) ether | 10 | |
| Bis(2-ethylhexyl)phthalate | | |
| 4-Bromophenyl phenyl ether | 10 | |
| Bromoxynil | 10 | |
| Butyl Benzyl phthalate | 10 | |
| Captafol | 20 | |
| Captan | 50 | |
| Carbaryl | 10 | |
| Carbofuran | 10 | |
| Carbophenothion | 10 | |
| Chlordane | | |
| Cholrfenvinphos | 20 | |
| 4-Choloraniline | 20 | |
| Chlorobenzilate | 10 | |
| 5-Chloro-2-methlyaniline | 20 | |
| 4-Chloro-3-methylphenol | 20 | |
| 3-(Chloromethyl)pyridine hydrochloride | 100 | |
| 1-Chloronaphthalene | | |
| 2-Chloronaphthalene | 10 | |
| 2-Chlorophenol | 10 | |
| 4-Chloro-1,2-phenylenediamine | | |
| 4-Chloro-1,3-phenylenediamine | | |
| 4-Cholorphenyl phenyl ether | 10 | |
| Chrysene | 10 | |
| Coumaphos | 40 | |
| p-Cresidine | 10 | |
| Crotoxyphos | 20 | |
| 2-Cyclohexyl-4,6-dinitro-phenol | 100 | |
| Demeton-O | 10 | |
| Demeton-S | 10 | |
| Diallate (cis or trans) | 10 | |
| 2,4-Diaminotoluene | 20 | |
| Dibenz(a,j)acridine | 10 | |
| Dibenz(a,h)anthracene | 10 | |
| Dibenzofuran | 10 | |
| Dibenzo(a,e)pyrene | 10 | |
| 1,2-Dibromo-3-chloropropane | | |
| Di-n-butyl phthalate | 10 | |
| Diclone | | |
| 1,2-Dichlorobenzene | 10 | |
| 1,3-Dichlorobenzene | 10 | |
| 1,4-Dichlorobenzene | 10 | |
| 3,3'-Dichlorobenzidine | 20 | |

**METHOD 8270 continued**

| | MDLs | SOLID |
|---|---|---|
| 2,4-Dichlorophenol | 10 | |
| 2,6-Dichlorophenol | 10 | |
| Dichlorovos | 10 | |
| Dicrotophos | 10 | |
| Diethyl phathalate | 10 | |
| Diethyelstilbestrol | 20 | |
| Dimethoate | 20 | |
| 3,3'-Dimethoxybenzidine | 100 | |
| Dimethylaminoazobenzene | 10 | |
| 7,12-Dimethylbenz(a)anthracene | 10 | |
| 3,3'-Dimethylbenzidiene | 10 | |
| 2,4-Dimethylphenol | 10 | |
| Dimethyl phthalate | 10 | |
| 1,2-Dinitrobenzene | 40 | |
| 1,3-Dinitrobenzene | 20 | |
| 1,4-Dinitrobenzene | 40 | |
| 4,6-Dinitro-2-methylphenol | 50 | |
| 2,4-Dinitrophenol | 50 | |
| 2,4-Dinitrotoluene | 10 | |
| 2,6-Dinitrotoulene | 10 | |
| 5,5-Diphenylhydantoin | 20 | |
| 1,2-Diphenylhydrazine | | |
| Di-n-octyl phthalate | 10 | |
| Disulfoton | 10 | |
| EPN | 10 | |
| Ethion | 10 | |
| Ethyl carbamate | 50 | |
| Ethyl methanesulfonate | 20 | |
| Famphur | 20 | |
| Fensulfothion | 40 | |
| Fenthion | 10 | |
| Fluchloralin | 20 | |
| Fluoranthene | 10 | |
| Fluorene | 10 | |
| 2-Fluorobiphenyl | | |
| 2-Fluorophenol | | |
| Hexachlorobenzene | 10 | |
| Hexachlorobutadiene | 10 | |
| Hexachlorocyclopentadiene | 10 | |
| Hexachloroethane | 10 | |
| Hexacholorophene | 50 | |
| Hexamethylphosphoramide | 20 | |
| Hydroquinone | | |
| Indeno(1,2,3-cd)pyrene | 10 | |
| Isodrin | 20 | |
| Isophorone | 10 | |

**METHOD 8270 continued**

| | MDLs | SOLID |
|---|---|---|
| Isosafrole | 10 | |
| Kepone | 20 | |
| Leptophos | 10 | |
| Mestranol | 20 | |
| Methapyrilene | 100 | |
| 3-Methylcholanthrene | 10 | |
| Methyl methanesulfonate | 10 | |
| 2-Methylnaphthalene | 10 | |
| 2-Methlyphenol | 10 | |
| 3-Methylphenol | 10 | |
| 4-Methylphenol | 10 | |
| Monocrotophos | 40 | |
| Naphthalene | 10 | |
| 1,4-Naphthoquinone | 10 | |
| 1-Naphthylamine | 10 | |
| 2-Naphthylamine | 10 | |
| Nicotine | 20 | |
| 5-Nitroacenaphthene | 10 | |
| 2-Nitroaniline | 50 | |
| 3-Nitroaniline | 50 | |
| 4-Nitroaniline | 20 | |
| 5-Nitro-o-toluidine | 10 | |
| 4-Nitroquinoline-1-oxide | 40 | |
| N-Nitrosodi-n-butylamine | 10 | |
| N-Nitrosodiethylamine | 20 | |
| N-Nitrosodimethylamine | | |
| N-Nitrosodiphenylamine | 10 | |
| N-Nitrosodi-n-propylamine | 10 | |
| N-Nitrosomorpholine | | |
| N-Nitrosopiperidine | 20 | |
| N-Nitrosopyrrolidine | 40 | |
| Octamethyl pyrophosphoramide | 200 | |
| 4-4'-Oxydianiline | 20 | |
| Pentachlorobenzene | 10 | |
| Pentachloronitrobenzene | 20 | |
| Pentachlorophenol | 50 | |
| Phenacetin | 20 | |
| Phenanthrene | 10 | |
| Phenobarbital | 10 | |
| Phenol | 10 | |
| 1,4-Phenylenediamine | 10 | |
| Phorate | 10 | |
| Phosalone | 100 | |
| Phosmet | 40 | |
| Phosphamidon | 100 | |

**METHOD 8270 continued**

| | MDLs | SOLID |
|---|---|---|
| Phthalic anhydride | 100 | |
| 2-Picoline (2-Methylpyridine | | |
| Piperonyl sulfoxide | 100 | |
| Pronamide | 10 | |
| Propylthiouracil | 100 | |
| Pyrene | 10 | |
| Pyridine | | |
| Resorcinol | 100 | |
| Safrole | 10 | |
| Strychnine | 40 | |
| Sulfallate | 10 | |
| Terbufos | 20 | |
| 1,2,4,5-Tetrachlorobenzene | 10 | |
| 2,3,4,6-Tetrachlorophenol | 10 | |
| Tetrachlorvinphos | 20 | |
| Tetraethyl pyrophosphate | 40 | |
| Thionazine | 20 | |
| Thiophenol (Benzenethiol) | 20 | |
| Toulene diisocyanate | | |
| o-Toulidine | 10 | |
| Toxaphene | | |
| 2,4,6-Tribromophenol | | |
| 1,2,4-Trichlorobenzene | 10 | |
| 2,4,5-Trichlorophenol | 10 | |
| 2,4,6-Trichlorophenol | 10 | |
| Trifluralin | 10 | |
| 2,4,5-Trimethylaniline | 10 | |
| Trimethyl phosphate | 10 | |
| 1,3,5-Trinitrobenzene | 10 | |
| Tris(2,3-dibromopropyl) phosphate | 200 | |
| Tri-p-tolyl phosphate | 10 | |
| O,O,O-Triethyl phosphorothioate | | |

**METHOD 8310 Polynuclear Aromatic Hydrocarbons by HPLC**

| | MDLs | SOLID |
|---|---|---|
| Acenaphthene | | |
| Acenaphthylene | | |
| Anthracene | | |
| Benzo(a)anthracene | | |
| Benzo(a)pyrene | | |
| Benzo(b)fluoranthene | | |
| Benzo(k)fluoranthene | | |
| Benzo(ghi)perylene | | |
| Chrysene | | |

**METHOD 8310 Polynuclear Aromatic Hydrocarbons by HPLC continued**

| | MDLs | SOLID |
|---|---|---|
| Dibenzo(a,h)anthracene | | |
| Fluoranthene | | |
| Fluorene | | |
| Indo(1,2,3-cd)pyrene | | |
| Naphthalene | | |
| Phenanthrene | | |
| Pyrene | | |

| **TCLP RCRA Pesticides and Herbicides EPA 1311/SW846** | **PQL µg/l** | **SOLID** |
|---|---|---|
| Chlordane | 2.0 | |
| Endrin | 20.0 | |
| Heptachlor (and its epoxide) | 2.0 | |
| Lindane | 20.0 | |
| Methoxychlor | 20.0 | |
| toxaphene | 2.0 | |
| 2,4-D | 50.0 | |
| 2,4,5-TP(silvex) | 10.0 | |

| **TCLP RCRA METALS EPA 1311/SW846** | **PQL µg/l** | **SOLID** |
|---|---|---|
| Arsenic | 20.0 | |
| Barium | 500.0 | |
| Cadmium | 25.0 | |
| Chromium | 250.0 | |
| Lead | 500.0 | |
| Mercury | 2.0 | |
| Selenium | 20.0 | |
| Silver | 50.0 | |

| **TCLP Volatile Organics 8260 with 1311 extraction** | **MDLs** | **SOLID** |
|---|---|---|
| Benzene | 50.0 | |
| Carbon Tetrachloride | 50.0 | |
| Chlorobenzene | 50.0 | |
| Chlordoform | 50.0 | |
| 1,2-dichloroethane | 50.0 | |
| 1,1-dichloroethane | 50.0 | |
| methyl ethyl ketone | 1000.0 | |
| tetrachloroethylene | 50.0 | |
| trichloroethylene | 50.0 | |
| vinyl chloride | 50.0 | |

| TCLP Semi-Volatile Organics 8270 with 1311 extraction | MDLs | SOLID |
|---|---|---|
| o-cresol | 20.0 | |
| m,p-cresol | 40.0 | |
| 2,4-dinitrotoluene | 10.0 | |
| hexacholorobenzene | 10.0 | |
| hexachloro-1,3-butidiene | 10.0 | |
| hexachloroethane | 10.0 | |
| nitrobenzene | 10.0 | |
| pentachlorophenol | 20.0 | |
| pyridiene | 10.0 | |
| 2,4,5-trichlorophenol | 20.0 | |
| 2,4,6-trichlorophenol | 20.0 | |
| 1,4-dichlorobenzene | 10.0 | |

| RCRA General Chemistry | MDLs | SOLID |
|---|---|---|
| Ignitablilty | Corrosivity | |
| Total Releasable Sulfide as H2S | 5.0 | |
| Total Releasable Cyanide as HCN | 1.0 | |

**Metals/Cyanide Target Analyte List (TAL)-low level option**

| EPA 200.7/SW 7470/7471 | MDL |
|---|---|
| | Water/solid |
| Aluminum | 200 µg/l /40 mg/Kg |
| Antimony | 60 µg/l /12 mg/Kg |
| Arsenic | 10 µg/l /2 mg/Kg |
| Barium | 200 µg/l /40 mg/Kg |
| Beryllium | 5 µg/l /1 mg/Kg |
| Cadmium | 5 µg/l /1 mg/Kg |
| Calcium | 5000 µg/l /1000 mg/Kg |
| Chromium | 10 µg/l /2 mg/Kg |
| Cobalt | 50 µg/l /10 mg/Kg |
| Copper | 25 µg/l /5 mg/Kg |
| Iron | 100 µg/l /20 mg/Kg |
| Lead | 3 µg/l /1 mg/Kg |
| Magnesium | 5000 µg/l /1000 mg/Kg |
| Manganese | 15 µg/l /3 mg/Kg |
| Molybdenum | 20 µg/l /8 mg/Kg |
| Nickel | 40 µg/l /8 mg/Kg |
| Potassium | 5000 µg/l /1000 mg/Kg |
| Selenium | 5 µg/l /1 mg/Kg mg/Kg |
| Silica | 100 µg/l /20 mg/Kg |
| Silver | 10 µg/l /2 mg/Kg |

**Metals/Cyanide Target Analyte List (TAL)-low level option continued**

| | MDL |
|---|---|
| Sodium | 5000 µg/l /1000 mg/Kg |
| Thallium | 10 µg/l /2 mg/Kg |
| Vanadium | 20 µg/l /4 mg/Kg |
| Zinc | 10 µg/l /2 mg/Kg |

**Priority Pollutant Metals-(Low Level option)Water**

EPA ~~245.1~~ 1631

| | MDL |
|---|---|
| Mercury | 0.2 ng/l |

**Priority Pollutant Metals (low level option)-soil**

EPA 245.5

| | MDL |
|---|---|
| Mercury | 0.1 mg/kg |

**Soild Waste Phase 1 Organics (Title 33 Series 1)** **Cost (Groundwater only) per set:**

| PARAMETER | METHOD | MDLs | SOLID |
|---|---|---|---|
| Acetone | 8260 | 10 | |
| Acrylonitrile | 8260 | 10 | |
| Benzene | 8260 | 1.0 | |
| Bromochloromethane | 8260 | 1.0 | |
| Bromodichloromethane | 8260 | 1.0 | |
| Bromoform | 8260 | 1.0 | |
| Carbon disulfide | 8260 | 10 | |
| Carbon tetrachloride | 8260 | 1.0 | |
| Chlorobenzene | 8260 | 1.0 | |
| Chloroethane | 8260 | 1.0 | |
| Chloroform | 8260 | 1.0 | |
| Dibromochloromethane | 8260 | 1.0 | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 8011 | 0.2 | |
| 1,2,-Dibromoethane (EDB) | 8011 | .05 | |
| o-Dichlorobenzene | 8260 | 1.0 | |
| p-Dichlorobenzene | 8260 | 1.0 | |
| trans-1,4-Dichloro-2-butene | 8260 | 1.0 | |
| 1,1-Dichloroethane | 8260 | 1.0 | |
| 1,2-Dichloroethane | 8260 | 1.0 | |
| 1,1-Dichloroethylene | 8260 | 1.0 | |
| cis-1,2-Dichloroethylene | 8260 | 1.0 | |
| trans-1,2-Dichloroethylene | 8260 | 1.0 | |
| 1,2-Dichloropropane | 8260 | 1.0 | |
| cis-1,3-Dichloropropene | 8260 | 1.0 | |
| trans-1,3-Dichloropropene | 8260 | 1.0 | |

**Soild Waste Phase 1 Organics (Title 33 Series 1 continued**

| | METHOD | MDLs | SOLID |
|---|---|---|---|
| Ethylbenzene | 8260 | 1.0 | |
| 2-Hexanone | 8260 | 10 | |
| Methyl bromide | 8260 | 1.0 | |
| Methyl chloride | 8260 | 1.0 | |
| Methylene bromide | 8260 | 1.0 | |
| Methylene chloride | 8260 | 1.0 | |
| Methyl ethyl ketone | 8260 | 10 | |
| Methyl iodide | 8260 | 10 | |
| 4-Methyl-2-pentanone | 8260 | 10 | |
| Styrene | 8260 | 1.0 | |
| 1,1,1,2-Tetrachloroethane | 8260 | 1.0 | |
| 1,1,2,2-Tetrachloroethane | 8260 | 1.0 | |
| Toulene | 8260 | 1.0 | |
| 1,1,1-Trichloroethane | 8260 | 1.0 | |
| 1,1,2-Trichloroethane | 8260 | 1.0 | |
| Trichloroethylene | 8260 | 1.0 | |
| Trichlorofluoromethane | 8260 | 1.0 | |
| 1,2,3-Trichloropropane | 8260 | 1.0 | |
| Vinyl acetate | 8260 | 10 | |
| Vinyl chloride | 8260 | 1.0 | |
| Xylenes | 8260 | 1.0 | |

# ORGANIC ANALYSIS OF WATER AND SOIL

## DEP15706

## Bid Schedule

Vendors Name: Bio-Chem Testing, 5 Weatherldge Drive, State Route 34, Hurricane, WV 25526

**The DEP reserves the right to request additional information and supporting documentation regarding unit prices when the unit price appears to be unreasonable.**

| ITEM NO. | ESTIMATED QUANTITY | DESCRIPTION | UNIT PRICE | AMOUNT |
|---|---|---|---|---|
| | | | | |
| 1.0 | | **Method 601, Purgeable Halocarbons - See page 7** | | |
| 1.1 | 12 | Single compound analyis cost | | $ |
| 1.2 | 12 | Up to 10 compounds then complete list cost applies | | $ |
| 1.3 | 12 | Complete list cost | | $ |
| | | | | |
| 2.0 | | **Method 602, Purgeable Aromatics - See page 7** | | |
| 2.1 | 15 | Single compound analysis cost | | $ |
| 2.2 | 15 | Complete list cost | | $ |
| | | | | |
| 3.0 | | **Method 603, Acrolein & Acrylonitrile - See page 7** | | |
| 3.1 | 15 | Single compound analysis cost | | $ |
| 3.2 | 15 | Complete list cost | | $ |
| | | | | |
| 4.0 | | **Method 604, Phenols - See page 8** | | |
| 4.1 | 20 | Single compound analysis cost | | $ |
| 4.2 | 20 | Up to 10 compounds then complete list cost applies | | $ |
| 4.3 | 20 | Complete list cost | | $ |
| | | | | |
| 5.0 | | **Method 605, Benzidines - See page 8** | | |
| 5.1 | 12 | Single compound analysis cost | | $ |
| 5.2 | 12 | Complete list cost | | $ |
| | | | | |
| 6.0 | | **Method 606, Phthalate Esters - See page 8** | | |
| 6.1 | 12 | Single compound analysis cost | | $ |
| 6.2 | 12 | Complete list cost | | $ |
| | | | | |
| 7.0 | | **Method 607, Nitrosamines - See page 8** | | |
| 7.1 | 12 | Single compound analysis cost | | $ |
| 7.2 | 12 | Complete list cost | | $ |
| | | | | |
| 8.0 | | **Method 608, Organochlorine Pesticides & PCBs - See page 8-9** | | |
| 8.1 | 15 | Single compound analysis cost | | $ |
| 8.2 | 15 | Up to 10 compounds then complete list cost applies | | $ |
| 8.3 | 15 | Complete list cost | | $ |
| | | | | |

| ITEM NO. | ESTIMATED QUANTITY | DESCRIPTION | | AMOUNT |
|---|---|---|---|---|
| | | | | |
| 9.0 | | **Method 609, Nitroaromatics & Isophorone - See page 9** | | |
| 9.1 | 12 | Single compound analysis cost | | $ |
| 9.2 | 12 | Complete list cost | | $ |
| | | | | |
| 10.0 | | **Method 610, Polynuclear Aromatic Hydrocarbons - See page 9** | | |
| 10.1 | 20 | Single compound analysis cost | | $ |
| 10.2 | 20 | Up to 10 compounds then complete list cost applies | | $ |
| 10.3 | 20 | Complete list cost | | $ |
| | | | | |
| 11.0 | | **Method 611, Haloethers - See page 9** | | |
| 11.1 | 12 | Single compound analysis cost | | $ |
| 11.2 | 12 | Complete list cost | | $ |
| | | | | |
| 12.0 | | **Method 612, Chlorinated hydrocarbons - See page 10** | | |
| 12.1 | 12 | Single compound analysis cost | | $ |
| 12.2 | 12 | Complete list cost | | $ |
| | | | | |
| 13.0 | | **Method 613, 2,3,7,8 Tetrachloridibenzo-P-dioxin - See page 10** | | |
| 13.1 | 12 | Single compound analysis cost | | $ |
| | | | | |
| 14.0 | | **Method 613, Tetra-through Octa-Chlorinated Dibenzo-P-dioxins (CDDs) & Dibenzofurans (CDFs) - See page 10** | | |
| 14.1 | 12 | Complete list cost | | $ |
| | | | | |
| 15.0 | | **Method 624, Purgeables - See page 10-11** | | |
| 15.1 | 20 | Single compound analysis cost | | $ |
| 15.2 | 20 | Up to 10 compounds then complete list cost applies | | $ |
| 15.3 | 20 | Complete list cost | | $ |
| | | | | |
| 16.0 | | **Method 625, Base/Neutrals Extractables - See page 11-12** | | |
| 16.1 | 12 | Single compound analysis cost | | $ |
| 16.2 | 12 | Up to 10 compounds then complete list cost applies | | $ |
| 16.3 | 12 | Complete list cost | | $ |
| | | | | |
| 17.0 | | **Method 625, Acid Extractables - See page 12** | | |
| 17.1 | 12 | Single compound analysis cost | | $ |
| 17.2 | 12 | Up to 10 compounds then complete list cost applies | | $ |
| 17.3 | 12 | Complete list cost | | $ |
| | | | | |
| 18.0 | | **Method 8015B - See page 12-13** | | |
| 18.1 | 20 | Single compound analysis cost | | $ |
| 18.2 | 20 | Up to 10 compounds then complete list cost applies | | $ |
| 18.3 | 20 | Complete list cost | | $ |
| | | | | |
| 19.0 | | **Method 8041, Phenols by GC - See page 13** | | |
| 19.1 | 12 | Single compound analysis cost | | $ |
| 19.2 | 12 | Up to 10 compounds then complete list cost applies | | $ |
| 19.3 | 12 | Complete list cost | | $ |
| | | | | |

| ITEM NO. | ESTIMATED QUANTITY | DESCRIPTION | | AMOUNT |
|---|---|---|---|---|
| | | | | |
| 20.0 | | **Method 8100, Polynuclear Aromatic Hydrocarbons - See page 14-15** | | |
| 20.1 | 20 | Single compound analysis cost | | $ |
| 20.2 | 20 | Up to 10 compounds then complete list cost applies | | $ |
| 20.3 | 20 | Complete list cost | | $ |
| | | | | |
| 21.0 | | **Method 8121, Chlorinated Hydrocarbons - See page 15** | | |
| 21.1 | 12 | Single compound analysis cost | | $ |
| 21.2 | 12 | Up to 10 compounds then complete list cost applies | | $ |
| 21.3 | 12 | Complete list cost | | $ |
| | | | | |
| 22.0 | | **Method 8151A, Chlorinated Herbicides - See page 15-16** | | |
| 22.1 | 12 | Single compound analysis cost | | $ |
| 22.2 | 12 | Up to 10 compounds then complete list cost applies | | $ |
| 22.3 | | Complete list cost | | $ |
| | | | | |
| 23.0 | | **Method 8260, - See page 16-18** | | |
| 23.1 | 15 | Search for additional tentatively identified compounds | | $ |
| 23.2 | 15 | Single compound analysis cost | | $ |
| 23.3 | 15 | Up to 10 compounds then complete list cost applies | | $ |
| 23.4 | 15 | Complete list cost | | $ |
| 23.5 | 15 | GC-MS Scan per TIC, report TICS that are detected at 10% of the area of the nearest internal standard | | $ |
| | | | | |
| 24.0 | | **Method 8270, - See page 18-22** | | |
| 24.1 | 15 | Search for additional tentatively identified compounds | | $ |
| 24.2 | 15 | Single compound analysis cost | | $ |
| 24.3 | 15 | Up to 10 compounds then complete list cost applies | | $ |
| 24.4 | 15 | Complete list cost | | $ |
| 24.5 | 15 | GC-MS Scan per TIC, report TICS that are detected at 10% of the area of the nearest internal standard | | $ |
| | | | | |
| 25.0 | | **Method 8310, Polynuclear Aromatic Hydrocarbons by HPLC - See page 22-23** | | |
| 25.1 | 15 | Single compound analysis cost | | $ |
| 25.2 | 15 | Up to 10 compounds then complete list cost applies | | $ |
| 25.3 | 15 | Complete list cost | | $ |
| | | | | |
| 26.0 | | **TCLP RCRA Pesticides & Herbicides EPA 1311/SW846 - See page 23** | | |
| 26.1 | 12 | Single compound analysis cost | | $ |
| 26.2 | 12 | Complete list cost | | $ |
| | | | | |
| 27.0 | | **TCLP RCRA Metals EPA 1311/SW846 - See page 23** | | |
| 27.1 | 24 | Single compound analysis cost | $50 | $ 1200 |
| 27.2 | 24 | Complete list cost | $170 | $ 4080 |
| | | | | |
| 28.0 | | **TCLP Volatile Organics 8260 with 1311 extraction - See page 23** | | |
| 28.1 | 20 | Single compound analysis cost | | $ |
| 28.2 | 20 | Up to 10 compounds then complete list cost applies | | $ |
| 28.3 | 20 | Complete list cost | | $ |
| | | | | |

| ITEM NO. | ESTIMATED QUANTITY | DESCRIPTION | | AMOUNT |
|---|---|---|---|---|
| 29.0 | | TCLP Semi-Volatile Organics 8720 with 1311 extraction - See page 24 | | |
| 29.1 | 12 | Single compound analysis cost | | $ |
| 29.2 | 12 | Up to 10 compounds then complete list cost applies | | $ |
| 29.3 | 12 | Complete list cost | | $ |
| 30.0 | | RCRA General Chemistry - See page 24 | | |
| 30.1 | 12 | Single compound analysis cost | #39 | $ 468 |
| 30.2 | 12 | Complete list cost Ignitability, $H_2S$, HCN, Corros(as pH) | #112 | $ 1344 |
| 31.0 | | Metals/Cyanide Target Analyte List (TAL)-Low level option EPA 200.7/SW7470/7471 - See page 24-25 | | $ |
| 31.1 | 12 | Single compound analysis cost | | $ |
| 31.2 | 12 | Complete list cost, | #175 | $ 2100 |
| 32.0 | 10 | Priority Pollutant Metals-(low level option-Mercury) Water | | $ 1200 |
| 33.0 | 10 | Priority Pollutant Metals-(low level option-Mercury) Soil | | $ 1300 |
| 34.0 | 10 | 8081A Organochlorine Pesticides GC | | $ |
| 35.0 | 10 | 8280 PCBs by GC | | $ |
| 36.0 | 10 | 8061A Phathalate Esters by GC/EDC | | $ |
| 37.0 | 20 | 8270 PAH by GC/MS | | $ |
| 38.0 | 20 | 8260B Semivolatile Organics by GC/MS | | $ |
| 39.0 | 20 | 8270C Semivolatile Organics by GC/MS | | $ |
| 40.0 | 30 | BTEX (8021B/8260B) | | $ |
| 41.0 | 30 | BTEX (8021B)/MTBE (8021B) | | $ |
| 42.0 | 30 | BTEX (8021B)/GRO (8015B) | | |
| 43.0 | 30 | BTEX (8021B)/DRO/GRO (8015B) | | $ |
| 44.0 | 30 | BTEX (8021B)/GRO (8015B)/MTBE (8021B) | | |
| 45.0 | 30 | BTEX (8021B)/DRO/GRO (8015B)/MTBE (8021B) | | $ |
| 46.0 | 30 | BTEX/MTBE/TBA/EDB/EDC by 8260B (SIM) | | $ |
| 47.0 | 10 | TPH-ORO (8015B) | | $ |
| 48.0 | 10 | TPH-GRO (8015B) | | $ |
| 49.0 | 10 | TPH-DRO (8015B) | | $ |
| 50.0 | 10 | TPH-DRO/ORO (8015) | | $ |

| ITEM NO. | ESTIMATED QUANTITY | DESCRIPTION | | AMOUNT |
|---|---|---|---|---|
| | | | | |
| 51.0 | 10 | **TPH-GRO/DRO (8015B)** | | $ |
| | | | | |
| 52.0 | 20 | **TPH-GRO/DRO/ORO (8015B)** | | $ |
| | | | | |
| 53.0 | | **Solid Waste Phase 1 Organics (Title 33 Series1) Cost (Groundwater only) per set: - See page 25-26** | | |
| 53.1 | 12 | Search for additional tentatively identified compounds | | $ |
| 53.2 | 12 | Single compound analysis cost | | $ |
| 53.3 | 12 | Up to 10 compounds then complete list cost applies | | $ |
| 53.4 | 12 | Total cost Phase I 8260 complete list | | $ |
| | | | | |
| 54.0 | | **Priority Pollutants by SW-846 Protocol Analysis** | | |
| 54.1 | 12 | Priority Pollutant Volaties | $120 | $ 1440 |
| 54.2 | 12 | Priority Pollutant Semi-Volatics | $170 | $ 2040 |
| 54.3 | 12 | Priority Pollutant Pesticides/PCBs | $110 | $ 1320 |
| 54.4 | 12 | Priority Pollutant Inorganics | $110 | $ 1320 |
| 54.5 | 12 | Total Package Cost (less dioxins) Dioxin (2,3,7,8-Tetrachlorodlbenzo-p-Dioxin) quoted at time of analysis | $510 | $ 6120 |
| | | | | |
| 55.0 | | **Total Toxic Organics (TTO) by SW-846 Protocol Analysis** | | |
| 55.1 | 12 | TTO Volatiles | | $ |
| 55.2 | 12 | TTO Semi-Volatiles | | $ |
| 55.3 | 12 | TTO Pesticides/PCBs | | $ |
| 55.4 | 12 | TTO Inorganics | | $ |
| 55.5 | 12 | Total Package Cost (less dioxins) Dioxin (2,3,7,8-Tetrachlorodlbenzo-p-Dioxin) quoted at time of analysis | | $ |
| | | | | |
| 56.0 | | **Target Compounds List (TCL) Analysis** | | |
| 56.1 | 12 | TCL Volatiles | $120 | $ 1440 |
| 56.2 | 12 | TCL Semi-Volatiles | $180 | $ 2160 |
| 56.3 | 12 | TCL Pesticides/PCBs | $140 | $ 1680 |
| 56.4 | 12 | TCL Inorganics | $163 | $ 1956 |
| 56.5 | 12 | Total Package Cost (less dioxins) Dioxin (2,3,7,8-Tetrachlorodlbenzo-p-Dioxin) quoted at time of analysis | $603 | $ 7236 |
| | | | | |
| 57.0 | | **Hazardous Waste Characterizations Analysis** | | |
| 57.1 | 12 | Reacitivity | $39 | $ 468 |
| 57.2 | 12 | Ignitability | $39 | $ 468 |
| 57.3 | 12 | Corrosivity (pH) | $12 | $ 144 |
| 57.4 | 12 | Corrosivity (NACE) | | $ |
| 57.5 | 12 | BTU | | $ |
| 57.6 | 12 | TCLP, Volatile, Semivolatile, Pest/Herb, Metals | $685 | $ 8220 |
| 57.7 | 12 | Total Package Cost | | $ |

↓ Including Extraction

| ITEM NO. | ESTIMATED QUANTITY | DESCRIPTION | | AMOUNT |
|---|---|---|---|---|
| 58.0 | | **TCLP Extractions Analysis** | | |
| 58.1 | 15 | Percent Solids (metals, semi-volatiles, volatiles, pesticides, herbicides) | #25 | $ 375 |
| 58.2 | 15 | Characterization Extraction (metals, semi-volatics, pesticides, herbicides) | #60 | $ 900 |
| 58.3 | 15 | Zero Headspace Extraction (violatiles) | | $ |
| 59.0 | | **TCLP Analysis - Analysis** | | |
| 59.1 | 20 | TCLP Metals quantified to 10% of TCLP levels | #80 | $ 1600 |
| 59.2 | 20 | TCLP-Mercury | #30 | $ 600 |
| 59.3 | 20 | TCLP-Individual Metal | #25 | $ 500 |
| 59.4 | 20 | Additional Metals (Flame, Furnace, ICP, ICP-MS) | #12 | $ 240 |
| 59.5 | 20 | Analysis by Standard Method of Addition (per metal) | #22 | $ 440 |
| 59.6 | 20 | TCLP Pb characterization (includes extraction fees) | #85 | $ 1700 |
| 59.7 | 20 | TCLP Volatile Organics | #95 | $ 1900 |
| 59.8 | 20 | TCLP Semi-Volatile Organics | #220 | $ 4400 |
| 59.9 | 20 | TCLP Persticides/Herbicides | #230 | $ 4600 |
| 59.10 | 20 | TCLP Pesticides | #90 | $ 1800 |
| 59.11 | 20 | TCLP Herbicides | #90 | $ 1800 |
| 59.12 | 20 | Full TCLP, Vol, SemiVol, Pest/Herb, Metals | #625 | $ 12500 |
| | | NOTE: Multiphasic samples will be subject to additional extraction and analytical fee | | |
| 60.0 | 12 | **Phase II Groundwater Parameters** | | $ |
| 51.0 | 12 | **Volatiles by Method 8260 - Groundwater II** | | $ |
| 62.0 | 12 | **Volatiles by Method 8270 - Groundwater II** | | $ |
| 63.0 | 12 | **Encore Sampling Kits** | | $ |
| 64.0 | 12 | **Terra Core Sampling Kits** | | $ |

**Collection of Samples-Cost associated with samples from DEP Offices**

| | | | | |
|---|---|---|---|---|
| 65.0 | 24 | *Charleston Office, 601 57th St., SE, Charleston, WV 25304 | 00 | $ 00 |
| 66.0 | 24 | *Teays Office, P.O. Box 662, Teays, WV 25596 | 00 | $ 00 |
| 67.0 | 24 | *Fairmont Office, 2031 Pleasant Valley Rd., Fairmont, WV 26554 | | $ |
| 68.0 | 24 | *Romney Office, HC 63, Box 2545, Romney, WV 26757 | | $ |
| 69.0 | 24 | *French Creek Office, P.O. Box 38, French Creek, WV 26218 | | $ |
| 70.0 | 24 | *Wheeling Office, 131A Peninsula St., Wheeling, WV 26003 | | $ |
| 71.0 | 24 | *Parkersburg Office, 2311 Ohio Ave., Parkersburg, WV 26010 | | $ |
| 72.0 | 24 | *Oak Hill Office, 116 Industrial Dr., Oak Hill, WV 25901 | | $ |

| ITEM NO. | ESTIMATED QUANTITY | DESCRIPTION | | AMOUNT |
|---|---|---|---|---|
| 73.0 | 10 | 24 Hour Turn-Around Rush Orders** | 100 | $ - |
| 74.0 | 10 | 48 Hour Turn-Around Rush Orders** | 75 | $ - |
| 75.0 | 10 | 72 Hour Turn Around Rush Orders** | 50 | $ - |
| | | TOTAL | | $ 81059 |

All unit pricing quoted should be based on standard (not to exceed two weeks) turn-around time.

**During emergency situations samples may be requested on a quicker turn-around basis.

Rev. 09/08

State of West Virginia

# VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. ___ **Application is made for 2.5% resident vendor preference for the reason checked:**
Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

X Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

___ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. ___ **Application is made for 2.5% resident vendor preference for the reason checked:**
Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. ___ **Application is made for 2.5% resident vendor preference for the reason checked:**
Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. ___ **Application is made for 5% resident vendor preference for the reason checked:**
Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. ___ **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. ___ **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

**Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.**

Bidder: Bio-Chem Testing, Inc. Signed: _____

Date: 02-01-12 Title: President

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

RFQ No. DEP15706

STATE OF WEST VIRGINIA
Purchasing Division

# PURCHASING AFFIDAVIT

**West Virginia Code §5A-3-10a states:** No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

**DEFINITIONS:**
"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

**EXCEPTION:** The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (***West Virginia Code*** §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

**WITNESS THE FOLLOWING SIGNATURE**

Vendor's Name: Bio-Chem Testing, INC.

Authorized Signature: _____ Date: 02-01-12

State of WV

County of Putnam, to-wit:

Taken, subscribed, and sworn to before me this 1 day of Feb, 2012.

My Commission expires Feb 26, 2013.

AFFIX SEAL HERE

OFFICIAL SEAL
ANGELA RAINES
NOTARY PUBLIC
STATE OF WEST VIRGINIA
80 Great Teays Blvd.
Scott Depot, WV 25560-9545
My Commission Expires 02-26-2013

NOTARY PUBLIC _____

**west virginia** department of environmental protection

Division of Water and Waste Management
601 57th Street SE
Charleston, WV 25304-2345
Phone: (304) 926-0495
Fax: (304) 926-0497

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

September 06, 2011

Mukesh Shah
President
Bio-Chem Testing, Inc.
P.O. Box 634
Teays, WV 25569

Dear Mr. Shah:

Please find enclosed an ATTACHMENT I modifying certification of your facility through July 31, 2012.

Certification for WET has been added to the Attachment I.

If you have any questions, and if I can be of further assistance please call me at (304) 926-0499 ext. 1601 or e-mail me at Tommy.W.Smith@wv.gov.

Sincerely,

Tommy W. Smith II
Quality Assurance Officer
ts

Enclosure:

**Attachment I**

**WEST VIRGINIA**
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**DIVISION OF WATER AND WASTE MANAGEMENT**

**Annual Certified Parameter List**

**for**

# BIO-CHEM TESTING, INC.
## TEAYS, WEST VIRGINIA

**PARAMETERS CERTIFIED**

NONPOTABLE WATER INORGANIC NONMETALS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Acidity | SM19th2310 B(4a) | Titrimetric |
| Alkalinity | SM19th2320 B | Titrimetric |
| Ammonia | SM190th4500-NH3 B | Distillation |
| Ammonia | SM18th4500-NH3 E | Titrimetric |
| Ammonia | HACH8038 | Spectrophotometric |
| Bromide | EPA300.0 Rev. 2.1 | IC |
| Chloride | EPA300.0 Rev. 2.1 | IC |
| Chloride | SM19th4500-Cl C | Titrimetric |
| Chlorine, Residual | SM19th4500-Cl G | Spectrophotometric |
| Chlorine, Residual (Field Test) | SM19th4500-Cl G | Spectrophotometric |
| Chromium, Hexavalent | SM19th3500-Cr D | Colorimetric |
| Color | SM19th2120 B | Visual Comparison |
| Color | SM19th2120 E | Colorimetric |
| Conductance, Specific | EPA120.1 | Probe |
| Cyanide | SM19th4500-$CN^-$ C | Distillation |
| Cyanide, Total | SM19th4500-CN E | Spectrophotometric |
| Cyanide, Available | SM19th4500-CN E | Spectrophotometric |
| Demand, Biochemical Oxygen (BOD) | SM19th5210 B | Probe |
| Demand, Carbonaceous (CBOD) | SM19th5210 B | Probe |
| Demand, Chemical Oxygen (COD) | HACH8000 | Spectrophotometric |
| Fluoride | EPA300.0 Rev. 2.1 | IC |
| Hardness, Calcium | SM19th2340B | Calculation |
| Hardness, Total | SM19th2340 B | Calculation |
| Hardness, Total | HACH 8226 | Titrimetric |
| Kjeldahl, Total Nitrogen | SM19th4500-Norg C | Digestion |
| Kjeldahl, Total Nitrogen | SM19th4500-NH3 B | Distillation |
| Kjeldahl, Total Nitrogen | SM19th4500-NH3 C | Titrimetric |
| Kjeldahl, Total Nitrogen | HACH8038 | Spectrophotometric |

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Nitrate | EPA300.0 Rev. 2.1 | IC |
| Nitrate | EPA353.2 Rev. 2.0 | Spectrophotometric |
| Nitrate-Nitrite | EPA300.0 Rev. 2.1 | IC |
| Nitrate-Nitrite | EPA353.2 Rev. 2.0 | Spectrophotometric |
| Nitrite | EPA300.0 Rev. 2.1 | IC |
| Nitrite | EPA353.2 Rev. 2.0 | Spectrophotometric |
| Oil & Grease | EPA1664 A | Gravimetric |
| Organic Carbon, Total | SM19th5310 C | Oxidation |
| Oxygen, Dissolved | SM19th4500-O G | Probe |
| Oxygen, Dissolved (Field Test) | SM19th4500-O G | Probe |
| pH | SM19th4500-H B | Probe |
| pH(Field Test) | SM19th4500-H B | Probe |
| Phenolics, Total | EPA420.1 Rev 1978 | Manual Spectrophotometric |
| Phosphorus, ortho | SM19th4500 P E | Manual Spectrophotometric |
| Phosphorus, Total | SM19th4500-P B.5 | Digestion |
| Phosphorus, Total | SM19th4500 P E | Manual Spectrophotometric |
| Phosphorus, Total | EPA365.1 Rev 2.0 | Manual Spectrophotometric |
| Silica, Dissolved | EPA200.7 Rev. 4.4-1994 | ICP |
| Silica, Dissolved | SW6010B | ICP |
| Solids, Dissolved | SM19th2540 C | Gravimetric |
| Solids, Settleable | SM19th2540 F | Imhoff |
| Solids, Suspended | SM19th2540 D | Gravimetric |
| Solids, Total | SM19th2540 B | Gravimetric |
| Solids, Volatile | EPA160.4 | Gravimetric |
| Sulfate | EPA300.0 Rev. 2.1 | IC |
| Temperature | SM19th2550 B | Thermometric |
| Turbidity | EPA180.1 Rev. 2.0 | Turbidimetric |

## NONPOTABLE WATER TRACE METALS

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | EPA200.7 Rev 4.4-1994 | ICP |
| Aluminum | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Aluminum | SW6010B | ICP |
| Aluminum | SW6020 | ICP-MS |
| Antimony | EPA200.7 Rev 4.4-1994 | ICP |
| Antimony | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Antimony | SM19th3113B | GFAA |
| Antimony | SW6010B | ICP |
| Antimony | SW6020 | ICP-MS |
| Arsenic | EPA200.7 Rev 4.4-1994 | ICP |
| Arsenic | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Arsenic | SM19th3113B | GFAA |
| Arsenic | SW6010B | ICP |
| Arsenic | SW6020 | ICP-MS |
| Barium | EPA200.7 Rev 4.4-1994 | ICP |
| Barium | EPA200.8 Rev 5.4-1994 | ICP-MS |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Barium | SW6010B | ICP |
| Barium | SW6020 | ICP-MS |
| Beryllium | EPA200.7 Rev 4.4-1994 | ICP |
| Beryllium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Beryllium | SW6010B | ICP |
| Beryllium | SW6020 | ICP-MS |
| Boron | EPA200.7 Rev 4.4-1994 | ICP |
| Boron | SW6010B | ICP |
| Cadmium | EPA200.7 Rev 4.4-1994 | ICP |
| Cadmium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Cadmium | SM19th3113B | GFAA |
| Cadmium | SW6010B | ICP |
| Cadmium | SW6020 | ICP-MS |
| Calcium | EPA200.7 Rev 4.4-1994 | ICP |
| Calcium | SW6010B | ICP |
| Chromium | EPA200.7 Rev 4.4-1994 | ICP |
| Chromium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Chromium | SW6010B | ICP |
| Chromium | SW6020 | ICP-MS |
| Cobalt | EPA200.7 Rev 4.4-1994 | ICP |
| Cobalt | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Cobalt | SW6010B | ICP |
| Cobalt | SW6020 | ICP-MS |
| Copper | EPA200.7 Rev 4.4-1994 | ICP |
| Copper | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Copper | SM19th3113B | GFAA |
| Copper | SW6010B | ICP |
| Copper | SW6020 | ICP-MS |
| Iron | EPA200.7 Rev 4.4-1994 | ICP |
| Iron | SW6010B | ICP |
| Lead | EPA200.7 Rev 4.4-1994 | ICP |
| Lead | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Lead | SM19th3113B | GFAA |
| Lead | SW6010B | ICP |
| Lead | SW6020 | ICP-MS |
| Magnesium | EPA200.7 Rev 4.4-1994 | ICP |
| Magnesium | SW6010B | ICP |
| Manganese | EPA200.7 Rev 4.4-1994 | ICP |
| Manganese | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Manganese | SW6010B | ICP |
| Manganese | SW6020 | ICP-MS |
| Mercury | EPA245.1 | CVAA |
| Mercury | EPA245.5 | CVAA |
| Mercury | SW7470A | CVAA |
| Molybdenum | EPA200.7 Rev 4.4-1994 | ICP |
| Molybdenum | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Molybdenum | SW6010B | ICP |
| Molybdenum | SW6020 | ICP-MS |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Nickel | EPA200.7 Rev 4.4-1994 | ICP |
| Nickel | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Nickel | SW6010B | ICP |
| Nickel | SW6020 | ICP-MS |
| Potassium | EPA200.7 Rev 4.4-1994 | ICP |
| Potassium | SW6010B | ICP |
| Selenium | EPA200.7 Rev 4.4-1994 | ICP |
| Selenium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Selenium | SM19th3113B | GFAA |
| Selenium | SM21st3114C* | HG/AF |
| Selenium | SW6010B | ICP |
| Selenium | SW6020 | ICP-MS |
| Silicon | EPA200.7 Rev 4.4-1994 | ICP |
| Silicon | SW6010B | ICP |
| Silver | EPA200.7 Rev 4.4-1994 | ICP |
| Silver | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Silver | SM19th3113B | GFAA |
| Silver | SW6010B | ICP |
| Silver | SW6020 | ICP-MS |
| Sodium | EPA200.7 Rev 4.4-1994 | ICP |
| Sodium | SW6010B | ICP |
| Strontium | EPA200.7 Rev 4.4-1994 | ICP |
| Strontium | SW6010B | ICP |
| Thallium | EPA200.7 Rev 4.4-1994 | ICP |
| Thallium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Thallium | EPA279.2 | GFAA |
| Thallium | SW6010B | ICP |
| Thallium | SW6020 | ICP-MS |
| Tin | EPA200.7 Rev 4.4-1994 | ICP |
| Tin | SW6010B | ICP |
| Titanium | EPA200.7 Rev 4.4-1994 | ICP |
| Titanium | SW6010B | ICP |
| Vanadium | EPA200.7 Rev 4.4-1994 | ICP |
| Vanadium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Vanadium | SW6010B | ICP |
| Vanadium | SW6020 | ICP-MS |
| Zinc | EPA200.7 Rev 4.4-1994 | ICP |
| Zinc | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Zinc | SW6010B | ICP |
| Zinc | SW6020 | ICP-MS |
| Metals | SM19th3030E | Digestion |
| Metals | SM19th3030F | Digestion |
| Selenium | SM21st3114B (4.c) | Digestion |
| Total Metals | EPA200.7 Rev 4.4-1994 | Digestion |
| Total Metals | EPA200.8 Rev 5.4-1994 | Digestion |
| Total Recoverable Metals | EPA200.7 Rev 4.4-1994 | Digestion |
| Total Recoverable Metals | EPA200.8 Rev 5.4-1994 | Digestion |
| Dissolved Metals | EPA200.7 Rev 4.4-1994 | |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Dissolved Metals *Modified | EPA200.8 Rev 5.4-1994 | |

## NONPOTABLE WATER MICROBIOLOGY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Fecal Coliform | SM19th9222 D | Membrane Filter |
| Fecal Coliform | SM19th9221 E | Most Probable Number |
| Total Coliform | SM19th9222 B | Membrane Filter |
| E-coli | HACH10029 | Membrane Filter |

## WHOLE EFFLUENT TOXICITY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Fathead minnow | EPA821-R-02-012 2000.0 | Acute |
| Ceriodaphnia dubia | EPA821-R-02-012 2002.0 | Acute |
| Daphnia puplex | EPA821-R-02-012 2021.0 | Acute |
| Survival & Growth of Fathead Minnow Larval | EPA821-R-02-013 1000.0 | Chronic |
| Survival & Reproduction of Ceriodaphnia | EPA821-R-02-013 1002.0 | Chronic |

## HAZARDOUS WASTE CHARACTERISTICS

| PROCEDURE | METHOD | TECHNOLOGY |
|---|---|---|
| Corrosivity | SW9040 C | Probe |
| Reactive Cyanide | Run Total Cyanide by SW9010/9014 | |
| Paint Filter Test | SW9095B | Gravimetric |
| TCLP (Metals) | SW1311 | Rotating Extractor |
| SPLP (Metals) | SW1312 | Rotating Extractor |

## SOLID AND CHEMICAL INORGANIC NONMETALS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Ammonia | SM18th4500-NH3 B (M)* | Distillation |
| Ammonia | SM18th4500-NH3 E | Titrimetric |
| Ammonia | HACH8038 | Spectrophotometric |
| Chloride | SM19th4500-Cl C | Titrimetric |
| Chloride | EPA300.0 Rev. 2.1 | IC |
| Cyanide, Total | SM19th4500-CN C | Distillation |
| Cyanide, Total | SM19th4500-CN E | Spectrophotometric |
| Fluoride | EPA300.0 Rev. 2.1 | IC |
| Kjeldahl, Total Nitrogen | SM19th4500Norg B | Digestion |
| Kjeldahl, Total Nitrogen | SM19th4500-NH3 B | Distillation |
| Kjeldahl, Total Nitrogen | SM19th4500-NH3 C | Titrimetric |
| Kjeldahl, Total Nitrogen | HACH8038 | Spectrophotometric |

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Nitrate | EPA300.0 Rev. 2.1 | IC |
| Nitrate | EPA353.2 Rev. 2.0 | Spectrophotometric |
| Nitrate-Nitrite | EPA300.0 Rev. 2.1 | IC |
| Nitrate-Nitrite | EPA353.2 Rev. 2.0 | Spectrophotometric |
| Nitrite | EPA300.0 Rev. 2.1 | IC |
| Nitrite | EPA353.2 Rev. 2.0 | Spectrophotometric |
| pH | SW9045D | Probe |
| Phosphorus, Total | SM20th4500-P E | Manual Spectrophotometric |
| Phosphorus, Total | SM19th4500-P B.5 (M)* | Digestion |
| Phosphorus, Total | EPA365.1 Rev. 2.0 | Manual Spectrophotometric |
| Solids, Total | SM19th2540 G | Gravimetric |
| Solids, Volatile | EPA160.4 | Gravimetric |
| Sulfate | EPA300.0 Rev. 2.1 | IC. |

*Modified for analysis of solid and chemical matrices.

## SOLID AND CHEMICAL TRACE METALS

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | SW6010B | ICP |
| Antimony | SW6010B | ICP |
| Antimony | SW7010 | GFAA |
| Arsenic | SW6010B | ICP |
| Arsenic | SW7010 | GFAA |
| Barium | SW6010B | ICP |
| Beryllium | SW6010B | ICP |
| Boron | SW6010B | ICP |
| Cadmium | SW6010B | ICP |
| Cadmium | SW7010 | GFAA |
| Calcium | SW6010B | ICP |
| Chromium | SW6010B | ICP |
| Cobalt | SW6010B | ICP |
| Copper | SW6010B | ICP |
| Copper | SW7010 | GFAA |
| Iron | SW6010B | ICP |
| Lead | SW6010B | ICP |
| Lead | SW7010 | GFAA |
| Magnesium | SW6010B | ICP |
| Manganese | SW6010B | ICP |
| Mercury | SW7470A | CVAA |
| Mercury | SW7471A | CVAA |
| Molybdenum | SW6010B | ICP |
| Nickel | SW6010B | ICP |
| Potassium | SW6010B | ICP |
| Selenium | SW6010B | ICP |
| Selenium | SW7010 | GFAA |
| Silicon | SW6010B | ICP |
| Silver | SW6010B | ICP |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Silver | SW7010 | GFAA |
| Sodium | SW6010B | ICP |
| Strontium | SW6010B | ICP |
| Thallium | SW6010B | ICP |
| Thallium | SW7010 | GFAA |
| Tin | SW6010B | ICP |
| Titanium | SW6010B | ICP |
| Uranium | SW6010B | ICP |
| Vanadium | SW6010B | ICP |
| Zinc | SW6010B | ICP |
| Metals | SW3050B | Digestion |

## SOLID AND CHEMICAL MICROBIOLOGY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Fecal Coliform | SM19th9221E | Most Probable Number |

This laboratory may test **ONLY** for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires July 31, 2012.

Certificate No 220

Tommy W. Smith II Issued on September 06, 2011

Tommy W. Smith II
Quality Assurance Officer

west virginia department of environmental protection

Division of Water and Waste Management
601 57th Street, SE
Charleston, WV 25304
Phone: 304-926-0495
Fax: 304-926-0496

Joe Manchin III, Governor
Randy C. Huffman, Cabinet Secretary
www.wvdep.org

August 03, 2010

Charles Jones, Jr. (3EA00)
Regional Quality Assurance Officer
US-EPA, Region III
Environmental Assessment and Innovation Division
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Jones:

The WV DEP has reviewed the Alternate Test Procedure application for analysis of Selenium by Gaseous Hydride/Atomic Fluorescence, submitted by BioChem Testing, Inc. and has determined that it meets the requirements of the program. It is position of WV DEP that the application should be approved.

This technology appears to provide superior results compared to ICP-MS and GFAA in complex matrices, especially those matrices associated with the mining industry.

If you have any questions please contact Daniel T. Arnold at (304) 926-0499 Ext. 1341 or email Daniel.T.Arnold@wv.gov.

Respectfully submitted,
WATER AND WASTE MANAGEMENT

Scott G. Mandirola
Director

dta

CC: Daniel T. Arnold, WV DEP
John M. Joseph, BioChem

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

FEB 17 2011

Mr. Mukesh Shah
BIO-CHEM Testing, Inc.
P.O. Box 634
Teays, WV 25569-0634

Dear Mr. Shah:

Your facility submitted correspondence requesting approval for an Alternate Test Procedure (ATP) for the determination of selenium. BIO-CHEM wants to use the Gaseous Hydride Atomic Fluorescence (GHAF), Standard Methods; 21st Ed.3114C (modified), followed by Atomic Fluorescence Spectrometry (AFS) as the detector. This procedure will be used for selenium determination in support of the NPDES Permit Program.

The Environmental Protection Agency (EPA) Region III maintains a two tiered review process for approving limited-use ATP requests in support of the NPDES Permit Program, Category#1 and Category#2. In Category #1, EPA's Engineering and Analysis Support Division (EAD) **has not** evaluated a proposed method/technology for possible use in support of the NPDES Permit Program. Also, a proposed modification is not within the allowed flexibility of CFR Part 136.6. In Category #2, EPA's EAD **has** evaluated a proposed method/technology for changes considered allowable under "methods modification" (Part 136.6). BIO-CHEM's ATP request was evaluated in accordance with Category #1 as it has not been evaluated by EPA's Engineering and Analysis Support Division.

The West Virginia Department of Environmental Protection (WV DEP) along with the EPA Region III Water Management and the Environmental Assessment and Innovation Divisions have carefully reviewed BIO-CHEM's method modification and the validation data submitted in support of its application. The validation data includes an "Initial Demonstration of Laboratory Capability", and parallel testing with an approved method. The supportive data demonstrate that the modified method produces results that are equivalent to results produced by the EPA approved method. Also demonstrated was improved method performance such as accuracy, precision, lower detection limits and that the results meet the EPA QC acceptance criteria for designated methods.

All groups recommended approval of BIO-CHEM's request. Therefore, based upon the review of the supportive comparability data and their recommendations, limited-use approval is granted for the use of the modified method, SM3114C. BIO-CHEM may use the GHAF/AFS Procedure for the measurement of selenium in wastewater compliance monitoring samples in

support of the NPDES Permit Program. It should be noted that EPA evaluates methods/technologies, it does not evaluate instrumentation.

If you have any questions regarding this correspondence, please contact Charles Jones, Jr. Regional Quality Assurance Officer at 215-814-2734

Sincerely,

John R. Pomponio, Director
Environmental Assessment and Innovation Division

Cc: Daniel T. Arnold (WV DEP – DWWM)

**Attachment I**

# WEST VIRGINIA
# DEPARTMENT OF ENVIRONMENTAL PROTECTION
# DIVISION OF WATER AND WASTE MANAGEMENT

## Annual Certified Parameter List

for

## SUMMIT ENVIRONMENTAL TECHNOLOGIES, INCORPORATED
## CUYAHOGA FALLS, OHIO

## PARAMETERS CERTIFIED

### NONPOTABLE WATER FIELD TESTS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| pH (Field Test - Hydrogen Ion) | SM21st4500-H B | Probe |
| pH (Field Test - Hydrogen Ion) | SW9040C | Probe |
| pH (Field Test - Hydrogen Ion) | SW9045 | Probe |

### NONPOTABLE WATER INORGANICS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Ammonia | SM21st4500-NH3 B | Distillation |
| Ammonia | SM21st4500-NH3 F | Electrode |
| Bromide | EPA300.0 | IC |
| Bromide | SW9056 | IC |
| Chloride | EPA300.0 | IC |
| Chloride | SW9056 | IC |
| Demand, Biochemical(BOD) | SM21st5210 B | Probe |
| Demand, Carbonaceous(CBOD) | SM21st5210 B | Probe |
| Demand, Chemical Oxygen (COD) | SM21st5520 C | Spectrometric |
| Fluoride | EPA300.0 | IC |
| Fluoride | SW9056 | IC |
| Kjeldahl Nitrogen, Total | SM21st4500-Norg B | Digestion |
| Kjeldahl Nitrogen, Total | SM21st4500-NH3 B | Distillation |
| Kjeldahl Nitrogen, Total | SM21st4500-NH3 D | Electrode |
| Nitrate | EPA300.0 | IC |
| Nitrate | SW9056 | IC |
| Nitrate-Nitrite | EPA300.0 | IC |
| Nitrate-Nitrite | SW9056 | IC |
| Nitrite | EPA300.0 | IC |
| Nitrite | SW9056 | IC |

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Oil & Grease | EPA1664A | Gravimetric |
| Organic Carbon, Total (TOC) | SM21st5310 B | Oxidation |
| Organic Halide, Total (TOX) | SW9020B | Oxidation |
| Phenolics, Total | SM21st5310 D | Spectrometric |
| Phenolics, Total | SW9065 | Spectrometric |
| Phosphate, Ortho | EPA300.0 | Spectrometric |
| Phosphate, Ortho | SW9056 | Spectrometric |
| Phosphate, Total | SM21st4500-P B | Digestion |
| Phosphate, Total | SM21st4500-P E | Spectrometric |
| Solids, Dissolved | SM21st2540 C | Gravimetric |
| Solids, Suspended | SM21st2540 D | Gravimetric |
| Solids, Total | SM21st2540 B | Gravimetric |
| Sulfate | EPA300.0 | IC |
| Sulfate | SW9056 | IC |
| Surfactants (MBAS) | SM20th5540 C | Spectrometric |

## NONPOTABLE WATER TRACE METALS

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | EPA200.7 Rev 4.4-1994 | ICP |
| Antimony | EPA200.7 Rev 4.4-1994 | ICP |
| Arsenic | EPA200.7 Rev 4.4-1994 | ICP |
| Barium | EPA200.7 Rev 4.4-1994 | ICP |
| Beryllium | EPA200.7 Rev 4.4-1994 | ICP |
| Cadmium | EPA200.7 Rev 4.4-1994 | ICP |
| Chromium | EPA200.7 Rev 4.4-1994 | ICP |
| Cobalt | EPA200.7 Rev 4.4-1994 | ICP |
| Copper | EPA200.7 Rev 4.4-1994 | ICP |
| Iron | EPA200.7 Rev 4.4-1994 | ICP |
| Lead | EPA200.7 Rev 4.4-1994 | ICP |
| Magnesium | EPA200.7 Rev 4.4-1994 | ICP |
| Manganese | EPA200.7 Rev 4.4-1994 | ICP |
| Nickel | EPA200.7 Rev 4.4-1994 | ICP |
| Phosphorus | EPA200.7 Rev 4.4-1994 | ICP |
| Selenium | EPA200.7 Rev 4.4-1994 | ICP |
| Silver | EPA200.7 Rev 4.4-1994 | ICP |
| Sodium | EPA200.7 Rev 4.4-1994 | ICP |
| Thallium | EPA200.7 Rev 4.4-1994 | ICP |
| Tin | EPA200.7 Rev 4.4-1994 | ICP |
| Titanium | EPA200.7 Rev 4.4-1994 | ICP |
| Vanadium | EPA200.7 Rev 4.4-1994 | ICP |
| Zinc | EPA200.7 Rev 4.4-1994 | ICP |
| Mercury | EPA245.1 | CVAA |
| Mercury | EPA1631E | CVAA (Low Level) |
| Mercury | SW7470A | CVAA |

## NONPOTABLE WATER VOLATILES

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Purgeables | EPA624 | GC/MS |

## NONPOTABLE WATER EXTRACTABLES & SEMI-VOLATILES

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Organochlorine Pesticides & PCBs | EPA608 | GC/ECD |
| Chlorinated Herbicides | EPA615 | GC/ECD |
| Base/Neutrals & Acids | EPA625 | GC/MS |
| Carbamates | EPA632 | HPLC |

## NONPOTABLE WATER DIOXINS & DIBENZOFURANS

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Dioxins & Furans (PCDD/F) | EPA1613B | HRGC/HRMS |
| Chlorinated Biphenyl (PCB) Congeners | EPA1668A | HRGC/HRMS |

## NONPOTABLE WATER RADIOCHEMISTRY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Gross Alpha | SM21st7110 C | Gas Flow Proportional |
| Gross Alpha | SW9310 | Gas Flow Proportional |
| Gross Beta | SW9310 | Gas Flow Proportional |
| Radium 226 | SW9315 | Gas Flow Proportional |
| Radium 228 | SW9320 | Gas Flow Proportional |
| Uranium | EPA200.8 | ICP/MS |
| Uranium | SW6020 | ICP/MS |

## HAZARDOUS WASTE CHARACTERISTICS

| PROCEDURE | METHOD | TECHNOLOGY |
|---|---|---|
| Corrosivity (Water) | SW9040B | Probe |
| Corrosivity (Soil) | SW9045D | Probe |
| Ignitability (Penske-Martin) | SW1010 | Closed Cup |
| Reactive Cyanide | Chap 7.3.3.2 | SW9010B/9014 |
| Reactive Sulfide | Chap 7.3.3.2 | SW9030B/9034A |
| TCLP (Metals & Organics) | SW1311 | Rotating Extractor |

## SOLID & CHEMICAL INORGANICS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Bromide | SW9056 | IC |
| Chloride | SW9056 | IC |
| Cyanide, Total | SW9010B | Spectrometric |
| Cyanide, Total | SW9014 | Spectrometric |
| Fluoride | SW9056 | IC |
| Kjeldahl Nitrogen, Total | SM21st4500-Norg B | Digestion |
| Kjeldahl Nitrogen, Total | SM21st4500-NH3 B | Distillation |
| Kjeldahl Nitrogen, Total | SM21st4500-NH3 D | Electrode |
| Nitrate | SW9056 | IC |
| Nitrate-Nitrite | SW9056 | IC |
| Nitrite | SW9056 | IC |
| Oil & Grease | SW9070 | Gravimetric |
| Oil & Grease | SW9071B | Gravimetric |
| Organic Halide, Extractable (EOX) | SW9023 | Oxidation |
| Phenolics, Total | SW9065 | Spectrometric |
| Phosphate, Ortho | SW9056 | Spectrometric |
| Sulfate | SW9056 | IC |
| Sulfide | SW9030B | Spectrometric |
| Sulfide | SW9034A | Spectrometric |

## SOLID & CHEMICAL TRACE METALS

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | SW6010B | ICP |
| Antimony | SW6010B | ICP |
| Arsenic | SW6010B | ICP |
| Barium | SW6010B | ICP |
| Cadmium | SW6010B | ICP |
| Chromium | SW6010B | ICP |
| Cobalt | SW6010B | ICP |
| Copper | SW6010B | ICP |
| Lead | SW6010B | ICP |
| Nickel | SW6010B | ICP |
| Phosphorus | SW6010B | ICP |
| Selenium | SW6010B | ICP |
| Silver | SW6010B | ICP |
| Tin | SW6010B | ICP |
| Vanadium | SW6010B | ICP |
| Zinc | SW6010B | ICP |
| Mercury | SW7471A | CVAA |

## SOLID & CHEMICAL VOLATILES

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Total Petroleums (TPH - Fuel - GRO) | SW8015B | GC/FID |
| Aromatics (Fuels - BTEX & MTBE) | SW8021B | GC/FID |
| Volatiles | SW8260B | GC/MS |

## SOLID & CHEMICAL EXTRACTABLES & SEMI-VOLATILES

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Total Petroleums (TPH - Fuel - Diesel) | SW8015B | GC/FID |
| Organochlorine Pesticides | SW8081A | GC/ECD |
| Polychlorinated Biphenyls (PCBs) | SW8082 | GC/ECD |
| Organophosphates | SW8141A | GC/FID |
| Chlorinated Herbicides | SW8151A | GC/ECD |
| Semi-volatiles | SW8270C | GC/MS |

## SOLID & CHEMICAL DIOXINS & DIBENZOFURANS

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Dioxins & Furans (PCDD/F) | SW8290 | HRGC/HRMS |
| Chlorinated Biphenyl (PCB) Congeners | EPA1668A | HRGC/HRMS |

## SOLID & CHEMICAL RADIOCHEMISTRY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Gross Alpha | SM21st7110 C | Gas Flow Proportional |
| Gross Alpha | SW9310 | Gas Flow Proportional |
| Gross Beta | SW9310 | Gas Flow Proportional |
| Radium 226 | SW9315 | Gas Flow Proportional |
| Radium 228 | SW9320 | Gas Flow Proportional |
| Uranium | EPA200.8 | ICP/MS |
| Uranium | SW6020 | ICP/MS |

## EXTRACTION, DIGESTION, CLEANUP, & PREPARATORY METHODS

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Metals Digestion | EPA200.2 | Acid |
| Metals digestion | SW3005A | Hot Block |
| Metals digestion | SW3010A | Microwave |
| Metals digestion | SW3050B | Acid |
| Metals digestion | SW3060A | Hexchrome |
| Extraction | SW3510C | Separatory Funnel (LL) |
| Extraction | SW3540C | Soxhlet |
| Extraction | SW3550C | Ultrasonic (Sonication) |
| Extraction | SW3580A | Waste Dilution |
| Extraction (Aqueous) | SW5030B | Purge & Trap (P&T) |
| Extraction (Soils) | SW5035 | Purge & Trap (Closed) |

This laboratory may test **ONLY** for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires On, **31 December 2011.** Certificate No. **248** .

David F Wolfe Issued On, 31March 2011.

David F Wolfe, PhD
Quality Assurance Officer

west virginia department of environmental protection

Division of Water and Waste Management
601 57th Street SE
Charleston, WV 25304-2345
Phone: (304) 926-0495
Fax: (304) 926-0497

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

October 07, 2011

Clarence Haile
Laboratory Director
REI Consultants, Incorporated
PO Box 286
Beaver, WV 25813

Dear Dr. Haile:

Please find enclosed an ATTACHMENT I modifying certification of your facility through September 30, 2012.

Corrections have been made in accordance with observations made by Brenda Barnett.

If you have any questions, and if I can be of further assistance please call me at (304) 926-0499 ext. 1341 or e-mail me at Daniel.T.Arnold@wv.gov.

Sincerely,

Daniel T. Arnold
Program Manager
da

Enclosure:

**Attachment I**

**WEST VIRGINIA**
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**DIVISION OF WATER AND WASTE MANAGEMENT**

**Annual Certified Parameter List**

**for**

# REI CONSULTANTS, INCORPORATED
## BEAVER, WEST VIRGINIA

**PARAMETERS CERTIFIED**

## NONPOTABLE WATER INORGANIC NONMETALS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Acidity | SM18th2310 B | Titrimetric |
| Alkalinity | SM18th2320 B | Titrimetric |
| Ammonia | EPA350.1 | Discrete |
| Bromide | EPA300.0 | IC |
| Chloride | EPA300.0 | IC |
| Chlorine, Residual | SM18th4500-Cl G | Spectrophotometric |
| Color | SM18th2120 B | Visual Comparison |
| Color | SM18th2120 E | Colorimetric |
| Conductance, Specific | SM18th2510 B | Probe |
| Cyanide, Total | EPA335.4 | Spectrophotometric |
| Cyanide, Amenable to Chlorination | SM18th4500-CN G | Spectrophotometric |
| Cyanide, WAD | SM18th4500-CN I | Spectrophotometric |
| Demand, Biochemical(BOD) | SM18th5210B | Probe |
| Demand, Carbonaceous(CBOD) | SM18th5210B | Probe |
| Demand, Chemical Oxygen (COD) | EPA410.4 | Spectrophotometric |
| Fluoride | EPA300.0 | IC |
| Hardness, Calcium | SM18th2340 B | Calculation |
| Hardness, Total | SM18th2340 B | Calculation |
| Kjeldahl, Total Nitrogen | SM18th4500-NH3 E | Titration |
| Kjeldahl, Total Nitrogen | EPA351.2 | Discrete |
| Nitrate | EPA300.0 | IC |
| Nitrate-Nitrite | EPA300.0 | IC |
| Nitrite | EPA300.0 | IC |
| Oil & Grease | EPA1664A | Gravimetric |
| Organic Carbon, Total | SM18th5310 C | Oxidation |
| Phenolics, Total | EPA420.1 Rev 1978 | Manual Spectrophotometric |

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Phosphate, ortho | EPA300.0 | IC |
| Phosphorus, Total | SW18th4500-P E | Discrete |
| Silica, Dissolved | EPA200.7 | ICP |
| Solids, Dissolved | SM18th2540 C | Gravimetric |
| Solids, Settleable | SM18th2540 F | Gravimetric |
| Solids, Suspended | SM18th2540 D | Gravimetric |
| Solids, Total | SM18th2540 B | Gravimetric |
| Solids, Volatile | SM18th2540 E | Gravimetric |
| Sulfate | EPA300.0 | IC |
| Sulfide | SM18th4500-S2 E | Titrimetric |
| Sulfite | SM18th4500-SO3 B | Titrimetric |
| Surfactants (MBAS) | SM18th5540 C | Spectrophotometric |
| Temperature | SM18th2550 B | |
| Turbidity | SM18th2130 B | Turbidimetric |
| Oxygen, Dissolved | SM18th4500-O C | Winkler |
| Oxygen, Dissolved(Field Test) | SM18th4500-O C | Winkler |
| pH | SM18th4500-H B | Probe |
| pH(Field Test) | SM18th4500-H B | Probe |
| Ammonia | EPA350.1 | Distillation |
| Cyanide | EPA335.4 | Distillation |
| Phenolics | EPA420.1 | Distillation |
| Phosphorus, Total | SM18th4500-P B.5 | Digestion |
| Total Kjeldahl Nitrogen | SM18th4500Norg B | Digestion |
| Total Kjeldahl Nitrogen | SM18th4500-NH3 B | Distillation |

## NONPOTABLE WATER TRACE METALS

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | EPA200.7 Rev 4.4-1994 | ICP |
| Antimony | EPA200.7 Rev 4.4-1994 | ICP |
| Arsenic | EPA200.7 Rev 4.4-1994 | ICP |
| Barium | EPA200.7 Rev 4.4-1994 | ICP |
| Beryllium | EPA200.7 Rev 4.4-1994 | ICP |
| Boron | EPA200.7 Rev 4.4-1994 | ICP |
| Cadmium | EPA200.7 Rev 4.4-1994 | ICP |
| Calcium | EPA200.7 Rev 4.4-1994 | ICP |
| Chromium | EPA200.7 Rev 4.4-1994 | ICP |
| Cobalt | EPA200.7 Rev 4.4-1994 | ICP |
| Copper | EPA200.7 Rev 4.4-1994 | ICP |
| Gold | EPA200.7 Rev 4.4-1994 | ICP |
| Iron | EPA200.7 Rev 4.4-1994 | ICP |
| Lead | EPA200.7 Rev 4.4-1994 | ICP |
| Magnesium | EPA200.7 Rev 4.4-1994 | ICP |
| Manganese | EPA200.7 Rev 4.4-1994 | ICP |
| Molybdenum | EPA200.7 Rev 4.4-1994 | ICP |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Nickel | EPA200.7 Rev 4.4-1994 | ICP |
| Potassium | EPA200.7 Rev 4.4-1994 | ICP |
| Selenium | EPA200.7 Rev 4.4-1994 | ICP |
| Silicon | EPA200.7 Rev 4.4-1994 | ICP |
| Silver | EPA200.7 Rev 4.4-1994 | ICP |
| Sodium | EPA200.7 Rev 4.4-1994 | ICP |
| Strontium | EPA200.7 Rev 4.4-1994 | ICP |
| Thallium | EPA200.7 Rev 4.4-1994 | ICP |
| Tin | EPA200.7 Rev 4.4-1994 | ICP |
| Titanium | EPA200.7 Rev 4.4-1994 | ICP |
| Vanadium | EPA200.7 Rev 4.4-1994 | ICP |
| Zinc | EPA200.7 Rev 4.4-1994 | ICP |
| Antimony | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Arsenic | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Barium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Beryllium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Cadmium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Chromium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Cobalt | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Copper | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Gold | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Lead | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Manganese | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Molybdenum | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Nickel | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Palladium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Platinum | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Selenium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Silver | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Strontium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Thallium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Tin | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Titanium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Vanadium | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Zinc | EPA200.8 Rev 5.4-1994 | ICP-MS |
| Aluminum | SW6020A | ICP-MS |
| Arsenic | EPA200.9 Rev 2.2-1994 | STGFAA |
| Cadmium | EPA200.9 Rev 2.2-1994 | STGFAA |
| Chromium | EPA200.9 Rev 2.2-1994 | STGFAA |
| Lead | EPA200.9 Rev 2.2-1994 | STGFAA |
| Selenium | EPA200.9 Rev 2.2-1994 | STGFAA |
| Mercury | EPA245.1 | CVAA |
| Mercury | SW7470A | CVAA |
| Mercury | SW7471A | CVAA |
| Selenium | SM18th3114 B | GH/AF |
| Chromium, Hexavalent | SM18th3500-Cr D | Colorimetric |
| Chromium, Hexavalent | EPA218.6 Rev 3.3-1994 | IC |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Metals digestion | SW3020A | Hot Block |
| Total Recoverable | EPA200.2 Rev -1994 | Digestion |
| Dissolved Metals | EPA200.7 Rev 4.4-1994 | |
| Mercury | EPA245.1 | Digestion |
| Mercury | SW7470A | Digestion |
| Mercury | SW7471A | Digestion |

## NONPOTABLE WATER MICROBIOLOGY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Fecal Coliform | SM18th9222 D | Membrane Filter |
| Fecal Coliform | SM18th9223 B | Most Probable Number |
| Total Coliform | SM18th9222 B | Membrane Filter |
| Total Coliform | SM18th9223 B | Most Probable Number |
| Fecal Streptococci | SM18th9230 C | Membrane Filter |
| Heterotrophic Plate Count (HPC) | SM9215 B | SimPlate |
| Heterotrophic Plate Count (HPC) | SM9215 E | Membrane Filter |

## NONPOTABLE WATER VOLATILE ORGANIC CHEMICALS

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Purgeable Halocarbons | EPA601 | GC/ELCD |
| Purgeable Aromatics | EPA602 | GC/PID |
| Acrolein & Acrylonitrile | EPA603 | GC/FID |
| Purgeables | EPA624 | GC/MS |
| Total Petroleum Hydrocarbons (GRO) | SW8015C | GC/FID |
| Nonhalogenated Volatiles | SW8015C | GC/FID |
| Halogenated & Aromatic Volatiles | SW8021B | GC/ELCD/PID |
| Volatile Organic Compounds | SW8260B | GC/MS |
| Volatile Organic Compounds | SW5030B | Purge and Trap |
| Volatile Organic Compounds | SW5035 | Purge and Trap, Closed |

## NONPOTABLE WATER EXTRACTABLE AND SEMI-VOLATILE ORGANIC CHEMICALS

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| EDB/DBCP | EPA504 | GC/ECD |
| Phenols | EPA604 | GC/FID |
| Pesticides and PCBs | EPA608 | GC/ECD |
| Base/Neutrals and Acids | EPA625 | GC/MS |
| EDB & DBCP | SW8011 | GC/ECD |
| Total Petroleum Hydrocarbons (DRO) | SW8015C | GC/FID |

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Phenols | SW8041 | GC/FID |
| Organochlorine Pesticides | SW8081B | GC/ECD |
| Polychlorinated Biphenyls | SW8082A | GC/ECD |
| Polynuclear Aromatic Hydrocarbons | SW8100 | GC/FID |
| Chlorinated Herbicides | SW8151A | GC/ECD |
| Semivolatile Organic Compounds | SW8270D | GC/MS |
| Nitroaromatics and Nitroamines | SW8330 | HPLC |
| Nitroglycerin | SW8332 | HPLC |
| Liquid-Liquid Extraction | SW3510 | Separatory Funnel |
| Waste Dilution | SW3580 | |
| Chlorinated Herbicides | SW8151A | Extraction |
| Florisil Cleanup | SW3620 | Cleanup |
| Sulfur Cleanup | SW3660 | Cleanup |
| Acid Cleanup | SW3665 | Cleanup |
| Nitroaromatics and Nitroamines | SW8330 | Extraction |

## WHOLE EFFLUENT TOXICITY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Fathead minnow | EPA821-R-02-012 2000.0 | Acute |
| Ceriodaphnia dubia | EPA821-R-02-012 2002.0 | Acute |
| Survival & Growth of Fathead Minnow Larval | EPA821-R-02-013 1000.0 | Chronic |
| Survival & Reproduction of Ceriodaphnia | EPA821-R-02-013 1002.0 | Chronic |

## HAZARDOUS WASTE CHARACTERISTICS

| PROCEDURE | METHOD | TECHNOLOGY |
|---|---|---|
| Corrosivity | SW9045 D | Probe |
| Corrosivity | SW9040 C | Probe |
| Ignitability | SW1010 | Closed Cup |
| Reactive Cyanide | Run Total Cyanide by SW9010/9014 | |
| Reactive Sulfide | Run Total Sulfide by SW9030B/9034 | |
| Paint Filter Test | SW9095B | Gravimetric |
| TCLP (Metals and Organics) | SW1311A | Rotating Extractor |

## SOLID AND CHEMICAL INORGANIC NONMETALS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| pH | SW9045D | Probe |
| *Acidity | SM18th2310 B | Titrimetric |
| *Alkalinity | SM18th2320 B | Titrimetric |
| *Ammonia | EPA350.1 | Discrete |
| *Ammonia | SM18th4500-NH3 E | Titrimetric |
| *Bromide | EPA300.0 | IC |
| *Chloride | EPA300.0 | IC |
| *Cyanide, Total | EPA335.4 | Spectrophotometric |
| *Demand, Chemical (COD) | EPA410.4 | Spectrophotometric |
| *Fluoride | EPA300.0 | IC |
| *Kjeldahl, Total Nitrogen | EPA351.2 | Discrete |
| *Kjeldahl, Total Nitrogen | SM18th4500-NH3 E | Titrimetric |
| *Nitrate | EPA300.0 | IC |
| *Nitrate-Nitrite | EPA300.0 | IC |
| *Nitrite | EPA300.0 | IC |
| *Oil & Grease | EPA1664A | Gravimetric |
| Organic Carbon, Total | SM18th5310 C | Oxidation |
| *Phenolics, Total | EPA420.1 Rev 1978 | Manual Spectrophotometric |
| *Phosphate, ortho | EPA300.0 | IC |
| Phosphate, Total | SW6010C | ICP |
| Solids, Total | SM18th2540 G | Gravimetric |
| Solids, Volatile | SM18th2540 E | Gravimetric |
| Solids, Volatile | SM18th2540 G | Gravimetric |
| *Sulfate | EPA300.0 | IC |
| *Ammonia | SM18th4500-NH3 B | Distillation |
| *Kjeldahl, Total Nitrogen | SM18th4500-Norg B | Digestion |
| *Kjeldahl, Total Nitrogen | SM18th4500-NH3 B | Distillation |

*Modified for soil analysis

## SOLID AND CHEMICAL TRACE METALS

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | SW6010C | ICP |
| Antimony | SW6010C | ICP |
| Arsenic | SW6010C | ICP |
| Barium | SW6010C | ICP |
| Beryllium | SW6010C | ICP |
| Boron | SW6010C | ICP |
| Cadmium | SW6010C | ICP |
| Calcium | SW6010C | ICP |
| Chromium | SW6010C | ICP |
| Cobalt | SW6010C | ICP |
| Copper | SW6010C | ICP |
| Gold | SW6010C | ICP |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Iron | SW6010C | ICP |
| Lead | SW6010C | ICP |
| Magnesium | SW6010C | ICP |
| Manganese | SW6010C | ICP |
| Molybdenum | SW6010C | ICP |
| Nickel | SW6010C | ICP |
| Potassium | SW6010C | ICP |
| Selenium | SW6010C | ICP |
| Silicon | SW6010C | ICP |
| Silver | SW6010C | ICP |
| Sodium | SW6010C | ICP |
| Strontium | SW6010C | ICP |
| Thallium | SW6010C | ICP |
| Tin | SW6010C | ICP |
| Titanium | SW6010C | ICP |
| Vanadium | SW6010C | ICP |
| Zinc | SW6010C | ICP |
| Aluminum | SW6020A | ICP-MS |
| Antimony | SW6020A | ICP-MS |
| Arsenic | SW6020A | ICP-MS |
| Barium | SW6020A | ICP-MS |
| Beryllium | SW6020A | ICP-MS |
| Cadmium | SW6020A | ICP-MS |
| Chromium | SW6020A | ICP-MS |
| Cobalt | SW6020A | ICP-MS |
| Copper | SW6020A | ICP-MS |
| Gold | SW6020A | ICP-MS |
| Lead | SW6020A | ICP-MS |
| Manganese | SW6020A | ICP-MS |
| Molybdenum | SW6020A | ICP-MS |
| Nickel | SW6020A | ICP-MS |
| Palladium | SW6020A | ICP-MS |
| Platinum | SW6020A | ICP-MS |
| Selenium | SW6020A | ICP-MS |
| Silver | SW6020A | ICP-MS |
| Strontium | SW6020A | ICP-MS |
| Thallium | SW6020A | ICP-MS |
| Tin | SW6020A | ICP-MS |
| Titanium | SW6020A | ICP-MS |
| Vanadium | SW6020A | ICP-MS |
| Zinc | SW6020A | ICP-MS |
| Arsenic | SW7010 | GFAA |
| Cadmium | SW7010 | GFAA |
| Chromium | SW7010 | GFAA |
| Lead | SW7010 | GFAA |
| Selenium | SW7010 | GFAA |
| Mercury | EPA245.1 | CVAA |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Mercury | SW7470A | CVAA |
| Mercury | SW7471B | CVAA |
| Chromium, Hexavalent | SM18th3500-Cr D | Colorimetric |
| Chromium, Hexavalent | SW3060 | Digestion |
| Metals | SW3050B | Digestion |
| Mercury | SW7471B | Digestion |

## SOLID AND CHEMICAL MICROBIOLOGY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Fecal Coliform | SM18th9222 D | Membrane Filter |
| Fecal Coliform | SM18th9223 B | Most Probable Number |
| Total Coliform | SM18th9222 B | Membrane Filter |
| Total Coliform | SM18th9223 B | Most Probable Number |
| Fecal Streptococci | SM18th9230 C | Membrane Filter |

## SOLID AND CHEMICAL VOLATILE ORGANIC CHEMICALS

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Purgeable Halocarbons | EPA601 | GC/ELCD |
| Purgeable Aromatics | EPA602 | GC/PID |
| Acrolein & Acrylonitrile | EPA603 | GC/FID |
| Purgeables | EPA624 | GC/MS |
| Total Petroleum Hydrocarbons (GRO) | SW8015C | GC/FID |
| Nonhalogenated Volatiles | SW8015C | GC/FID |
| Halogenated & Aromatic Volatiles | SW8021B | GC/ELCD/PID |
| Volatile Organic Compounds | SW8260B | GC/MS |
| Volatile Organic Compounds | SW5035 | Purge and Trap, Closed |

## SOLID AND CHEMICAL EXTRACTABLE AND SEMI-VOLATILE ORGANIC CHEMICALS

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| EDB/DBCP | EPA504 | GC/ECD |
| Phenols | EPA604 | GC/FID |
| Pesticides and PCBs | EPA608 | GC/ECD |
| Base/Neutrals and Acids | EPA625 | GC/MS |
| EDB & DBCP | SW8011 | GC/ECD |
| Total Petroleum Hydrocarbons (DRO) | SW8015C | GC/FID |
| Phenols | SW8041 | GC/FID |
| Organochlorine Pesticides | SW8081B | GC/ECD |

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Polychlorinated Biphenyls | SW8082A | GC/ECD |
| Polynuclear Aromatic Hydrocarbons | SW8100 | GC/FID |
| Chlorinated Herbicides | SW8151A | GC/ECD |
| Semivolatile Organic Compounds | SW8270D | GC/MS |
| Nitroaromatics and Nitroamines | SW8330 | HPLC |
| Nitroglycerin | SW8332 | HPLC |
| Liquid-Liquid Extraction | SW3510 | Separatory Funnel |
| Ultrasonic Extraction | SW3550 | UE |
| Waste Dilution | SW3580 | |
| Chlorinated Herbicides | SW8151A | Extraction |
| Florisil Cleanup | SW3620 | Cleanup |
| Sulfur Cleanup | SW3660 | Cleanup |
| Acid Cleanup | SW3665 | Cleanup |
| Nitroaromatics and Nitroamines | SW8330 | Extraction |

This laboratory may test **ONLY** for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires September 30, 2012. Certificate No 060

Daniel T. Arnold

_____ Issued on October 07, 2011

Daniel T. Arnold
Program Manager

west virginia department of environmental protection

Division of Water and Waste Management
601 57th Street SE
Charleston, WV 25304-2345
Phone: (304) 926-0495
Fax: (304) 926-0497

Earl Ray Tomblin, Governor
Randy C Huffman, Cabinet Secretary
www.wv.dep.gov

31 March 2011

Lab # 143 [6-10-1]
Randal T Hill, Quality Assurance Manager
Pace Analytical Services, Incorporated - Pittsburgh Laboratory
1638 Roseytown Road – Suites: 2, 3, & 4
Greensburg, Pennsylvania 15601

Dear Randy:

I have enclosed the **ATTACHMENT I** recertifying your facility through, **31 January 2012.**

Please do not hesitate to contact me, if you have any questions or concerns. I can be contacted by phone at: 304-472-5124, by fax at: 304-473-4203, by e-mail at: davidfwolfe@frontier.com, or by e-mail at: david.f.wolfe@wv.gov.

Sincerely,

David F Wolfe

David F Wolfe, PhD
Quality Assurance Officer

Division of Water and Waste Management
28 Hickory Flat Road
Buckhannon, West Virginia 26201-8541

Phone: 304-472-5124
Fax: 304-473-4203

dfw

Enclosure:

**Attachment I**

# WEST VIRGINIA
# DEPARTMENT OF ENVIRONMENTAL PROTECTION
# DIVISION OF WATER AND WASTE MANAGEMENT

## Annual Certified Parameter List

## for

## PACE ANALYTICAL SERVICES, INCORPORATED- PITTSBURGH
## GREENSBURG, PENNSYLVANIA

## PARAMETERS CERTIFIED

## NONPOTABLE WATER FIELD TESTS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| pH (Field Test - Hydrogen Ion) | SM20th4500-H B | Probe |
| Temperature(Field Test) | SM20th2550 B | Probe |

## NONPOTABLE WATER INORGANICS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Acidity | SM20th2310 B (4a) | Titrimetric |
| Alkalinity | SM20th2330B | Titrimetric |
| Ammonia | EPA350.1 | Discrete |
| Chloride | SM20th4500-Cl⁻ E | Discrete |
| Conductance, Specific | EPA120.1 | Probe |
| Chromium, Hexavalent | SM19th3500-Cr D | Colorimetric |
| Chromium, Hexavalent | SW7196A | Colorimetric |
| Cyanide | SM20th4500-CN⁻ C | Distillation |
| Cyanide, Total | SM20th 4500-CN E | Spectrometric |
| Cyanide, Total | EPA335.4 | Spectrometric |
| Cyanide, Amenable | SM20th4500-CN G | Spectrometric |
| Demand, Biochemical(BOD) | SM20th5210 B | Probe |
| Demand, Carbonaceous(CBOD) | SM20th5210 B | Probe |
| Demand, Chemical Oxygen (COD) | EPA410.4 | Spectrometric |
| Fluoride | EPA300.0 | IC |
| Fluoride | SM20th4500-F B | Distillation |
| Fluoride | SM20th4500-F C | ISElectrode |
| Hardness, Total | SM20th2340 B | ICP Calculation |
| Hardness, Total | EPA200.7 Rev 4.4-1994 | ICP Calculation |
| Kjeldahl Nitrogen, Total | SM20th4500-Norg B | Digestion |
| Kjeldahl Nitrogen, Total | SM20th4500-NH3 B | Distillation |
| Kjeldahl Nitrogen, Total | EPA351.2 | Discrete |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Nitrate | SM20th4500-$NO_3$ F | Discrete |
| Nitrate-Nitrite | SM20th4500-$NO_3$ F | Discrete |
| Nitrite | SM20th4500-$NO_3$ F | Discrete |
| Oil & Grease | EPA1664A | Gravimetric |
| Organic Carbon, Total | SM20th5310 C | Oxidation |
| Petroleum Hydrocarbons, Total | EPA1664A | Gravimetric |
| Phenolics, Total | EPA420.1 Rev 1978 | Spectrometric |
| Phosphate, Ortho | SM20th4500-P E | Discrete |
| Phosphorus, Total | SM20th4500-P B.5 | Digestion |
| Phosphorus, Total | SM20th4500-P E | Discrete |
| Solids, Dissolved | SM20th2540 C | Gravimetric |
| Solids, Settleable | SM20th2540 F | Gravimetric |
| Solids, Suspended | SM20th2540 D | Gravimetric |
| Solids, Total | SM20th2540 B | Gravimetric |
| Sulfate | ASTM D516-90, 02 | Turbidimetric |
| Sulfide | SM20th4500-S F | Titrimetric |
| Turbidity | EPA180.1 | Turbidimetric |

## NONPOTABLE WATER TRACE METALS

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | EPA200.7 Rev 4.4-1994 | ICP |
| Antimony | EPA200.7 Rev 4.4-1994 | ICP |
| Arsenic | EPA200.7 Rev 4.4-1994 | ICP |
| Barium | EPA200.7 Rev 4.4-1994 | ICP |
| Beryllium | EPA200.7 Rev 4.4-1994 | ICP |
| Boron | EPA200.7 Rev 4.4-1994 | ICP |
| Cadmium | EPA200.7 Rev 4.4-1994 | ICP |
| Calcium | EPA200.7 Rev 4.4-1994 | ICP |
| Chromium | EPA200.7 Rev 4.4-1994 | ICP |
| Cobalt | EPA200.7 Rev 4.4-1994 | ICP |
| Copper | EPA200.7 Rev 4.4-1994 | ICP |
| Iron | EPA200.7 Rev 4.4-1994 | ICP |
| Lead | EPA200.7 Rev 4.4-1994 | ICP |
| Magnesium | EPA200.7 Rev 4.4-1994 | ICP |
| Manganese | EPA200.7 Rev 4.4-1994 | ICP |
| Molybdenum | EPA200.7 Rev 4.4-1994 | ICP |
| Nickel | EPA200.7 Rev 4.4-1994 | ICP |
| Potassium | EPA200.7 Rev 4.4-1994 | ICP |
| Selenium | EPA200.7 Rev 4.4-1994 | ICP |
| Silver | EPA200.7 Rev 4.4-1994 | ICP |
| Sodium | EPA200.7 Rev 4.4-1994 | ICP |
| Strontium | EPA200.7 Rev 4.4-1994 | ICP |
| Thallium | EPA200.7 Rev 4.4-1994 | ICP |
| Tin | EPA200.7 Rev 4.4-1994 | ICP |
| Titanium | EPA200.7 Rev 4.4-1994 | ICP |
| Vanadium | EPA200.7 Rev 4.4-1994 | ICP |
| Zinc | EPA200.7 Rev 4.4-1994 | ICP |
| Mercury | EPA245.1 Rev 3.0-1994 | CVAA |

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | SW6010B | ICP |
| Antimony | SW6010B | ICP |
| Arsenic | SW6010B | ICP |
| Barium | SW6010B | ICP |
| Beryllium | SW6010B | ICP |
| Boron | SW6010B | ICP |
| Cadmium | SW6010B | ICP |
| Calcium | SW6010B | ICP |
| Chromium | SW6010B | ICP |
| Cobalt | SW6010B | ICP |
| Copper | SW6010B | ICP |
| Iron | SW6010B | ICP |
| Lead | SW6010B | ICP |
| Magnesium | SW6010B | ICP |
| Manganese | SW6010B | ICP |
| Molybdenum | SW6010B | ICP |
| Nickel | SW6010B | ICP |
| Potassium | SW6010B | ICP |
| Selenium | SW6010B | ICP |
| Silver | SW6010B | ICP |
| Sodium | SW6010B | ICP |
| Strontium | SW6010B | ICP |
| Thallium | SW6010B | ICP |
| Tin | SW6010B | ICP |
| Titanium | SW6010B | ICP |
| Vanadium | SW6010B | ICP |
| Zinc | SW6010B | ICP |
| Mercury | SW7470A | CVAA |

## NONPOTABLE WATER VOLATILES

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Purgeables | EPA624 | GC/MS |
| Total Petroleums (TPH - Fuel - GRO) | SW8015B | GC/FID |
| Volatiles | SW8260B | GC/MS |

## NONPOTABLE WATER EXTRACTABLES & SEMI-VOLATILES

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Pesticides & PCBs | EPA608 | GC/ECD |
| Base/Neutrals & Acids | EPA625 | GC/MS |
| Total Petroleums (TPH - Fuel - DRO) | SW8015B | GC/FID |
| Organochlorine Pesticides | SW8081A | GC/ECD |
| Polychlorinated Biphenyls | SW8082 | GC/ECD |
| Semi-volatiles | SW8270C | GC/MS |
| Polynuclear Aromatics (PAHs/PNAs) | SW8270-SIM | GC/MS-SIM |

## NONPOTABLE WATER RADIOCHEMISTRY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Alpha Counting Error | EPA900.0 | Gas Flow Proportional |
| Beta Counting Error | EPA900.0 | Gas Flow Proportional |
| Gross Alpha | EPA900.0 | Gas Flow Proportional |
| Gross Beta | EPA900.0 | Gas Flow Proportional |
| Gamma Emitters | EPA901.1 | Gamma Spectroscopy |
| Alpha Radium | EPA903.0 | Gas Flow Proportional |
| Strontium-90 | EPA-905.0 | Gas Flow Proportional |
| Tritium | EPA-906.0 | Gas Flow Proportional |
| Uranium | EPA-908.0 | Gas Flow Proportional |
| Radium 226 | SM20th7500Ra C | Scintillation Cell System |
| Radium 228 | SM20th7500Ra D | Gas Flow Proportional |
| Isotopic Thorium | US DOE EML-HASL-300 | Alpha Spectroscopy |
| Isotopic Uranium | US DOE EML-HASL-300 | Alpha Spectroscopy |

## HAZARDOUS WASTE CHARACTERISTICS

| PROCEDURE | METHOD | TECHNOLOGY |
|---|---|---|
| Corrosivity (Water) | SW9040B | Probe |
| Corrosivity (Soil) | SW9045C | Probe |
| Ignitability (Penske-Martin) | SW1010A | Closed Cup |
| Paint Filter Test | SW9095B | Gravimetric |
| Reactive Cyanide | Chap 7.3.3.2 | SW9010/9012A/9014 |
| Reactive Sulfide | Chap 7.3.4.2 | SW9030/9034 |
| TCLP (Metals & Organics) | SW1311 | Rotating Extractor |

## SOLID & CHEMICAL INORGANICS

| ANALYTE | METHOD | TECHNOLOGY |
|---|---|---|
| Chromium, Hexavalent | SW7196A | Spectrometric |
| Cyanide, Total | SW9014 | Spectrometric |
| Hardness, Total | SW6010B | ICP Calculation |
| Oil & Grease | SW9071A | Gravimetric |

## SOLID & CHEMICAL TRACE METALS

| METAL | METHOD | TECHNOLOGY |
|---|---|---|
| Aluminum | SW6010B | ICP |
| Antimony | SW6010B | ICP |
| Arsenic | SW6010B | ICP |
| Barium | SW6010B | ICP |
| Beryllium | SW6010B | ICP |
| Boron | SW6010B | ICP |
| Cadmium | SW6010B | ICP |
| Calcium | SW6010B | ICP |
| Chromium | SW6010B | ICP |
| Cobalt | SW6010B | ICP |
| Copper | SW6010B | ICP |
| Iron | SW6010B | ICP |
| Lead | SW6010B | ICP |
| Magnesium | SW6010B | ICP |
| Manganese | SW6010B | ICP |
| Molybdenum | SW6010B | ICP |
| Nickel | SW6010B | ICP |
| Potassium | SW6010B | ICP |
| Selenium | SW6010B | ICP |
| Silver | SW6010B | ICP |
| Sodium | SW6010B | ICP |
| Strontium | SW6010B | ICP |
| Thallium | SW6010B | ICP |
| Tin | SW6010B | ICP |
| Titanium | SW6010B | ICP |
| Vanadium | SW6010B | ICP |
| Zinc | SW6010B | ICP |
| Mercury | SW7471A | CVAA |

## SOLID & CHEMICAL VOLATILES

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Total Petroleums (TPH - Fuel - GRO) | SW8015B | GC/FID |
| Volatiles | SW8260B | GC/MS |

## SOLID & CHEMICAL EXTRACTABLES & SEMI-VOLATILES

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Total Petroleums (TPH - Fuel - DRO) | SW8015B | GC/FID |
| Organochlorine Pesticides | SW8081A | GC/ECD |
| Polychlorinated Biphenyls (PCBs) | SW8082 | GC/ECD |
| Semi-volatiles | SW8270C | GC/MS |
| Polynuclear Aromatics (PAHs/PNAs) | SW8270-SIM | GC/MS-SIM |

## SOLID & CHEMICAL RADIOCHEMISTRY

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Gross Alpha | SW9310 | Gas Flow Proportional |
| Gross Beta | SW9310 | Gas Flow Proportional |
| Gamma Emitters | EPA901.0 | Gamma Spectroscopy |
| Gamma Spectrometry(Ra-226 modified) | EPA901.1 | Gamma Spectroscopy |
| Gamma Spectrometry(Ra-228 modified) | EPA901.1 | Gamma Spectroscopy |
| Strontium-90 | US DOE EML-HASL-300 | Alpha Spectroscopy |
| Strontium-90 | EPA-905.0 | Gas Flow Proportional |
| Isotopic Thorium | US DOE EML-HASL-300 | Alpha Spectroscopy |
| Isotopic Uranium | US DOE EML-HASL-300 | Alpha Spectroscopy |

## EXTRACTION, DIGESTION, CLEANUP, & PREPARATORY METHODS

| GROUP | METHOD | TECHNOLOGY |
|---|---|---|
| Metals Digestion | EPA200.7 Rev 4.4-1994 | Total |
| Metals Digestion | EPA200.7 Rev 4.4-1994 | Dissolved |
| Metals digestion | SW3005A | Hot Block |
| Metals digestion | SW3050B | Acid |
| Metals digestion | SW3051A | Microwave |
| Metals digestion | SW3060A | Hexchrome |
| Extraction | SW3500B | Organic Samples |
| Extraction | SW3510C | Separatory Funnel (LL) |
| Extraction | SW3520C | Continuous (CLL) |
| Extraction | SW3535A | Solid Phase (SPE) |
| Extraction | SW3546 | Pressurized Fluid (PFE) |
| Extraction | SW3550B | Ultrasonic (Sonication) |
| Extraction | SW3580A | Waste Dilution |
| Cleanup | SW3660B | Sulfur |
| Cleanup | SW3665A | $H_2SO_4$/Permanganate |
| Extraction (Aqueous) | SW5030B | Purge & Trap (P&T) |
| Extraction (Soils) | SW5035 | Purge & Trap (Closed) |

This laboratory may test **ONLY** for those environmental parameters listed above for compliance reporting purposes. All testing must be by the test method cited in the current application for certification.

This Certification Expires On, **31 January 2012.** Certificate No. **143 .**

David F Wolfe Issued On, 31 March 2011.

David F Wolfe, PhD
Quality Assurance Officer

BIO-CHEM TESTING, INC.
5 WEATHERIDGE DRIVE
HURRICANE, WV 25526

| Position Title | Name | Academic Training HS,BA/BS, MS, PhD | Experience Code/Year |
|---|---|---|---|
| Laboratory Manager | Mukesh Shah | BS Chemistry, Biology | 1-36,2-36,5-36,6-7, 8-36 |
| Lab Supervisor Chemistry/Microbiology<br>Lab Supervisor Bioassay | Brian Richards<br>Mukesh Shah | BS Biology, MS pending<br>BS Chemistry, Biology | 1-6,2-3,8-6<br>1-36,2-36,5-36,6-7,8-36 |
| QA/QC Officer | John Joseph | BS Chemistry | 1-38,2-4,5-6,8-1 |
| Analyst(s)/ Technicians | Hemant Shah<br>William E. Smith<br>Kara Frampton<br>Jamell Hart<br>Nathan Milam<br>Cindy Walker<br>Justin Carpenter<br>Brittany Haggerty<br>Kellie McGettigan<br>Zachary Lanham<br>Fred Walker<br>Frances Meredith | BS Chemistry<br>BS Biology<br>BS Biology<br>BS Marine Science<br>BS Biology<br>BS Biology<br>BS Ecology/Evo Bio<br>BS Forensic Chemistry<br>BS Biology<br>BS Biology<br>Chemistry<br>BS,MS Education | 1-11,5-11,8-11<br>1-10,2-10,4-3,8-9<br>1-8,2-7,5-8,8-8<br>1-5.5,5-5.5<br>1-3yr 7 mo<br>1-3yr 3 mo<br>1-3y8m,2-3,8-2y8m<br>1-8 months<br>1-5 months<br>6-8 months<br>1-9months,8-9months<br>1-1 |
| Support Personnel e.g. Electronics tech, Samplers, etc. | Anu Shah<br>Paul Ice | BS Chemistry, Some Accounting and Computer Courses<br>BS Agronomy | 8-6 Sample pickup only, Accounting<br>1-12,5-10,8-12 |

EXPERIENCE CODES USED

| | | | |
|---|---|---|---|
| 1-Chemistry | 3-Gas Chromatography | 5-Microbiology | 7-Radio Chemistry |
| 2-Atomic Absorption & ICP | 4-Mass Spectroscopy | 6-Bioassay | 8-Sampling |

# Brian K. Richards

## Experience

**2005-Present**

***Bio-Chem Testing, Inc.***

- Laboratory Manager (2009-present)
- Field Services Supervisor (2007-present)
- QA/QC Officer
- ICP Operation

- Supervise 15-20 employees
- Monitor annual, semi-annual, quarterly and monthly sampling
- Evaluate analytical and reporting QA/QC
- Perform field sampling as needed
- Prepare Data Packages

**2003-2005**

***Environmental Assessment Associates, LLC. (EAA),Barboursville, WV***

Field Assistant(2003-2004); Project Supervisor(2004-2005)

- Coordinate on-site activities for annual freshwater mussel surveys in Ohio.
- Track movements for 6000+ live mussels trans-located from channel dredging activities at site of proposed power plant using water intakes for turbine cooling purposes.
- Coordinated survey efforts of a freshwater mussel survey in the New River Gorge National River, as well as report writing.
- Project Supervisor for a proposal written and received for the WV DNR's Natural Heritage Program, Non-Game Wildlife Grant. Survey of fresh water mussels in the lower Kanawha River.
- Aquatic Community Site Assessment, Rainelle, WV; Fish Survey and benthic macro-invertebrate sampling in Sewell and Wolfpen Creeks for a proposed coal-waste fired plant.

**2004-2005**

***Marshall University, Integrated Science and Technology, Huntington,WV***

Teaching Assistant

- Class & Lab Preparation

**2002-2003**

***Alderson Broaddus College, Natural Science Dept., Philippi,WV***

Laboratory Assistant

- Sub-Contracted work from Acculab to process macro-invertebrate samples for identification.

## Education

**Marshall University;** GeoBioPhysical Modeling 2003-2005, Huntington, WV

**Alderson Broaddus College;** B.S. Environmental Science, Minor Biology and Chemistry 1999-2003, Philippi, WV

# John Mack Joseph

## Experience

**November 2008-Present**
***Bio-Chem Testing. Inc.***
Quality Control/Quality Assurance Officer

- Evaluate QA/QC data
- Revise & Update Quality Manual
- Oversee Demonstration of Capability and Method Detection Limit studies
- Ensure Control Charts are managed properly
- Communicate with Federal and State Departments of Environmental Protection & NELAC regarding certification requirements
- Prepare Quality Control Reports
- Verify Calculation Software, Temperature Calibrations, Distributions, Volumetric Equipment Calibration

**2001- October 2008**
***West Virginia Department of Environmental Protection***

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**2000-2001**
***AC&S Analytical***

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**1999-2000**
***Great Lakes Chemical Corporation***

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**1993-1999**
**FMC Corporaton**

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**1987-1993**
***West Virginia Department of Environmental Protection***

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## Education

**West Virginia State College; BS Chemistry 1973**

## Mukesh K Shah

**Education:** Graduate West Virginia Institute of Technology with a BS in Chemistry 1975, Montgomery, WV.

**Experience:** **April 1995 – Present**

*Bio-Chem Testing, Inc.*

President and Director of entire laboratory operations, functioning in the laboratory as an analyst, supervisor, and top-level data review.

Specializes in sampling for:

- Industrial wastewater, Sanitary wastewater, Process water, Stormwater both composite samples (using auto-sampler) and grab samples.
- Ground water and Monitoring wells. Purging wells and collection of sample, leachate sampling, surface points, etc.
- Soil and Sludge waste sampling.

**June 1976 – February 1995:**

*Technical Testing Laboratories and Commercial Testing & Engineering.*

**February 1993 – February 1995:**

Senior Chemist and Supervisor for Metals and Nonmetals:

Supervised entire production and technical aspects of the Inorganic Laboratory.

**June 1987 – February 1993:**

Group Leader & Senior Chemist Metals Section:
Preparation of water, sludge, soil, oil, paint and air samples using hotplate and microwave digestion methods for the analysis of metals with the following instruments:

AA Flame & Furnace
ICP Sequential & Simultaneous
Mercury Analyzer

**June 1976 – June 1987:**

Analysis of Water, Wastewater and sludge for BOD, COD, TKN ammonia & organic nitrogen, TDS, TSS, TS, VS, pH, conductivity, surfactant, phosphate, phenols, and other conventional analysis associated with Inorganic and Metal sections.

Preparation of NPDES reports.

Analysis of effluents for fecal and total coliform bacteria.

Measuring the toxicity of effluents to fat-head minnow and Daphnia Magna.

Analysis of coal and coke for moisture, ash, BTU, FSI, volatile matter, ash mineral and washability study.

**Inorganics Technical Director**

Name: Cecilia Markovich

Education: Masters Degree in Analytical Chemistry
Latvian State University
Riga, Latvia

Experience: 23 years as Analytical Laboratory Chemist in USSR specializing in metals and organic analyses.

8 years serving as Environmental Metals Analyst for American Analytical Laboratories Inc., Akron, OH.

Presently serving as Metals and Dioxin Analyst and Technical Director for Summit Environmental Technologies, Inc.

Training: ICP Training – Leeman Labs

Qualifications: Ohio EPA Certified Drinking Water Analyst
AIHA accredited for metals analysis in air
Ohio VAP metals analyst
Certified Radiation Safety Officer

**President**

Name: Dr. Mo Osman, P.E., Ph.D.

Education: Doctor of Philosophy Degree in Environmental Engineering
The University of Akron, 1994

Master of Science Degree in Environmental Engineering
The University of Akron, 1991

Master of Science Degree in Civil Engineering
Youngstown State University, 1988

Bachelor of Science Degree in Civil Engineering
Tri-State University, Indiana, 1985

Registration: Registered Professional Engineer in many states including Ohio

Awards: Winner of the 1994 research paper competition in the Ohio Environmental Association

Presentations: Presented a research paper titled "Activated Carbon Adsorption: Effects of Pore Size Distribution on Adsorption Isotherms and Kinetics of Flexible Polymers"; Ohio Water Environmental Association; Columbus, OH, 1994

Experience: Over 13 years experience in the water environmental industry with drinking water companies, and engineering consulting firms. Designed many water treatment plants, with sizes up to 6.0 million gallons per day (MGD).

Over 11 years experience in environmental analytical chemistry using a wide range of analytical instruments such as GC, AA, ICP, GC/MS, and performing a broad spectrum of analytical techniques following SW-846 procedures.

Publications: "Activated Carbon Adsorption: Effects of Pore Size Distribution on Adsorption Isotherm and Kinetics of Flexible Polymers". Dissertation, The University of Akron, 1994.

"Assessing the Adsorption of Polymers by Activated Carbon, both in the Presence and Absence of Solvent Molecules inside the Pores". Submitted to Environmental Science and Technology magazine.

"Molecular Orientation of Flexible Polymers inside the Pores of Activated Carbon". Submitted to Journal of Physical Chemistry

"Quantitiative Assessment of the Optimum Pore Size of Activated Carbon in the Adsorption of Polymers". Submitted to Environmental Science and Technology magazine.

Affiliations: American Water Works Association
Water Environment Federation
American Society of Civil Engineers

Qualifications: Ohio EPA Certified Drinking Water Analyst

**Organics Technical Director**

Name: John R. Troost

Education: Graduate Studies, Analytical Chemistry
University of New Orleans

Bachelor of Science Degree, Chemistry
University of South Florida

Experience: Spent over 22 years working for various environmental laboratories as Analyst, Laboratory Manager, Technical Director, Vice President, and Consultant.

Patents: No. 5,529,612 – "Method and System for Removing Volatile Organics from Landfill Gas".

No. 5,611,844 – "Method for Sampling and Analyzing Landfill Gas".

No. 5,650,560 – "Method and Apparatus for Analyzing Gases Containing Volatile Organic Compounds by Use of Tetraglyme".

Publications: "Evaluation of Commercially Available Capillary Columns and Chromatographic Conditions for the Analysis of Specific Tetrachlorodibenzo-p-dioxin Isomers" B.M. Hughes, J.R. Troost, J.F.Ryan, A.E. Dupuy, Presented at the American Society for Mass Spectrometry (ASMS) 28th Conference on Mass Spectrometry and Allied Topics, May 1980.

" Pyrolysis $(GC)^2$/MS as a Coal Characterization Technique", B.M. Hughes, J.E. Gebhart, J.R. Troost, R. Liotta, presented at the 18th National Meeting of the American Chemical Society, April 1981.

"Chemists and Environmental Protection", Guest Editorial, John R. Troost, Environmental Laboratory, Oct/Nov 1990.

"Gas Chromatography/Mass Spectrometric Calibration Bias", J.R. Troost, E.Y. Olavesen, Analytical Chemistry, [Vol 68, p.708-711], Nov 16, 1996.

"An Air to Water Bridge: Air Sampling and Analysis using Tetraglyme", J.R. Troost, Analytical Chemistry, [Vol 71, p.708-711], Nov 16, 1999.

Affiliations: American Chemical Society

Qualifications: Ohio EPA Certified Drinking Water Analyst.

**Organics Analyst**

Name: Andrew K. Ecklund

Education: Bachelor of Science in Chemical Engineering
University of Pittsburgh, Pittsburgh, PA

Experience: 13 years as Chief Organic Chemist for at Free-Col Laboratories, Ltd., Meadville, PA. Specializing in GC and GC/MS analyses.

11 years as Chief Organic Chemist at Summit Environmental Technologies, Inc. Specializing in GC and GC/MS analyses.

Affiliations: American Institute of Chemical Engineers
American Chemical Society
American Society for Mass Spectrometry

Qualifications: Ohio EPA Certified Drinking Water Analyst.

# REI Consultants, Inc. – Key Staff Qualifications

| Name | Current Position | Qualifications |
|---|---|---|
| Dr. Clarence L. Haile | Laboratory Director | PhD in Environmental Chemistry with 34 years research and laboratory management experience |
| Ray Erickson | Assistant Lab Director | BS in Biochemistry with 28 years laboratory management and research experience |
| Brenda Barnett | Quality Assurance Officer | BS in Biology with 13 years laboratory/quality assurance experience |
| Jimmy Suttle | Project Manager | 19 years sampling/sample custody/project management experience |
| Ivan Leef | Inorganics Lab Manager | BS in Chemical Engineering with 23 years laboratory experience |
| Tammy Church | Organics Lab Manager | BS in Chemistry with 15 years laboratory experience |
| Dennis Layne | Metals Lab Supervisor | Associate in Science with 15 years metals laboratory experience |
| Jennifer Dunford | Metals Analyst | BS in Natural Science/Ecology with 8 years laboratory experience |
| Destiny Austin | Wet Chemistry Analyst | BS in Biology with 7 years laboratory experience |
| Jay Jones | Wet Chemistry Supervisor | 10 years laboratory experience |
| Josh Cox | Organic Analyst | AA in Environmental Technology with 12 years laboratory experience |
| Clayton Scott | Organic Analyst | BS in Environmental Science with 5 years laboratory experience |
| Allison Ford | Organic Analyst | 5 years of laboratory experience |
| Joy Mullins | Project Manager/ Supervisor, Mid-Ohio Valley Service Center | BS in Chemistry with 15 years of laboratory experience |
| Erin Bryant | Supervisor, Roanoke Service Center | BS in Biology with 9 years of laboratory experience |
| Todd Gibson | Supervisor, Shenandoah Service Center | BS in Chemistry with 20 years of laboratory experience |
| Randy Farley | Field Measurements Supervisor | 19 years of experience sampling wastewater, groundwater, and stormwater |
| Ed Kirk | Biological Division Director | MS in Biology and 17 years of bioassay experience |
| Mike Lester | Bioassay Laboratory Manager | 19 years of bioassay laboratory experience |