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WHY PARSONS IS THE IDEAL PARTNER

+ Immediate Readiness and Expertise

We're excited to partner with WVDEP Office of Oil and Gas (WVDEP-OOG) on the Methane Emission Reduction Program(MERP). Our extensive experience with orphan well plugging and abandonment programs for the New York State Department of Environmental Conservation (NYSDEC) and methane monitoring and quantification services for the Michigan Department of the Environment, Great Lakes, and Energy's (EGLE) Oil, Gas, and Mineral Division equips us to start immediately with no learning curve.

+ Proven Track Record and Innovative Solutions

For over 80 years, Parsons has successfully delivered innovative solutions for some of the most complex and challenging Energy & Environmental projects worldwide. WVDEP will benefit from our specialized oil and gas teams, who have a proven track record in locating, analyzing, monitoring, and documenting orphaned and abandoned wells across North America. Our experience enables us to provide effective and efficient solutions for the MERP.

+ Commitment to Partnership and Success

As a trusted partner to WVDEP, we're confident that our expertise, combined with our innovative and cost-effective solutions, will lead to the successful execution of this critical program. Our team is dedicated to delivering a smooth and hassle-free MERP administration, supporting WVDEP's mission with professionalism and reliability.



4.2 PROJECT GOALS & PROPOSED APPROACH

Parsons Environment & Infrastructure, Inc. (Parsons) is pleased to present this proposal to the West Virginia Department of Environmental Protection, Office of Oil and Gas (WVDEP-OOG) for administration of their Methane Emissions Reduction Program (MERP). Our proposal is structured to align with the requirements detailed in request for proposal 0313-DEP2500000004 (RFP). With over 80 years of specialized experience, our oil and gas teams excel in locating orphan wells, executing integrity analysis, conducting methane monitoring, plugging, performing quality controls, and documenting orphaned and abandoned wellsites across the United States and Canada, on both private and public lands. We have assisted state agencies by performing outreach and soliciting nominations for contaminated sites through digital and physical media as well as community meetings.

Our program management experience consistently delivers the highest value on the RFP's scope of services. Our commitment to safety, environmental stewardship, and effective project management enables us to be a reliable and qualified partner for the successful preparation and implementation of West Virginia's MERP grant. Parsons has an 80-year history of delivering projects that exceed client expectations. With over 18,500 employees, we are able to draw on a deep well of experience while providing a dedicated project team who are invested in the outcome of the project. Our teams have delivered turn-key orphan and idle well plugging projects where we have managed public outreach, well nomination, ranking/prioritization, methane emissions quantification (MEQ), permitting, well plugging, and site restoration/remediation. **Our qualified measurement specialists (QMS) have quantified methane emissions at nearly 500 well sites and associated facilities. Our team understands the challenges of obtaining concurrence letters for Section 7 and Section 106 reviews, having successfully secured many of these permits for our clients in the energy and infrastructure sectors.**

Additionally, Parsons is an ideal partner for the MERP Administration for WVDEP, as we do not own or operate any oil and gas production assets and have no perceived conflicts of interest with this project. This positions us as a truly independent third-party administrator.

We will draw on decades of experience in managing large-scale projects, emphasizing our technical proficiency and deep understanding of critical path scheduling and stakeholder collaboration. Our proven track record in executing complex projects across various states demonstrates our ability to handle time-sensitive assessments and intricate project schedules. Our commitment to Safety, Health, and Environment (SH&E) excellence is reflected in the comprehensive training provided to all project personnel.

Parsons plays a critical role managing public outreach and soliciting nominations for contaminated sites through digital and physical media as well as community meetings as part of our scope of work for the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH)'s Corning project. For this project we prepare and mail

quarterly community newsletters, develop door hangers, fact sheets, and organize community meetings to engage the community on behalf of NYSDEC and NYSDOH to educate the public on the contaminants of concern and potential health effects associated with the target material. We've also developed a website where the public learns about contaminants of concern in their community and report suspected contamination. Through our public outreach efforts, the number of sites investigated for this program has grown from one study area to over 67 sites throughout the greater Corning, NY area.

We offer turn-key orphan well investigation, prioritization, plugging and remediation services to a number of public and private clients across North America. We've managed more than a combined \$160 million in funds to investigate, plug, and/or remediate over 1,870 orphan well sites in the United States and Canada. Through this experience, we have developed workflows and processes that provide the maximum value while maintaining the highest level of performance for our clients.

Our Central Michigan Oilfields Restoration project has successfully investigated, prioritized, and remediated over 1,000 oilfield sites and completed re-entry and abandonment of over 280 former oil wells for a private global oil company client. One aspect of this project was to engage landowners in person to educate them on the program and obtain access agreements. We are the principal contractor providing screening and quantification of methane emissions for 444 orphan well sites and 60 associated facilities across the State of Michigan on an Infrastructure Investment and Jobs Act (IIJA)-funded orphan well project. In Canada, we've assessed and restored 800 well sites, including the development of risk-based and methane mitigating biotechnology alternatives to well plugging, and we've performed extensive methane migration and emission studies on 30 orphaned gas well sites in remote forested locations. In New York State, we have prioritized, permitted, plugged, and restored more than 80 orphan well sites since 2018.

As the primary contractor for the NYSDEC's inactive solid waste disposal site investigations, we sourced an initial list of roughly 2,000 sites for consideration of their potential impact to the local communities through historical record searches and public outreach. Our team inspected and ranked/prioritized these sites based on critical risk factors deemed to have an adverse effect to the health and safety of the community and environment. Since 2017, more than 1,900 selected sites have been identified, ranked, and inspected for environmental threats.

Through our numerous orphan and idle well plugging projects, as well as other civil and environmental design and construction efforts, our team has developed efficient workflows for screening sites to obtain necessary federal, state, and local permits. We identify the required United States Army Corps of Engineers (USACE) Nationwide Permits (NWPs) and confirm **compliance with all general and regional NWP conditions to comply with Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA)**. Additionally, we identify state and local permits to address various habitat types and existing infrastructure, such as protection of waters (streams/wetlands) and right-of-entry/temporary driveway permits.

Our extensive experience and advanced technological capabilities in large environmental, infrastructure, and orphaned/abandoned well projects have established us as an industry leader. We consistently deliver innovative and modern solutions that are both effective and cost-efficient for challenging programs.

4.2.1 Approach & Methodology to Goals/Objectives

Due to the scale of this project, and the number of potentially interested stakeholders, we propose a data-driven technical approach for marginal conventional well (MCW) nomination, prioritization, and permit identification/screening.

Our approach is derived from decades of relevant experience on the proposed project leadership team. The lessons learned through our experiences have shaped our choice of workflows, reporting, outreach, prioritization, permitting, and operational recommendations – providing the most efficient and effective method available. Our team members have demonstrated successful execution of similar size and scope projects and look forward to contributing to a successful program for WVDEP.

EXCEEDING EXPECTATIONS WITH PROVEN EXPERTISE

Our proposal exceeds RFP requirements for WVDEP's MERP grant by leveraging decades of experience and a data-driven approach for efficient MCW nomination, prioritization, and permit identification, aimed at delivering a successful and effective program.

4.2.1.1 MCW Nomination Process

OUTREACH CAMPAIGN

To facilitate meaningful and effective communication with owners and operators of MCWs and other stakeholders, we have developed a comprehensive engagement strategy. Our goal is to maximize awareness and participation in the MERP by using a multi-faceted approach that includes both traditional communication channels and partnerships with trusted community organizations.

Our strategy begins with the use of hard-copy mailers to inform all known MCW owners and operators of the MERP program. We will send detailed informational packets that provide a thorough overview of the program, including its goals, the source of funding, what a qualifying well is, who can nominate an MCW, potential risks MCWs pose to human health and the environment, and the benefits of plugging MCWs. The specific steps required to nominate wells for plugging will be included, along with information explicitly stating that this is a voluntary program. These packets will also include nomination forms that provide all relevant information informing MCW plugging prioritization, and support contact information. By providing these tangible materials to all operators and owners of MCWs, we aim to give all key stakeholders the opportunity to nominate an MCW along with all necessary information to do so.

To complement this broad outreach, we propose a targeted outreach campaign using a data-driven approach. Analysis of the WVDEP - OOG 2023 Production database (database) suggests there are approximately 60,000 MCWs and approximately 600 unique operators (responsible party). However, approximately 90 percent of these MCWs are owned/operated by just 83 responsible parties. Parsons proposes direct outreach to these entities using contact information obtained through online records searches. Since these entities represent larger operators in the state, we propose direct outreach to the approximately 55 landowners with three or more abandoned wells as indicated in the database. The target parties are subject to change as the database is updated and as the results of our outreach efforts dictate. Our experience suggests that direct outreach is more effective than broad spectrum communications. However, broad spectrum communications are critical for reaching the smallest operators and landowners who may benefit the most from the MERP.

WVDEP's MERP is a voluntary program, meaning that surface owners can nominate a nuisance well on their property for plugging under the program, but WVDEP will not move forward with plugging that well unless the

well owner/operator elects to do so. Due to this, efforts will focus on direct outreach to well owner/operators. However, if well nomination rates stall, or fall short of WVDEP's target, we will continue direct outreach to the next tier of well owner/operators and conduct a community engagement/outreach campaign.

Recognizing the influential role that churches have historically played in community mobilization and addressing environmental issues, we will collaborate with select churches across West Virginia to disseminate information about the MERP and encourage well nominations. The environmental justice movement, which emerged in the late 20th century, sought to address the disproportionate impact of environmental hazards on marginalized communities. Churches were among the first organizations to join this movement and advocate for the health and well-being of their congregations and communities. This historical context underscores the effectiveness of partnering with churches to engage communities in environmental initiatives. We plan to leverage church communication channels to broaden our outreach. Church leaders will be encouraged to make announcements about the MERP program and the nomination process during services and community events.

We suggest organizing online virtual informational sessions and workshops with churches, civic organizations, and/or environmental groups to provide information and gather feedback from stakeholders. These sessions will provide an overview of the MERP program and a detailed explanation of the MCW nomination process and will also provide an opportunity for meaningful interaction with stakeholders, allowing us to address any questions or concerns. By fostering direct communication, we aim to build trust and encourage active participation in the program. Informational brochures, flyers, and nomination forms will be provided to our community partners for distribution. These materials will be identical to the mailers provided to all operators and owners of MCWs.

We may use local newspapers and/or radio stations to announce the nomination process and to provide relevant information about the MERP. Press releases and advertisements will be strategically placed in widely read newspapers and/or on popular radio stations to reach a broad audience. These traditional media outlets have a long-standing presence in the community and are trusted sources of information, making them effective channels for our outreach efforts.

To enhance the effectiveness of our comprehensive engagement strategy, we will implement mechanisms to collect feedback from participants at all engagement

events. This feedback will help us understand the impact of our outreach efforts and make necessary adjustments. We will maintain a database of all outreach activities and track the number of nominations received through various channels, including church partnerships, community meetings, direct outreach, and mailings. Regular reviews of our engagement strategies will allow us to incorporate feedback and continuously improve our efforts.

NOMINATION PROCESS

Discussions with administrators of other MERP grants in the Appalachian region suggest difficulties obtaining large volumes of MCW nominations. As such, Parsons will invest resources into a simplified MCW nomination process. The MCW nomination process will focus on an ArcGIS StoryMap website dedicated to WV’s MERP. The website will provide meaningful information on the MERP program such as the grant award size, source, purpose of the program, relevant definitions (e.g. MCW, IJJA, MERP, ESA, NHPA, etc.), applicant requirements, and an overview of the process. An interactive map displaying relevant well and surface information will be featured on the website similar to the WVDEP GIS Viewer providing potential applicants with the necessary information to nominate an MCW. Additionally, statistics regarding program progress such as number of MCWs plugged, acres restored, and methane emissions avoided will be prominently displayed so applicants can gauge the impact the MERP is having, not only on their community, but communities across the state. The goal of this website will be to provide a single forward-facing location for all WV MERP activity and information. A link to an ArcGIS Survey123 application for nominating an MCW will be plainly visible on the webpage. An example ArcGIS Survey123 questionnaire from our Corning, NY project is included as **Appendix A1**.

The application for nomination of an MCW for plugging will solicit the following information:

- Applicant name, applicant address, phone number, email address, relation to well (e.g. own-er/operator, surface owner).
- Well name, well number, well API, well location, latitude/longitude, county, township, nearest street address, surface owner where wellhead is present, current land use, future/planned land use.
- Additional details leading to specific ranking criteria will be requested such as visible/audible leaks, odors, facilities present on site, proximity to nearest residence or publicly occupied building.
- A link to upload photos and/or videos characterizing the well.

TIMELINE OF MCW NOMINATION PROCESS ACTIVITIES

Our timeline for these activities begins with the initial mailing of informational packets within the first month of project award (**Figure 1-1**).

Direct outreach to well operators and select surface owners will be scheduled and conducted throughout the first six months. Outreach to additional operators, community meetings, and collaborations with local organizations would begin following the initial three-month window if well nominations volumes are low.

Parsons will maintain continuous communication and provide stakeholder support throughout the nomination window, evaluate the effectiveness of our engagement strategies at the end of the nomination period, and report our findings to the WVDEP.

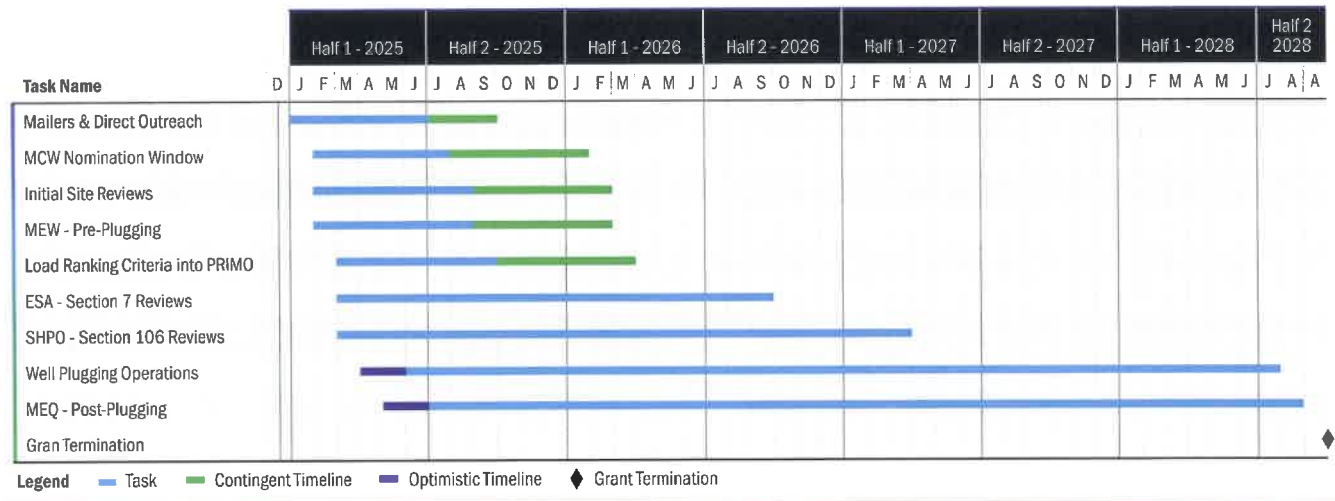


FIGURE 1-1: PROPOSED TIMELINE FOR MERP ACTIVITY

NOMINATION WINDOW

Our outreach efforts are intended to solicit a significant volume of MCW nominations, and we anticipate an early surge in well nominations followed by a steady influx. With this in mind, we propose a nomination window starting after the first month of the project and remaining open for six months (**Figure 1-1**). This would allow plugging operations to start in the early summer 2025 assuming federal regulatory agencies are responsive. If well nominations volumes are below WVDEP's target, we will coordinate with WVDEP to determine an extended well nomination window and further outreach activities.

4.2.1.2 MEQ Data

QUALIFICATIONS OF MEASUREMENT SPECIALISTS

Parsons provides orphan well methane measurement and quantification services for the Michigan Department of the Environment, Great Lakes, and Energy's (EGLE) Oil, Gas, and Mineral Division's Orphan Well Program in compliance with the Bipartisan Infrastructure Law (BIL) Guidelines since 2023. We've developed an efficient screening and quantification methodology to address potential methane emissions from 444 of the state's documented orphan wells and additional associated 60 production-related facilities. Based on this experience, Parsons now has numerous QMS personnel meeting United States Department of the Interior (DOI) and Department of Energy (DOE) requirements for education, experience, and technical skills with the required equipment. The proposed QMS personnel for this project are listed in Section 2, with their resumes highlighting their qualifications provided in **Appendix C**.

DOCUMENTED MEASUREMENT INSTRUMENTATION AND METHODOLOGICAL APPROACHES

Based on the DOE Guidelines, we will use a screening tool to rapidly classify sites into several categories: Non-detect, Detected emitting at low/moderate rate, and Detected emitting at high rate. Parsons has selected the Remote Methane Leak Detector–Complete Solution (RMLD-CS) system (specifications provided in **Appendix B1**) – a tunable diode laser adsorption spectroscopy (TDLAS) system – as the primary screening tool for identifying leaks around the orphaned wellheads and associated production facilities in the most efficient manner possible.

This instrument is lightweight, portable, and rugged, and allows the measurement specialist to detect leaks from a safe standoff distance. It can operate effectively in a variety of field conditions including light rain, fog, and wide range of temperatures.

This system has a measurement range of 0 – 50,000 parts-per-million-meter (ppm-m) methane with a sensitivity of 5 ppm-m at distances up to 30 meters and can quickly identify methane leaks well below the required 100 gram per hour (g/hr) threshold. These systems are intrinsically safe and are not subject to interference from other gases. The unit also features a simple graphical user interface, with internal data logging, Wi-Fi, global positioning system (GPS), and Bluetooth Low Energy (BLE) capabilities for easy data capture, storage, and transfer.

For confirmation of Non-Detect sites (i.e., <100g/hr), and as a measurement tool for volatile organic compounds (VOCs), a handheld 5-gas detector that contains sensors for oxygen (O₂), carbon monoxide (CO), hydrogen sulfide (H₂S), and the lower explosive limit (LEL) will also be deployed. The 5-gas detector is also equipped with a photo ionization detector (PID) which is an approved and proven measuring device for VOCs as per United States Environmental Protection Agency (USEPA) Method 21 and has a detection threshold of 1 ppm VOC. Deployed personnel will also be equipped with personal H₂S badge meters for safety purposes as that is Parsons' standard while working around potentially leaking oilfield equipment that may contain sour gas/crude.

To quantify methane emissions leaks in compliance with USEPA Method 21 and the DOE Guidelines, Parsons will deploy the SEMTECH HI-FLOW 2 (specifications provided in **Appendix B2**). This is the only system presently on the market to comply with US Environmental Protection Agency 40 CFR Part 60 Subpart OOOO and American Carbon Registry (ACR) methodologies and provides full measurement traceability for quality assurance/quality control (QA/QC) along with rapid creation of time, date, and leak rate/concentration data that can easily be imported into site reports. The HI-FLOW 2 utilizes TDLAS for the accurate measurement of fugitive methane with direct quantification of leaks in the 0.0005 to 25 cubic feet per minute (CFM) range with accuracy exceeding 5 percent. On our Michigan Orphan Well Methane Measurement project, it has proven to provide the most accurate and repeatable leak rate quantification results at, and below, the 100 g/hr threshold requirement in real-world field conditions.

The work process at each site will proceed as **Figure 1-2** flow chart indicates and allows for the most consistent methodology and data reporting across the multitude of sites and conditions.

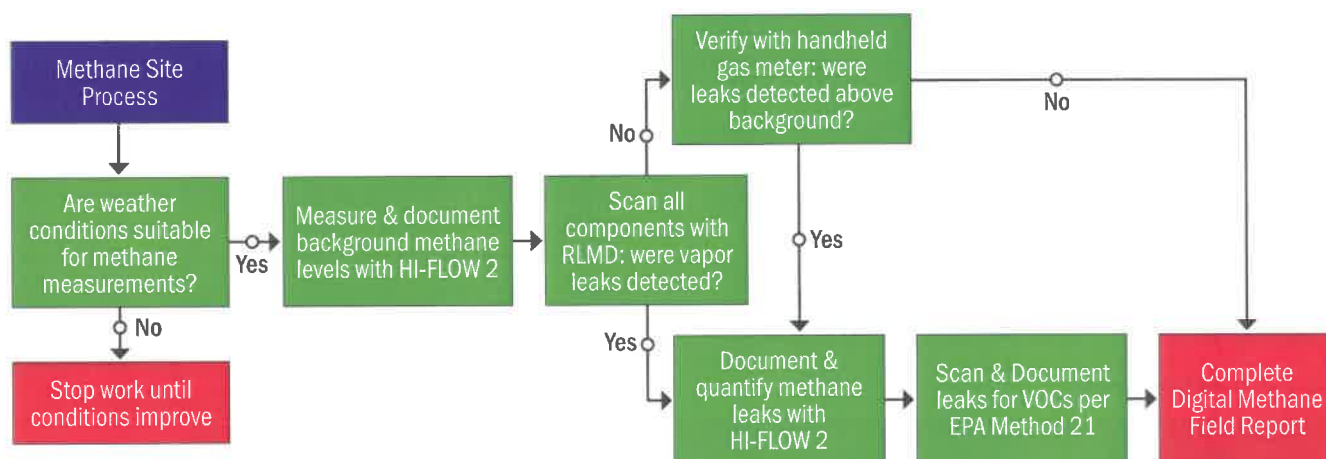


FIGURE 1-2: FLOW CHART OF PROCESS FOR METHANE QUANTIFICATION AT SITES

- A Parsons Methane Emissions Rate QMS and Field Technician will mobilize to the site where methane leak detection and quantification are required and will be equipped with all necessary measurement equipment.
- All measurement equipment will undergo documented bump checks and/or calibration at frequencies that each equipment manufacturer recommends.
- The crew will use a handheld weather station and credible weather reports to measure and record air temperature, most recent precipitation date and quantity in inches, wind direction, wind speed, and barometric pressure. Site work will not proceed during rain events nor during localized wind speeds greater than 15 miles per hour as above that threshold, detection limits rapidly decrease.
- Background methane concentration will be measured upwind of the potential methane point-source (wellhead) and documented using the SEMTECH HI-FLOW 2 system. Notes on potential natural sources of background methane such as neighboring wetlands will be made.
- The crew will approach the wellhead, facility, or infrastructure from the up-wind direction with the RMLD-CS and scan the site from a safe distance for the presence of any large leaks that should be immediately recognized due to potential safety concerns. If large leaks are not identified, the crew will proceed closer for formal detailed inspection.
- The crew will collect photos of the site from each cardinal direction to be included in the site investigation report along with a photo of each identified leak location.
- All components of the wellhead and connected infrastructure will be scanned for vapor leaks with the RMLD-CS. This will proceed until each leak is documented.
- If no methane leaks are detected with the RMLD-CS, the crew will scan the well or facility components using the handheld 5-gas meter as a verification of Non-Detect (ND) classification.
- If methane leaks are detected, they will be quantified and documented using the SEM-TECH HI-FLOW 2 system and reported in ppm and resulting g/hr leak rate units.
- If any methane leaks are found, the crew will test the leak(s) with the handheld PID meter for VOCs per USEPA Method 21 and document the results.
- One in 20, or 5 percent, of measurements will be repeated and documented as duplicate for QA/QC purposes.
- All required documentation and photos will be collected and recorded to satisfy site report requirements from the referenced DOE Guidelines and any other that the WVDEP deems necessary.
- The crew will proceed to the next site in the queue requiring methane leak detection screenings and quantification.

Parsons has completed a rigorous review of all available gas detection and Leak Detection and Repair (LDAR) technologies and have chosen our proposed methodology due to our extensive experience and the following technological constraints.

Due to the presence of complete wellheads and associated piping typically present at orphan well sites, bagging and/or large flux chambers are not practical nor efficient to complete this scope of work as it would be onerous to completely encapsulate the existing infrastructure for accurate measurements. Based on our experience, methane concentrations at ground surface taken with handheld detectors directly correlate to methane measurements determined with flux chambers. We have also found that subsurface methane flux rates vary greatly depending upon the time of year, climatological conditions, and the extent to which upward migrating methane is biodegraded. Based on Parsons' experience, we propose the option of accounting for methane leaking through soil using the RMLD with confirmation measurements at selected locations using a handheld detector. Parsons, however, does have various flux chambers available if the WVDEP-OOG later decides they are necessary and are compatible with the already mobilized equipment.

Infrared Optical Gas Imaging (IR OGI) camera systems are expensive and often not recommended due to their inability to provide repeatable results in typical atmospheric conditions. High-volume samplers, such as the recommended SEMTECH HI-FLOW 2 require less training to deploy, provide more accurate/repeatable results, and are less weather dependent than IR OGI cameras. The RMLD provides the ability to quickly screen sites for leaks with a safe standoff distance, reducing the inherent risk for field personnel when screening for methane leaks.

While UAV (drone-based) detectors have greatly improved and are good screening tools for large facility and/or quantification of overall emissions, they are not proposed for this scope of work as they lack the ability to identify and/or quantify point-source leaks down to the 100 g/hr threshold per the DOE Guidelines.

DATA REPORTING ELEMENTS

Parsons proposes the use of a digital data collection tool (**Figure 1-3**) for this project. The reports for each site can easily be configured into ArcGIS and used in conjunction with ESRI's Collector for ArcGIS application, or similar, for collecting all the required field data associated with the Federal Guidance Document. Parsons will work with



FIGURE 1-3: DIGITAL DATA COLLECTION APP

the WVDEP-OOG staff to determine proper data reporting formats that will allow seamless integration with NETL's PRIMO software for ranking MCWs for this program and the Federal database.

MEQ data, such as pre- and post- plugging emissions volumes and avoided emissions will be tracked and included in the monthly reports and on the MERP website.

Typically, with implementation of digital data collection tools on other projects, cost reductions associated with efficient data processing, reduced data transcriptions, reduced errors and re-work have been seen anywhere from 10 to 20 percent in cost savings. These cost savings measures have been captured as part of our proposal reflected in our costs. Individual Site Reports will be created from this digitally collected data as described in the section below.

The following are the specific features of Parsons' data collection digital tools that will help the project during the repeated methane site surveys:

- Map-centric data collection tool with the capability of using web maps, working offline and high accuracy GPS system, that allows field teams to capture site reconnaissance observations/ photographs and conduct field assessments while seamlessly transferring the knowledge to other project team members by uploading this information instantaneously.
- Live tracking and documenting field notes at node points to associate collected leak information with the site. This information will then be output into a specified final format to create individual site reports along with available specialized reports for other uses and/or integration into the Federal database.

- Field crews can use the app in the field to navigate and verify they are at the proper well location.
- Compatibility with Android, Apple, or Windows-based smartphones and tablets allows our entire project team to be able to use this application right away.

We will provide the WVDEP-OOG with a summary report (**Appendix B3**) using the below framework as described within the DOE guidance document for each site where methane quantification measurements were collected:

1. Site information including well name, API number, site type, well status, prior owner, state permit number (if applicable), administrative unit, and name of measurement specialist and technician.
2. The date and time of the measurement(s).
3. Using on-site equipment or a credible weather report, record: air temperature, wind speed/direction, most recent precipitation date, barometric pressure, and known H₂S concentration.
4. Location of the well. Using mapping datum WGS84, record latitude and longitude in decimal degrees (five to seven decimal places).
5. The condition of the well by taking digital photos from four directions and at each identified leak location.
6. Record the background concentration and the upwind location at which the background concentration was measured.
7. The type of measurement equipment and methodology utilized.
8. The type of measurement made (methane or total hydrocarbon).
9. The well classification (non-detect, detected- emitting at low/moderate rate, or detected- emitting at high rate).
10. Record the highest concentration of methane or total hydrocarbons observed (in ppm).
 - a. Note if methane concentrations are greater than or equal to 1,000 ppm anywhere in the well vicinity.
11. The place(s) where the well is leaking.
12. Note gas odors.
13. Note if gas venting is audible.
14. Note if gas venting is observed or felt as movement of the air or nearby vegetation or as bubbles in nearby surface waters.
15. For wells that have no detectable emissions (less than 100 g/hr) as determined using a binary method, and record:
 - a. the emissions rate as less than 100 g/hr
 - b. the measurement equipment and method used
16. For quantitative methods, record the total methane emitted from the well over time. Units should be in

g/hr of methane or total hydrocarbons. (Note: field forms will include unique identifier and leak rate for each leak, but this does not necessarily need to be carried forward to the database entry form).

17. Number of leaks if multiple leaks are present from a single well due to the presence of legacy infrastructure and/or soil emissions.
18. Note any uncertainty in the measurement, (e.g., by making multiple measurements at the site), including concerns related to site conditions.
19. Equipment calibration data.
20. Comments by measurement specialist noting any site access difficulties, active fluid leaks, remediation concerns, damage, etc.

TIMELINE OF MEQ DATA ACTIVITIES

The timeline for MEQ data collection depends on the volume and regional distribution of nominated MCWs. To maximize program efficiency, MEQ data will be collected on packages of MCWs in a community or region. A crew will be mobilized when at least 20 MCWs in a region are nominated, or on a semi-monthly basis, depending upon the volume and rate of MCW nominations and pending ranking/prioritization requirements. Pre-plugging MEQ data collection is anticipated to start one month after the MCW nomination window opens and will continue throughout the program duration as long as there are nominated MCWs that lack MEQ data (**Figure 1-1**). Post-plugging MEQ data will be collected within 60 days of the completion of each plugging package.

4.2.1.3 MCW Prioritization/Prioritized Well List

DATA COLLECTION AND ENTRY OF ALL SCORED PRIORITIZATION FACTORS

Through our extensive environmental experience, Parsons has developed methodologies to screen, rank, and prioritize various environmentally hazardous sites. This experience will inform our methodology for ranking West Virginia's approximately 60,000 MCWs using the National Energy Technology Lab (NETL) Plugging and Reclamation of Inactive Marginal Oil and gas wells (**PRIMO**) software.

The well nomination application (WNA) will request data from the well owner/operator pertaining to the risk factors identified in the MCW prioritization model. The WNA will be designed so that the owner/operator's input on the WNA will be directly compatible with the NETL PRIMO software.

PRIMO is an open-source decision support tool developed by the NETL. It is designed to help determine which marginal conventional wells are the best candidates for plugging using MERP funds. The tool assists in prioritizing wells based on various factors such as environmental impact, cost, and potential methane emissions reductions (Figure 1-4).

We understand that not all owner/operators may be able to answer all risk factors such as location with respect to critical habitat, disadvantaged communities, etc. Other agencies appear to be struggling with MCW nominations, potentially due to restrictive WNA requirements. As such, incomplete applications will be accepted and flagged for a desktop review and applicant follow-up by Parsons. This step will lead to a higher participation rate in the program than other states are experiencing and will be necessary for ancillary permit identification and subsequent outreach. The desktop review will provide input for all applicable risk factors identified in the prioritization model.

According to the WVTAGIS well list acquired November 14, 2024, and the WVDEP 2023 Production Table, there are approximately 60,000 MCWs in West Virginia. Hypothetically, nomination of 5 percent of the eligible MCWs would result in approximately 3,000 wells to rank and prioritize. Assuming an average program cost of \$50,000 per well (including administration, outreach, MEQ, permitting, plugging, and restoration), fewer than 800 MCWs can be plugged and restored with allocated grant funds. Therefore, if MCW nomination volumes far exceed WVDEP’s estimate of 400 wells, provisional ranking will allow for efficient resource allocation.

Once all risk factors have been identified for the nominated MCWs, these data will be input into PRIMO. PRIMO will then utilize its built-in algorithms to analyze the information and prioritize the best candidates for plugging based on the criteria set.

After the wells have been provisionally ranked using the scored prioritization factors acquired through owner/operator responses on the WNA and initial desktop review, the wells will be grouped geographically into community packages, either by township, county, or region, depending on the volume of wells nominated. A Parsons field team will conduct a site review for all wells in each package. This site review will consist of MEQ and confirmation of any reported leaks and/or other critical risk factors requiring a field visit. These data will be incorporated into the NETL PRIMO ranking software, and a final score will be assigned to each well. This ranked list will be provided to the WVDEP for solicitation of well plugging packages.

EFFICIENT AND INCLUSIVE WELL PRIORITIZATION WITH PRIMO AND PARSONS

Our approach leverages the NETL-developed PRIMO tool to prioritize MCWs for plugging based on environmental impact, cost, and methane emissions reduction. By designing a WNA that integrates seamlessly with PRIMO and accepting incomplete applications for desktop review, we promote higher participation rates and efficient resource allocation.

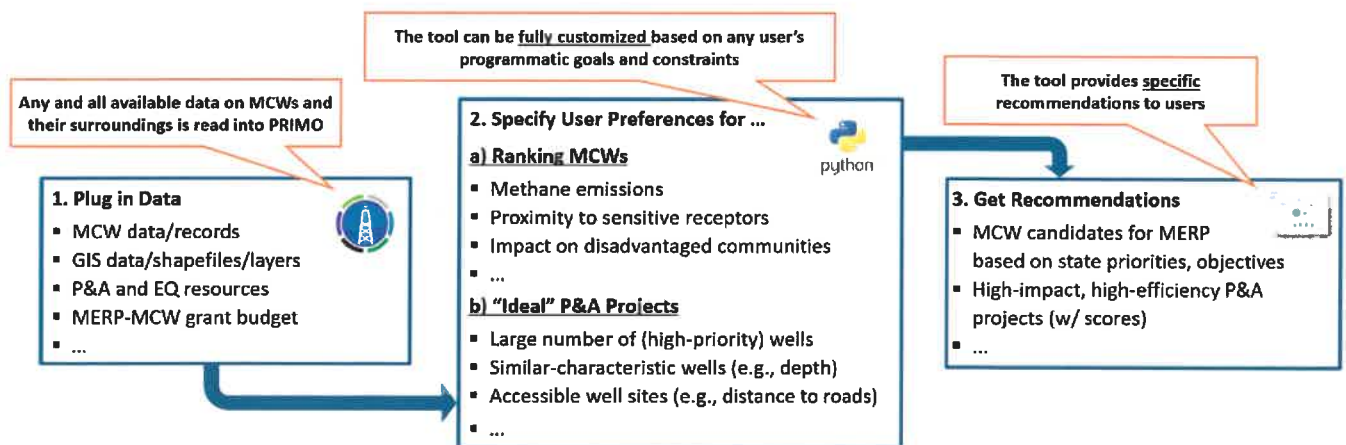
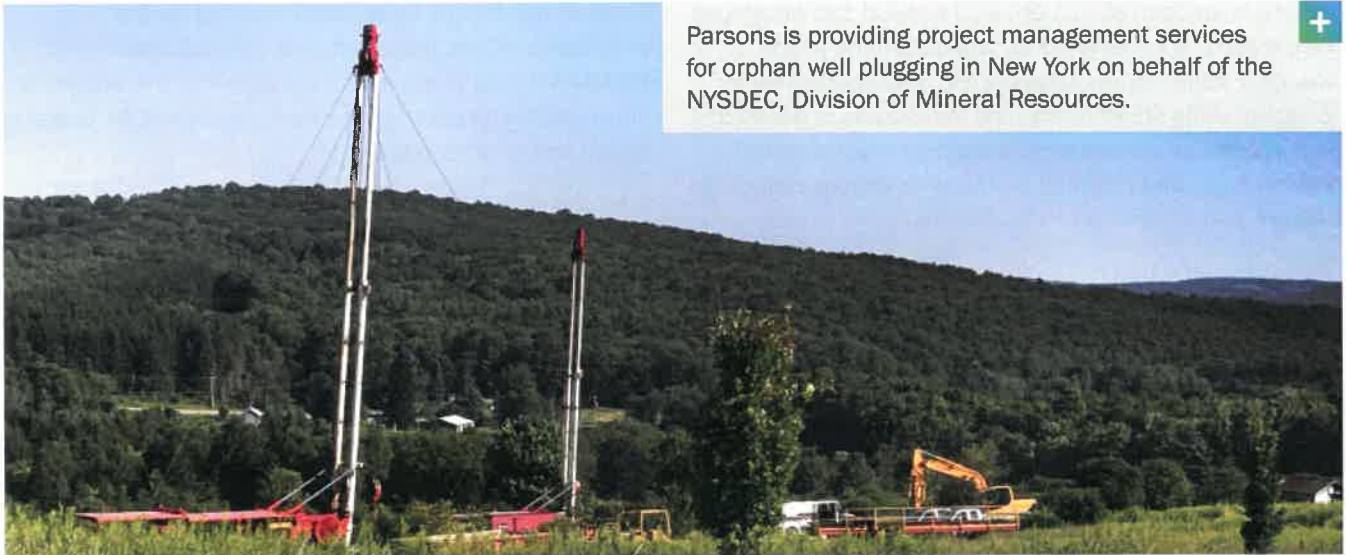


FIGURE 1-4: PRIMO WORKFLOW AS OUTLINED BY NETL IN THE PRIMO USER MANUAL



Parsons is providing project management services for orphan well plugging in New York on behalf of the NYSDEC, Division of Mineral Resources.

TIMELINE OF MCW PRIORITIZATION/ PRIORITIZED WELL LIST ACTIVITIES

Parsons' timeline for these activities begins with the first submitted WNA after initial outreach efforts are concluded. We expect surges of MCW nominations commensurate with our outreach efforts. Therefore, we anticipate a rolling prioritization process as WNAs are submitted, ending 60 days after the close of the MCW nomination window (**Figure 1-1**). WNA data will be compiled and uploaded to PRIMO monthly for ranking. We will maintain continuous support for applicants throughout the prioritization process and will evaluate the effectiveness of the WNA, desktop reviews, and data upload processes at the end of the prioritization process, reporting our findings to WVDEP. Nomination timelines may be modified based on the number of collected responses.

4.2.1.4 Ancillary Permit Activity

Parsons' experience in permitting large environmental and infrastructure projects throughout the United States means our team has extensive knowledge of what federal and state permits may be required for a given wellsite. Our staff has developed efficient workflows for desktop reviews, and we have a high rate of success in obtaining permits within a reasonable timeframe.

Our experience with navigating the ESA and NHPA gives us a competitive advantage over other potential administrators. Our multi-tiered site review process provides an efficient and effective framework for permit identification.

INITIAL DESKTOP REVIEW – GENERAL RESOURCE/PERMIT SCREEN

An initial desktop review of each site will be conducted as part of the MCW well prioritization and ranking process. The initial desktop review will include loading the MCW well location information into a geographic database with the most current and available digital United States Geological Survey (USGS) 7.5-minute topographic maps, National Wetlands Inventory (NWI) maps, aerial photos, and various other state and federal ecological/cultural datasets. These data layers will be overlain with proposed project areas to identify potential federal and state permits required for site access, well plugging, and site restoration work. Findings from the initial desktop review will be incorporated into an initial site report and relevant data will be incorporated into the well prioritization/ranking model. The initial site report will be provided to the MCW owner/operator and included with the well plugging package to communicate the challenges, benefits, and potential impacts of the project on key stakeholders.

Approximately 90 percent of all MCWs in the WVDEP well database are listed as active producers. As such, it's expected that these wells will have existing access roads and pads. However, a cursory review of MCW sites in central West Virginia suggests that many of the wells lack existing access roads and/or pads. Through desktop review, an Action Area (AA) will be defined and will incorporate potential disturbance area from a public road to, and the area around, the wellhead required for plugging operations. Aerial/satellite imagery will be used to identify the least destructive and most efficient AA. See **Figure 1-5** for two hypothetical AAs.



FIGURE 1-5: TWO HYPOTHETICAL AAS (SHADED IN RED) DEFINED DURING INITIAL DESKTOP REVIEW IN CALHOUN COUNTY, WV.

Note: the Newhart location, as shown, would require a stream crossing which would likely trigger USACE NWP #33 authorization, without the need for Pre-Construction Notification, and a WV Department of Natural Resources (WVDNR) Right-of-Entry Permit. A WV/NPDES Construction Stormwater General Permit may be required depending on total acreage of areal disturbance (i.e., greater than one acre). Additionally, trees likely would need to be cleared (tree removal timing restrictions may need to be adhered to if an IPaC review determines federally listed bat species may be present at/within the vicinity of the AA). The McCoy location is sited near the public road to reduce impact on the nearby residence. If this were a state highway, a WV Department of Highways (WVDOH) Right of Way Entry Permit (MM-109) would be required.

The initial desktop review will include the following steps:

1. Obtain well information from the WNA and load wellhead location information into a geographic database (i.e., ArcGIS)
2. Analyze well location with regard to critical state and local ecological and cultural layers (e.g. United States Fish and Wildlife Service [USFWS] National Wetland Inventory [NWI] wetlands, streams, rivers, and lakes, USGS 7.5 minute topographic maps, websoil survey maps (available online: <https://websoilsurvey.nrcs.usda.gov/app/>), National Register of Historic Places, etc.).
3. If an obvious road and cleared wellsite already exist, note this on the initial site report.
4. Site a hypothetical 100-foot by 150-foot well pad around the well head considering the least disturbance to the environment and residential property possible. If the hypothetical site is larger than an existing site, note site preparation requirements such as tree clearing.
5. If no existing roadway is noted, site a hypothetical roadway from the nearest logical point that a truck could access, considering the disturbance on local ecology and nearby residences. If the access road directly connects to a state highway, note the requirement for a WVDOH Right of Way Entry Permit (MM-109) on the initial site report.
6. Note proximity to-, crossing of-, or work in- a wetland or waterway and flag all appropriate permits (e.g. USACE NWP 3, 14, and/or 33, WVDNR Right of Entry permits, other permits, etc.).

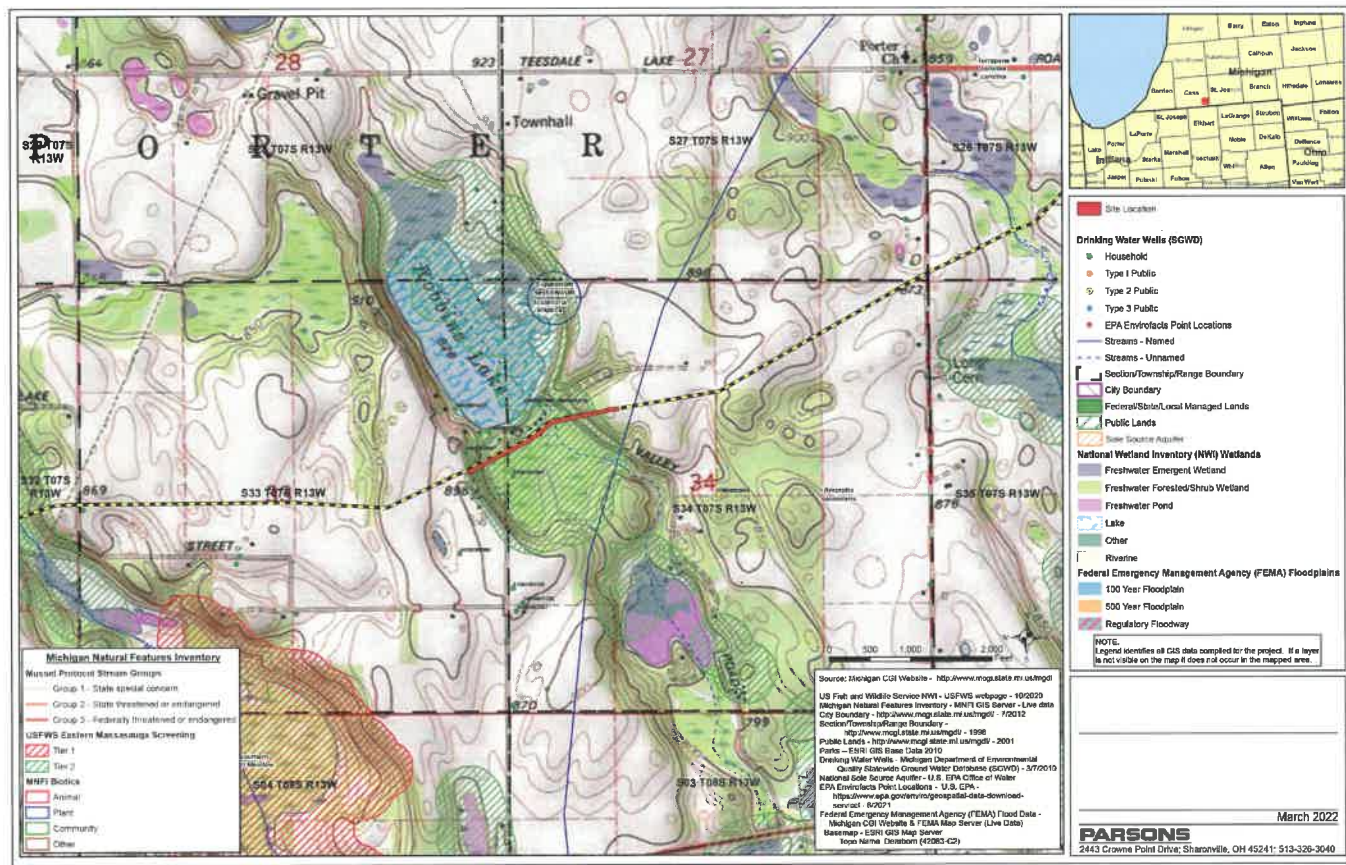


FIGURE 1-6: ENVIRONMENTAL BASEMAP SHOWING RESULTS OF AN ENVIRONMENTAL REVIEW / AREAS OF THREATENED AND ENDANGERED (T&E) SPECIES

ENDANGERED SPECIES ACT CONSIDERATIONS

For agency consultation pursuant to the ESA, the AA will be defined pursuant to 50 Code of Federal Regulations (CFR) § 402.02, which defines an AA as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” This will include the area of action (i.e., the MCW and ancillary infrastructure, access road[s], etc.), plus any surrounding areas that may be affected by the action. Activities that may impact threatened and endangered (T&E) species would include potential destruction of habitat (e.g. tree/land clearing, stream disturbance, etc.).

For each AA, the USFWS Information for Planning and Consultation (IPaC) database will be used, as well as WVDNR's Natural Heritage Database to identify potential impacts to federally listed species or designated critical habitat, as well as other sensitive resources.

The use of the IPaC tool will streamline the USFWS environmental review process. The findings of this review will be included on an ecological site report and will include:

- An environmental basemap using the most current and available digital USGS 7.5-minute topographic maps or aerial photography and environmental datasets (**Figure 1-6**)
- Federally listed T&E species in the project area
- ESA listing for each species in the project area
- Screening for suitable habitat for federally listed T&E species
- Land cover in which the species typically inhabits (pulled from USGS National Land Cover Database [NLCD])
- Calendar detailing land disturbance, stream disturbance, and tree clearing restrictions by month (if applicable)

NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCE CONSIDERATIONS

Pursuant to Section 106 of the NHPA, Areas of Potential Effects (APEs) will be defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. This may include the change of a property's historic use or changes to the physical features of its settings. It may also include indirect effects, such as the introduction of a visual element that is out of character with the property's environment, increased noise, and atmospheric elements (e.g., emissions). Typically, for projects of this scope, the APE will be narrowly focused to an area slightly larger than the AA depending upon site conditions. However, desktop cultural records searches will incorporate a 1-mile radius around the APE to confirm that no cultural resources extend into the APE.

Desktop reviews for potential impacts to areas of historic or cultural significance will utilize the National Register of Historic Places and the West Virginia State Historic Preservation Office (SHPO) database. Historical maps, aerial photographs, literature reviews, and existing cultural resource databases may also be used to identify and review areas of historical or cultural significance in the APE. Historic or culturally significant resources within the APE will be included in a cultural site report and an impact determination will be made. Historic or culturally significant resources within a 1-mile radius of the APE will be noted on the cultural site report and the potential impacts to these will be evaluated. Pursuant to Section 106 of the NHPA, a determination of effect for an APE will fall into one of three categories: no culturally significant resources in the APE and no effect; culturally significant resources are present within the APE, but no permanent impact to the characteristics will occur (e.g. temporary access roads will be removed and area returned to original condition); or cultural sites are present in the APE and there will be an adverse effect. The summary of these sites and potential impacts within the APE will be summarized in the cultural site report.

We will conduct outreach to indigenous tribes having ancestral interests in West Virginia through the following:

- Prior to site investigations, all identified Tribal Historic Preservation Officers (THPOs) in the US Department of Housing and Urban Development's Tribal Directory

Assessment Tool will be informed of the Programs' goals and objectives.

- For each nominated well, we will provide the THPOs the cultural site report including an environmental basemap showing the proposed AA, the APE, and a brief description of the work to be performed, culturally significant sites within the APE, and the anticipated effect on each site.
- We will provide each THPO 30 days to provide questions, comments, concerns, and/or requests for each nominated well.

Questions, comments, concerns, and/or requests for each nominated well will be answered, addressed, and/or incorporated into the cultural site report within 30-days and provided to the THPOs.

TIMELINE OF ANCILLARY PERMIT ACTIVITIES

Typical agency coordination includes a letter, submitted by the lead agency, describing the project and potential impacts, forwarded to the relevant authorities (e.g., USACE, USFWS, SHPO). Following receipt of a coordination letter, the relevant authority will conduct a review of the project, requesting additional information (e.g., mapping, stakeholder information), if needed. Following review, the relevant authority typically provides a decision to concur or object with the findings presented in the agency coordination letter. The overall timeframe of agency coordination varies based on project complexity and local regulations, often ranging from a few weeks for simple projects to several months for large or complex developments. Overall, this early coordination provides an opportunity to inform the proposed project prior to the submission of permit applications (to be submitted by the contractor) in response to a better understanding of existing conditions and regulatory and stakeholder concerns.

If during the initial desktop review, it is determined the project will not affect federally listed species or critical habitat, Parsons, on behalf of WVDEP, will issue a concurrence statement stating that the project is not likely to affect any listed species, with no further action needed. This process usually takes seven to 10 days after project design is complete. If it is determined the project may affect federally-listed species or critical habitat, Parsons, on behalf of WVDEP, will initiate formal consultation with USFWS. Formal consultation may last up to 90 days, after which the USFWS will prepare a biological opinion.

A biological opinion usually includes conservation recommendations to further the recovery of listed species, and it also may include reasonable and prudent measures, as needed, to minimize any take of listed species. The USFWS has 45 days after the completion of formal consultation to write the biological opinion. Section 7 of the ESA requires the USFWS to provide a biological opinion within 135 days of consultation initiation.

Consultation with SHPO/THPO will be initiated pursuant to Section 106 of the NHPA. During this initial consultation, properties that may be affected by the project will be identified and determined if the property or properties are listed or are eligible for listing on the National Register of Historic Places. Under Section 106 of the NHPA, the SHPO/THPO has 30 calendar days to respond to a project's potential impact on historic properties. If the SHPO/THPO does not respond within the 30-day period, the agency can move forward with the next step or conclude the review.

4.2.2 Mandatory Project Requirements

4.2.2.1 Technical Progress and Financial Reporting

All technical progress and financial reports will be submitted to the Agency on a monthly basis. Attendance and progress updates at quarterly meetings will be attended as required. Travel costs are included in the proposed budget. Monthly reports will include a summary of all project activities undertaken in the previous month and detail of all billable hours. Measurable field activities including the number of wells plugged, kilograms of mitigated methane emissions, acres of land restored or remediated, etc. will be tracked on the MERP website and will be summarized in the monthly reports. Monthly reports will be provided to the Agency no later than five working days after the last day of the reporting period.

4.2.2.2 CBC Meetings

Parsons will attend all CBC meetings, both virtual and in person, and all travel costs, including travel time, associated with performance of this Contract have been included in the proposed budget.



Comprehensive Cultural Resource Management and Regulatory Compliance

Parsons and our partners excel in managing NHPA and cultural resource considerations through meticulous desktop reviews and proactive stakeholder engagement. By defining APEs and utilizing extensive historical and cultural databases, we conduct thorough evaluations and implement effective mitigation strategies. Our outreach to THPOs and coordination with relevant authorities like USFWS and SHPO demonstrate our commitment to preserving cultural heritage while efficiently advancing project goals. This approach facilitates regulatory compliance and fosters strong relationships with indigenous communities and regulatory bodies.

4.3 QUALIFICATIONS AND EXPERIENCE

4.3.1 Qualifications and Experience Information

PROJECT TEAM QUALIFICATIONS AND EXPERIENCE

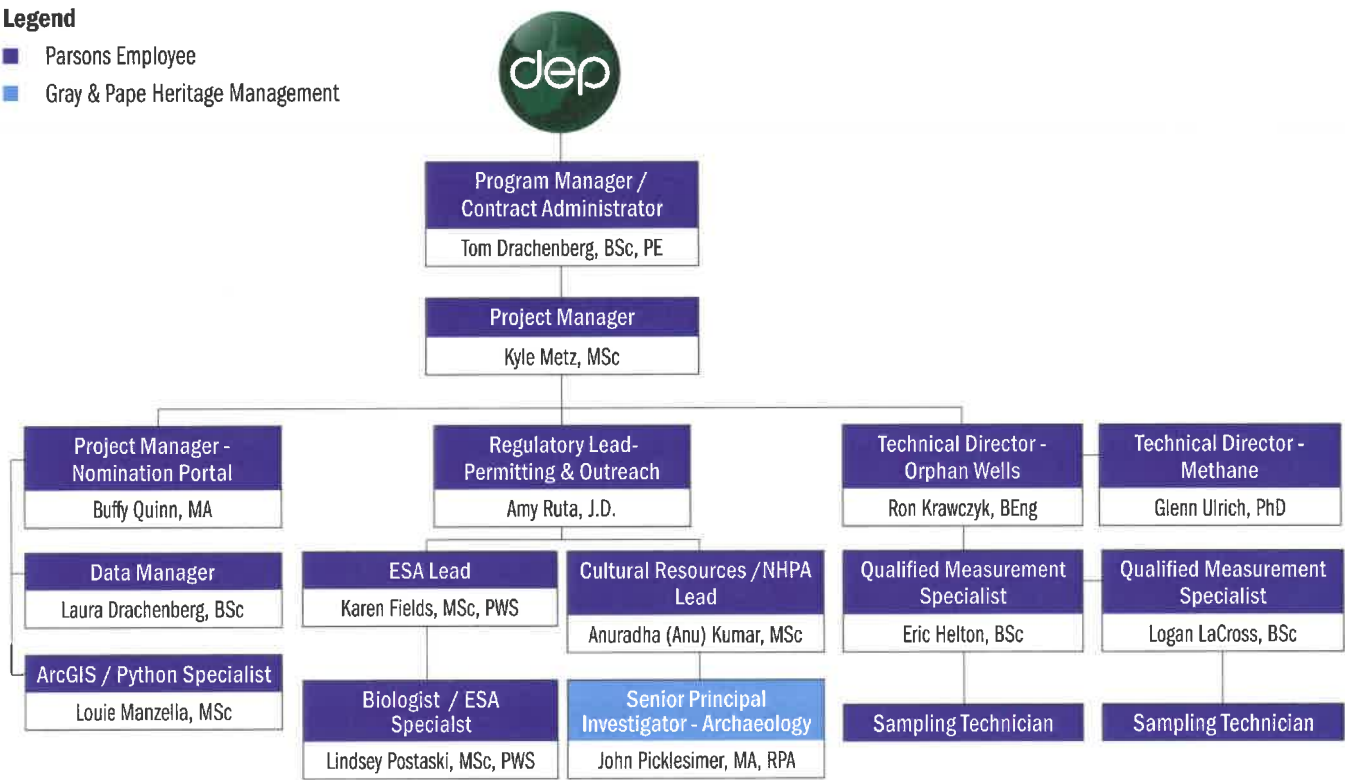
Our proposed project team members bring decades of combined experience in the environmental, infrastructure, and energy industries. We have successfully collaborated with international, state, and federal agencies, as well as global oil companies, to mitigate and remediate impacts from oil and gas production. By partnering with us, WVDEP will gain access to the full resources and technological innovations of a global consulting firm, while also benefiting from regional project staff who possess extensive expertise in construction management, permitting, compliance, MEQ, community outreach, and orphan well plugging.

Table 2-1 lists the Parsons Leadership Team assigned to this project. **Figure 2-1** displays our proposed organization chart, followed by brief introductions of our project team members. Detailed resumes for all team members are included in **Appendix C**.

TABLE 2-1: PROJECT LEADERSHIP TEAM

Name & Credentials	Years of Experience	Role(s)/Responsibilities	Direct/Subcontract/Contract	% of Work	Physical Location
Tom Drachenberg, BSc, PE	25	Program Manager / Contract Administrator	Direct (FT)	5%	Syracuse, NY
Kyle Metz, MSc	15	Project Manager	Direct (FT)	50%	Syracuse, NY
Buffy Quinn, MA	31	Project Manager - Nomination Portal	Direct (FT)	15%	Syracuse, NY
Laura Drachenberg, MSc	22	Data Manager	Direct (FT)	10%	Syracuse, NY
Louie Manzella IV, MSc	2	ArcGIS/Python Specialist	Direct (FT)	10%	Buffalo, NY
Amy Ruta, J.D.	21	Regulatory Lead - Permitting & Outreach	Direct (FT)	10%	Chattanooga, TN
Karen Fields, MSc, PWS	36	Environmental Site Assessment (ESA) Lead	Direct (PT)	5%	Sharonville, OH
Lindsey Postaski, MSc, PWS	14	Biologist / ESA Specialist	Direct (FT)	50%	St. Louis, MO
Anu Kumar, MSc	17	Cultural Resources / NHPA Lead	Direct (FT)	10%	Indianapolis, IN
John Picklesimer, MA, RPA	35	Senior Principal Investigator - Archaeology	Subcontract	75%	Cincinnati, OH
Ron Krawczyk, BEng	18	Technical Director - Orphan Wells	Direct (FT)	5%	Breckenridge, MI
Glenn Ulrich, PhD	31	Technical Director - Methane	Direct (FT)	5%	St. Louis, MO
Eric Helton, BSc	18	Qualified Measurement Specialist	Direct (FT)	25%	Cincinnati, OH
Logan LaCross, BSc	7	Qualified Measurement Specialist	Direct (FT)	25%	Breckenridge, MI

FIGURE 2-1: ORGANIZATION CHART



With over 18,500 employees, Parsons offers a vast reservoir of experience and expertise. This allows us to assemble a dedicated project team committed to delivering exceptional outcomes and driving the success of your project.

TOM DRACHENBERG, BSC, PE - PROGRAM MANAGER / CONTRACT ADMINISTRATOR

Tom has **25 years of extensive** engineering and project management experience involving all phases of site construction and remediation. Tom served as a Program Manager for a standby orphan well plugging contract with the NYSDEC, including responsibility for successful plugging of more than 80 wells. He has experience working with NYS Agencies, USEPA, and the USACE, and will confirm project compliance with federal grant requirements.

KYLE METZ, MSC - PROJECT MANAGER

Kyle is a Petroleum Geologist and Project Manager with **over 15 years of experience** managing complex oil and gas projects involving new drill, active, idle, and abandoned/orphaned well investigation and remediation in multiple basins across the United States.

BUFFY QUINN, MA - PROJECT MANAGER - NOMINATION PORTAL

Buffy is a Project Manager with **31 years of experience** in sustainability, community outreach, grant writing and administration, and education. As an outreach specialist, she plays a key role in developing and executing strategic outreach initiatives designed to foster and maintain positive relationships with key stakeholders, community partners, and other targeted audiences. She actively engages with communities, organizing and participating in workshops, seminars, and outreach activities to raise awareness and solicit feedback when necessary. Her role also entails collaborating with cross-functional teams, including project managers, marketing, and public relations to maintain consistent messaging and seamlessly integrate outreach efforts with overall project objectives.

LAURA DRACHENBERG, BSC - DATA MANAGER

Laura is a Technical Specialist with **22 years of experience** in environmental data management, including field and oversight work. Her data management expertise encompasses implementing EQuIS projects and Locus Environmental Information Management (EIM) databases, providing QA, maintaining online and Microsoft Access databases, and managing field data. This includes setting up mobile field data collection systems and handling analytical site data. Laura also writes and verifies compliance with project data management plans. Her data reporting duties involve running queries, performing analyses, creating data tables/graphs, and preparing deliverables for regulatory agencies.

LOUIE MANZELLA IV, MSC - ARCGIS / PYTHON SPECIALIST

Louie is a Hydrogeologist with **two years of experience** in geostatistical analysis and numerical/analytical modeling. He has developed numerous groundwater and surface water flow models for clients in the private and public sector using MODFLOW, FloPy, and Groundwater Vistas. Through this experience he has become adept at programming in various languages including Python, the programming language of PRIMO. Louie has downloaded the PRIMO software package and is familiar with its operation through the user manual.

AMY RUTA, J.D. - REGULATORY LEAD – PERMITTING & OUTREACH

Amy is an Environmental Professional with **21 years of experience**. She has expertise in implementing requirements under a wide range of federal, state, and municipal regulatory programs related to environmental and civil construction projects. Amy provides technical and regulatory support in all phases of environmental review and project execution including, but not limited to requirements under the Clean Water Act (Section 401/404), Section 7, Section 106, National (and/or State) Pollutant Discharge Elimination System (NPDES/SPDES), Rivers and Harbors Act (Section 10/408), and state regulations/municipal ordinances. She routinely identifies applicable regulatory program requirements, conducts agency consultations, procures and maintains required authorizations, and oversees design, construction, and project close-out compliance. Amy does not provide legal services to Parsons or Parsons' clients.

KAREN FIELDS, MSC, PWS - ESA LEAD

Karen is a Parsons-certified Project Manager with **36 years of experience**. She prepares and implements remedial action work plans at various Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. She has conducted multiple wetland assessments and delineations and ecological and human health risk assessments. Her experience includes natural resource management, including habitat restoration and regulatory compliance. Karen prepares wetland permit applications and mitigation plans, siting applications for major utilities, risk assessments for RCRA and CERCLA sites, environmental site assessments, and media sampling. She is a registered Professional Wetland Scientist (PWS) who has worked throughout the United States for Fortune 500 companies and various government agencies and departments. Karen has presented the results of her work at various technical conferences in the US and Australia.

LINDSEY POSTASKI, MSC, PWS - BIOLOGIST / ESA SPECIALIST

Lindsey is a Principal Scientist with **14 years of experience** preparing National Environmental Policy Act (NEPA) documents for medium- to large-scale energy clients, including environmental assessments and environmental impact statements. She is a registered PWS. Her environmental experience includes wetland delineations, threatened and endangered species surveys (Section 7 consultations), surface and groundwater monitoring, environmental emergency responses, geographic information systems (GIS), and natural resource damage assessments.

ANU KUMAR, MSC - CULTURAL RESOURCES / NHPA LEAD

Anu is a Cultural Resources professional with **17 years of experience** specializing in meeting the Secretary of Interior's Professional Qualification Standards as defined in 36 CFR Part 61. She has experience managing multiple transportation projects requiring compliance with a variety of federal and state environmental and historic preservation laws, including the National Environmental Policy Act, Section 106 of the NHPA, Section 4(f) of the United States Department of Transportation Act, and Indiana Code 14-21-1. Her experience includes working with both governmental and non-governmental institutions involved in cultural resources management worldwide.

JOHN PICKLESIMER, MA, RPA - SENIOR PRINCIPLE INVESTIGATOR - ARCHAEOLOGY

John is a Senior Principal Investigator of Archaeology at **Gray & Pape** with nearly **35 years of experience** working in the state of West Virginia. Much of his work has focused on Phase I investigations associated with the oil and gas industry, specifically pipelines, well pads, and associated facilities. Given his extensive experience in the state, John has developed a good working relationship with the West Virginia Division of Arts, Culture, and History staff. Gray & Pape has access to the West Virginia SHPO GIS Interactive Map as well as years of experience utilizing this portal for Records Reviews of Historical Structures and Archaeological Site data.

RON KRAWCZYK, BENG - TECHNICAL DIRECTOR - ORPHAN WELLS

Ron is a Senior Project Engineer with **over 18 years of experience** in oil and gas industry at Parsons, specializing in the investigation, abandonment operations, remediation, and reclamation of early-era production wells and associated facilities. He also has 15 years of experience with wetland delineation and state/nationwide permitting. As the Technical Director of our various Orphan Well Projects, Ron possesses deep knowledge of oil and gas well plugging operations.

GLENN ULRICH, PHD - TECHNICAL DIRECTOR - METHANE

Glenn is a Technical Director with **31 years of experience** specializing in contaminant fate and transport, technology development and application in the oil and gas industry, and the sustainable remediation of contaminants and methane. He has published numerous peer-reviewed papers on methane biogenesis and has a patent pending for methane biodegradation systems.

ERIC HELTON, BSC - QUALIFIED MEASUREMENT SPECIALIST

Eric is an Environmental Scientist with **22 years of experience** including vapor sampling and methane collection from landfill gas emissions, flare systems, and oil and gas facilities. Eric will be the primary QMS on this project.

LOGAN LACROSS, BSC - QUALIFIED MEASUREMENT SPECIALIST

Logan is a Senior Geologist with **seven years of experience** and is the primary QMS and Field Leader on our Michigan Orphan Well Methane Monitoring Project and will provide QMS training.



UNMATCHED EXPERTISE AND PROVEN LEADERSHIP FOR WVDEP-OOG'S MERP

Our team brings together a diverse group of seasoned professionals with extensive experience in engineering, geology, environmental science, project management, and regulatory compliance. With a track record of successfully managing complex oil and gas projects, orphan well plugging, cultural resource management, and environmental assessments, Parsons is uniquely positioned to deliver exceptional results for the WVDEP-OOG in administering the MERP. Our team's deep knowledge,

combined with innovative approaches and strong stakeholder relationships, enables the highest standards of project execution and regulatory compliance.

RELEVANT PROJECT EXPERIENCE

The Parsons team offers unmatched experience in executing large complex projects that address the risks that orphaned oil and gas wells can pose to human health and the environment. Our extensive experience includes well abandonment projects, permitting for earth disturbances, and screening and quantifying methane emission rates within the BIL Guidelines. This section highlights several project examples that demonstrate our capabilities, along with client references.

4.3.1.1 MCW Well Plugging Nomination Process - Previous Project Management Experience Related to the Oil and Gas Industry

STATEWIDE ORPHANED WELL PLUGGING CONSTRUCTION OVERSIGHT



FIGURE 2-2: ROBINSON WELL
Parsons and its Sub-contractor mobilized on the Robinson well, a site with challenging access immediately adjacent to Deer Creek

PROJECT DESCRIPTION

Since 2018, Parsons has supported the NYSDEC Division of Mineral Resources (DMR) in the management and execution of their orphaned well plugging and abandonment (P&A) program. During this time, Parsons and its plugging sub-contractor have plugged more than 80 of New York's highest priority wells across the state. In this role, we've successfully leveraged all aspects of our extensive environmental experience, including project management, cost estimating, project scoping and solicitation of bids, subcontract procurement and negotiation, stakeholder engagement and property access permissions (e.g., property owners and utility providers), regulatory interactions, permitting, GIS and mapping services, construction scheduling and sequencing, site preparation, construction management and oversight, site restoration, and reporting.

CLIENT REFERENCE

NYSDEC
Grace Gallagher
518.402.8074
Grace.Gallagher@dec.ny.gov

PROJECT DURATION

2018 to 2022

PROPOSED TEAM MEMBERS INVOLVEMENT

Tom Drachenberg – Program Manager
Amy Ruta – Regulatory Lead
Anu Kumar – SHPO Compliance

PROJECT VALUE

\$10 million

SERVICES PROVIDED

- Program management
- Well plugging and reclamation
- Environmental permit compliance
- Landowner liaison
- Construction management
- Subcontractor procurement

INITIAL ACTIVITIES

Parsons conducted initial site visits to locate targeted wells and assess site-specific requirements that may be necessary to allow mobilization to the site (e.g. clearing, haul road construction, environmental considerations, property owner restrictions, and utilities). Following these site visits, we prepared an engineer's cost estimate for the project, accounting for known site conditions, assumed downhole conditions (typically unknown), and anticipated production rates based on previous project experience. In this effort, we leveraged our understanding of gas well construction and associated gas production infrastructure to develop a preliminary approach for each well site, as a basis for estimating the project cost. In some cases, this planning accounts for decommissioning of pressurized wells and associated production equipment such as pumping equipment, production and distribution lines, casing/tubing, and other relic infrastructure.

Following an evaluation of well sites identified for plugging, we assessed each location for applicable permits and access agreements required prior to the start of mobilization and plugging activities. This work includes identifying environmental constraints, regulatory requirements, utilities, and any applicable property-owner

requirements. The process of obtaining necessary permits and agreements involves conducting environmental desktop reviews, completing construction layout and siting, coordinating with federal, state, and local regulatory agencies, negotiating temporary use and access agreements with landowners and third parties, preparing stormwater pollution prevention plans (SWPPPs), and preparing and procuring environmental and construction/municipal permit applications.

Experience on this project has shown that these considerations often drive the critical path schedule and must be accounted for in construction planning and sequencing. Parsons has developed a strong working knowledge of the typical timelines required for obtaining necessary permits and coordinating with associated agencies and utility companies.

SITE CONSTRUCTION/PREPARATION

Once all necessary approvals and clearances are obtained, Parsons mobilizes our subcontractors to prepare the site for abandonment activities. This work typically consists of clearing and grubbing, and the construction of the access road construction and well pad. In some instances, more complex site preparation activities are required, which may entail long-lead considerations that need to be factored into the construction schedule. For example, on one project we completed along NYS Route 417 in the Town of Bolivar, two wells targeted for P&A were situated on a steep embankment directly below overhead powerlines. Construction of the well pads in this instance required both coordination with the utility provider (Rochester Gas and Electric Corporation) to relocate the power lines, and with New York State Department of Transportation to provide traffic management associated with the construction of the well pads within the road right-of-way. These activities required several months to resolve, serving as critical path items for the scheduling and sequencing of wells.

PLUGGING OPERATIONS

Plugging operations typically require removal of downhole production casing and equipment, followed by the placement of cement plugs across the production zones, surface casing seat plug, and a surface plug. In the event plugging operations encounter an obstruction or problem in achieving the plugging plan (e.g., high gas pressure, collapsed casing, debris, and/or old plugs), we collaborate with our sub-contractor and NYSDEC to assess options, recommend a course of action, and adjust the plugging plan. These may include using brine or barite to kill the well; employing fishing tools, mills, or other special tools to open the well bore and remove downhole obstructions; logging the well with wireline equipment or cameras; cutting or perforating casings that are difficult to remove; installing packers or cast-iron bridge plugs; and adjusting the depth and length of cement plugs. As our plugging subcontractors progress through a plugging operation, our on-site well managers maintain lines of communication with our project manager and NYSDEC DMR regarding status and plugging plans.

Predicting downhole conditions on a particular well can be difficult. However, based on our experience on this project, the condition of the well head at the surface can be a good indication of whether excessive debris might be encountered. In cases where a well head is absent, or significantly deteriorated, it is common to encounter tools, rocks, debris, and other objects that have been put into the well by previous operators, property owners, trespassers, etc. These items can lead to production zone blockages, which need to be carefully managed, as milling or fishing operations can lead to unanticipated gas release.

SITE RESTORATION AND REPORTING

After completing plugging activities and demobilizing associated equipment, Parsons restores the sites and any constructed access roads. Restoration activities typically include grading, implementing long-term erosion and sedimentation controls, applying an appropriate seed mix to restoration areas, and monitoring until sufficient revegetation is achieved and DMR approval is obtained. Parsons also prepares a draft plugging report for each completed well, detailing how the well was plugged (e.g., depth, casing record, and plugging data), which is then submitted to DMR for approval and signature



FIGURE 2-3: CLEARING OBSTRUCTED WELLS

Captured above are examples of a downhole magnet and impression block used to characterize an obstruction and/or clear it from the well

EXPERT MANAGEMENT OF ORPHANED WELL PLUGGING FOR ENVIRONMENTAL SAFETY

Parsons' comprehensive management and execution of New York's state orphaned well P&A program demonstrates our expertise in environmental protection, regulatory compliance, and efficient project delivery, promoting the safe closure of high-priority wells and protecting community health and the environment.

INTERNATIONAL OIL COMPANY – MID-MICHIGAN OILFIELD REMEDIATION, CLOSURE, AND RESTORATION

PROJECT DESCRIPTION

Parsons is managing remediation of 1,012 former oilfield sites, including more than 678 former oil wells, tank battery sites, and spill areas across numerous oilfields throughout the State of Michigan. We provide program management, investigation, remedial engineering, and construction oversight services and have restored more than 28,000 acres of land to nearly original condition under the requirements of USEPA Region 5, the Michigan Department of the Environment, Great Lakes, and Energy (EGLE), and the Michigan Department of Natural Resources regulatory programs.

Specific aspects of Parsons' role and responsibility in this program include the following:

- Assessment, remediation, and management of crude oil-impacted soil, surface water, and groundwater
- Well locating services, inventory, and reporting
- UAV-based geotechnical surveys for remote detection of wellbores where casing had been pulled.
- Well site assessments, cost estimating, and technical approach planning (e.g., site civil work and site restoration requirements)
- Landowner outreach and access agreement negotiation
- Permit identification, preparation, and submittal, including the submission of more than 90 USACE Joint Applications for Permit
- Decommissioning and demolition of operating and abandoned oilfield infrastructure, including surface facilities, removal of 30 miles of pipelines, steel and transite (asbestos) flow lines, compromised and harvested well casings, and cellars
- Re-entering, drilling to approximately 800 feet (a depth adequate to protect the drinking water aquifers), re-casing, cementing, and re-abandoning 225 former oil wells
- Primary regulatory interaction with EGLE and Michigan Department of Natural Resources to achieve site closures and secondary wetland, stream diversion, and flood plain regulatory permitting required to perform the work
- Construction and use of a 360,000-square-foot land farm capable of treating more than 100,000 cubic yards (CY) of crude oil-impacted soil annually and using the remediated soil as backfill on the project sites. Over 1.5 million CY of soil sustainably bioremediated.
- Construction and management of a 1-million-gallon leachate collection pond
- Use of a phytoremediation plot to treat approximately 320 barrels per day of leachate water and installation and operation of a Class II UIC disposal well that has disposed of 2,245,833 barrels (94.3 million gallons) of chloride-impacted water to date, saving the project more than \$600,000 per year.

A major portion of the project encompasses abandonment, remediation, and restoration of former oilfield sites, including oil wells, tank battery sites, and spill areas.

CLIENT REFERENCE

Tim Bertram, Area Geologist
989.412.3631

bertramt@michigan.gov

Valerie Matherne, Operations Lead

985.259.3601

valerie.matherne@chevron.com

PROJECT DURATION

2006 to Present

PROPOSED TEAM MEMBERS INVOLVEMENT

Ronald Krawczyk – Technical Director

PROJECT VALUE

\$3 million/year (Parsons)

SERVICES PROVIDED

- Program management
- Site assessment
- Soil remediation
- Oil well P&A
- Disposal well operations, maintenance, and monitoring
- Groundwater management
- Decommissioning and demolition
- Excavation and hauling
- Ex situ landfarming
- Ex situ phytoremediation
- Remediated soil reuse
- Permitting and compliance
- Regulatory negotiation and permitting
- Site access agreements
- Site restoration

STRONG SAFETY PERFORMANCE

The Mid-Michigan Oilfield Restoration project achieved a major project milestone in June 2022—the completion of over 1.55 million labor hours and 5,393 days without a recordable incident or lost-time injury.

Restoration work is being performed as part of EGLE's efforts to restore abandoned or nearly abandoned oil and gas fields to original conditions. Restoration activities are performed under the direction of EGLE and in compliance with Public Act 451, Part 615, and, where appropriate, under Part 201 requirements.

Activities have focused on economically restoring these sites to their original conditions consistent with current land usage, while minimizing environmental impact. The sites targeted for remediation include private- and state-owned properties and range from heavily forested to agricultural lands. Land use includes a blend of residential, agricultural, industrial (oil and timber), and recreational properties. The project area covers 28,000 acres intermingled with rivers, creeks, ponds, and wetlands. The work is sensitive to wetland habitats, where the oil company enhanced existing wildlife areas by restoring former wetland areas.

To date, 248 affected wetland sites and more than 30 miles of surface facilities have been delineated as wetlands, requiring detailed permitting and construction consideration during project restorations. Joint permits are executed with EGLE, and preconstruction site reviews are conducted prior to site mitigation. More than 580,000 square feet of wetlands have been restored to their pre-surface facility conditions, and more than 1,500,000 cubic yards of wetland-impacted soil has been remediated. The Mid-Michigan project is also assisting the Michigan Department of Transportation with creating wetland mitigation bank acreage on select restored remediation sites.

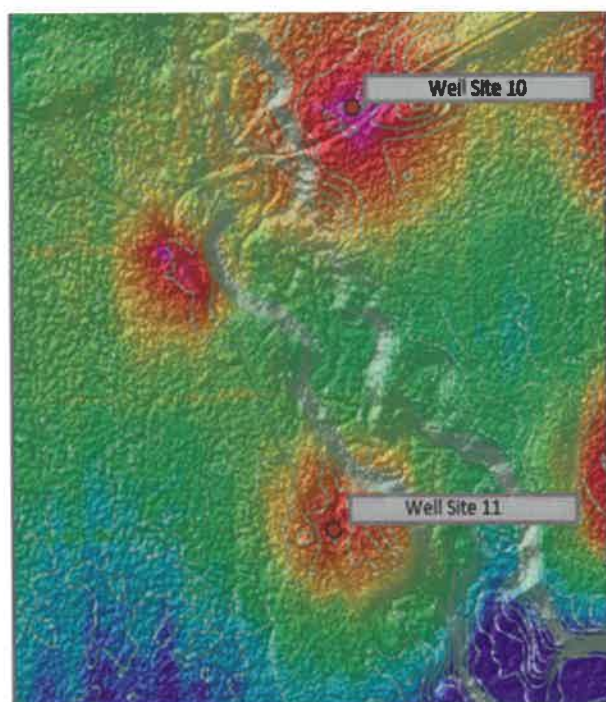


FIGURE 2-4: LiDAR DISPLAY

Wells identified using LiDAR and magnetometer to locate a well bores with a harvested surface casing to 163 and 183-foot depths

PLUGGED AND ABANDONED OIL WELLS

In support of environmental restoration activities at the site, Parsons is managing and overseeing the P&A of 225 leaking oil wells that were discovered during site investigations and/or site remediation. Approximately half of the wells are found to be improperly plugged or not plugged at all with casing shot off at depth. The process of locating wells has been perfected by Parsons using UAV (aka drone) and ground-based magnetometer surveying, which saves time compared to traditional dig and search methods and has proven reliable to pinpoint well bore locations where the original casing top is beyond 200 feet below grade. We manage the decommissioning, deconstruction, and salvage of remaining production infrastructure, including pumping equipment, distribution and sales lines, casing, tubing, and rods.

When Parsons identifies improperly abandoned oil wells, we contract with a wellfield service contractor to re-plug the wells. Re-plugging can be particularly troublesome because many wells are found to contain rope, wood planks, miscellaneous steel debris, improvised plugging materials, stone plugs, and, in a few instances, even cannon balls. Our experience in the oilfields and our collaborative relationship with EGLE is essential in these operations and coordinating with subcontractors to deploy mitigating methods to address obstructions such as milling, fishing tools, downhole magnets, and other tools.

Parsons determines where to stop washing down and drilling activities to properly plug wells for aquifer protection goals based on site geology and existing well construction in accordance with an aquifer protection basis of design agreed to by EGLE. We also communicate with EGLE when the lowest feasible depth has been reached during abandonment of problematic wells. To date, Parsons has plugged 225 oil wells on the project.



FIGURE 2-5: COLD-TAPPING OPERATIONS

Cold-tapping operations conducted to relieve pressure from a well prior to initiating plugging

CANADIAN OIL COMPANY – ABANDONMENT OF FORMER GAS EXPLORATION FIELD



FIGURE 2-6: GAS FIELD ABANDONMENT
Aerial view of an Alberta gas facility prior to abandonment

PROJECT DESCRIPTION

Parsons was the prime contractor to support the abandonment, assessment, reclamation, maintenance, and regulatory closure of a former gas field consisting of approximately 20 exploration wells and a processing facility located north of Fort Nelson, British Columbia (BC).

The field is located in a remote area partially serviced by a forest service road, but with the majority of the wells only accessible by helicopter or winter roads. Parsons was retained to plan and execute the abandonment, assessment, and reclamation of

more than 20 gas wells, former road allowances, and associated facilities. We led procurement efforts and managed all aspects of the fieldwork, overseeing five to eight different sub-contractors simultaneously.

The scope is included the following components:

- Project planning and scheduling
- Coordination of surface access and crossing agreements; Phase I ESAs, detailed site assessments
- Coordination of helicopter access during summer operations; planning, construction, and maintenance of over 80 km of winter roads
- Well and surface abandonment; groundwater and surface water, soil sampling, and mitigation of associated impacts
- Phase II ESAs; hazardous materials assessments; monitoring well decommissioning; methane emission measurement and monitoring
- Heavy reclamation and contouring of well sites and roads; regulatory reporting and closure applications; liaison with local Indigenous community

As part of the assessment program, Parsons worked closely with the BC Oil & Gas Commission (OGC) to develop a risk-based approach to site assessment and remediation, which reduced the required assessment and remediation work and allowed reclamation to proceed more efficiently.

Given the remote access and high costs associated with helicopters and winter road construction, Parsons planned and coordinated multiple activities concurrently to maximize efficiencies. All visual assessments and inspections were done via helicopter in the summer to support execution of work requiring heavy equipment in the winter.

While revegetation is progressing at the well sites and reclamation certificates are received, Parsons continues to act as the Care & Maintenance manager for the field. This work includes quarterly visits to the facility to inspect equipment integrity and maintain nitrogen pressurization of facility vessels and equipment, security and building integrity checks, and inspections on road accessible sites for reclamation progress. We also maintain the cathodic protection survey for the facility's 26 km system pipeline as part of regulatory compliance while the facility is dormant.

In addition to the facility maintenance program, we also completed annual inspections and maintenance of the 56 km forest service road, its culverts, and 11 bridges to maintain regulatory compliance.

CLIENT REFERENCE

Imperial Oil Company
250.212.0239
Contact.Imperial@esso.ca

PROJECT MANAGER

Sheldon Smith
403.294.4227
sheldon.smith@parsons.com

PROJECT DURATION

2018 to 2022

PROJECT VALUE

>\$3 million

SERVICES PROVIDED

- Program management
- Procurement
- Site assessment
- Surface abandonment
- Winter road construction and maintenance
- Heavy reclamation
- Detailed site assessments
- Reclamation certificate applications
- Landowner liaison

CAREFUL PLANNING FOR SUCCESS

Careful and efficient planning allowed us to compress the schedule significantly, completing the bulk of the work over one winter instead of two. This saved the client hundreds of thousands of dollars in winter road construction.

INACTIVE LANDFILL INITIATIVE

PROJECT DESCRIPTION

Parsons has supported the Inactive Landfill Initiative (ILI) since 2017, helping conceive, develop, and implement the program in conjunction with the New York State Department of Environmental Conservation's Division of Materials Management. As of April 2024, more than 503 inactive landfills across the state of New York have been investigated, thousands of samples collected, and results evaluated to better understand the risks to human health based on a variety of landfill characteristics. The ILI was developed in response to the Priorities and Environmental Initiatives to help safeguard natural resources and public health by establishing a solid waste site mitigation and remediation priority list. Projects focused on drinking water contamination from PFAS compounds and 1,4-dioxane along with other chemicals of concern (i.e., VOCs, SVOCs, metals) leaching from inactive landfills.

The program includes an evaluation and prioritization of nearly 2,000 inactive landfills within a two-year period where it was suspected illegal disposal of solid waste occurred or the facility was suspected of contaminating a drinking water supply and there was no monitoring or an inadequate monitoring program in place.

This priority list represents the list of inactive solid waste sites which, through the results of the activities conducted within the ILI project, have been shown to be impacting sources of drinking water. A report to Governor Cuomo's office that includes this priority list was completed in 2019 and recently released to the public. Annual updates have been prepared and released beginning in 2020. Further landfill evaluations and remedial efforts continued beyond the submittal of the initial priority list report.

Parsons provides full services, including project management, engineering evaluations, data validation and management, scoping and planning of field investigations, landfill site inspections, hydrogeological modeling evaluations, environmental media sampling (groundwater, soil, sediment, soil vapor, residential drinking water), and GIS assessments. Due to the project's urgent schedule, Parsons increased staff levels in several offices to accommodate the workload, supporting 25 full-time employees to complete the various tasks. Additionally, Parsons used several subcontractors for additional support, including numerous M/WBE firms to provide engineering field services, drilling, surveying, and in other capacities.

INVESTIGATION

The evaluation process begins with a preliminary assessment (records review, confirmation of landfill location, and site reconnaissance). Data from this process is memorialized in a comprehensive database. A unique ranking system was developed for prioritizing additional investigation of inactive landfills with the highest potential risk to public health and/or the environment. Additional investigations are completed at higher risk landfills to further evaluate groundwater impacts to downgradient receptors. Parsons has conducted multiple investigations simultaneously and completed 503 sites in approximately 6.5 years (78 months), which equates to more than 6 sites per month. Over 1,100 groundwater monitoring wells have been installed and over 4,900 groundwater samples, more than 60 per month, have been collected and analyzed to facilitate the groundwater assessment. In addition, landfill seeps, soils/sediments, and soil vapor are assessed at some landfill locations based on the potential risks posed by each of these pathways. Analytical data from these investigations are validated and reviewed. A receptor identification process is initiated if PFAS compounds are detected in excess of the New York State Department of Health Maximum Contaminant Level of 10 ppt for PFOA or PFOS, or 1 ppb for 1,4-dioxane. This process includes identifying and sampling down-gradient residential wells and/or public drinking water supplies (within 0.25 mile of an impacted landfill) to further assess risk to receptors.

CLIENT REFERENCE

Rick Clarkson, Deputy Division Director

518.402.6878

richard.clarkson@dec.ny.gov

New York State Department of Environmental Conservation
Division of Environmental Remediation 625 Broadway,
12th Floor, Albany, NY 12233
518.402.9711

PROJECT MANAGER

Thomas Drachenberg

315.552.9688

tom.drachenberg@parsons.com

PROJECT DURATION

2017 to Present

PROJECT VALUE

\$88.2 million (Parsons)

SERVICES PROVIDED

- Site characterization
- Environmental sampling
- Analytical QA/QC
- Data management services
- Citizen participation activities
- Hydrogeological assessments
- Health and safety plans
- Soil vapor intrusion
- GIS

PIONEERING ENVIRONMENTAL SAFETY THROUGH COMPREHENSIVE LANDFILL INVESTIGATIONS

Parsons' proactive and thorough approach to the ILI has safeguarded public health and natural resources by inspecting nearly 2000 landfills and evaluating over 500 for contamination risks. Leading to prioritized remediation efforts across New York State.

GREATER CORNING AREA ENVIRONMENTAL CLEANUP



FIGURE 2-7: ENVIRONMENTAL CLEANUP EFFORTS IN CORNING, NEW YORK

PROJECT DESCRIPTION

In Corning, New York, environmental cleanup efforts are primarily focused on addressing contamination from historical industrial activities. The work involves the removal of soil and sediment contaminated with lead, arsenic, and other hazardous substances. This cleanup is being conducted under the oversight of the USEPA and the NYSDEC. The process includes soil testing, excavation, and proper disposal of contaminated materials, as well as restoring the affected areas.

The goal is to reduce health risks to residents and improve environmental quality in the community.

Parsons provided third-party field oversight and on-site monitoring during remedial investigation and remedial construction associated with the past disposal of waste materials generated by industrial glassmaking processes. Oversight tasks included observing technical work to confirm it was consistent with approved project work plans, designs, safety plans, and other documents, along with NYSDEC standards, criteria, and guidelines, and outreach activities. Parsons also developed a digital dashboard using PowerBI that provides a platform for collaboration with the client. We have linked our GIS and analytical databases to the dashboard, allowing the client to access, query, and map the information to aid in decision-making.

Engaging with the community is also a priority on this project. Community outreach and engagement are critically important in maintaining the public's trust and participation. We provide regular updates through public meetings, newsletters, door hangers, and a project website, ensuring that residents are well-informed about the methods, progress, and potential impacts of the work occurring in their community and in their lawns. Because the site management plan was over 1,000 pages long, we developed a smart-phone accessible application that highlights information of particular importance to residents. This application includes an online questionnaire where community stakeholders can ask questions or report finding any of the glassmaking waste material.

Understanding the significance of public health and safety, we also prioritize educating the community about the potential health risks associated with contamination and the measures we are taking to mitigate these risks. By actively engaging with residents through surveys, public availability sessions, and a dedicated community liaison, we make certain that community voices are heard. We have established a project phone hotline, allowing residents to easily contact us with questions or concerns. This two-way communication allows us to promptly address specific local issues, refine our approach, and tailor our efforts to meet the unique needs and expectations of the community.

CLIENT REFERENCE

Michael Cruden, Division of Environmental Remediation
518.402.9543

PROJECT MANAGER

Sheldon Smith
403.294.4227
sheldon.smith@parsons.com

PROJECT DURATION

2014 to Present

PROJECT VALUE

\$2.4 million

SERVICES PROVIDED

- Project management
- Third-party oversight
- Public outreach
- Community engagement
- StoryMap and website
- Public questionnaire
- Landowner liaison
- Digital dashboard
- GIS
- Data management liaison

FOSTERING COLLABORATION AND COMMUNITY SUPPORT

Collaboration and support are at the heart of our outreach strategy. Parsons works closely with local government agencies, community organizations, and other stakeholders to foster a collaborative environment.

4.3.1.2 Ancillary Permitting-related Activities - Previous Project Management Experience Related to Projects Involving Earth Disturbances

ENVIRONMENTAL PERMITTING & COMPLIANCE SUPPORT FOR PIPELINE SYSTEMS AND TERMINALS

PROJECT DESCRIPTION

Parsons is in our 18th year as the program manager for all environmental permitting and compliance for this client. Since supporting this client, we have reviewed thousands of project sites and have prepared over 2,500 deliverables for the client including permit applications, reports, planning documents, presentations, and waste management plans.

Parsons is responsible for all aspects of environmental planning for projects located in Alabama, California, Iowa, Illinois, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, New York, Ohio, Oklahoma, Pennsylvania, and Tennessee and supports engineering and construction teams through execution. Our work includes front-end loading support (site assessment, agency coordination, permitting) and project execution support (project kickoff, permit compliance, and permit close-outs).

Project types that we support include:

- Compliance Program projects such as pipeline integrity management and repairs (ILI and corrosion work on the pipeline right-of-way (ROW) pipeline repairs, recoating, test station installations, etc.)
- Water crossings (new pipeline installations under rivers, pipeline covering/ reinforcements including revetment mattresses)
- Third-party encroachments (includes state and county highway widenings, railroad and airport encroachments, and commercial developments requiring pipeline relocation)
- Low depth-of-cover (includes pipeline lowerings, pipeline coverings, and installation of span supports)
- Operations compliance support (NPDES permit renewals, ROW maintenance, regulatory compliance (including NPDES sampling, Spill Prevention Control and Countermeasure (SPCC) Plan preparation, tank hydrostatic testing, etc.)
- Capital projects (new pipeline construction, facility upgrades, etc.)

PROVEN EXPERIENCE

This example highlights Parsons' extensive experience in delivering comprehensive environmental services for energy infrastructure installation and maintenance on a regional scale. We have proudly served this client for nearly two decades.



CLIENT REFERENCE

Major interstate petroleum pipeline transportation company

PROJECT DURATION

2004 to Present

PROJECT VALUE

Over \$8.3 million (to date)

SERVICES PROVIDED

- Environmental regulatory evaluations
- Federal/state/local environmental permitting
- Agency consultation
- Project environmental planning
- NHPA Section 106 and tribal coordination
- Cultural resources monitoring
- Wetland delineation/ mitigation/ restoration
- Stream characterization/ habitat assessment
- Biological and mussel survey
- EAS compliance
- NPDES discharge monitoring/reporting
- Environmental training
- Environmental inspection
- SWPPP preparation
- Best management practices
- Biological risk assessment
- Soil and water sampling
- SPCC plans
- Project execution environmental compliance support
- Waste management plans
- Water management plans
- Floodplain modeling
- GIS
- GPS
- Drone surveys
- Environmental commitments and compliance register

Our services include environmental regulatory evaluations, environmental permitting, wetland determinations, biological surveys, stream assessments, stormwater pollution prevention plan preparation, discharge reporting, coordination with numerous regulatory agencies and jurisdictions (federal, state, regional, county, city), environmental inspections, contractor environmental training, and general environmental consulting.

Our environmental regulatory evaluations involve performing site visits and map reviews using available digital databases, hard copy maps, and other resources to evaluate proposed project activities with regards to water and other natural resources-related federal, state, and local environmental statutes, regulations, and permit requirements.

Environmental statutes and regulations in which Parsons is experienced include:

- Clean Water Act (Sections 404, 402, 401 and 408)
- Section 10 Rivers and Harbors Act
- Sections 7 and 10 of the ESA
- Section 106 Historic Preservation Act and Tribal Coordination
- Clean Air Act
- National Environmental Policy Act
- National Park Service Access Permits and Archaeological Resources Protection Act
- Migratory Bird Treaty and Bald and Golden Eagle Act
- State and local stream and wetland regulations and mitigation
- State threatened and endangered species permitting
- State and local floodplain development
- State Public Waters and Sovereign Lands permitting/licensing
- State construction and industrial stormwater compliance
- State surface and ground water regulations
- State hydrostatic test water discharge
- State and local public lands
- State public utilities environmental reporting and permitting
- State air regulations
- State Agricultural Mitigation Best Management Practices
- State and local drainage laws
- County and municipal site development, floodplain, zoning, soil erosion and sediment control, sanitary sewer, and excavation ordinances.



4.3.1.3 Projects Meeting Requirements as Qualified Measurement Specialists

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) STATEWIDE ORPHAN WELL METHANE MONITORING & QUANTIFICATION



FIGURE 2-8: PARSONS BIL-QMS PERFORMING METHANE LEAK QUANTIFICATION FROM AN ORPHANED WELL CASING CUTOFF AT SURFACE

PROJECT DESCRIPTION

Since 2023, Parsons has been providing DOI Orphan Well Methane Measurement Guidance-compliant methane monitoring and quantification services for the Michigan Department of the EGLE Oil, Gas, and Mineral Division’s Orphan Well Program. For this project, Parsons developed an efficient screening and quantification methodology to address potential methane emissions from the state’s 444 documented orphan wells and additional associated 60 production-related facilities. Utilizing the latest Made-in-America compliant Tunable Diode Laser Absorption Spectroscopy (TDLAS) methane-specific detection and quantification tools, our BIL-QMS’s detect methane leaks as low as one ppm above background and have documented numerous leak quantification results in field conditions below the one gram per hour detection threshold.

EFFICIENT METHODOLOGY

Field crews use a two-step methodology to first scan for leaks, then if any are found, perform quantification of those leaks using DOI Orphan Well Methane Measurement Guidelines and USEPA Method 21 procedures. Parsons selected TDLAS-based instrumentation that provides accurate and repeatable results without the potential interference from motion and/or other gasses that IR OGI cameras are subject to. Sites are screened using an RMLD and any identified leaks are then quantified using a SEMTECH HI-FLOW 2 mass sampling device.

DIGITAL DATA CAPTURE & REPORTING

Field crews then use Parsons-developed in-field digital reporting methods to record the well site location, measured meteorological data, leak detection results, applicable leak rates, and site photographs. These digital reports are sent directly to office-based team members to perform quality assurance reviews before the crews leave the field operations area. Measured leak data is automatically captured within a master database file that is provided to the state for easy upload into the DOI’s leak database.

CLIENT REFERENCE

Tim Bertram, Area Geologist
989.412.3631
bertramt@michigan.gov

PROJECT MANAGER

Sean Phelps
805.335.4308
sean.phelps@parsons.com

PROJECT DURATION

2023 to Present

PROPOSED TEAM MEMBERS INVOLVEMENT

Ronald Krawczyk – Technical Director
Logan LaCross, Lead QMS

PROJECT VALUE

\$385,000

SERVICES PROVIDED

- Site queue logistics
- Landowner engagement
- Leak detection
- Leak quantification
- Digital reporting
- Pre- and post-plug measurements

LEADING THE WAY IN METHANE MONITORING FOR ENVIRONMENTAL SAFETY

Parsons leverages advanced methane detection technology and efficient digital reporting to provide accurate, reliable, and compliant monitoring services, promoting environmental protection and public health for Michigan’s Orphan Well Program.

4.3.2 Mandatory Qualification / Experience Requirements

Parsons confirms compliance with the following mandatory qualification and experience requirements below.

4.3.2.1 Administrator Requirements

We confirm we, the administrator, are NOT a registered oil and gas well operator as defined in W. Va. Code § 22-6-1(l) and (z) and we will NOT be a participant in the MCW well plugging program and will NOT nominate MCWs for plugging (or have MCWs nominated on our behalf). As such, we are truly a 3rd party independent administrator for WVDEP's MERP grant funding.

We confirm that we are not aware of any business relationships or other partnerships which may introduce conflicts of interest related to well ownership or operatorship.


4.3.2.2 Eligibility of Administrator as Potential Well Plugging Vendor

We acknowledge that we, the administrator (or parent/subsidiary or partner thereof), is not precluded from being a potential well plugging vendor participating in the competitive bid process for wells ultimately plugged under this program.

Corning Area-wide Investigation Questionnaire

Contact the DEC with questions or to report finding ash, brick, or glass (ABG) material.

Today's Date*

 6/11/2024 

Please provide your first and last name

Mailing address

Phone number

Email



For the address above, are you the...

☐ Owner

☐ Tenant

☐ City employee

☐ Concerned citizen

☐ Other

How should we contact you?

☐ Phone

☐ Email

☐ Posted mail

☐ In-person

Best time to contact you? (day/time)

Do you have any information about the history of the property? For example, was it previously a farm? Or was it used for an automotive garage? Any information you have is helpful.

1000

Have you completed any excavation on your property (fence/deck posts, pools, tree installation, etc.)? If so, did you observe ash, brick, or glass?

1000

Have you found ash, brick, or glass (ABG) or know the location of ABG elsewhere in the Corning area?

☐ Yes


☐ No

If you answered yes, please describe it and its location.

1000

Include a photo of the ABG if you can

Drop image here or select image



Approximate Location of Observed ABG



Is there anyone else that you are aware of that we should talk with regarding the ABG materials you found?

1000

Would you like to be contacted by the DEC for an inspection of your property?

☐ Yes

☐ No

Do you have any other questions or concerns?

1000

Submit

B.1

Remote Methane Leak Detector – Complete Solution (RMLD-CS) Specifications



RMLD-CS™

Remote Methane Leak Detector Complete Solution

Recognize the potential for increased safety, significant productivity gains and time-savings with the RMLD-CS™. Remote detection allows utility services personnel and first responders to quickly scan an area for suspected gas leaks at a safe distance.

The **HEATH** Remote Methane Leak Detector - Complete Solution (RMLD-CS) is a highly advanced technology, capable of detecting methane leaks from a remote distance utilizing the same TDLAS (tunable diode laser absorption spectroscopy) technology as the current RMLD. This instrument eliminates the separate receiver and transceiver, combining them into one hand-held instrument that is lightweight, portable and field rugged. The RMLD-CS makes it possible to detect leaks without having to travel the entire length of the pipe line, thus creating safer surveys in areas that may be difficult to reach such as busy roadways, yards with dogs, fenced off areas and other hard to access places. It operates under a variety of field conditions including a wide temperature range, light rain and fog. Its rugged design will stand up to normal field use and operating conditions and its sensitivity or range is not affected by reasonable amounts of dust on the instrument's window.

FEATURES:

- ✓ Intrinsically safe
- ✓ Rechargeable/replaceable battery
- ✓ Dual battery charger
- ✓ Mobile App support
- ✓ Ergonomic housing
- ✓ Lightweight
- ✓ Graphical user interface
- ✓ Internal data logging
- ✓ WiFi
- ✓ GPS
- ✓ Bluetooth BLE
- ✓ Color camera and display



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Heath Consultants Incorporated operates under a continual product improvement program and reserves the right to make improvements and/or modifications without prior notification.

SPECIFICATIONS

General

Weight

3 lbs (approx.)

Carry Case Dimensions

21" x 17.5" x 9.5"

Display

3.5" color LCD, 320 x 240 resolution

Power

Battery

Removable, Rechargeable
Lithium-ion pack, 10.8 VDC at 3.2Ah

Battery Run Time

8 hours at 32° F (approx.)

Battery Charger

External, 110-240 VAC, 50/60 Hz
Universal

Dual Bay, Delivers 12W at 25°C per
battery

Charge Time

2-3 hours full charge (approx.)

Detection/Measurement System

Detection Method

Tunable Diode Laser Absorption
Spectroscopy (TDLAS)

Detection Distance

100 ft (30m) nominal - may vary due
to background type and conditions

Measurement Range

0 to 50K PPM-M

Sensitivity

5 PPM-M at distances from 0 to 100
ft (30m)

Beam Size

Conical in shape with a 22" diameter
at 100 ft (55cm at 30m)

Lasers

IR Laser

Class I

Green Spotter

Class 2(II) <5mW @ 510-530 nm
Spot size is 7mm at 15M

Complies with 21 CFR 1040.10 and
1040.11 except for deviations pursuant
to Laser Notice No. 50, dated June 24,
2007

Laser Eye Safety Warning

Do not stare into beam or view
directly with optical instrument

Color Camera

Aperture

f/2.6

FOV

94DEG (at 6.0mm image circle)

GNSS Compatibility

GPS

GLONASS

Beidou

Galileo

Communication

USB Dual Mode - flash drive and
communications

USB Port Max Rating: Um = 5V, In = 5 A
Bluetooth 4.2 BLE

WiFi b/g

Alarms

Digital Methane Detection (DMD)
Audible tone and visual alerts when
detection threshold exceeded

Adjustable Detection Alarm Level
1 to 999 PPM-M

Alarm Response Time
Typically 0.1 - 0.2 seconds

Real Time (RT)

Continuous beep rate relative to
concentration from 10-1000 PPM-M

System Fault & Warnings

Audible alarm and visual indication
on the display

Testing

Built-In Self-Test

Verifies operation and adjusts laser
wavelength for maximum sensitivity

Test Gas Cell

Integrated within carrying case

Operating Conditions

Operating Temperature

0° to +122° F (-17° to 50° C)

Humidity

5 to 95% RH, non-condensing

Altitude

Up to 2000M

Environment of Use

Pollution degree 2 or better
Outdoor use

Regulatory

Ingress Protection

IP54 (water
splash and
dust resistant)

Compliance

EMC (EN61000-
6-2, EN6100-6-4)

Low Voltage Directive

(2014/35/EU)

Radio Equipment Directive

(2014/53/EU)

ETSI EN 301 489-1 v2.2.0

EN 61326-1:2013

47 CFR Part 15 & ICES-003

Ordinary Location Safety

UL 61010-1

CAN/CSA-C22.2 No 61010-1-12

Hazardous Location Safety

Class I, Zone 2, AEx ic op is IIA T4 Gc

Class I, Division 2, Group D
Intrinsically Safe

Ordering Information

RMLD-CS - HPN 105301

Includes carry strap, case,
battery charger, power supply,
USB cable, one battery pack,
gas calibration test cell

IS Battery Pack - HPN 105727

Li-ion replacement battery

Battery Charger Base

HPN 105358

Battery Charger Cable

HPN 105359

Charges two batteries at one
time



Houston TX 77061

713-844-1300



www.heathus.com



info@heathus.com

Heath Consultants Incorporated operates under
a continual product improvement program and
reserves the right to make improvements and/or
changes without prior notification.

B.2

Semtech Hi-Flow 2 Specifications

innovation built on experience

SEMTECH® HI-FLOW 2



For over 50 years, Sensors, Inc. has built a reputation for gas and particulate measurement products under the SEMTECH® brand in the automotive industry.

Our fugitive methane analyzer is the latest entry in **Sensors Emissions Measurement Technology (SEMTECH®)** family.

Sensors' fugitive methane analyzer brings to bear our emission measurement experience into the oil and gas industry with a focus on leak detection and repair (LDAR).

"While advocates of natural gas often promote its abundance and "green" credentials, its primary

component (methane) is a powerful greenhouse gas. With 2-3% of methane lost due to leakages, the accurate quantification of fugitive methane is receiving significant attention across all stakeholders, and more accurate techniques are required for climate governance." – Sensors' Dr. David Booker, CTO

Sensors, Inc. is proud to present the latest in direct quantification of leaks in the 0.0005 to 25 CFM range with accuracy better than 5%. This device uses state-of-the-art flow and gas sensing technologies that are integrated into a handheld unit for accurate measurement during established LDAR programs.

For ultimate flexibility, the SEMTECH® HI-FLOW 2 is separated into:



Sampler - Handheld device with a high-volume vacuum sampling fan and total flowrate monitor (as shown above)

Analyzer - Portable control module (which can be carried, placed on the floor, or mounted to a backpack) housing the gas sensor technologies, control electronics, and battery pack

The combination of these two components (with a variety of sampling adapters) allows the entire fugitive methane emission to be captured, diluted, and quantified accurately.



SEMTECH® HI-FLOW 2 preliminary fugitive methane analyzer performance:

SPECIFICATIONS (Preliminary)	
Total Flow Rate*	5-30 CFM (Upper limit dependent on accessories)
Measurable Leak Rate*	0.0005 to 25 CFM
Accuracy	<5% of full scale or 20% of point, whichever is higher
Power	Fan speed dependent, @ max flow, 50W
Warm up time	< 5 minutes
Storage temperature	Dry -10 to 60 °C ambient
Operating environment	-10 to 45°C ambient
Dimensions (W x D x H) Electronics and Gas Module	30 x 30 x 8.75 cm 12 x 12.0 x 3.5 in.
Dimensions (W x D x H) Handheld Unit w/o extension	61 x 19 x 12.7 cm 24 x 7.5 x 10.5 in.
Weight (Electronic and Gas Module)^	8.2 kg. 18.1 lbs.
Weight (Handheld Unit)	<2.5 kg. < 5.5 lbs.
Data transmission	Ethernet

*Inlet restrictions on the HI-FLOW 2 Handheld sampling unit will reduce the maximum achievable flow.

^Weight assuming full battery pack installed for 8+ hours of continuous operation.

By utilizing Tunable Laser Absorption Spectroscopy (TDLAS) for the accurate measurement of the fugitive methane, the dynamic range for concentrations can accurately span 4 to 5 orders of magnitude and moreover without any cross-interference from other gases present in the captured leak. Coupled with an accurate measurement of the extracted flow (methane leak and ambient air) the volume- and mass-based leak rate of the fugitive methane can be determined with high accuracy over a wide range (for example 0.0005 to 25 CFM).

Designed for intuitive and convenient operation

- Modern Wi-Fi web-based GUI interface with manual override and LED status indicators
- Up to 200 Whr battery pack for uninterrupted daily operation
- Lightweight and flexible umbilical connections between various components to access those hard-to-reach places
- Detachable shoulder strap

As we enter our final product engineering and certification processes, we welcome your valued input at info@sensors-inc.com



Your Safety...Our Commitment

9030 Monroe Road, Houston TX 77061

Ph: 713-844-1300

www.heathus.com

info@heathus.com

Rev 20220308



Innovation.
Built on Experience.

QUANTIFICATION OF FUGITIVE METHANE EMISSIONS UNDER THE AUSPICES OF THE NEW EPA NSPS SUBPART OOOOb RULE

The Use of High-Volume Samplers – Equipment Selection and User Recommendations.

BY: DR. DAVID R. BOOKER, CHIEF TECHNICAL OFFICER – SENSORS, INC.
APRIL 2024

ABSTRACT

This paper offers a summary of how to meet the new NSPS' OOOOb rule for effectively quantifying Fugitive Methane. A brief review of the recommended technology (Sensors, Inc.'s SEMTECH HI-FLOW 2) is included. Methods on how to keep your high-volume sampler in compliance via linearity checks, quality checks, and leak rate determination methods is also covered.

BACKGROUND

It is widely accepted that methane is a potent greenhouse gas that occurs from both natural and anthropogenic (human-caused) sources. Consequently, more attention on the mitigation of methane emissions to help combat climate change concerns in the oil and gas market is being demanded by stakeholders, regulators, and NGO's.

Not surprisingly, the allowable methodologies for quantification of these fugitive methane leaks have recently been defined in a final rule by the USEPA (Signed 2nd December 2023¹). This updated New Source Performance Standard (NSPS) all-encompassing rule (40 CFR Part 60) covers what needs to be measured, how it should be measured, when it should be measured and, moreover, sets performance requirements for the devices / instruments that can be used.

In the all-encompassing regulatory text, the approved "high-volume sampler" technique appears 22 times in the 1690-page document. Such as:

"A high-volume sampler according to methods set forth §60.5405c."

"You must use a high-volume sampler to measure emissions of the reciprocating compressor rod packing or centrifugal compressor dry or wet seal vent in accordance with..."

Unregulated measurements using high-volume samplers have been carried out for over 20 years, and the Bacharach sampler, until it became obsoleted in 2015, was the *de facto* standard. This device used two low-cost sensors (based on catalytic oxidation and thermal conductivity) to cover the leak concentration ranges, with an orifice plate flowmeter to determine the leak rate. The measurement was not methane specific, but moreover, was found to have significant issues associated with interferences and switching between the sensors² and has since been withdrawn from the market.

Not surprisingly, the new regulation partially addresses these performance-based issues by specifying that the sensor(s) MUST have minimal interference, < 2.5% for the sum of responses to other compounds in the gas matrix. This is generally very difficult to achieve using low-cost sensors such as thermal conductivity, catalytic

oxidation, metal oxide or non-dispersed infrared sensors and will, in the author's opinion, drive the use of best available techniques not entailing excessive cost (BATNEEC)⁵".

"The methane sensor(s) must be selective to methane with minimal interference, less than 2.5 percent for the sum of responses to other compounds in the gas matrix"

– NSPS OOOOb

Recently these issues were highlighted in a CARB-funded project with Colorado State University - Methane Emissions Test and Evaluation Center, to design an open-source high-flow sampler. In their final report⁴, they concluded that their open-source unit (again using low-cost sensors) and the obsoleted Bacharach device had issues when non-methane hydrocarbons (NMHC) were present in the leaking gas.

"...These corrections have been challenging and often require taking supplementary measurements, such as gas samples for speciation with gas chromatography."

– METEC report

For the other "prototype units" also tested during the study, they also reported that

"the XXX and XXX instruments show similar deviation when NMHCs are introduced, while the Sensors instrument exhibits behavior that is more methane-specific." – METEC Report

SEMTECH HI-FLOW 2 SAMPLER



SEMTECH HI-FLOW 2 sampler and analyzer

The SEMTECH HI-FLOW 2 analyzer utilizes BATNEEC⁵ (via a Tunable Diode Laser Absorption Spectroscopy (a.k.a. TDLAS)) to minimize gas interferences and quantifies methane leaks rates with a very-high degree of confidence over 4-5 orders of magnitude (0.0005-25 CFM). Pre-shipment compliance tests include interference tests, signal-to-noise tests, and accuracy tests, as well as rigorous linearity tests at half the margin allowed under the NSPS' OOOOb rule (2.5% by point rather than 5% as specified in the rule). Each sampler is supplied with a NIST traceable compliance certificate for both the flow measurement device and the gas analyzer module. (Examples are attached at the end of this document.)

KEEPING YOUR HIGH-VOLUME SAMPLER IN COMPLIANCE WITH NSPS' OOOOB

For valid NSPS' OOOOb Leak Rate Determinations, you must collect at least three separate one-minute measurements and determine the average leak rate. The relative percent difference of these three separate samples should be **less than 10 percent**.

The leak rate according to the following equation:

$$Q = V \left(\frac{CH_{4s} - CH_{4b}}{1000000} \right)$$

Where:

- CH_{4b} = background methane concentration, ppmv (1-minute averaged sample)
- CH_{4s} = methane sample concentration, ppmv
- V = Average flow rate of the sampler, scfm
- Q = Methane emission rate, scfm

Note that the measured natural gas flow determined must not exceed 70.0 percent of the manufacturer's reported maximum sampling flow rate.

SEMTECH HI-FLOW 2 ANALYZER EXAMPLE CALIBRATION CERTIFICATE

Sensors, Inc.
6812 State Road
Saline, MI 48176

Certificate No. 8888
Test date: March 14, 2024
Expiration date: March 14, 2025

SEMTECH HI-FLOW 2 CERTIFICATE OF COMPLIANCE

This document certifies that the SEMTECH HI-FLOW 2 listed below meets the compliance specifications of 40 CFR Part 60 subpart 0000b for high-volume samplers. All reference equipment and gases are traceable to the National Institute of Standards (NIST). The device listed herein is in compliance with the regulatory requirements and manufacturers recommendations from the issue date of this document to the indicated

SEMTECH HI-FLOW 2 Instrument Information:
Analyzer S/N: 8888
Methane bench S/N: 8888
Software Version: 3.1.0

Description	Test date	Due date	Pass/Fail
Methane sensor linearity and accuracy (2.5% criteria)	14-Mar-24	Initial installation or every 12 months**	Pass
Methane sensor span and dilution calibration	14-Mar-24	initial installation*	Pass
Methane sensor noise	14-Mar-24	initial installation or every 12 months	Pass
Methane sensor interferences	14-Mar-24	initial installation*	Pass

* All validation tests are required after major maintenance
** Note that NIOSH 5000b requires bi annual linearity checks with a wider 5% acceptance criteria.

Traceability of Gas Standards

Gas Bottle Supplier	Gas Bottle Description	Cylinder #	Stated Accuracy	Expiration
Airgas	802.2 ppm Methane,	1441310	± 1%	27-Oct-24
Airgas	4,001 %Methane, Balance Air	CC345029	± 1%	26-Jan-32
Airgas	2653 ppm C3H8, Balance Air	128280	± 1%	29-Jul-28
Airgas	405 ppm C2H6, Balance Air	CC91854	± 1%	20-Feb-32
Airgas	9.99%Methane, Balance Nitrogen	5973645Y	± 1%	27-Aug-29

Equipment Traceability

Model	S/N	Cal Date	Cal Expiration	Certificate #
Horiba SGD-710C	GDJ-001	28-Jun-23	28-Jun-24	G0000YFR-062823

Q.A.: _____ Date: _____

Page 1 of 3

Sensors, Inc.
6812 State Road
Saline, MI 48176

Certificate No. 8888
Test date: March 14, 2024
Expiration date: March 14, 2025

Certificate of Compliance

SEMTECH HI-FLOW 2 Instrument Information:
Analyzer S/N: 8888
Methane bench S/N: 8888
Software Version: 3.1.0

Methane Analyzer Linearity Results

Statistic	Result	Criteria	Pass/Fail
Intercept	-0.013%	± 1% max	Pass
Slope	0.996	0.975-1.025	Pass
SEE	0.233%	± 1% max	Pass
R ²	1.000	≥ 0.998	Pass

Methane Analyzer Accuracy Results (criteria <2.5% of pt or <3 ppm)

Reference (ppm)	Measured (ppm)	Error (ppm)	Error (% of ref)	Pass/Fail
0.0	0.6	0.6		
160.5	160.7	0.2	0.1%	Pass
401.2	392.9	-8.3	-2.1%	Pass
641.8	631.8	-10.0	-1.6%	Pass
802.2	795.7	-6.5	-0.8%	Pass
8123.7	8125.0	1.3	0.0%	Pass
20194.1	20100.0	-94.1	-0.5%	Pass
32128.3	31800.0	-328.3	-1.0%	Pass
40010.0	39990.0	-20.0	0.0%	Pass

CH4 Linearity (Log scale)

Page 2 of 3

Sensors, Inc.
6812 State Road
Saline, MI 48176

Certificate No. 8888
Test date: March 14, 2024
Expiration date: March 14, 2025

Certificate of Compliance

SEMTECH HI-FLOW 2 Instrument Information:
Analyzer S/N: 8888
Methane bench S/N: 8888
Software Version: 3.1.0

Methane Analyzer Diluter Audit Results (<5% of pt criteria)

Mode	Dilution Ratio	Reference CH4 (Nvol)	Measured CH4 (Nvol)	Error (%)	Pass/Fail
High dilution	24.75	9.99	10.1	1.1%	Pass
Low dilution	7.751	2.07	2.0	1.4%	Pass

Methane Analyzer Noise Results (< 2 ppm criteria)

Measured (ppm)	Criteria (ppm)	Pass/Fail
0.75	2	Pass

Methane Analyzer Interference Results (< 2.5% of interfering gas criteria)

Gas	Bottle value (ppm)	Measured CH4 (ppm)	Interference (%)	Pass/Fail
Ethane	405	-4	-1.1%	Pass
Propane	2653	0	0.0%	Pass

*TDIAS Technology evaluated with more gas combinations. Information available upon request.

Page 3 of 3

Sensors, Inc.
6812 State Road
Saline, MI 48176



Certificate No. #####
Test date: March 14, 2024
Expiration date: March 14, 2025

SEMTECH HI-FLOW 2 CERTIFICATE OF COMPLIANCE

This document certifies that the SEMTECH HI-FLOW 2 flow module listed below meets the compliance specifications of 40 CFR Part 60 subpart 0000b for high-volume samplers. All reference equipment are traceable to the National Institute of Standards (NIST). The device listed herein is in compliance with the regulatory requirements and manufacturers recommendations from the issue date of this document to the indicated date for each verification (exceptions - see note).

SEMTECH HI-FLOW 2 Instrument information:
Hand-held S/N: #####

Description	Test date	Due date	Pass/Fail
Flowmeter linearity and accuracy	14-Mar-24	Initial installation or every 12 months	Pass
Temperature accuracy	14-Mar-24	Initial installation or every 12 months	Pass
Pressure accuracy	14-Mar-24	Initial installation or every 12 months	Pass

*All validation tests are required after major maintenance

Equipment Traceability

Model	S/N	Calibration Date	Calibration Due	Certificate #
EFM-CAL2	109-SF01	31-Jan-24	1-May-24	9983
Meriam Instruments				
Z50MC2-2	1206000062	30-Jan-24	30-Jan-25	24SENI-0005
477AV-6-NIST	DPM-014	6-Jun-23	6-Jun-24	0629BL
THM-022	B56349	7-Dec-23	7-Dec-24	23314498

Technician: _____ Date: _____

Q.A.: _____ Date: _____

Sensors, Inc.
6812 State Road
Saline, MI 48176



Certificate No. #####
Test date: March 14, 2024
Expiration date: March 14, 2025

Certificate of Compliance

SEMTECH HI-FLOW 2 Instrument information:
Hand-held S/N: #####

HI-FLOW 2 Flowmeter Linearity Results

Statistic	Result	Criteria	Pass/Fail
Intercept	-0.208%	+/- 1% max	Pass
Slope	1.003	0.975-1.025	Pass
SEE	0.273%	+/- 1% max	Pass
R ²	1.000	≥ 0.998	Pass

HI-FLOW 2 Flowmeter Accuracy Results (<2.5% of pt criteria)

Reference Flow (SLPM)	Measured Flow (SLPM)	Error (SLPM)	Error (%)	Pass/Fail
0	0.0	0		
352	350.7	-1	-0.27%	Pass
499	496.7	-2	-0.47%	Pass
671	666.6	-4	-0.60%	Pass
850	850.2	1	0.06%	Pass
1043	1047.0	4	0.40%	Pass

HI-FLOW 2 Flowmeter Temperature Accuracy Results (<2% of pt criteria)

Reference Temp (deg C)	Measured Temp (deg C)	Error (%)	Pass/Fail
28.00	25.80	-0.73%	Pass

HI-FLOW 2 Flowmeter Pressure Accuracy Results (<2% of pt criteria)

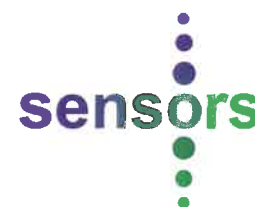
Reference Press (mbar)	Measured Press (mbar)	Error (%)	Pass/Fail
107.97	108.01	0.03%	Pass

REFERENCES

- ¹ <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-operations/epas-final-rule-oil-and-natural-gas>
- ² J.I. Connolly, R.A. Robinson, T.D. Gardiner, Assessment of the Bacharach Hi Flow® Sampler characteristics and potential failure modes when measuring methane emissions, Measurement, Volume 145, 2019.
- ³ introduced in 1984 with Directive 84/360/EEC and applied to air pollution emissions from large industrial installations.
- ⁴ https://energy.colostate.edu/wp-content/uploads/sites/28/2022/08/FACF_High_Flow_Final_Report_ada.pdf
- ⁵ BATNEEC: Best Available Technology Not Entailing Excessive Costs

SEMTECH HI-FLOW 2

NSPS Subpart 0000b is here.



Are you ready to meet the demands of fugitive methane quantification?

Be sure you (& your high flow sampler) are 0000b ready (& compliant)!

SEMTECH HI-FLOW 2 meets these demands.

White Paper available upon request.

0000b demands¹:

SEMTECH HI-FLOW 2 delivers:

Training

"The fugitive emissions monitoring plan" and "the records of each monitoring survey" requires "training, and experience of the operator(s) performing the survey"

Complete training offered through HI-FLOW 2 distributors' experienced personnel.

Measures Large and Small Leaks with Confidence

"The flow measurement sensor must have a measurement range over the entire expected range of flow rates sampled."

The HI-FLOW 2 provides direct quantification of leaks over very large dynamic range (0.0005 to 25 CFM).

"The methane sensor(s) must have a measurement range over the entire expected range of concentrations."

Best in class.

Keeping your HI-FLOW 2 in Compliance

"You must collect at least three separate one-minute measurements and determine the average leak rate."

The HI-FLOW 2 web-based software generates 0000b-compliant reports.

"Prior to and at the end of each testing day, challenge each sensor at two points, a low point, and a mid-point, using methane gaseous calibration cylinder standards."

The HI-FLOW 2 field test campaigns have demonstrated easy compliance to the 0000b 10% requirement.

"At each point, the difference between the cylinder value and the sensor reading must be less 5 percent of the respective calibration gas value. If the post-test calibration check fails at either point, invalidate the data from all tests performed subsequent to the last passing calibration check."

The HI-FLOW 2 has a 100% margin (2.5% manufacturer's criteria) compared to 5% 0000b.

Internal software utilities for user linearity performance validation/compliance.

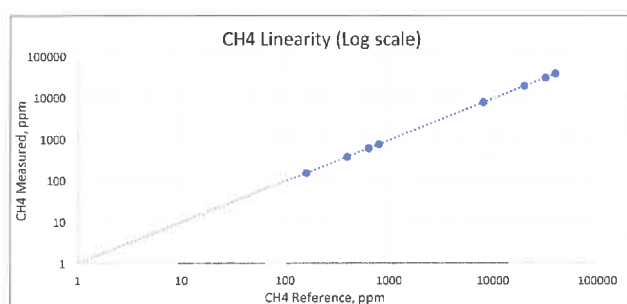
ONLY two reference gas bottles required to meet the 0000b 2 points per gas sensor requirement.

Annual Integrity Requirements

"Flow measurement sensors ... must be calibrated on an annual basis."

The HI-FLOW 2 flowmeter is calibrated initially and annually, as shown in Sensors' calibration certificates.

"Initially and on a semi-annual basis, determine the linearity at four points through the measurement range for each methane sensor using methane gaseous calibration cylinder standards."



Methane Analyzer Linearity Results

Statistic	Result	Criteria	Pass/Fail
Intercept	-0.013%	+/- 1% max	Pass
Slope	0.996	0.975-1.025	Pass
SEE	0.233%	+/- 1% max	Pass
R ²	1.000	≥ 0.998	Pass

Methane sensors are calibrated initially and annually for linearity and accuracy to 2.5% and then checked six months later to 5% criteria.

Description	Test date	Due date	Pass/Fail
Methane sensor Linearity and accuracy (2.5% criteria)	14-Mar-24	Initial installation or every 12 months**	Pass
Methane Sensor span and dilution calibration	14-Mar-24	Initial installation*	Pass
Methane sensor noise	14-Mar-24	Initial installation or every 12 months	Pass
Methane sensor interferences	14-Mar-24	Initial installation*	Pass

* All validation tests are required after major maintenance

Design Requirements

"The methane sensor(s) must be selective to methane with minimal interference, less than 2.5 percent for the sum of responses to other compounds in the gas matrix. You must document the minimal interference through empirical testing or through data provided by the manufacturer of the sensor."

The HI-FLOW 2 meets NIST traceable certification to <2.5%.

Methane Analyzer Interference Results (< 2.5% of interfering gas criteria)

Gas	Bottle value (ppm)	Measured CH4 (ppm)	Interference (%)	Pass/Fail
Ethane	405	-4	-1.1%	Pass
Propane	2653	0	0.0%	Pass

¹ ENVIRONMENTAL PROTECTION AGENCY 40 CFR Part 60 [EPA-HQ-OAR-2021-0317; FRL-8510-01- OAR] RIN 2060-AV16
Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review
Federal Register / Vol. 89, No. 47 / Friday, March 8, 2024 / Rules and Regulations
<https://www.govinfo.gov/content/pkg/FR-2024-03-08/pdf/2024-00366.pdf>

HI-FLOW 2 is a robust, portable, battery powered, high volume sampler for the accurate quantification of fugitive methane emissions.

The combination of the Analyzer and the Sampler (with a variety of sampling adapters) allows the entire fugitive methane emission to be captured, diluted, and quantified accurately.

By utilizing Tunable Diode Laser Absorption Spectroscopy (TDLAS) combined with an innovative sampling system, accurate concentration measurements of fugitive methane over 4 to 5 orders of magnitude can be performed without any cross-interference from other gases present in the captured leak.

Analyzer - Portable control module (which can be carried, placed on the floor, or mounted to a backpack) housing the gas sensor technologies, control electronics, and battery pack.



Sampler - Handheld device with a high-volume vacuum sampling fan and total flow rate monitor

For over 50 years, Sensors, Inc. has built a reputation for gas and particulate measurement products under the SEMTECH brand in the automotive industry. Sensors' fugitive methane analyzer brings to bear our emission measurement experience into the oil and gas industry with a focus on leak detection and repair (LDAR).

SPECIFICATIONS

Total Flow Rate*	5-30 CFM (upper limit dependent on accessories)
Measurable Leak Rate*	0.0005 to 25 CFM (0.015 to 700 lpm)
Leak Rate Accuracy	<5% of full scale or 15% of point, whichever is lower
Dimensions (W x D x H) Electronics and Gas Module	12 x 12 x 5.7 in. (30 x 30 x 14.5 cm)
Dimensions (W x D x H) Handheld Unit w/o extension	26.3 x 7.5 x 10.5 in. (66.8 x 19 x 12.7 cm)
Weight (Electronic and Gas Module)^	17.5 lbs. (7.9 Kg)
Weight (Handheld Unit)	10.8 lbs (4.9 Kg)
Data transmission	Wi-Fi

*Inlet restrictions on the handheld sampling unit will reduce the maximum achievable flow.

Sensors, Inc.

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PH: +1 734-429-2100, Email: sales@sensors-inc.com

Sensors Europe GmbH

Feldheider Str. 60, 40699 Erkrath, Germany
PH: +49 (0) 2104-14188-0, Email: sales@sensors-europe.eu

REV 06-04-24



B.3

Sample MEQ Site Report

Site Report – Orphan Well Methane Monitoring

1 Site Information

Site Name:	Orphan Well 1-23	Prior Owner:	Defunct Operator
API Number:	XX-XXX-XXXXX-00-00	State Permit Number:	XXXXX
Site Type:	Oil Well	Location (Lat/Long):	41.82XXXX/-85.94XXXX
Well Plugging Status:	Not Plugged	Quadrants:	NE-NE-SW
Date of Survey:	12-Jul-2024	Administrative Unit:	Gov't Unit 1
Measurement Specialist:	Logan LaCross	Time:	08:33
Technician:	Gabriel Mata		

2 Atmospheric Conditions

Air Temperature:	67	Barometric Pressure:	30.07
Wind Direction:	SE	Wind Speed:	3
Recent Precipitation Date:	10-Jul-2024	Precipitation amount:	0
Known H2S PPM:	0		

3 Background

Instrument #1:	SEMTECH HI-FLOW 2	Serial Number:	F23547694
Calibration Date:	12-Jul-2024	Instrument Type:	High Volume Methane
Instrument #2:	RMLD-CS	Serial Number:	8212323002
Calibration Date:	12-Jul-2024	Instrument Type:	Remote Methane Detector
Instrument #3:	MultiRAE	Serial Number:	14418
Calibration Date:	12-Jul-2024	Instrument Type:	5-gas

Nearby Natural Methane Sources:
None

Background Readings:

Location	Methane (ppm)	VOC (ppm)	Instrument:
Field outside well pad	0	0	HF2/5-gas

4 Emissions

Location	Methane (ppm)	VOC (ppm)	Leak Rate (g/hr)	Instrument:
Wellhead	71.95	49	2.57	HF2/5-gas

Total of All Leaks: 2.57

QA/QC Duplicates

Location	Methane (ppm)	VOC (ppm)	Leak Rate (g/hr)	Instrument:
Wellhead	78.64	51	2.57	HF2/5-gas

5 Photos

Photo: 1



North

Photo: 2



South

Photo: 3



East

Photo: 4



West

Photo: 5



Wellhead Leak Location

6 Comments

Type	Comment
General	Observations high concentrations, site access issues, observed leakage, odors, offsite gas migration, remediation concerns, etc.

TOM DRACHENBERG, BSC, PE

ROLE: PROGRAM MANAGER / CONTRACT ADMINISTRATOR



Tom has extensive engineering and project management experience involving all phases of remediation, including site investigations, feasibility studies, predesign investigations, remedial design, and remedial action. Tom's broad experience includes efficiently executing small-scale projects involving in situ treatment technologies and leading large-scale, high-profile megaprojects involving sediment remediation and landfill assessments. He has also served as program manager for a standby engineering contract with a state agency, including responsibility for successful execution of more than 60 projects.

Tom assembles and manages large multidisciplinary teams, performs extensive proposal scoping and budgeting, completes engineering analyses and technical documents, presents complex technical topics to client management groups, prepares and leads numerous large project meetings consisting of experts, academia, clients, and regulatory agencies, and interacts with and presents to community members through client outreach programs.

Tom has experience working with regulations from the New York State Department of Environmental Conservation, the US Environmental Protection Agency, the US Army Corps of Engineers, and the New York State Department of Health. He has conducted assessments and environmental investigations at federal and industrial sites and is well-versed in the guidance provided by the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Work Experience

Project Manager. New York State Department of Environmental Conservation, Inactive Landfill Initiative, Statewide New York. 2020-2024. Parsons performs site characterizations and investigations under Title 12, known as the Inactive Landfill Initiative. The program is the first of its kind and addresses critical drinking water contamination concerns associated with emerging contaminants from inactive landfills, including PFAS and other chemicals of concern, such as volatile organic compounds, semi-volatile organic compounds, and metals. Parsons has supported the Inactive Landfill Initiative since 2017, helping conceive, develop, and implement the program in conjunction with the New York State Department of Environmental Conservation's Division of Materials Management. More than 385 inactive landfills cross the state have been investigated, thousands of samples collected, and results evaluated to better understand the risks to human health based on a variety of landfill characteristics. Tom's responsibilities include developing an overall project approach to efficiently support the Division of Materials Management on a state-wide basis; assembling a multidisciplinary team to execute the initiative; establishing a sampling program to evaluate multiple analytes, including the emerging contaminants perfluorinated compounds and 1,4-dioxane; developing project deliverables, including a project field sampling plan, a quality assurance protection plan, and a landfill prioritization ranking system; managing a procurement process to procure numerous subcontractors capable of executing the extensive field program; conceptualizing and implanting a large-scale residential sampling program; and developing GIS and data management procedures and systems to manage the large quantities of data produced by the project.

Program Manager. New York State Department of Environmental Conservation, Corning International Study Area Remedial Construction Oversight, Corning, New York. 2020- 2024. Parsons is providing third-party field oversight and on-site monitoring during remedial investigation and remedial construction. Oversight tasks include observing technical work to ensure consistency with approved project work plans, designs,

TITLE

Program Manager

YEARS OF EXPERIENCE

Total: 25

With Parsons: 23

EDUCATION

- Bachelor of Science, Environmental Engineering, Clarkson University, New York, 2000

REGISTRATIONS/CERTIFICATIONS/ TRAINING

- Professional Engineer, ██████████ New York
- Project Manager Certification, Parsons

PROFESSIONAL AFFILIATIONS

- Western Dredging Association, Conference Participation and Presentation, 2016-2018

safety plans, and other documents, along with New York State Department of Environmental Conservation standards, criteria, and guidelines, and future outreach activities associated with the remediation project. Tom is responsible for overseeing all Parsons' activities on the project.

Project Manager. Confidential Multinational Conglomerate Corporation, Linden Chemicals and Plastics Operable Unit 2 In Situ Remediation, Syracuse, New York. (2018 to 2022). Parsons provided remedial construction related to remediation action steps to address the deep soil and groundwater, soil and groundwater sampling, and site closure reporting for the Operable Unit 2 site. The scope included assessing the conditions of the current subsurface and the injection wells and providing additional potassium persulfate in 5 to 10 wells to assess the enhanced anaerobic bioremediation response. Tom's responsibilities during the design phase included managing a remedial contractor procurement process to select the remedial contractor for the project, including preparing request for proposal documents and evaluating bids; completing remedial design activities, including excavation and backfill design drawings and specifications; designing and managing a pre-design investigation consisting of collecting soil and groundwater samples and modifying the remedial design approach to reflect pre-design investigation data, including supporting the New York State Department of Environmental Conservation in issuing an environmental site design (record of decision modification); and preparing design deliverables. Responsibilities during the remedial action phase included overseeing construction, coordinating quality assurance/quality control efforts to monitor remedial contractors progress, tracking the budget, preparing client and agency reports, and evaluating remedy effectiveness.

Project Manager. New York State Department of Environmental Conservation, Inactive Landfill Inventory, Statewide New York. (2017 to 2020). Parsons assisted with taking inventories at 1,600 inactive landfills in the state and evaluating potential groundwater and environmental impacts of perfluorinated compounds and 1,4-dioxane (emerging contaminants) to drinking water sources and other potential sensitive receptors. The project was a critical high-profile project for the client, being executed by direction of the New York State Governor, under an expedited timeline. Tom's responsibilities included developing an overall project approach to provide efficient support on a statewide basis; developing preliminary budgetary estimates to support agency funding processes; assembling a multidisciplinary team to execute the

initiative; establishing a sampling program to evaluate multiple analytes, including emerging contaminants, perfluorinated compounds, and 1,4-dioxane; developing project deliverables, including a project field sampling plan, a quality assurance protection plan, and a landfill prioritization ranking system; managing a procurement process to procure numerous subcontractors capable of executing the extensive field program; and developing GIS and data management procedures and systems to manage the large quantities of data produced by the project.

Program Manager. New York State Department of Environmental Conservation, Eastman Business Park RCRA Facility Investigation and Corrective Measures Study, Rochester, New York. (2015 to 2020). The project involved a 4-mile-long stretch of the Lower Genesee River impacted by silver and other contaminants resulting from operations at a former business park. The project site included impacted channel sediments and adjacent wetland areas, encompassed an active industrial navigational channel and numerous large marinas, and involved multiple stakeholders. Parsons performed remedial investigation activities, including a bathymetry and side scan sonar survey, a sediment investigation, surface water sampling, adjacent wetland and floodplain assessments, aquatic habitat assessments and tissue sampling, a toxicity study, human health and ecological risk assessments, and sediment transport modeling. Tom's responsibilities included scoping and managing field remedial investigation activities, managing ecological and human health risk assessments and impact assessments, evaluating remedial investigation data, developing remedial action objectives and preliminary remediation goals, and managing the preparation of a remedial investigation report.

Project Manager. Confidential Multinational Conglomerate Corporation, Linden Chemicals and Plastics Operable Unit 2 In Situ Chemical Oxidation Injection, Syracuse, New York. (2003 to 2018). Parsons completed a feasibility study evaluating alternatives for reducing volatile organic compounds in Operable Unit 2. Alternatives evaluated included enhanced biodegradation, in situ chemical oxidation, air sparging, and hydrologic containment. Field pilot studies were conducted to assess subsurface fracturing in unconsolidated soils and in situ chemical oxidation to remediate volatile organic compounds in groundwater. Based on the results of the pilot study, the New York State Department of Environmental Conservation issued a record of decision that called for in situ chemical oxidation to address deep soils and groundwater and an unspecified in situ biological treatment process to

address shallow soils. Tom served as project manager for the remedial design and remedial action phases of the project. Responsibilities during the design phase included managing the remedial contractor procurement process to select the remedial contractor for the project, including preparing request for proposal documents and evaluating bids; completing remedial design activities, including excavation and backfill design drawings and specifications; designing and managing a predesign investigation consisting of collecting soil and groundwater samples; modifying the remedial design approach to reflect predesign investigation data, including supporting the New York State Department of Environmental Conservation with issuing an explanation of significant differences (record of decision modification); and preparing design deliverables. Responsibilities during the remedial action phase included overseeing construction, coordinating quality assurance/quality control efforts to monitor remedial contractors progress, tracking the project budget, preparing client and agency reports, and evaluating remedy effectiveness. A reevaluation of the remedial approach is currently underway, following several years of in situ chemical oxidation injection activities.

Engineering Manager. Confidential Multinational Conglomerate Corporation, Onondaga Lake Capping, Syracuse, New York.

2003-2016. Parsons provided construction services for installation of an innovative isolation cap that incorporated bulk activated carbon into sand to increase the adsorption capacity of the cap. The cap included specific layers dedicated to chemical isolation of contaminants, erosion protection, and habitat restoration, which provided significant cost savings compared to more traditional methods for constructing a reactive cap. Siderite was added to sand in some areas to reduce the pH of groundwater migrating upward through the cap into the lake. Work included dredging more than 2 million cubic yards of sediment from the lake bottom, placing more than 200 acres of sediment cap, and dewatering dredged sediments in an on-site containment facility. During the feasibility study phase, Tom's responsibilities included providing support during preparation of the feasibility study report, assisting with remedial alternatives development, estimating corresponding sediment dredge volumes and capping volumes, conducting and authoring various engineering evaluations, assisting with modeling of underwater capping, and authoring various project reviews, proposals, and an agency-required progress report. Provided technical support during the proposed remedial action plan and record of decision negotiations and supported

a. During the design phase, responsibilities included supporting a predesign investigation for the site, including scope of work and budget development, proposal preparation, work plan development, and field oversight of several field activities.

Served as task manager for an air quality evaluation for the project, including assessing, modeling, and bench testing various emission sources; characterizing odor emissions; modeling sources to determine off-site impacts; evaluating mitigation criteria; and recommending mitigative alternatives. Responsibilities also included coordinating a large team of various experts; developing a pioneering evaluation procedure; conceptualizing, planning, and managing innovative bench study activities; managing installation and maintenance of two 10-meter meteorological monitoring stations; interpreting data results; preparing and submitting a dispersion modeling protocol; managing multifaceted chemical and dispersion modeling activities; and developing, evaluating, and bench testing emission mitigation technologies. Led a technical team in preparing for and making presentations at numerous regulatory meetings and client presentations. Served as task manager for the operations design task that consisted of conceptual design of predredging, dredging, sediment transportation, dewatering, water treatment, and odor control activities. Responsibilities included scoping, budgeting, and managing remedial design activities; coordinating a complex, 30-plus person technical design team consisting of subcontractors, national experts, and client representatives; conducting and documenting various design evaluations; leading two technical design subgroups; preparing and reviewing conceptual design document components; and communicating and negotiating critical design topics with regulatory agencies. Served as task manager for the operations design task that consisted of developing the conceptual design for predredging, dredging, sediment transportation, dewatering, water treatment, and odor control activities. Responsibilities included evaluating dredged material and developing a detailed design of a sediment dewatering approach, including specifying dewatering equipment, pumps, piping networks, geotextile tubes, and a polymer injection system. Responsibilities also included design of a 4-mile-long slurry pipeline for hydraulic conveyance of the dredge slurry, including siting the pipeline route; designing underground crossing components, secondary containment and leak-detection systems, and a booster pump system; and providing overall design calibration of the dredging, conveyance, and dewatering systems.

During the remedial action phase, served as project engineer during construction of the slurry pipeline and sediment dewatering systems. Responsibilities included providing construction oversight, responding to requests for information, reviewing shop drawings, coordinating design modifications to address changing field conditions, specifying and procuring remedial process equipment, managing a team of quality control engineers overseeing day-to-day construction activities, and preparing as-built drawings. Served as project engineer, quality manager, and operations manager during implementation of the remedial action. Responsibilities included executing a complex construction quality assurance project plan to ensure proper installation of more than 400 acres of a multilayer amended sediment cap and dredging and dewatering more than 2 million cubic yards of sediment. Reviewed contractor survey data; certified dredging progress; prepared and submitted dredge management unit completion packages; managed geotextile tube operations to ensure compliance with design requirements; developed and designed innovative odor management strategies to mitigate odors emanating from remedial processes; conceptualized a capping approval process to demonstrate compliance with design specifications; managed quality control/quality assurance, including contractor, Parsons, and third-party quality assurance activities; provided timely management of cap layer and cap management unit approvals to ensure remedial activity efficiency; provided constant coordination with on-site state regulatory agency representatives to ensure regulatory approval of activities; assembled and managed a large quality control team consisting of up to 15 team members providing quality control oversight on a 24/6 basis; developed a management structure and system to manage the massive quantities of data generated; prepared annual construction summary reports; and served as certifying engineer for the construction completion report.

Project Engineer. Confidential Global Chemical Manufacturing Company, Pompton Lakes Works, Pompton Lake Study Area Acid Brook Delta Technical Support, Pompton Lakes, New Jersey. (2016). Parsons provided environmental engineering services for dredging and upland disposal of approximately 100,000 cubic yards of mercury-impacted sediment located in a shallow lake in a residential neighborhood. Tom's responsibilities included developing and managing the quality assurance process to independently verify that the remedial contractor achieved project goals for dredging and cap placement.

Project Manager. Georgia-Pacific Wood Products, LLC, Former Alabama River Cellulose Mill Site Effluent Spill Basin, Perdue Hill, Alabama. (2014 to 2016). Parsons provided design and construction services for an effluent settling pond for the largest white pulp and paper mill in the United States. Tom's responsibilities included scoping and managing a geotechnical investigation; managing detailed design deliverables, including drawings, specifications, and permitting documents; and managing the construction subcontractor responsible for excavation and stabilization of soft sediments and pulp production byproducts, earthwork, and installation of a reinforced concrete basin.

Environmental Engineer. Confidential International Oil Company, Atlantic Richfield Hastings-on-Hudson Operable Unit 2, Hastings-on-Hudson, New York. (2003 to 2005). Parsons provided services for remediation of polychlorinated biphenyl-impacted sediment in an estuarial river setting. The project site featured deep polychlorinated biphenyl contamination in the nearshore area, with significant debris and dredging obstacles, upland stability concerns, and significant tidal velocities and fluctuations. Tom's responsibilities included scoping and managing field remedial investigation activities; evaluating remedial investigation data; assessing dredging, capping, and turbidity control technologies for incorporation into remedial alternatives; developing remedial alternatives; researching and recommending state precedent turbidity monitoring criteria and requirements; and preparing a feasibility study.

Environmental Engineer. Confidential Multinational Conglomerate Corporation, Geddes Brook Interim Remedial Measure Engineering Services, Syracuse, New York. (2003 to 2004). Parsons provided engineering services for remediation of a 10-acre mercury-impacted stream. Tom's responsibilities included preparing design documents and their associated components.

Environmental Engineer. Confidential International Oil Company, Former Refinery Resource Conservation and Recovery Act Remediation, Central New Jersey. (2001 to 2003). Parsons provided engineering services for this Resource Conservation and Recovery Act closure project that involved remedial design and construction of a 3-acre landfill closure, a 400-linear-foot Waterloo barrier wall, and an 800-foot-long soil-bentonite cutoff wall using slurry techniques. The capping systems included a multilayer soil and geosynthetic system and surface water drainage controls constructed to direct water away from existing operational areas. New closure monitoring wells were installed around the unit to monitor post-

closure conditions, and a closure certification report was completed and submitted to regulatory agencies. The design consisted of an extensive subsurface soil investigation and laboratory testing program; solidification of a 5-acre lagoon using cement, slope stability, settlement, and infiltration analyses; design drawings; and technical specifications. The design was developed and implemented in accordance with New Jersey Department of Environmental Protection technical regulations. Tom's responsibilities included overseeing excavation, in situ stabilization, and landfill activities; interacting with and directing subcontractors; confirmatory sampling; daily reporting; performing a landfill slope stability analysis; implementing strict client health and safety programs; addressing client concerns; and assisting with authoring the closure document.

Environmental Engineer. Haseley Construction Company Inc., Sharkey Landfill Superfund Site, Parsippany, New Jersey. 2001-2002. Parsons provided engineering and design services for construction of landfill caps at the Sharkey Superfund Site. Tom prepared a design report for the Sharkey Landfill Superfund Site, including developing and screening remediation alternatives, designing riverbank protection, preparing design drawings, sizing and selecting design materials, evaluating slope failure potential involved with design, and estimating cost.

Environmental Engineer. Consolidated Edison Company of New York, Inc., Arthur Kill Site Remedial Investigation/Feasibility Study, Staten Island, New York. 2001-2001. Parsons collected data, evaluated alternatives, and negotiated a record of decision for remediation of sediments in wetlands and Hudson River shoreline contaminated with polychlorinated biphenyls. Tom prepared a feasibility study, including developing and screening potential remediation alternatives. Supported a proposed remedial action plan and record of decision negotiations; prepared a remedial design work plan; scoped, budgeted, and managed predesign investigation activities; and evaluated predesign investigation data. Prepared a subsequent remedial technology alternative evaluation to identify remedial technologies appropriate for unique site conditions, prepared various design documents and evaluations, negotiated turbidity compliance criteria and monitoring requirements, and prepared required a permit application for sediment dredging.

Presentations

Development, Design and Implementation of an Innovative Approach for Incorporating Activated carbon into a 450-Acre Amended Sediment Cap, presented at the Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters E. Glaza, T. Drachenberg, M. Crystal, W. Hague, and P. LaRosa).

Character of Ecological Impact from Silver in Lower Genesee River Sediment, poster presented at the Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters C. Kriegner, M. Rondinelli, M. Vetter, T. Drachenberg, and L. Thomas).

Bioaccumulation of Heavy Metals in Mussels in the Lower Genesee River, poster presented at the Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters M. Rondinelli, C. Kriegner, M. Vetter, T. Drachenberg, and L. Thomas).

Successful Completion of a 450-Acre Amended Sediment Cap: Onondaga Lake, poster presented at the Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters T. Drachenberg, E. Glaza, W. Hague, B. Rule, M. Crystal, and P. LaRosa).

Lower Genesee River RFI Investigation Overview, presented at the Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters L. Thomas, M. Vetter, T. Drachenberg, K. Fields, S. Bupp, K. Dean, M. Rondinelli, C. Kriegner, and T. Towey).

Multiple Lines of Evidence for Assessing Benthic Impacts in the Lower Genesee River, poster presented at the Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters M. Rondinelli, C. Kriegner, M. Vetter, T. Drachenberg, and L. Thomas).

Metal Concentrations among Different Trophic Guilds of Fish Collected from the Lower Genesee River, poster presented at the Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters C. Kriegner, M. Rondinelli, M. Vetter, T. Drachenberg, and L. Thomas).

Onondaga Lake Dredging and Dewatering: Years 1 to 3 Performance and Lessons Learned on a 2M CY Dredging Program, presented at the Eighth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2015 (co-presenters B. Hague, L. Somer, A. Steinhoff, P. Blue, T. Drachenberg, B. Rule, and K. Foley).

Assessment, Protection, and Mitigation for Historic Cultural Resources on a Large- Scale Sediment Remediation Project, poster presented at the Eighth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2015 (co-presenters J. McAuliffe, T. Drachenberg, E. Glaza, S. Bupp, and C. Sabick).

Development and Implementation of a Construction Quality Assurance Program for Dredging and Capping Activities on Onondaga Lake, presented at the Eighth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2015 (co-presenters J. Detor, R. Brown, D. Smith, T. Drachenberg, R. Mohan, B. Hague, and L. Sommer).

Coordination, Communication and Protection of the Public for a Major Sediment Remediation Project, presented at the Seventh International Conference on Remediation of Contaminated Sediments, Dallas, Texas, 2013 (co-presenters T. Drachenberg, E. Glaza, J. McAuliffe, M. Distler, P. Alberti, and C. Leary).

KYLE METZ, MSC

ROLE: PROJECT MANAGER

Kyle has spent the bulk of his career at large exploration and production companies, focusing on identifying, quantifying, and extracting oil and gas resources in geologically complex reservoirs. His experience includes subsurface mapping, seismic interpretation, stratigraphic correlation, structural analysis, petrophysical interpretation and calculation, risk analysis, well site supervision of subcontractors (e.g., mud loggers, MWD/LWD hands, wireline loggers, directional drillers), geosteering, permitting, reserve calculations, mineral remoteness opinions, base of freshwater (BFW) and underground source of drinking water (USDW) determinations, and generating well plugging plans.

Kyle has authored and contributed to numerous reports on field- and state-wide decommissioning costs. His contributions include building large state- and basin-wide well databases, determining operating expenses, and assessing regional plugging costs and considerations.

As the primary project geologist, Kyle has worked on numerous wildcat exploration wells in Oklahoma, the Sacramento Basin, the San Joaquin Basin, the LA Basin, the Deepwater Gulf of Mexico, and Kurdistan, Iraq. His duties included planning geologic well operations, designing and managing data acquisition, and predicting critical formation tops for casing, coring, and total depths.

Work Experience

Consultant, Spaziani GeoServices, L.L.C. 2022–2024. Projects included developing a subsurface and geospatial database defining reservoir presence, quality, continuity, mineral ownership, and typical gas-unit size/shape, providing subsurface expertise for litigation. Additional projects include building databases of OPEX, Production volumes, and well counts/status for all wells/fields in California, Colorado, Ohio, West Virginia, and Pennsylvania. These databases and associated figures were used in reports quantifying the total asset retirement obligations for the given states. Smaller projects include field-wide base of freshwater and underground source of drinking water interpretations used to create well plugging programs for numerous fields in California.

Geological Advisor, California Resources Corporation, 2017–2022. Projects included leading a multidisciplinary team of geoscientists and engineers to build, risk and rank an inventory of 60+ executable prospects, resulting in potential resource additions exceeding 1.3 billion barrels of oil equivalent, and lead operations geologist on 18 exploration/development wells, coordinating permitting, well design, and data acquisition efforts leading to a successful drilling campaign with the top three producing wells in the program. Additional projects included facilitating farm-out presentations to potential partners for high-risk exploration prospects, and coordinating the regulatory burden on underground injection control permits for the Ventura Basin, resulting in securing >\$30 million dollars of funding for drilling exploratory prospects and helping to ensure a \$102 million asset sale.

Geologist, ODNR – Division of Geological Survey, 2016–2017. Projects included developing a stratigraphic framework for the early- to mid-Paleozoic formations across the Appalachia Basin, generating a consistent set of structure and isopach maps identifying ethane storage candidates, leading to a 2017 report to the US Congress. Additionally, Kyle created a chronostratigraphic framework for Middle-to-Late Devonian strata and mapped major cycles of organic-rich shale deposition across eastern Ohio. This framework was integrated with source rock analyses to identify areas of greater potential for resource extraction and carbon sequestration.



TITLE

Project Manager

YEARS OF EXPERIENCE

Total: 15

With Parsons: <1

EDUCATION

- Master of Science, Geology, Louisiana State University, 2010
- Bachelor of Science, Geosciences, Texas Technical University, Texas, 2007

REGISTRATIONS/CERTIFICATIONS/ TRAINING

- HAZWOPER 40-hour

KEY COMPUTER/SOFTWARE SKILLS

- ESRI GIS Products
- Subsurface Interpretation Software: Petra, Petrel, Geographix, Decision Space, Kingdom
- Enverus, IHS Markit
- Neuralog
- SQL, Openworks, Studio

Geologist, Marathon Oil Company, 2010–2015. Projects included creating 3D static models through integration of 2D/3D seismic surveys, well log data, and interpreted environment of deposition to characterize lithofacies, petrophysical properties, and fracture characteristics, resulting in more accurate resource estimations for economic models and corporate decision making. Additional projects included acting as lead operations geologist, planning, permitting and providing well-site operations for dozens of wells across multiple basins including onshore North America, Deep-water Gulf of Mexico, and Kurdistan, Iraq.

Publications

Purvis et al. (2024), Rocky Mountain Highs and Lows: Decommissioning Colorado's Two Oil Industries. Carbon Tracker: Reports ([CarbonTracker](#)).

Purvis et al. (2023), There will be blood: Decommissioning California's Oilfields. Carbon Tracker: Reports ([CarbonTracker](#)).

Metz, K. M. (2020), CCUS in the LA Basin: Waking up a Sleeping Giant. California Resources Corporation: Forward Forum, 2020.

Metz, K. M. (2019), Thin-Skinned vs. Thick-Skinned Structural Styles in the San Emigdio Trend: Building an Innovative Structural Model in a Prolific Play Trend. California Resources Corporation: Subsurface Technical Conference, 2019.

Lee, M. & Metz, K. M. (2019) Jacalito Rhythm Prospect: An Ideal Testing Ground for New Completion Technology. California Resources Corporation: Subsurface Technical Conference, 2019.

Metz, K. M. (2018), Basement Lineaments: Influence on Sediment Fairways, Deposition, and Trend Segmentation – Southern San Joaquin Basin, CA. California Resources Corporation: Geoscience Technical Conference, 2018.

Bargnesi, E.B., et al. (2018), Pore Pressure Analysis, Prediction, and Application for Drilling and Production Optimization. California Resources Corporation: Geoscience Technical Conference, 2018.

Carter, K.M. & Patchen, D.G. ED (2017), A Geologic Study to Determine the Potential to Create and Appalachian Storage Hub for Natural Gas Liquids: Final Report. Appalachian Oil and Natural Gas Research Consortium ([ASH](#)).

Metz, K.M. & Erenpreiss, M.S. (2017), Structural Contour and Isopach Maps of Devonian Shales in Eastern Ohio: Columbus, Ohio Department of Natural Resources, Division of Geological Survey Map Series PG-6, scale 1:500,000. ([ODNR Publication Catalog](#)).

Metz, K. M. (2017), Unconventional Resource Potential of Organic-Rich Devonian Shale Formations, Eastern Ohio, USA. Joint Northeastern and North-Central Annual GSA Section Meeting, 2017. ([ODNR Publication Catalog](#)).

Metz, K.M. (2010) Metamorphic rocks in the Sawtooth Mountains, Idaho, USA: a window into the Precambrian basement of southwest Laurentia. Louisiana State University, Thesis. ([LSU Theses](#)).

BUFFY QUINN, MA

ROLE: PROJECT MANAGER - NOMINATION PORTAL



Buffy has extensive experience in sustainability, community outreach, grant writing and administration, and education. As an outreach specialist, she plays a key role in developing and executing strategic outreach initiatives designed to foster and maintain positive relationships with key stakeholders, community partners, and other targeted audiences. She actively engages with communities, organizing and participating in workshops, seminars, and outreach activities to raise awareness and solicit feedback when necessary. Her role also entails collaborating with cross-functional teams, including project managers, marketing, and public relations to ensure consistent messaging and the seamless integration of outreach efforts with overall project objectives. Buffy's sustainability experience includes developing and implementing initiatives aimed at reducing environmental impact and enhancing organizational efficiency. She is adept at conducting assessments, collaborating with stakeholders, and evaluating program effectiveness to ensure objectives are met. She is also highly proficient in grant writing and administration, with a proven ability to secure funding for various projects.

Buffy is a fellow with the National Science Foundation (NSF). She routinely reviews NSF grant applications and is working on her doctorate focused on STEM education and the application of project management principles in higher education.

Work Experience

Project Manager and Community Education Specialist. New York State Canal Corporation, Aquatic Invasive Species Deterrent, Lake Champlain, New York, United States. 02/2024-11/2024. Parsons is evaluating possible solutions to deter the spread of round goby through New York State and into Lake Champlain, a popular tourist destination and an important part of the fisheries industry. Deterrents evaluated include technological solutions, such as modifications to the Glens Falls Feeder Canal intake and changes to the operations of the locking and lock flushing process. In addition to the technological solutions, Parsons is also implementing several new activities, including developing new canal standard operating procedures with protocols for preventing and managing invasive species, supporting boat steward programs with risk assessments for canal launches, and assessing feasibility options for directly funding and implementing system-wide boat inspection programs using inspection seals. Parsons' team is working directly with the New York Power Authority to identify key events throughout the year where outreach opportunities exist and developing educational activities and materials suitable for the different audiences. Buffy leads the community outreach and education efforts for this project.

Green and Sustainable Remediation Manager. New York State Department of Environmental Conservation, C&D Power Systems Remedial Action Construction Oversight, Deerpark, New York, United States. 11/2023-11/2024. Parsons is providing project and construction management services for implementing remedial activities at the C&D Power Systems site in Deerpark, New York. Remedial activities include excavation, stabilization, and off-site disposal of polychlorinated biphenyl- and lead-impacted lagoon soils; in situ solidification of subsurface lagoon soils; excavation and stabilization of shallow surface soils and tributary sediments; placement of treated soils and sediment within and on-site consolidation area; installation of a paved cover system; and restoration of upland and tributary work areas. Sitework is being regulated under US Army Corps of Engineers federal and state environmental permits and a US Environmental Protection Agency risk-based disposal approval. Buffy tracks the Department of Environmental Conservation-mandated green and

TITLE

Project Manager

YEARS OF EXPERIENCE

Total: 31

With Parsons: 9

EDUCATION

- Master, Geography, University of Denver, Colorado, 1993
- Bachelor of Science, Geography, University of Southern Mississippi, 1990

REGISTRATIONS/CERTIFICATIONS/TRAINING

- Project Manager Development (PMD) Model, Parsons

KEY COMPUTER/SOFTWARE SKILLS

- ArcGIS Online
- Microsoft Project

AWARDS

- Community College Presidents' Initiative in STEM Fellowship, National Science Foundation, 2022
- Chancellor's Award for Excellence in Teaching, State University of New York (SUNY), 2019
- Meritorious Team Commendation, US Coast Guard, 2006

sustainable remediation metrics for the site, including working with the field team to compile data related to materials and waste generation, solid waste disposal and diversion, energy consumption, water use, emissions, and land and ecosystem disturbance. These data are tracked using the US Environmental Protection Agency's Spreadsheets for Environmental Footprint Analysis workbooks, and reports are submitted monthly.

Project Manager. New York State Department of Environmental Conservation, Corning Study Area Site Management, Corning, New York, United States. 06/2023-11/2024. Buffy developed the public-facing smartphone app that describes the project in language that is accessible to the public.

Community Education Specialist. New York State Department of Environmental Conservation, Corning Area-Wide Investigation, Corning, New York, United States. 06/2023-11/2024. Buffy is responsible for developing the public-facing smartphone app that describes the project in language that is accessible to the public.

Permitting and Compliance Support. New York State Department of Environmental Conservation, Corning International Study Area Remedial Construction Oversight, Corning, New York, United States. 05/2023-11/2024. Parsons is providing third-party field oversight and on-site monitoring during remedial investigation and remedial construction. Oversight tasks include observing technical work to ensure consistency with approved project work plans, designs, safety plans, and other documents, along with New York State Department of Environmental Conservation standards, criteria, and guidelines, and future outreach activities associated with the remediation project. Buffy is responsible for supporting state and federal permitting and compliance for remediation construction projects.

Permitting and Compliance Support. Confidential International Chemical Company, Former Coatings Manufacturing Facility Remedial Actions, North Brunswick, New Jersey, United States. 05/2023-06/2023. Parsons provided environmental services for remedial actions at a former coating manufacturing facility. Buffy was responsible for supporting state and federal permitting and compliance activities and providing technical and editorial input on project deliverables.

Permitting and Compliance Support. Confidential Global Chemical Manufacturing Company, Parlin Plant, Parlin, New Jersey, United States. 05/2023-05/2023. Parsons has provided environmental services for hazardous waste cleanup at this chemical manufacturing plant since 2009 under a master services agreement. The facility has operated since 1904, manufacturing a variety of products, including films, paints, pigments, adhesives, thinners,

finishes, and specialty products. Since the 1990s, the focus has been on flexographic printing plates, nonstick coatings, and electronic resins. Parsons has performed a variety of services for the site, including activities related to groundwater treatment, remediation, plant processes, waste streams, and stormwater management. Parsons also provides five-day-per-week groundwater treatment plant operations and maintenance. Buffy was responsible for supporting state and federal permitting and compliance for remedial construction projects.

Assistant Dean of Natural and Applied Sciences. State University of New York, Onondaga Community College. 06/2022-05/2023. Buffy served as project manager for a \$1.8 million State University of New York Future of Work grant. Worked as part of the proposal team to develop project activities, deliverables, and outcomes and then writing the proposal in response to the request for proposals. Built a multicampus project team and kept the project on schedule and on budget while completing project objectives, maintaining project records, submitting status reports, leading the internal team of faculty and staff, and providing general oversight of project activities, including building a VR technology lab and creating STEM curricula for cybersecurity, electromechanical technology, welding, construction management, and HVAC/R. Also served as principal investigator for a \$300,000 National Science Foundation (NSF) grant for "Integrating UAV Data Analysis Credentials into a Geospatial Science and Technology Program." Was the first Onondaga Community College faculty member to receive an NSF grant and was responsible for all aspects of the project, including defining the scope, completing deliverables, producing reports, tracking the budget, and working with an external evaluator to maintain strict compliance with NSF requirements.

Associate Professor. State University of New York, Onondaga Community College. 08/2013-06/2022. Buffy was responsible for textbook selection, lecture preparation, assessment, classroom management, and student advising for the following courses:

- ENV 110 – Field Experience in Environmental Technology
- GEG 101 – Introduction to Geography
- GEO 107 – Natural Hazards and Disasters (developed)
- GST 100 – Introduction to Geospatial Science and Tech and UAS (developed)
- GST 110 – Introduction to Remote Sensing (developed)
- GST 103 – Physical Geography (developed)
- GST 220 – Spatial Analysis and Geostatistics (developed)

- POS 260 – New York State Environmental Regulation
- SCI 100 – Meteorology with Lab
- SCI 111 – Introduction to Physics and Chemistry with Lab
- SUS 101 – Introduction to Sustainability

Buffy served as program coordinator for the Environmental Technology AAS degree, including developing field techniques related to surface water sampling, stream gauging, well sampling, GPS data collection, and plant identification; revising curriculum based on industry input focused on safety; developing a geospatial program that integrated unmanned aerial vehicle data collection and interpretation; and representing the program and recruiting students at open houses, welcome days, and high schools.

Environment Account Development Specialist and Proposal Manager. Arcadis. 01/2012-01/2013. Buffy planned and researched internal capabilities and resources to meet opportunity-specific requirements, collected information and materials, and worked with proposal teams to develop new or tailor existing materials. Served as lead proposal manager responsible for developing winning strategies, coordinating and contributing to go/no-go discussions, reviewing and interpreting requests for proposals, developing proposal management plans, and facilitating quality reviews.

Associate Director of Sustainability. Byrne Dairy. 01/2011-01/2012. Buffy developed, managed, and administered a corporate sustainability and environmental program designed to reduce the overall carbon footprint of operations and meet industry standards for reductions in greenhouse gas emissions. Wrote a community response plan to inform the community about the risks associated with an accidental ammonia leak and what to do in case of a potential exposure emergency. Submitted proposals and received grants to state and federal agencies to supplement operations at ultra-pasteurization, ice cream, and fresh milk production facilities with low-cost hydropower. Key responsibilities included strategy development, environmental permitting, policy and procedure implementation, company education and training, and resource use and greenhouse gas emissions measuring and tracking.

Principal Scientist. Parsons. 01/2003-01/2011. Buffy completed Parsons' project management certification program and served as project manager for the comprehensive Onondaga Lake habitat restoration program (as part of the Superfund remediation

program) and as lead author of the plan. Wrote, edited, and contributed to environmental communications documents, including work plans, human health and ecological risk assessments, health and safety procedures and plans, remedial investigations, natural resource damage assessments, project status presentations, data summary reports, peer-reviewed publication manuscripts, quality assurance project plans, wetlands delineation and functional assessments, laboratory audits, qualifications statements, newsletters, and proposals. Developed compelling and winning proposals for environmental remediation work that were well-written and visually appealing. Provided line edits for client-facing documents. Used geostatistical methods and GIS to develop prediction surfaces of analytical data collected at discreet sampling locations to prepare statistically relevant sampling plans and remediation strategies for site-wide remediation projects, modeling contaminant plumes, relationships with groundwater and soil types, and proximity to susceptible populations. Contributed to human health risk assessments that included quantifying baseline risks, determining appropriate cleanup levels, and quantifying the risks associated with different remedial alternatives. Developed risk education outreach activities and designed educational programs for a broad spectrum of stakeholders, including regulatory agencies, community members, college students, middle-school students, and citizens' groups.

Community Relations Specialist, Habitat Restoration Plan Project Manager, and Permitting and Site Support. Confidential Multinational Conglomerate Corporation, Onondaga Lake Superfund Site Remediation, Syracuse, New York, United States. 03/2005-05/2009. Parsons has provided program management, design, and construction services for one of the largest, most complex, and highest-profile sediment sites remediated to date in the United States. Parsons has been involved with this project since the development of the feasibility study in 2004 and has led the remedy design and successfully implemented construction and substantial completion of the cleanup. Parsons was responsible for lake sediment dredging, sediment dewatering, capping, and habitat restoration, including dredging more than 2 million cubic yards of sediment, dewatering sediments at a 65-acre lined sediment consolidation area, treating water, capping more than 475 acres of lake bottom and surrounding area, and restoring wetland habitat for more than 40 acres. The scope of work included managing more than 100 subcontractors and direct-hire union workers. Hydraulically dredged sediments were pumped through a 4-mile-long double-

walled pipe and were chemically preconditioned for dewatering in geotextile tubes. The sediment cap included varying combinations of dedicated layers for chemical isolation, erosion protection, and habitat. Portions of the capped area involved cap amendments, including granulated activated carbon for volatile organic compounds and Siderite for pH buffering. Capping included procurement and delivery with zero accidents or injuries of more than 100,000 truckloads of earthen material. Habitat restoration included installing more than 290,000 plants, 2,500 pounds of native species seed, and more than 1,000 habitat structures. Parsons self-performed portions of the construction, acted as construction manager for remaining work, and continues to provide long-term monitoring on the site, including physical and chemical monitoring. Contaminants included mercury, volatile and semi-volatile organic compounds, polychlorinated biphenyls, and non-aqueous phase liquids. Buffy functioned in the following roles on the project:

- **Community Relations Specialist.** Buffy promoted the client's remedial and restoration activities by participating in and leading community outreach activities designed to help build and maintain positive relations with the public while keeping them informed of important milestones and risks associated with the project. Prepared the citizen participation plan for the remedial design program in accordance with agency guidelines and developed fact sheets for complex environmental remediation sites written for a lay audience. Prepared informational materials to distribute at local libraries, public events, and town hall meetings related to the remediation program and spoke at numerous public events hosted by the Museum of Science and Technology, a local fish hatchery, the US Coast Guard, and at various public events related to water quality and conservation. Also developed risk education outreach activities for a broad spectrum of stakeholders, including regulatory agencies, community members, college students, middle-school students, and citizens' groups.
- **Habitat Restoration Plan Project Manager.** The innovative isolation cap included specific layers dedicated to the chemical isolation of contaminants, erosion protection, and habitat restoration. Buffy was responsible for coordinating a technical design team consisting of subcontractors, national experts, and client representatives; conducting and documenting various design evaluations; identifying indicator species; writing, coordinating, and reviewing the restoration plan; and presenting the plan to a variety of community groups and stakeholders, including

regulatory agencies, school groups, and the public. The habitat plan was a high-profile project in the local community and required participating in many outreach and community events.

- **Permitting and Siting Support.** Buffy coordinated the permitting required to build a visitor center on the shores of the remediation site. Worked with multiple agencies and organizations to verify that the project complied with zoning regulations, such as setback requirements and land use restrictions; environmental guidelines, including construction water management, erosion control, and protection of aquatic habitats; and building codes pertaining to fire safety standards, structural requirements, and Americans with Disabilities Act compliance. Spoke at local community meetings to discuss the project with neighborhood groups and integrated the community's input into the design wherever feasible.

Project Scientist. O'Brien & Gere. 01/1999-01/2003. Buffy conducted Phase 1 site assessments, including making site visits, accessing regulatory databases, reviewing historical documents and maps, and writing summary reports. Prepared permitting applications and responded to agency feedback for projects related to the remediation of hazardous waste sites. Used AutoCAD and GIS to illustrate contamination concentrations and locations for hazardous waste sites. Performed database management and geostatistical analysis of chemistry, meteorological, geotechnical, hydrological, and demographic datasets. Performed surface water modeling for a reverse 911 system for lowland areas prone to flooding.

Environmental Data Technician. ICF Kaiser. 01/1993-01/1997. Buffy built and managed Superfund databases related to human and environmental risk assessment, brownfield development, mine tailings, surface water, and issues related to tribal cleanup programs. Used GIS to investigate environmental justice concerns related to the location of hazardous waste sites and industrial releases. Designed maps and developed written materials for public meetings. Worked on a survey crew to collect GPS points for detailed mapping of Superfund site boundaries and mine tailings piles in mountainous terrain. Contributed to policy documents related to environmental justice issues.

LAURA DRACHENBERG, MSC

ROLE: DATA MANAGER

Laura is a Senior Technical Specialist with experience in environmental data management with some field and oversight work. Her data management responsibilities include implementing EQuIS projects and Locus Environmental Information Management (EIM) databases, providing quality assurance, maintaining online and Access databases, managing field data including setting up mobile field data collection systems, and managing analytical site data. Laura has experience writing and confirming compliance with project data management plans. Her data reporting responsibilities include running data queries, performing analyses, creating data tables and graphs, and preparing regulatory agency data deliverables.

Laura manages all aspects of databases used for data validation, quality assurance report generation, final data report generation, data compilation, and data storage. She converts data from various formats and structures into database-compatible formats and leads large data migration projects for multiple clients. Laura supports data deliverables, presentation needs, and database structure design. Her fieldwork experience includes groundwater and soil sampling, as well as overseeing underground storage tank removal.

Work Experience

Data Manager. FMC Corporation, WV - FMC EAST PLANT 2024 GW SAMPLING, West Virginia, United States. 05/2024-11/2024. Laura is responsible for data management, including implementing EQuIS projects and Locus EIM databases, providing quality assurance, maintaining online and Access databases, and managing field and analytical site data. Responsibilities include writing project data management plans and ensuring their compliance; running data queries, performing analyses, creating data tables and graphs, and preparing regulatory agency data deliverables; maintaining all aspects of databases used for data validation, quality assurance report generation, final data report generation, data compilation, and data storage; manipulating data of all formats and structures from outside sources into formats compatible with databases and leading large data migration efforts; and supporting data deliverables and presentation needs and database structure design.

Data Manager. Confidential Multinational Conglomerate Corporation, Allied Chemical and Ironton Coke Site Environmental Liability Transfer Program, Ironton, Ohio, United States. 08/2023-11/2024. Parsons is providing technical services to complete the Allied Chemical and Ironton Coke Site Environmental Liability Transfer Program. The site includes three operable units: the Goldcamp Disposal Area, the Coke Plant Lagoon Area, and the Tar Plant with main and river parcels. The scope of services includes cap inspections; disposal area cap maintenance and repair; sediment cap inspections; groundwater monitoring; site infrastructure inspections and repair; drainage systems inspections, debris removal, and repair; groundwater extraction and treatment; hazardous and nonhazardous waste management; additional extraction well and associated pumping installations; and piping within the tar plant. Laura is responsible for data management, including implementing EQuIS projects and Locus EIM databases, providing quality assurance, maintaining online and Access databases, and managing field and analytical site data. Responsibilities include writing project data management plans and ensuring their compliance; running data queries, performing analyses, creating data tables and graphs, and preparing regulatory agency data deliverables; maintaining all aspects of databases used for data validation, quality assurance report generation, final data report generation, data compilation, and data storage; manipulating data of all formats and structures from outside sources into formats compatible with databases and leading large data migration efforts; and supporting data deliverables and presentation needs and database structure design.



TITLE

Senior Technical Specialist

YEARS OF EXPERIENCE

Total: 22

With Parsons: 21

EDUCATION

- Master of Science, Environmental Engineering, Pennsylvania State University-University Park, Pennsylvania, 2003
- Bachelor of Science, Environmental Science, Cedar Crest College, Pennsylvania, 2001

KEY COMPUTER/SOFTWARE SKILLS

- Earthsoft EQuIS
- Locus EIM
- Microsoft Excel & Access

Data Manager. FMC Corporation, PA - FMC 2024 EC OM&M LABORATORY LAB, Pennsylvania, United States. 04/2021-11/2024. Laura is responsible for data management, including implementing EQulS projects and Locus EIM databases, providing quality assurance, maintaining online and Access databases, and managing field and analytical site data. Responsibilities include writing project data management plans and ensuring their compliance; running data queries, performing analyses, creating data tables and graphs, and preparing regulatory agency data deliverables; maintaining all aspects of databases used for data validation, quality assurance report generation, final data report generation, data compilation, and data storage; manipulating data of all formats and structures from outside sources into formats compatible with databases and leading large data migration efforts; and supporting data deliverables and presentation needs and database structure design.

Data Manager. Confidential Potentially Responsible Parties Group, West Lake Landfill Superfund Site Remedial Design Services, St. Louis County, Missouri, United States. 01/2020-11/2024. Parsons is providing the remedial design for a high-profile landfill containing mixed waste from the Manhattan project, including low-level radioactive material. Work includes performing project management, project controls, and document management; reviewing and providing comments on the statement of work to be attached to the administrative order on consent; initiating and developing a remedial design work plan; obtaining a geostatistical model, importing data and graphical components, and evaluating how it should be referenced in the remedial design work plan; and developing a project risk matrix to define anticipated risks. Additional work includes revising the air monitoring, sampling, and quality assurance/quality control plan for submittal to the US Environmental Protection Agency for its review and approval; preparing the 30 percent remedial design and remedial design report; and preparing initial drafts of the design investigation work plan, the field sampling plan, the quality assurance project plan, the health and safety plan, the data management plan, the wildlife hazard mitigation plan, and the loading, transportation, and off-site disposal plan. Laura is responsible for authoring the project data management plan and for managing and reporting field and analytical data using the project's EQulS database.

Data Manager. Confidential Global Chemical Manufacturing Company, Parlin Plant, Parlin, New Jersey, United States. 08/2013-11/2024. Parsons has provided environmental services for hazardous waste cleanup at this chemical manufacturing plant since 2009 under a master services agreement. The facility has operated since 1904, manufacturing a variety of products, including films, paints, pigments, adhesives, thinners, finishes, and specialty products. Since the 1990s, the focus has

been on flexographic printing plates, nonstick coatings, and electronic resins. Parsons has performed a variety of services for the site, including activities related to groundwater treatment, remediation, plant processes, waste streams, and stormwater management. Parsons also provides five-day-per-week groundwater treatment plant operations and maintenance. Laura is responsible for data management, including implementing EQulS projects and Locus EIM databases, providing quality assurance, maintaining online and Access databases, and managing field and analytical site data. Responsibilities include writing project data management plans and ensuring their compliance; running data queries, performing analyses, creating data tables and graphs, and preparing regulatory agency data deliverables; maintaining all aspects of databases used for data validation, quality assurance report generation, final data report generation, data compilation, and data storage; manipulating data of all formats and structures from outside sources into formats compatible with databases and leading large data migration efforts; and supporting data deliverables and presentation needs and database structure design.

Data Manager. FMC Corporation, Avtex Fibers Superfund Site, Front Royal, Virginia, United States. 04/2024-11/2024. Parsons has provided engineering and remediation services since 1999 at this National Priorities List Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site located on the South Fork of the Shenandoah River. Waste disposal practices at the 400-acre former manufacturing site contaminated groundwater underneath the facility. The effects extend off-site across the river, impacting soil, river sediment, and off-site residential wells across the river and adjacent to the site. Contaminants of concern include numerous rayon manufacturing wastes and byproducts, many of which were disposed of on-site in 23 impoundments and fill areas totaling 220 acres. Parsons' services under a master services agreement include extensive remedial design, remedial construction, long-term system operations and maintenance, and performance monitoring. Other turnkey services have included a hazardous waste study and design; permitting assistance; cultural resource management; wastewater treatment system design, operations, and maintenance; scheduling; health and safety management; subcontractor bid process and evaluation; construction management; supervisory control and data acquisition system design and programming; system startup and prove-out services; AutoCAD and GIS implementation; and data management, including data storage, processing, and visualization. Laura is responsible for data management, including implementing EQulS projects and Locus EIM databases, providing quality assurance, maintaining online and

Access databases, and managing field and analytical site data. Responsibilities include writing project data management plans and ensuring their compliance; running data queries, performing analyses, creating data tables and graphs, and preparing regulatory agency data deliverables; maintaining all aspects of databases used for data validation, quality assurance report generation, final data report generation, data compilation, and data storage; manipulating data of all formats and structures from outside sources into formats compatible with databases and leading large data migration efforts; and supporting data deliverables and presentation needs and database structure design.

Data Manager. New York State Department of Environmental Conservation, Inactive Landfill Initiative, Statewide New York, United States. 06/2020-10/2024. Parsons performs site characterizations and investigations under Title 12, known as the Inactive Landfill Initiative. The program is the first of its kind and addresses critical drinking water contamination concerns associated with emerging contaminants from inactive landfills, including PFAS and other chemicals of concern, such as volatile organic compounds, semi-volatile organic compounds, and metals. Parsons has supported the Inactive Landfill Initiative since 2017, helping conceive, develop, and implement the program in conjunction with the New York State Department of Environmental Conservation's Division of Materials Management. More than 385 inactive landfills cross the state have been investigated, thousands of samples collected, and results evaluated to better understand the risks to human health based on a variety of landfill characteristics. Laura is responsible for managing and reporting field and analytical data using the project's EQulS database.

Data Manager. FMC Corporation, Groundwater Monitoring and Well Maintenance, Alabama, United States. 03/2021-06/2024. Laura is responsible for data management, including implementing EQulS projects and Locus EIM databases, providing quality assurance, maintaining online and Access databases, and managing field and analytical site data. Responsibilities include writing project data management plans and ensuring their compliance; running data queries, performing analyses, creating data tables and graphs, and preparing regulatory agency data deliverables; maintaining all aspects of databases used for data validation, quality assurance report generation, final data report generation, data compilation, and data storage; manipulating data of all formats and structures from outside sources into formats compatible with databases and leading large data migration efforts; and supporting data deliverables and presentation needs and database structure design.

Data Manager. New York State Department of Environmental Conservation, Well Reassessment, New York, United States. 04/2021-01/2024. Parsons is developing and implementing a residential water sampling program. Laura was responsible for data management of the project's EQulS database.

Data Manager. Confidential International Oil Company, Landfill Site Routine Operations, Maintenance, and Monitoring, Northeastern Illinois, United States. 10/2019-01/2022. Parsons is providing reporting and agency coordination; performing routine operations, maintenance, and monitoring activities, including groundwater sampling, leachate sampling, routine site management activities, and data management and reporting; and producing an annual remedy performance report. Laura managed field and analytical data and performed data migration to the client's EQulS database.

Data Manager. FMC Corporation, East Coast Operations and Maintenance Portfolio, Eastern United States. 08/2020-04/2021. Parsons has served as program manager since January 2013 on the client's comprehensive operations, maintenance, and monitoring (OM&M) program at 10 sites in Massachusetts, Maryland, North Carolina, New Jersey, New York, and West Virginia. This endeavor includes implementing specified OM&M tasks, processing and paying associated direct costs, identifying and implementing remedial process optimizations, and executing approved cost reduction proposals for three-year periods. In addition, the scope requires submitting regular monitoring reports, providing records retention, and performing system curtailment. Parsons' technical approach focuses on developing, implementing, and maintaining efficient standard operating procedures for data collection and treatment system maintenance; evaluating current OM&M processes and procedures at each site, including applying proven remedial process optimization principles to improve and streamline system performance and reduce OM&M costs; and developing and implementing maintenance procedures and checklists that emphasize preventive maintenance, comply with operations and maintenance specifications, and improve equipment performance. Parsons also performs quarterly technical evaluations of collected site treatment system data to verify optimal performance of groundwater treatment systems; performs annual and semiannual analyses of groundwater data collected at each of the 10 sites to determine and monitor groundwater contaminants trends; employs programmable logic controller remote access software to monitor and manipulate groundwater treatment systems from remote locations; develops and maintains a state-of-the-art database for historical and current analytical data from nine sites; develops, maintains, and strictly adheres to emergency response plans and health and safety plans

for each site; and conducts periodic safety evaluations at each site. Laura was responsible for implementing an EIM database system for the client and migrating historical data and for managing and reporting field and analytical data.

Technical Specialist. New York State Department of Environmental Conservation, Inactive Landfill Inventory, Statewide New York, United States. 08/2017-07/2020.

Parsons assisted with taking inventories at 1,600 inactive landfills in the state and evaluating potential groundwater and environmental impacts of perfluorinated compounds and 1,4-dioxane (emerging contaminants) to drinking water sources and other potential sensitive receptors. Laura managed all field and analytical data within the project's EQuIS database, submitted deliverables, and provided technical support and training in collecting data, following the client's requirements.

Data Manager. Consolidated Edison Company of New York, Inc., Former Manufactured Gas Plant Site Environmental Services, New York, New York, United States. 05/2015-02/2020. Parsons conducted a remedial investigation at a former 124-acre manufactured gas plant facility under a Resource Conservation and Recovery Act corrective action program and a New York State Department of Environmental Conservation consent order. The investigation results were used to support practical, site-wide remedial alternatives, including limited hot spot excavation with in situ stabilization and containment. Scope elements included reviewing previous investigation results, developing a focused investigation work plan, conducting site investigations, refining a grossly contaminated media conceptual site model, and conducting practical, cost-effective interim remedial measures. Under the master services agreement, Parsons continues providing air, water, and soil sampling, inspection, monitoring, and reporting; performing investigation work planning and updating; and providing design services for various remediation and capital projects. Laura was responsible for providing data management of the project's EQuIS database.

Data Manager. Confidential International Chemical Company, Superfund Site Study Area Allocation Support Services, Eastern United States. 06/2006-05/2019. Parsons supported one member of a potentially responsible parties (PRP) group in technical and strategic discussions with a Superfund site's study area cooperating PRP group during performance of a remedial investigation/feasibility study. The National Priorities List hazardous waste site consisted of a 6.5-km-long (4.1-mile) tidal tributary of a river and associated wetlands. Sediments within the study area and adjacent wetlands contained elevated levels of various organic and inorganic chemicals, including mercury, heavy metals, and polychlorinated biphenyls. For administrative purposes, the Environmental Protection Agency designated the study area as Operable Unit 2. Work included conducting a SediMite® pilot study and subsequent sediment remediation of *Phragmites australis* marshes contaminated with heavy metals. Benthic macroinvertebrate studies were performed during the pilot

study to document the effects of the SediMite application. Habitat restoration of mudflats commenced following remediation. Laura was responsible for maintaining all aspects of databases used for data validation, quality assurance report generation, final data report generation, data compilation, and data storage; manipulating data of all formats and structures from outside sources into formats compatible with databases and leading large data migration efforts; and supporting data deliverables and presentation needs and database structure design.

Technical Specialist. Confidential International Oil Company, Former Petroleum Research Center Site Decommissioning, Demolition, and Remediation, Upstate New York, United States. 04/2006-05/2018.

For nearly 20 years Parsons performed various Resource Conservation and Recovery Act facility investigation, subsurface investigation, remediation, and groundwater monitoring projects at the site. Work included preparing and implementing a site-wide facility investigation work plan consisting of more than 140 groundwater monitoring wells and more than 90 soil borings; performing site hydrogeological testing, sampling, bedrock mapping, geophysical logging, creek sediment sampling and logging, soil vapor point installations and sampling, and geotechnical investigations; and preparing reports. Activities have involved multiple site investigation teams; health and safety compliance, including regular loss prevention observations; and site-specific health and safety plan compliance. Other activities have included aboveground and underground petroleum storage tank and building decommissioning and demolition, hazardous waste abatement, utility disconnection and rerouting support, groundwater management, construction and construction management, regulatory interaction and permitting, stormwater pollution prevention plan compliance and management, hazardous materials surveys, remediation, hydroelectric dam engineering assessments and compliance inspections, asbestos and lead-based paint abatement oversight, and health and ecological risk analyses. Parsons is continuing to provide hydro-dam engineering assessments, monthly compliance inspections, and general support services as needed. Laura was involved with this project for 12 years. Work included migrating data to a Locus EIM system and managing the database for groundwater, soil, and air investigations at the site. Reporting responsibilities included tables, graphs, and figures for regulatory submittals.

Technical Specialist. Confidential Multinational Conglomerate Corporation, Onondaga Lake Superfund Site Remediation, Syracuse, New York, United States. 02/2005-07/2017.

Parsons has provided program management, design, and construction services for one of the largest, most complex, and highest-profile sediment sites remediated to date in the United States. Parsons has been involved with this project since the development of the feasibility study in 2004 and has led the remedy design and successfully implemented construction and substantial completion of the cleanup. Parsons was responsible for lake sediment dredging, sediment dewatering, capping, and habitat restoration, including dredging more than 2

million cubic yards of sediment, dewatering sediments at a 65-acre lined sediment consolidation area, treating water, capping more than 475 acres of lake bottom and surrounding area, and restoring wetland habitat for more than 40 acres. The scope of work included managing more than 100 subcontractors and direct-hire union workers. Hydraulically dredged sediments were pumped through a 4-mile-long double-walled pipe and were chemically preconditioned for dewatering in geotextile tubes. The sediment cap included varying combinations of dedicated layers for chemical isolation, erosion protection, and habitat. Portions of the capped area involved cap amendments, including granulated activated carbon for volatile organic compounds and Siderite for pH buffering. Capping included procurement and delivery with zero accidents or injuries of more than 100,000 truckloads of earthen material. Habitat restoration included installing over 290,000 plants, 2,500 pounds of native species seed, and over 1,000 habitat structures. Parsons self-performed portions of the construction, acted as construction manager for remaining work, and continues to provide long-term monitoring on the site, including physical and chemical monitoring. Contaminants include mercury, volatile and semi-volatile organic compounds, polychlorinated biphenyls, and non-aqueous phase liquids. Laura served as data manager and collaborated on implementing a Locus EIM database and developing the Syracuse portfolio data management plan. Served as a member of the environmental information management team whose responsibilities included working with the client's management to roll out data management initiatives. Provided technical support to the cap, dredge, and sediment consolidation area design tasks.

Technical Specialist. Confidential International Chemical Company, Former Cincinnati Plant Groundwater Sampling, Cincinnati, Ohio, United States. 01/2007-03/2015. Parsons conducted annual groundwater sampling at a chemical plant in Ohio. Groundwater samples were collected from 37 wells and analyzed for metals, volatile organic compounds, and semi-volatile organic compounds. Results were compared to US Environmental Protection Agency screening levels and to historical results to determine groundwater concentration trends. Laura served as data manager, managing an EQuIS database and providing data summary and reporting support.

Technical Specialist. Confidential International Chemical Company, Active Chemical Plant Groundwater Sampling, Louisville, Kentucky, United States. 06/2006-01/2014. Parsons collected groundwater samples from more than 30 monitoring wells using low-flow sampling methods for volatile organic compounds, semi-volatile organic compounds, and metals and prepared a report summarizing groundwater sampling efforts with data presented in tables and figures. Laura served as data manager responsible for managing an EQuIS database and providing data summary and reporting support.

Technical Specialist. Confidential International Chemical Company, Charlie Burch Site Operations and Maintenance Services, Spring, Texas, United States. 03/2007-11/2013.

Parsons designed and constructed two groundwater recovery and treatment systems to capture and hydraulically contain the 1,2-dichloroethane (1,2-DCA) chlorinated solvent plume migrating off-site from the former Charlie Burch Landfill in Spring, Texas. The plume extended from the former disposal pit location (source area) to the downgradient toe of the approximately 3,600-foot-long plume. The first containment system was constructed near the toe of the plume in 2006 to stop further downgradient migration or advancement of the plume toe, and another system was installed in the source area in 2012. Laura served as data manager responsible for managing an EQuIS database.

Technical Specialist. Confidential International Oil Company, Former Carborundum Company Ceramics Manufacturing Facility Site Environmental Services, East-Central New Jersey, United States. 08/2004-09/2012. Parsons provided environmental engineering services for a quarterly groundwater sampling program to monitor natural attenuation of a dissolved-phase chlorinated plume at a former industrial facility undergoing the New Jersey Department of Environmental Protection Industrial Site Recovery Act process. Work included performing groundwater and soil remedial investigations evaluating anaerobic degradation of dissolved chlorinated solvents, providing legal support, conducting groundwater flow and transport modeling, modeling to evaluate impacts of groundwater to surface water, and filing a classification exemption area and well restriction area application. Laura was involved with quarterly groundwater sampling using low-flow and three-volume purge groundwater sampling methods. Responsible for managing field and analytical data within a project Access database.

Technical Specialist. Confidential International Chemical Company, Melbourne Facility Monitoring Well Abandonment, Melbourne, Kentucky, United States. 11/2007-04/2011. Parsons conducted a Resource Conservation and Recovery Act facility investigation and performed bioremediation at a small quantity generator facility in Kentucky. Over the years, various chlorinated solvents had been used at the facility, with the most persistent being 1,1,1-trichloroethane. Site characterization included Geoprobe soil and groundwater sampling, monitoring well installation, and aquifer testing. Based on investigation results, a pilot test that involved injecting emulsified vegetable oil to enhance in situ bioremediation was conducted to evaluate stimulating the anaerobic biodegradation of chlorinated solvents in groundwater. Results of the pilot test confirmed the efficacy of the treatment technology, and a full-scale injection was implemented using approximately 65 borings. A second injection was conducted two years later to further enhance anaerobic biodegradation. Sampling was then conducted quarterly for one year to confirm contaminant detections were below action levels. A "No Further Action" decision was made in April 2011, and the wells were decommissioned in July 2011. Laura served as data manager responsible for managing an Access database and providing data summary and reporting support.

Technical Specialist. Confidential Multinational Conglomerate Corporation, Geddes Brook/Ninemile Creek Feasibility Study, Syracuse, New York, United States. 01/2005-09/2010.

Parsons performed feasibility studies, predesign investigations, and remedial design activities for an impacted stream system located in central New York. Constituents of concern included polychlorinated biphenyls, polycyclic aromatic hydrocarbons, mercury, and other metals in soil and sediment. The remedial approach integrated site remediation and habitat restoration with existing site features by tailoring the application of removal, cover, and backfill technologies to areas of the site based on limits defined by physical features, greatly streamlining design and construction. The remedial approach included removal and on-site consolidation of approximately 200,000 cubic yards of contaminated sediments from 2 miles of stream and ~45 acres of floodplains and wetlands, design and modeling of a chemical isolation layer cap, and major habitat enhancements, including stream relocations, connected wetland systems, and invasive species control. Work included developing contractor work plans and cost estimates to support the design-build effort. Laura provided geographic information systems and data management support, including designing a custom Access database for data analysis and implementing and managing a Locus EIM database.

Technical Specialist. Confidential International Oil Company, Former Refinery Resource Conservation and Recovery Act Remediation Data Management Services, Central New Jersey, United States. 10/2005-08/2008. Parsons managed all the client's sites' analytical and spatial data using the Web-based Locus Technologies environmental information management database in conjunction with a geographic information system geodatabase. The scope of work included providing analytical and field data management, geographic information system data analysis and figure creation, AutoCAD drawing creation, GPS survey fieldwork, and electronic document management. Laura served as data manager, maintaining a Locus EIM database. Developed and ensured compliance with the project data management plan. Functioned as an environmental information management super user. Provided Locus EIM training and participated in environmental information management team data management initiatives.

Data Manager. Consolidated Edison Company of New York, Inc., Farrington Street Former Manufactured Gas Plant Site Post-Interim Remedial Measure Groundwater Monitoring, New York, New York, United States. 07/2008-07/2008. Parsons has performed environmental services at the Farrington Street former manufactured gas plant site in Flushing, New York, since 2001. The site is now used by Consolidated Edison of New York as a flush truck facility with a wastewater treatment system to support operations. Parsons first conducted a preliminary site assessment and then an interim remedial measure, which was completed in 2005. The project also involved implementing an interim remedial measure, a soil vapor intrusion assessment, and a geotechnical soil boring investigation to support proposed site development activities. The interim remedial measure included removing a former gas holder structure,

excavating impacted soils above the water table, installing a rubber membrane wall, and disposing of and treating impacted soils off-site. Post-interim remedial measure activities included post-interim remedial measure groundwater monitoring activities, site characterization study work plan development, remedial investigations, emerging contaminant sampling, well replacement, community air monitoring plan implementation, and borings sampling and testing. Responsible for data management of the project's EQIS database.

Data Manager. Confidential International Chemical Company, Ventron/Velsicol Superfund Site Operable Unit 1, Wood-Ridge and Carlstadt, New Jersey, United States. 02/2007-12/2007. Parsons performed investigation, design, permitting, modeling, habitat restoration, pilot testing, construction, and other environmental services for remediation of the Ventron/Velsicol Superfund Site. Parsons prepared remedial action work plans for the US Environmental Protection Agency and the New Jersey Department of Environmental Protection for drum removal, excavations, vertical barrier wall installation, site cap construction, sediment removal, wetlands restoration and mitigation, a water treatment plant, and a perimeter air monitoring system. As site manager, Parsons designed and constructed a 75-gallon-per-minute recovered groundwater and stormwater water treatment plant and site infrastructure for the remediation. During the process development phase, Parsons conducted treatability studies for low-level mercury and arsenic removal using worst case extracted groundwater. Parsons also served as prime contractor for remediation of contaminated sediments from a tidal tributary adjacent to the site. The project was completed successfully and safely. Parsons performed final grading and habitat restoration after the New Jersey Meadowlands Commission completed replacement of a tide gate. Laura served as data manager responsible for managing an EQIS database and for providing data summary and reporting support.

Data Manager. Confidential International Oil Company, Former Refinery Resource Conservation and Recovery Act Remediation Light Non-Aqueous Phase Liquids Project, Central New Jersey, United States. 11/2003-04/2004. Parsons provided consulting services as part of a global petroleum environmental services contract for a Resource Conservation and Recovery Act refinery site being closed under a Hazardous and Solid Waste Amendment of 1984 permit. Work included conducting groundwater and soil remediation investigations; performing weekly gauging and monitoring of approximately 70 monitoring wells, temporary wells, and piezometers located throughout the refinery; providing recovery and stabilization of various plumes of contamination; managing and closing light non-aqueous phase liquid (LNAPL)-impacted areas; developing a sulfate-enhanced bioremediation pilot test for benzene and residual LNAPL areas; and managing the operations and maintenance of 12 separate LNAPL areas at the site. Work included recovering free-phase LNAPL via permanent belt skimmers, vacuum truck extraction, and manual absorbent sock and bailer removal. Laura provided EIM database data management support.

LOUIE MANZELLA IV, MSC

ROLE: ARCGIS / PYTHON SPECIALIST

Louie is a Hydrogeologist with experience in geostatistical analysis and numerical/analytical modeling. He has developed numerous groundwater and surface water flow models for clients in the private and public sector using MODFLOW, FloPy, and Groundwater Vistas. Through this experience he has become adept at programming in various languages including Python, the programming language of PRIMO. Louie has downloaded the PRIMO software package and is familiar with its operation through the user manual.

Work Experience

Hydrogeologist. AVANGRID, Inc., East Station Former Manufactured Gas Plant Site, Rochester, New York, United States. 12/2023-11/2024. Louie performed hydrogeological evaluation of the site including synoptic and well data collection, Aquifer pumping tests, and groundwater level monitoring. Post processing of the aquifer pumping test data was conducted to understand groundwater flow dynamics at the site. Supported engineering design by developing a surface and groundwater model to explore feasibility of engineering controls and remedial methods. Modeling efforts work towards evaluating engineering design impacts on the Genesee river and the surrounding area.

Hydrogeologist. New York State Department of Environmental Conservation, Inactive Landfill Initiative, Statewide New York, United States. 06/2023-10/2024. Parsons performs site characterizations and investigations under Title 12, known as the Inactive Landfill Initiative. This first-of-its-kind program addresses critical drinking water contamination concerns associated with emerging contaminants from inactive landfills, including perfluoroalkyl and polyfluoroalkyl substances (PFAS) and other chemicals of concern, such as volatile organic compounds, semi-volatile organic compounds, and metals. Parsons has supported the Inactive Landfill Initiative since 2017, helping conceive, develop, and implement the program in conjunction with the New York State Department of Environmental Conservation's Division of Materials Management. Over 385 inactive landfills across the state have been investigated, thousands of samples collected, and results evaluated to better understand the risks to human health based on a variety of landfill characteristics. Louie primarily worked with creating focus lists for groundwater sampling of Inactive Landfills under the Inactive Landfill Initiative. Focus lists would include: 1.) Using Hydrogeological data and background historical data to determine hydrogeological "narrative" of a site 2.) Mapping groundwater flow direction based on groundwater elevation, topography, surface water features, and previously noted observations 3.) Analyzing chemistry data to determine where contaminants might have spread 4.) Producing a potential plume extent to determine where affected private and public water supply wells may be located.

Hydrogeologist. Confidential International Oil Company Pipeline Division, Pipeline Engineering and Maintenance Projects, Nationwide United States. 05/2024-07/2024. Parsons has provided environmental consulting services since 2004 for facilities belonging to the pipeline division of a confidential international oil company. Services include wetlands evaluation, permitting, and delineation; sensitive area and endangered species habitat evaluations; land disturbance and stormwater permit preparation; National Pollutant Discharge Elimination System permitting and compliance activities; hydrotest water treatment; stormwater pollution prevention plan and spill prevention, control, and countermeasure plan preparation; water permitting and discharge requirement evaluations; and health, safety, security, and environmental plan preparation for more than 35 locations in nine states and the Gulf of Mexico Region. Louie conducted a desktop study to determine effects of Pipeline construction on an endangered insect species. The desktop



TITLE

Geologist

YEARS OF EXPERIENCE

Total: 2

With Parsons: <2

EDUCATION

- Master of Science - MS
Geological and Earth
Sciences/Geosciences,
University at Buffalo, 2021-
2023
- Bachelor of Science -BS
Geological and Earth
Sciences/Geosciences,
University at Buffalo, 2018-
2021

REGISTRATIONS/CERTIFICATIONS/ TRAINING

- First Aid, CPR, and AED,
American Red Cross
- 40-hour HAZWOPER, OSHA
Training Institute Education
Centers

KEY COMPUTER/SOFTWARE SKILLS

- ArcGIS
- Programming in: R-Studio,
MATLAB, PyFlow, NetLogo,
1DTempPro
- Experience creating Graphical
User Interfaces for Python
programs
- Experience using MODFLOW,
FloPy, and Groundwater
Vistas

study included a theoretical groundwater model being developed to portray the effects of a pipeline being constructed, background data collection and synthesis from prior work, and research being conducted on the local geology to interpret river flow dynamics at the site. The work culminated in a memorandum being drafted and submitted to the client with potential for future field work to be conducted at the site in support of better understanding flow dynamics at the site.

Groundwater Modeler and Quantitative Data Analyst. FMC Corporation, Old Factory Grounds Hydrogeological Study, Ronland, Denmark. 06/2023-12/2024. The client owns and operates a pesticide manufacturing facility in Rønland, Denmark, and collects both groundwater and impacted stormwater from the site for treatment in the facility's wastewater treatment plant prior to discharge to the North Sea. In September 2022, the Regional Authority collected surface water samples that indicated potential off-site migration of certain dissolved contaminants of concern, namely O,O-Dimethyl dithiophosphate (MP-1) and O,O-Diethyl dithiophosphate (EP-1). To evaluate the possibility for off-site migration, a full capture zone evaluation of the site is recommended, which involves collecting site data, conducting hydrogeological testing, and performing groundwater modeling to assess the effectiveness of the current drain at containing groundwater contamination. The objectives of the project are to refine and improve upon the site conceptual model by collecting additional data, producing a calibrated site groundwater model for evaluating groundwater flow and treatment testing, and evaluating the effectiveness of the current groundwater capture system at the site. Louie worked on improving and updating a pre-existing groundwater model for the site that was written in Flopy, and updated the model to be in a newer version of Flopy and ran it in parallel with Groundwater Vistas. Updates to the model include: 1.) Updating the model domain 2.) Improving boundary conditions and assumptions 3.) Performing density driven flow analysis 4.) Improving average linear velocity understanding via particle tracking 5.) Producing a 3D Model of the site that could be used for sharing with the client and other regulatory bodies 6.) Memorandum production for text, results, and all figures.

Groundwater Modeler and Quantitative Data Analyst. Georgia-Pacific Wood Products, LLC, Former Pastore Landfill Closure Feasibility Study Work Plan, New Jersey, United States. 02/2024-09/2024. Parsons is preparing and implementing a closure feasibility study work plan for the former Pastore Landfill. Site investigations include geophysical surveys, test pit excavation, soil borings, groundwater monitoring, landfill seep sampling, and gas surface emissions monitoring. Louie produced a groundwater model for the site from scratch. The groundwater model was calibrated against real data and was developed in an effort to be

used for future remedial scenario development. The model was in Groundwater Vistas using MODFLOW USG and MODPATH-3DU version 2.0. Calibration of the model involved volumetric flow analysis through the landfill and surrounding areas, as well as utilizing PEST to conduct a sensitivity analysis. The model was produced in a 3D visualization software for the client, and the model culminated with a written memorandum and a presentation to the client. Future work is pending.

Teaching Assistant. State University of New York at Buffalo. 08/2021-05/2023. Louie worked as a Teaching assistant for Hydrogeology and Geophysics courses, preparing lab sessions and teaching students how to use standard equipment in hydrogeology/geophysical field methods, lab methods, and modeling methods.

Geologist Intern. US Department of Agriculture - Natural Resources Conservation Service. 05/2021-08/2021. Louie worked closely with a Resource conservationist to prepare contracts and technical documents with regards to installation and construction of standard farm practices. He aided in final evaluations and inspections of practices; as well as initial field visits to collect information on progress of construction. Louie performed wetland delineation with a biologist and soil scientist, and completed culvert inspections in East Aurora NY.

Geologist Intern. US Department of Agriculture - Natural Resources Conservation Service. 05/2020-08/2020. Louie helped prepare technical documents for field visits as well as preparing maps in ArcMap for service visits to farms and earthen dams.

Student Tech support assistant. State University of New York at Buffalo. 05/2019-06/2020. Louie worked with a network engineer to install and maintain network connectivity in Dormitories and Classrooms on UB North, South, and Medical campus. Job duties included customer outreach, periodic inspections of internet services, installation of wireless access points, and performing maintenance on wireless access points as needed/requested by customers.

AMY RUTA, J.D.

ROLE: REGULATORY LEAD – PERMITTING AND OUTREACH

Amy is an environmental professional with extensive experience in implementing requirements under a wide range of federal, state, and municipal regulatory programs related to environmental and civil construction projects.

She provides technical and regulatory support in all phases of environmental review and project execution, including but not limited to requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Clean Water Act (Section 401/404); Endangered Species Act (Section 7); Historic Preservation Act (HPA); National and/or State Pollutant Discharge Elimination System (NPDES/SPDES); Rivers and Harbors Act (Section 10/408); Resource Conservation and Recovery Act (RCRA); Toxic Substances Control Act (TSCA); and state regulations/municipal ordinances.

Amy routinely identifies applicable regulatory program requirements, conducts agency consultations, procures and maintains required authorizations, and ensures compliance during design, construction, and project close-out phases.

Please note that Amy does not provide legal services to Parsons or its clients.

Work Experience

New York State Department of Environmental Conservation (NYSDEC), Orphan Well Plugging Project Construction Oversight, New York. Parsons is providing project management and construction oversight for the plugging and abandonment of orphaned oil and gas wells located throughout NYS. Amy identifies environmental regulatory requirements and provides compliance support, as needed, throughout project execution. Her responsibilities include completing environmental screening; completing construction layout and siting; coordinating with federal, state, and municipal regulatory agencies; negotiating landowner and third-party temporary use and access agreements; coordinating utility relocation; preparing site stormwater pollution prevention plans (SWPPPs); and preparing environmental and construction/municipal permit applications. Amy has secured landowner access agreements and environmental/municipal authorizations for nearly 100 well sites across multiple NYSDEC Regions. Authorizations include U.S. Army Corps of Engineers (USACE) Section 404 dredge/fill Nationwide Permit (NWP) authorization; HPA Section 106 compliance; NYS Protection of Waters substantive requirements compliance; NYS Freshwater Wetlands (FWW) permitting; Section 401 Water Quality Certification (WQC); Section 7 compliance and NYS threatened and endangered (T&E) species clearances; SPDES construction stormwater discharge permits; NYS Department of Transportation (NYSDOT) work permits; and municipal right of way driveway permits, work permits, and road use agreements.

NYSDEC, Eastman Kodak Company - Eastman Business Park Operable Unit 5, Rochester, New York. Parsons completed the design and construction oversight for the RCRA dredge and cap Corrective Action to address historic contamination of more than 6 acres the riverbed and adjacent wetlands of the Lower Genesee River. This project was the recipient of the 2023 National Notable Achievement Award from the U.S. Environmental Protection Agency (USEPA) under the "Outstanding Approaches to Achieve RCRA/TSCA Permitting or Corrective Action Program Goals." Amy identified project regulatory requirements; coordinated with federal, state, and municipal regulatory agencies; and prepared permit applications. Amy was requested by the NYSDEC project manager to highlight her efforts at both local interest group presentations and an industry-specific annual conference. Authorizations included USACE Section 404 dredge/fill and Section 10 NWP authorization and Section 408 permitting; HPA Section 106 compliance; NYS Protection of Waters substantive requirements compliance; NYS FWW permitting; Section 401 WQC; Section 7



TITLE

Regulatory Lead & Engineering Technical Support

YEARS OF EXPERIENCE

Total: 21

With Parsons: 6

EDUCATION

- Juris Doctor, magna cum laude, Syracuse University College of Law, Syracuse New York, 2020
- Master, Environmental Engineering, Illinois Institute of Technology, Illinois, 2009
- Bachelor of Science, Biology, University of Wisconsin-Madison, Wisconsin, 2003

REGISTRATIONS/CERTIFICATIONS/TRAINING

- Attorney, Illinois (Reg. No. [REDACTED])
- Attorney, Tennessee (Reg. No. [REDACTED])
- Fundamentals of Engineering (FE/EIT) examination, New York, 2015
- 40-Hour HAZWOPER, current
- 8-Hour HAZWOPER, Supervisor
- New York State Erosion and Sediment Control Certificate (NYSESCC)

PROFESSIONAL AFFILIATIONS

- Construction Management Association of America
- Chicago Bar Association

compliance and NYS threatened and endangered species clearances; NYS Department of State (NYSDOS) Coastal Consistency Review; NYS Office of General Services (NYSOGS) Lands Underwater Review; SPDES construction stormwater discharge permit substantive requirements equivalency; and municipal traffic control/work permits.

NYSDEC, Inactive Landfill Initiative, New York. Parsons is completing remedial investigation activities for inactive landfills located throughout NYS. Amy identifies project environmental constraints and regulatory requirements. Her responsibilities include coordinating with federal, state, and municipal regulatory agencies; NYS Environmental Quality Review Act (SEQRA) Short Environmental Assessment Form (EAF) Part 1; and preparing permit applications. Authorizations include USACE Section 404 dredge/fill NWP authorization, NYS FWW permitting; Section 401 WQC; NYS Parks, Recreation, and Historic Preservation Site Investigation permitting; and Section 7 compliance and NYS T&E species clearances.

Confidential International Conglomerate Corporation. Onondaga Lake Program-Wide Tasks, Syracuse, New York. Parsons is responsible for program management, coordination, and construction of a diverse suite of Onondaga Lake Natural Resource Damage (NRD) Restoration Projects. The program includes implementation of 18 separate habitat and recreational projects that are spread across multiple locations and habitat types within several municipalities. Habitat projects included enhancements to over 200 acres of FWW, lakes, floodplains, forests, and grasslands. Recreation projects included design and construction of a boat launch, over 4 miles of multi-use recreational trails that became part of the NYS Empire State Trail system, multiple angler parking areas built to NYS specifications, a 100-foot-long fishing pier, and improvements to two existing jetties to allow angler and pedestrian use. Amy's responsibilities included completing project screening; coordinating with federal, state, and municipal regulatory agencies; preparing project SWPPPs; preparing NYSEQRA Short EAF Part 1 to obtain a Negative Declaration determination; preparing mitigation wetland design and obtaining agency approval; negotiating utility right-of-way access and temporary land use agreements; and preparing permit applications. Authorizations included USACE Section 404 dredge/fill and Section 10 NWP authorization and Jurisdictional Determination (JD); HPA Section 106 compliance; U.S. Coast Guard (USCG) Private Aids to Navigation (PATON) authorization; NYS Protection of Waters and FWW permitting and JD; Section 401 WQC; Section 7 compliance and NYS T&E species clearances; NYSOGS Lands Underwater Review; NYS Thruway Authority (NYSTA) work permits; NYSDOT right of way and work permits; NYS Canal Corporation (NYSCC) work permits; SPDES construction stormwater discharge permits

and MS4 approvals; and municipal traffic control/work permits.

AVANGRID, Inc., West Station Former Manufactured Gas Plant Remedial Design, Rochester, New York. Parsons developed the design for the NYS Superfund dredge and cap effort to address historic contamination of over 5 acres of the riverbed/associated upland areas of the Genesee River. Amy's responsibilities included identifying project regulatory requirements, coordinating with federal, state, and municipal regulatory agencies; negotiating landowner temporary use and access agreements; preparing the project SWPPP; preparing and procuring environmental and construction/municipal permit applications; developing and presenting a Maintenance and Protection of Traffic Plan to the City of Rochester Traffic Control Board for long-term road closure authorization; preparing and presenting municipal fence permit appeal and area variance zoning and minor site plan applications; and developing community fact sheets and citizen participation plans. Amy coordinated with the NYSDEC to reduce the required survey footprint for imperiled mussel species from over 20 acres to less than 1 acre based on viable habitat pre-investigation results. Authorizations included USACE Section 404 dredge/fill and Section 10 NWP authorization; HPA Section 106 compliance; Section 401 WQC; Section 7 compliance and NYS T&E species clearances; Federal Energy Regulatory Commission (FERC) operating pool clearances; NYS Protection of Waters permitting; NYSDOS Coastal Consistency Review; NYSOGS Lands Underwater Review; SPDES construction stormwater discharge permit substantive requirements equivalency and MS4 approvals; municipal floodplain development and road closure permits and zoning permissions.

AVANGRID, Inc., East Station Former Manufactured Gas Plant Remedial Design, Rochester, New York. Parsons completed pre-design investigation and is developing the design for the NYS Superfund dredge and cap effort to address historical contamination of the riverbed/associated upland areas of the Genesee River. Amy's responsibilities for the pre-design investigation included completing project screening; coordinating with federal, state, and municipal regulatory agencies; negotiating landowner temporary use and access agreements; and preparing permit applications. Authorizations for the pre-design investigation included USACE Section 404 dredge/fill and Section 10 NWP authorization; HPA Section 106 compliance; Section 401 WQC; Section 7 compliance and NYS T&E species clearances; NYS Protection of Waters permitting; and NYSDOS Coastal Consistency Review.

AVANGRID, Inc., Station 192 Substation Demolition and Upgrade, Huron, New York. Parsons provided permitting, zoning, and regulatory support for the demolition and

upgrade of an existing electrical substation. Amy's responsibilities included coordinating with municipal regulatory agencies; preparing zoning board presentation documentation; and preparing municipal building/work permit applications.

Confidential Global Eye Health Company, Former Glass Plant Remedial Investigation, Rochester, New York. Parsons is completing the remedial investigation for the NYS Brownfields Cleanup Program effort to address historical contamination of the riverbanks and upland areas of the Genesee River. Amy's responsibilities included completing project screening; coordinating with federal, state, and municipal regulatory agencies; and preparing permit applications. Authorizations for the remedial investigation included USACE Section 404 dredge/fill and Section 10 NWP authorization; HPA Section 106 compliance; Section 401 WQC; Section 7 compliance and NYS T&E species clearances; NYS Protection of Waters permitting; and NYSDOS Coastal Consistency Review.

Orange and Rockland Utilities, Inc., Transmission/Distribution Line Shoreline Stabilization, Rockland County, New York.

Parsons developed the designs for the installation of shoreline stabilization for transmission and distribution infrastructure to address erosion concerns in five municipalities. Amy's responsibilities included completing project screening; managing wetland delineations and habitat assessment field teams; environmental report development; coordinating with federal, state, and municipal regulatory agencies; negotiating access agreements; preparing SEQRA Short EAF Part 1; and preparing compliance documentation and permit applications. Authorizations included USACE Section 404 dredge/fill NWP authorization, HPA Section 106 compliance; NYS Protection of Waters permitting; Section 401 WQC; Section 7 compliance and NYS T&E species clearances; NYSTA work permits; and municipality floodplain development and work permits.

Consolidated Edison Company of New York, Inc., Astoria Facility East Yard Stormwater Improvements, Astoria, Queens, New York. Parsons developed the design for stormwater improvements and Best Management Practices to minimize sediment and other pollutants in stormwater runoff. Amy's responsibilities included identifying required NYS permits/authorizations for the project; preparing the project SWPPP; securing expediting services for procurement of New York City Department of Buildings (NYCDOB) filings and permits; and obtaining the NYS PDES construction stormwater discharge permit equivalency. In response to NYSDEC comments to the project SPDES Notice of Intent, Amy prepared a detailed analysis which provided justification that the project, which consisted of impervious surface replacement of over 5 acres, did not require additional post-construction stormwater management practices and was subject to an exemption

under the NYC Unified Stormwater Rule (Chapter 19.1) requirements, resulting in significant project cost savings.

New York State Canal Corporation, Champlain Aquatic Invasive Species Deterrent Engineering Services, Albany, New York.

Parsons is providing scientific, engineering consulting, and design services in assessment of invasive species deterrent measures for critical portions of the New York State Canal system, to deter the spread of the round goby into Lake Champlain. The program has evaluated various deterrent technologies, reviewed existing Canal operational practices, and evaluated rapid response procedures to identify measures that would be most effective in controlling the spread of the round goby through the Canal system. Amy identifies project environmental constraints and regulatory requirements. Authorizations include USACE Section 404 dredge/fill and Section 10 NWP authorization and/or Transportation General Permit Request for Authorization; HPA Section 106 compliance; Section 401 WQC; Section 7 compliance and NYS T&E species clearances; NYSOGS Lands Underwater Review; NYS PDES construction stormwater discharge permit; and municipal floodplain development permits. To accommodate this effort, Parsons is preparing SEQR documentation, including a Full EAF Part 1, to support the lead agency, the NYSCC/NYS Power Authority in obtaining a SEQR determination of a Negative Declaration for the project as an Unlisted Action (all actions not identified as a Type I or Type II action in 6 NYCRR § 617.2), or a Type II Action as defined by 6 NYCRR § 617.5(42).

Confidential Transportation Authority, Structural Pier Improvement, Bayonne, New Jersey.

Parsons provided the design services for the rehabilitation of bridge substructure. The project included the installation of temporary cofferdams, dewatering activities, and pier repair in Section 10 waters that contain Essential Fish Habitat (EFH) and are inhabited by federal and state T&E species. Amy coordinated with the USACE New York District for Section 404 dredge/fill and Section 10 NWP authorization and was requested by USACE to prepare Section 7 Not Likely to Adversely Affect (NLAA) Program Verification and Project Design Criteria (PDC) analysis. Amy obtained the USCG Work Authorization Letter. She also ensured compliance with Tidelands Licenses and New Jersey Department of Environmental Protection (NJDEP)-issued blanket permits, including New Jersey Administrative Code (NJAC) 7:13 Flood Hazard Area (FHA) Act, NJAC 7:7A Freshwater Wetlands (FWW) Act, NJAC 7:7 Coastal Zone Management (in-water and upland), and Section 401 WQC.

Confidential Transportation Authority, Bridge Replacement, Bayonne, New Jersey. Parsons is providing the design services for the replacement of bridge super- and substructure for the Newark Bay Bridge. The project

includes the installation of temporary cofferdams and/or support trestles and dewatering activities. The project spans multiple habitat types and HPA historical resource sites and is located in Section 10/408 waters that contain EFH and inhabited by federal and state T&E species. Amy acts as the supervising coordinator for oversight of permitting subcontractors.

Confidential Global Chemical Manufacturing Company, Soil Remedy Detailed Design, Parlin, New Jersey. Parsons is developing the design package for the RCRA/TSCA and NJDEP-led soil remedy of an over 250-acre operational manufacturing facility. Amy completed NJDEP's FWW Letter of Interpretation (LOI) application in support of a Waters of the U.S. (WOTUS) and Waters of the State argument that resulted in the reduction of regulated FWW boundaries from 4.1 acres to 0.08 acres, providing a significant FWW mitigation cost savings. Amy also supports permit procurement for this project, including NJAC 7:7A FWW GP4 and NJAC 7:13 FHA IP authorization, and FWW mitigation strategy.

Confidential Global Chemical Manufacturing Company, Lined Surface Impoundment Liner Replacement, Parlin, New Jersey. Parsons is developing the design for the bypass system and liner replacement of an over 5-acre SPDES-permitted lined surface impoundment that occupies stream headwaters filled in the 1950s. Amy's responsibilities include identifying project state and municipal regulatory requirements, coordinating with state and municipal regulatory agencies; managing wetland delineations and habitat assessment field teams; environmental report development; preparing compliance documentation; developing riparian zone restoration and mitigation plans to reduce mitigation bank payment to the extent practicable; coordinating fish collection and relocation; preparing Soil Erosion and Sedimentation Control (SESC) Plans and obtaining Soil Conservation District (SCD) approval; and preparing permit applications. Authorizations include NJAC 7:13 FHA Individual Permit (IP) and riparian zone mitigation approval; NJDEP Bureau of Water Allocation Water Withdrawal Permit, SPDES temporary outfall relocation authorization, NJDEP Division of Water Quality Treatment Works Authorization, NJDEP Fish and Wildlife (F&W) Water Lowering Permit, NJDEP F&W Scientific Collection Permit and Stocking Permit, SPDES Construction Stormwater General Permit, and municipality tree removal permit.

Confidential International Oil and Gas Conglomerate, Newark Bay Sediment Remediation, Bayonne, New Jersey. Parsons is providing design services for the dredging and capping of impacted sediment in Newark Bay. Amy's responsibilities include identifying and ensuring federal, state, and municipal regulatory compliance.

Orange and Rockland Utilities, Inc., Transmission Line Shoreline Stabilization, Mahwah, New Jersey. Parsons is developing the designs for the installation of shoreline stabilization of critical infrastructure to address erosion at four separate

tower locations in a narrow stream system. Amy's responsibilities include identifying required authorizations; managing wetland delineations and habitat assessment field teams; environmental report development; coordinating with federal, state, and municipal regulatory agencies; negotiating access agreements; preparing compliance documentation; preparing SESC Plans; and preparing permit applications. Authorizations include Section 404 dredge/fill authorization, HPA Section 106 compliance; NJDEP permits, including NJAC 7:13 FHA IP and Permit-by-Rule 4, NJAC 7:7A FWW GP 1, 12, and 20, and Section 401 WQC; federal and state T&E species clearances; SCD SESC Plan approvals; and municipality permits.

Confidential National Metal Processing and Recycling Company, Facility Upgrades, Baltimore City, Maryland.

Parsons provided design services to address stormwater management improvements at an almost 20-acre operational metal processing and recycling facility. Amy's responsibilities include identifying project authorizations, including Individual Industrial Discharge General Permit modification, Chesapeake Bay design compliance, SWPPP MS4 and SCD review and approval, and Construction Stormwater General Permit compliance.

Confidential Potentially Responsible Parties Group, West Lake Landfill Superfund Site Remedial Design Services, St. Louis County, Missouri. Parsons is providing the remedial design for a high-profile landfill containing mixed waste from the Manhattan project, including low-level radioactive material. Work includes preparing the remedial design and remedial design report; and preparing the design investigation work plan, the field sampling plan, the quality assurance project plan, the health and safety plan, the data management plan, the wildlife hazard mitigation plan, and the loading, transportation, and off-site disposal plan. Amy is responsible for preparing the Institutional Control, Implementation, and Assurance Plan (ICIAP), identifying off-site permit requirements, and ensuring the remedial design addresses project Applicable or Relevant and Appropriate Requirements (ARARs) and To Be Considered (TBCs).

Confidential Natural Gas Pipeline Company, Whiskey Bay Pilot Channel Pipe Crossing Demolition, Atchafalaya Basin, Louisiana.

Parsons provided design services and permitting support for the demolition of an approximately 2,000-foot span of natural gas pipeline over a high-traffic Section 10 commercial waterway. Amy's responsibilities included developing project dredge quantities and environmental best management practices.

KAREN FIELDS, MSC, PWS

ROLE: ENVIRONMENTAL SITE ASSESSMENT LEAD



Karen is experienced in conducting wetland assessments and delineations and ecological and human health risk assessments. Her experience includes natural resource management, including habitat restoration and regulatory compliance. Karen has been responsible for preparing wetland permit applications and mitigation plans; siting applications for major utilities; risk assessments for Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation, and Liability Act sites; environmental site assessments; and media sampling. She is a registered professional wetland scientist who has worked throughout the United States for Fortune 500 companies and various US Government agencies and departments. Karen has also presented the results of her work at various technical conferences in the United States and Australia.

Work Experience

Quality Inspector. Confidential Multinational Conglomerate Corporation, Hudson River Environmental Remediation Project, New York, United States. 10/2007-12/2016. Parsons' scope of work included dredging more than 2 million cubic yards of sediment, on-river transportation of dredged sediments to a processing area, filter press processing of dredged materials and off-site disposal via a railcar, and mechanical cap placement. Karen served as lead inspector for habitat restoration work for Phase I of this project. Provided oversight for restoration of submerged aquatic vegetation in the Hudson River and shoreline and wetland restoration planting and seeding. Performed invasive species surveys and conducted monthly monitoring using underwater videography to determine survival of planted species. Prior to the implementation phase, reviewed and evaluated proposals from prospective contractors for habitat restoration work and assisted with developing habitat restoration plans for the river and associated wetlands and riparian habitats.

Biologist. Confidential Client, Alaska, United States. 8/2022-05/2023. Parsons is performing site characterization studies at a former Air Force Station along the Yukon River in Alaska. Karen was responsible for collecting soil and sediment samples and terrestrial and aquatic insects and small mammals from areas potentially impacted with aqueous fire-fighting foam and co-located soil and sediment samples to compare uptake in biological tissue. Karen co-wrote the workplan and led the collection of the insects and small mammals using a variety of traps and nets.

Biologist. New York State Department of Environmental Conservation, William Street Park Site Characterization, Corning, New York, United States. 10/2020-05/2021. Parsons performed preliminary site characterization activities, including collecting 16 surface soil samples, performing one day of trenching and excavations, and installing 16 soil borings to 16 feet below ground surface, with 8 of the soil borings being converted into monitoring wells. Karen was responsible for preparing a standard operating procedure report describing the methods and approach for delineating the mean high water mark along the Chemung River.

Biologist and Risk Assessor. Confidential Multinational Conglomerate Corporation, Tonawanda Coke Plant Site 108 Remedial Investigation, Tonawanda, New York, United States. 10/2020-06/2021. Parsons is completing a focused remedial investigation and preparing a final remedial investigation report for the Tonawanda Coke Plant Site 108 (Operable Unit 3) under the New York State Superfund Program. Work includes providing project management, overseeing field investigations, preparing draft and final remedial investigation reports for New York State Department of Environmental Conservation review and approval, creating and managing an electronic database for remedial investigation analytical data, and validating analytical data in

TITLE

Project Scientist

YEARS OF EXPERIENCE

Total: 36

With Parsons: 23

EDUCATION

- Master, Natural Resource Ecology, Duke University, North Carolina, 1988
- Bachelor, Biology, Kenyon College, Ohio, 1985

REGISTRATIONS/CERTIFICATIONS/TRAINING

- Project Manager Certification, Parsons
- Professional Wetland Scientist (PWS) No. [REDACTED] Society of Wetland Scientists Professional Certification Program, Inc.

PROFESSIONAL AFFILIATIONS

- Society for Ecological Restoration (SER), Member, 2019-Present
- Society of Environmental Toxicology and Chemistry (SETAC), Member, 2005-Present
- Society of Wetland Scientists (SWS), Member, 1991-Present

accordance with the project quality assurance project plan. Karen is responsible for overseeing the fieldwork to delineate wetlands and map ecological habitat at this former industrial site. Following field data collection, work includes preparing a fish and wildlife impact analysis report to summarize ecological receptors at the site and potential exposure pathways

Wetland Scientist and Ecologist. Confidential International Oil Company Pipeline Division, Pipeline Engineering and Maintenance Projects, Nationwide United States.

03/2008-Present. Parsons has provided environmental consulting services since 2004 for facilities belonging to the pipeline division of a confidential international oil company. Services included wetlands evaluation, permitting, and delineation; sensitive area and endangered species habitat evaluations; land disturbance and stormwater permit preparation; National Pollutant Discharge Elimination System permitting and compliance activities; hydrotest water treatment; stormwater pollution prevention plan and spill prevention, control, and countermeasure plan preparation; water permitting and discharge requirement evaluations; and health, safety, security, and environmental plan preparation for more than 35 locations in nine states and the Gulf of Mexico Region. Karen evaluated areas adjacent to a pipeline stream crossing to determine if the areas may be impacted by planned repair work in and adjacent to the stream as part of water permitting requirements.

Principal Wetland Scientist. Waste Management of Kentucky, Wetlands Permitting, Louisville, Kentucky, United States.

01/2001-Present. Parsons prepared Section 401 and 404 permit applications for potential impacts to 40 acres of bottomland hardwood forest and designing a mitigation plan for 90 acres of replacement wetlands. The project was approved with a specially obtained permit expiration date of 50 years from permit issuance to accommodate master design plans. Tasks included preparing mitigation design plans, reviewing and selecting contractors to implement the design, overseeing selected contractors during construction, and implementing a five-year monitoring program to determine project success.

Ecologist. Confidential International Oil Company, Former Refinery Operations, Maintenance, and Monitoring, Western, Ohio, United States. 06/2017-Present. Karen inspects three natural habitat restoration areas for the presence of invasive species. Areas inspected include three prairie habitats and one wetland ecosystem. Recommendations are made semi-annually for control measures at each site.

Environmental Scientist. City of Fort Wright, Amsterdam Road Reconstruction Phase 1, Fort Wright, Kentucky, United States.

04/2017-08/2018. Parsons provided environmental services for the Amsterdam Road Reconstruction project between Redwood Drive and General Drive in the city

of Fort Wright. Parsons' scope of work included an environmental analysis and an alternatives summary. Karen prepared a Level 1 categorical exclusion document for 2,200 linear feet of improvements to a major connecting road in Fort Wright, Kentucky. Also conducted ecological and wetland surveys to identify and evaluate potential Waters of the United States and to identify potential habitat for endangered bat species and running buffalo clover.

Principal Biologist/Scientist. Kleingers & Associates, Inc., Safe Routes to School Projects, Master Services Agreement, Cincinnati, Ohio, United States. 10/2011-04/2015. Parsons provided environmental investigations and National Environmental Policy Act (NEPA) documentation for several pedestrian and bicycling improvement projects under the Safe Routes to School program. Parsons completed environmental documentation, including environmental site assessments, ecological screening reports, cultural resources packages, and Section 4(f) concurrence letters for projects in Sugarcreek Township (District 8), Colerain Township (District 8), and the Village of Plain City (District 6). Karen evaluated the presence of endangered and threatened species and other natural resources, including wetlands and surface water bodies that may have been impacted by improvements associated with road improvements and construction in accordance with Ohio Department of Transportation guidelines at various sites throughout Ohio.

Ecologist. Confidential International Oil Company, Former Refinery Land Use Redevelopment, Cincinnati, Ohio, United States. 03/2006-04/2006. Karen provided technical support for developing wetland and wildlife habitat restoration plans for this closed petroleum refinery along the banks of the Great Miami River. The site was certified by the Wildlife Habitat Council and nominated for the Corporate Habitat of the Year.

Principal Biologist/Scientist. Charlotte Area Transit System, Charlotte Light Rail Transit Preliminary Engineering, Charlotte, North Carolina, United States. 08/2002-03/2003. Parsons provided preliminary engineering, environmental study, and final design services for a 12-mile-long light rail transit project between downtown Charlotte and Pineville, North Carolina. The project was initiated with an alternative definition phase that included refining the 12-mile alignment and examining 19 potential station locations for optimal transit- and pedestrian-oriented development opportunities, which were carried through to the final design. Karen was responsible for conducting ecological and wetland surveys. The surveys included identifying wetland areas and significant ecological habitat, including potential occurrences of endangered species along the preferred route and several alternates that extended approximately 14 miles. The results were presented in a separate technical memorandum and in a draft environmental impact statement for the project.

DuPont Site Representative. Confidential Global Chemical Manufacturing Company, Peters Cartridge Facility Remediation, Northeastern, United States. 10/2010-03/2018. Parsons has performed environmental services at a 71-acre parcel of land at a former ordnance manufacturing facility Superfund site contaminated with metals and semi-volatile organic compounds located adjacent to a state and national scenic river since 2009. A high-traffic bike path owned by the state runs through the site, and the terrain is rugged and densely vegetated. Work included determination of extent of shallow impacted soils to be relocated to a containment area constructed on-site, designed in accordance with Ohio industrial landfill regulations; demolition of select site facilities; excavation, stabilization, and on-site consolidation of lead-contaminated soil; design and construction of a 4-acre on-site consolidation waste cell; and site restoration. Parsons is completing ongoing operations and maintenance, including site inspections and groundwater monitoring. Karen was responsible for overseeing contractors implementing the site remediation plan, including excavation, slope stabilization, habitat restoration, and safety audits. Habitat restoration required intense agency involvement at both the federal and local levels due to the site location next to a National and State Scenic River.

Principle Risk Assessor. New York State Department of Environmental Conservation, Eastman Business Park RCRA Facility Investigation and Corrective Measures Study, Rochester, New York, United States. 08/2014-03/2017. The project involved a 4-mile-long stretch of the Lower Genesee River impacted by silver and other contaminants resulting from operations at a former business park. The project site included impacted channel sediments and adjacent wetland areas, encompassed an active industrial navigational channel and numerous large marinas, and involved multiple stakeholders. Parsons performed remedial investigation activities, including a bathymetry and side scan sonar survey, a sediment investigation, surface water sampling, adjacent wetland and floodplain assessments, aquatic habitat assessments and tissue sampling, a toxicity study, human health and ecological risk assessments, and sediment transport modeling. Karen completed a risk assessment for the Lower Genesee River area of concern as part of a remedial investigation for the site. Constituents detected in groundwater, surface water, sediments, floodplains, and fish tissue were compared to identified screening levels to identify constituents, receptors, and pathways of concern. Constituents of concern included silver, arsenic, mercury, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons. Pathways of exposure included recreational use of the river, including swimming, boating, and fishing. Based on the results of the risk assessment, remedial action objectives for the river were identified.

Wetland Scientist. Confidential International Oil Company, Landfill Operations, Maintenance, and Monitoring, Northwestern, Kentucky, United States. 01/2008-02/2009. Parsons provided remediation management services at a landfill that produces impacted groundwater that has historically seeped from the toe of the landfill slope, resulting in stressed vegetation and surface contamination. A groundwater collection trench and wet well were installed to collect the groundwater, and a storage tank was added in the late 1990s to facilitate transfer of the collected groundwater to tank trucks for transportation and off-site disposal. Parsons was responsible for operation of the groundwater collection system. Work included conducting an alternatives evaluation of the existing leachate collection system to mitigate leachate generation and designing and constructing the selected alternative; designing and installing a 2.3-acre improved landfill cap that consisted of a high-density polyethylene membrane, drainage swales with V-notch flumes, and passive soil gas vents over an existing clay cap to reduce the volume of leachate produced; investigating options for improvements to leachate handling and disposal, such as adding new leachate storage facilities and telemetry and supervisory control and data acquisition system controls, improving access roads and secondary containment, and providing on-site treatment using traditional and biological processes; and designing an impermeable cover system with associated drainage features to replace the existing stormwater management system. Primary chemicals of concern were cyanide and fluoride. Karen prepared an evaluation for using created wetlands to treat arsenic- and fluoride-contaminated leachate generated from this former potliner landfill. Based on the evaluation, wetlands were selected as part of the final remedy for the landfill.

Wetland Scientist. Confidential International Chemical Company, Ventron/Velsicol Superfund Site Operable Unit 1 Design, Wood-Ridge and Carlstadt, New Jersey, United States. 06/2007-04/2008. Parsons provided design and construction management for an 18-acre solid waste landfill cover system to promote runoff and serve as a non-contact cover surface for underlying contaminated waste materials. The scope included design of a site-wide stormwater management system, including lined swales, and construction of a tide gate in a drainage swale to mitigate the effects of flooding in and around a warehouse facility. Work included excavation and disposal of more than 66,000 cubic yards of mercury-contaminated soil, installation of 1,250 linear feet of steel sheet pile for a vertical hydraulic barrier wall, construction of a soil cap, construction of a 50,000-square-foot reinforced concrete cap, and various other site work components. Karen prepared habitat restoration plans and completed a wetland assessment for freshwater and tidal wetlands affected by implementation of remedial activities for this former industrial site adjacent to Berry's Creek.

Principal Wetland Biologist. Confidential International Oil Company, Mid-Michigan Oilfield Remediation, Closure, and Restoration, Central, Michigan, United States. 01/2007-04/2007. This project was part of a program in which Parsons managed remediation of more than 800 former oilfield sites, including 506 former oil wells, tank battery sites, and spill areas in central Michigan. Parsons also provided program management, investigation, remedial engineering, and construction oversight services and restored more than 9,225 acres of land to nearly original condition under US Environmental Protection Agency and Michigan Department of Environmental Quality and Department of Natural Resources requirements. Karen evaluated abandoned oil field sites to determine the need for Section 10, 404, and 401 permits from the state and prepared joint permit applications for the US Army Corps of Engineers and state.

Wetland Scientist. Waste Management, Inc., Laurel Ridge Landfill, Lily, Kentucky, United States. 05/2003-12/2006. Parsons conducted a wetland delineation and water body evaluation at the Laurel Ridge Landfill for an approximately 45-acre mostly undeveloped proposed expansion area that borders the Little Laurel River. The wetland delineation and water body evaluation were conducted as part of a Notice of Intent to expand the landfill. All wetlands were identified and determined as to whether or not the wetlands fulfilled the jurisdictional requirements of the US Army Corps of Engineers, Nashville District. Other potentially regulated water bodies of the state (i.e., streams and ponds) were identified within the proposed expansion area. Identified wetland boundaries were flagged by Parsons and surveyed for plotting on a base map. A report of the findings was prepared for review by landfill staff and forwarded to the US Army Corps of Engineers for verification of the delineated wetland boundaries and identified water bodies of the state. Parsons also assisted with completing the notice of intent for expansion prior to submission to the Kentucky Department of Environmental Protection. Karen was responsible for delineating wetlands and determining impacts to those wetlands and other water bodies at the facility in response to a planned expansion. Prepared applications to the state and US Army Corps of Engineers for required permits to affect these water bodies.

Ecologist. Confidential International Oil Company, Former Refinery Land Use Redevelopment, Cincinnati, Ohio, United States. 03/2006-04/2006. Karen provided technical support for developing wetland and wildlife habitat restoration plans for this closed petroleum refinery along the banks of the Great Miami River. The site was certified by the Wildlife Habitat Council and nominated for the Corporate Habitat of the Year.

Presentations

PFAS in Biological Samples at AFFF Site, Alaska, Battelle 2024 Chlorinated Conference, Denver, Colorado, 2024 (co-authors: J. Benning, E. Heyse, B. Henry, B. Blicher, M. Rigby).

Lower Genesee River RFI Investigation Overview, Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters L. Thomas, M. Vetter, T. Drachenberg, K. Fields, S. Bupp, K. Dean, M. Rondinelli, C. Kriegner, and T. Towey).

Designing Successful Forested Wetlands That Can Provide Floodplain Compensation In Urban Areas, American Water Resources Association Annual Conference, Albuquerque, New Mexico, 2011.

Use of No-Purge Sampling Techniques to Eliminate Health and Safety Concerns and Reduce Cost, SPE Americas E&P Environmental and Safety Conference, San Antonio, Texas, 2009.

Using Mitigation Wetlands to Improve Water Quality at a Solid Waste Landfill in Louisville, Kentucky, Society of Wetland Scientists Catchments to Coast Conference, Cairns, Australia, 2006.

Tracking, Performance Criteria and Long-Term Monitoring, Association of State Wetland Managers, National Symposium: Wetlands 2002 – Restoring Impaired Wetlands and Other Waters, Indianapolis, Indiana, 2002.

LINDSEY POSTASKI, MSC, PWS

ROLE: ENVIRONMENTAL SITE ASSESSMENT LEAD



Lindsey is a Principal Scientist with experience preparing National Environmental Policy Act (NEPA) documents for medium- to large-scale energy clients, including environmental assessments and environmental impact statements. Her environmental experience includes wetland delineations, threatened and endangered species surveys (Section 7 consultations), surface and groundwater monitoring, environmental emergency responses, geographic information systems (GIS), and natural resource damage assessments.

Work Experience

Wetland & Stream Delineations/Wetland Permitting/Wetland Mitigation

Senior Scientist. Indiana Department of Transportation, Various locations, IN, United States.

I-69 NOT Project. The purpose of this project was to document the presence of waters of the United States (WOTUS) within 336 erosional areas along portions of I-69 between Evansville and Bloomington, Indiana. Lindsey conducted surveys to determine the presence, extent, and quality of wetlands, streams and/or other areas under the Clean Water Act (CWA) jurisdiction.

Environmental Scientist. Indiana Department of Transportation/Kentucky Transportation Cabinet. Evansville, IN/Henderson, KY, United States. I-69 Ohio River Crossing (ORX) Project. The purpose of this project was to document the presence of WOTUS along the proposed I-69 Ohio River Crossing. The I-69 Ohio River Crossing would provide connectivity between I-69 in Indiana and I-69 in Kentucky. Lindsey conducted surveys to determine the presence, extent, and quality of wetlands, streams and/or other areas under the CWA jurisdiction. Lindsey used ArcMap to digitize GIS data and develop project maps. She also helped prepare the DEIS under an aggressive schedule (published just 22 months after receiving notice to proceed).

Senior Scientist. Chemours. Fayetteville, NC, United States. Lindsey used ArcMap to digitize GIS data and develop project maps in support of a WOTUS survey (and subsequent permits) at the Chemours facility. Mapping was used to determine impacts to jurisdictional features. Lindsey assessed in-lieu fee mitigation options and utilized North Carolina's DEQ Division of Mitigation Services rate schedule to determine payment amount required to fulfill compensatory mitigation requirements.

Environmental Scientist. United States Department of the Army Camp Stanley Storage

Activity. Boerne, TX, United States. The purpose of this project was to document the presence of WOTUS in the Camp Stanley Storage Activity in Bexar County, Texas. Lindsey conducted surveys to determine the presence, extent, and quality of wetlands, streams and/or other areas under the CWA jurisdiction. Lindsey used ArcMap to digitize GIS data and develop project maps and prepared a WOTUS report.

Environmental Scientist. Virginia Department of Rail and Public Transportation, Washington,

DC, to Richmond, VA, United States. The purpose of this project was to document the presence of WOTUS along the proposed 123-mile DC2RVA project corridor. Lindsey conducted surveys to determine the presence, extent, and quality of wetlands, streams and/or other areas under the CWA jurisdiction. Over 400 wetlands were identified during the field survey. Lindsey used ArcMap to digitize GIS data and develop project maps. Lindsey prepared documents on behalf of the Tier II Draft Environmental Impact Statement.

Environmental Scientist. Aux Sable Arsenal Pipeline. Joliet, IL, United States. This project involved relocating approximately 3,700 feet of an existing 6-inch diameter pipeline (liquid propane), in order to accommodate a new high-speed rail line. Lindsey

TITLE

Principal Scientist

YEARS OF EXPERIENCE

Total: 14

With Parsons: 8

EDUCATION

- Master of Science, Biology, College of William & Mary, Virginia, 2012
- Bachelor of Science, Biology, Lycoming College, Pennsylvania, 2007

REGISTRATIONS/CERTIFICATIONS/ TRAINING

- Professional Wetland Scientist (PWS)
- Certified Inspector of Sediment and Erosion Control (CISEC)
- PADI Open Water Scuba Diver
- Asbestos Building Inspector
- 40-HR HAZWOPER
- American Red Cross/First Aid and CPR/AED
- Sampling and Managing Environmental Data, CEC, 2024
- Introduction to Wetland Flora, Institute of Botanical Training, 2023
- Understanding and Applying the Field Indicators of Hydric Soils, Jacob Berkowitz, 2022
- Antecedent Precipitation Tool Workshop, Swamp School, 2021
- IATA DGR 62nd General Awareness, 2021-2025
- Wildlife Services Certificate of Training, USDA, 2020-2023
- Hydric Soils Seminar, Wetland Training Institute, 2019
- Stream Stabilization & Design 1.5 Day Workshop, River Research & Design, 2018
- Field Identification of Wetland Sedges, Grasses, and Rushes, Swamp School, 2017
- Basic Wetland Delineation, Wetland Training Institute, 2013

PROFESSIONAL AFFILIATIONS

- Society of Wetland Scientists (SWS), President, 2022-2024; Vice President, 2020-2022; Secretary, 2018-2020; Central Chapter, Treasurer, 2016-2018

KEY COMPUTER/SOFTWARE SKILLS

- ESRI ArcPro
- gINT
- GPS Pathfinder
- Surfer - 2D & 3D Modeling

conducted a wetland delineation along the alignment, drafted a wetland delineation report, and conducted USFWS agency consultation regarding the presence/absence of T&E species in the vicinity of the project.

Section 7 ESA/Wildlife/Threatened & Endangered/Species Surveys

Principal Scientist. BP. Howard County, IA, United States. Dubuque to Spring Valley Pipeline Project MP 316. Lindsey conducted field surveys for the presence of federally and state-listed threatened and endangered species and other species of concern including the northern long-eared bat, tricolored bat, monarch butterfly, rusty patched bumble bee, western prairie fringed orchid, prairie bush-clover, creeper mussel, and common mudpuppy. Lindsey confirmed the presence of the state-threatened ellipse mussel at this project location.

Principal Scientist. BP. Fayette County, IA, United States. Dubuque to Twin Cities Pipeline Project MP 279. Lindsey conducted field surveys for the presence of federally and state-listed threatened and endangered species and other species of concern including the northern long-eared bat, tricolored bat, and monarch butterfly.

Senior Scientist. BP. Guilford Township, IL, United States. Whiting to Dubuque Pipeline Recoating Project. Lindsey conducted field surveys for the presence of federally and state-listed threatened and endangered species and other species of concern including the Indiana bat, northern long-eared bat, tricolored bat, whooping crane, monarch butterfly, rusty patched bumble bee, eastern prairie fringed orchid, and Franklin's ground squirrel.

Senior Scientist. BP. Channahon, IL, United States. Manhattan N. to Rochelle ILI Repair Project. Lindsey conducted field surveys for the presence of federally and state-listed threatened and endangered species and other species of concern including the northern long-eared bat, whooping crane, eastern massasauga, Hine's emerald dragonfly, monarch butterfly, eastern prairie fringed orchid, lakeside daisy, leafy prairie-clover, American burnet, and the Franklin's ground squirrel. Lindsey also conducted a wetland delineation to determine the location and extent of WOTUS, including wetlands and waterbodies, regulated by the CWA and/or Section 10 of the Rivers and Harbors Act (RHA) subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE).

Senior Scientist. West Lake Landfill, St. Louis, MO, United States. West Lake Landfill Project. As part of a design investigation, Lindsey conducted a one-year baseline bird study, documenting bird use at the West Lake Landfill. The design investigation was necessary to provide essential data to support the design of remedial action. Lindsey conducted the study to determine if subsurface activities and the exposure of radiologically impacted materials

created a potential bird hazard to the safety of aircraft using the nearby Saint Louis International Airport.

Senior Scientist. BP. Various Locations, MI, United States. Colon Junction to River Rouge Pipeline Project. Lindsey conducted field surveys for the presence of federally and state-listed threatened and endangered species and other species of concern. Lindsey also conducted field surveys for WOTUS. These surveys were conducted in Branch and Jackson counties (Michigan).

Senior Scientist. BP. Various Locations, IN, United States. River Rouge Pipeline Project. Lindsey conducted threatened/endangered species surveys along a pipeline right-of-way (Indiana bat, Northern long-eared bat, fringed prairie orchid, copperbelly watersnake, eastern massasauga, monarch butterfly, poweshiek skipperling). Surveys were conducted within various cities/counties across the pipeline right-of-way.

Senior Scientist. BP. Joliet, IL, United States. Manhattan S-Wilmington & No. 1 System Project. ITA#213. Lindsey, the project permitted biologist, developed a Conservation Plan on behalf of an Incidental Take Authorization for the Franklin's ground squirrel, rusty-patched bumble bee, upland sandpiper, and loggerhead shrike in support of pipeline maintenance projects in Will County, Illinois. She conducted USFWS agency consultation regarding the presence/absence of T&E species in the vicinity of the project and the mitigation of habitat loss.

Senior Scientist. BP. Joliet, IL, United States. Manhattan S-Wilmington Project. ITA#192. Lindsey, the project permitted biologist, conducted a burrow survey and a trapping survey for the state-threatened Franklin's ground squirrel (FGS) in Will County, Illinois to assess potential impacts to local FGS populations at and in the vicinity of a pipeline maintenance project. Lindsey developed a Conservation Plan for the FGS on behalf of an Incidental Take Authorization for the project. She conducted USFWS agency consultation regarding the presence/absence of T&E species in the vicinity of the project and the mitigation of habitat loss.

Environmental Scientist. New York City Department of Transportation. New York, NY, United States. Brooklyn Bridge Rehabilitation Project. The purpose of this project was to examine the potential impacts to natural resources (wetlands, threatened/endangered species, migratory birds) that could result from rehabilitation activities (masonry repairs, cleaning, etc.) of the Brooklyn Bridge. Lindsey conducted environmental surveys (wetland/T&E/migratory bird), compiled a technical report regarding potential impacts to natural resources resulting from the project, and conducted USFWS agency consultation regarding the presence/absence of T&E species in the vicinity of the project.

Senior Staff Scientist. Eurochem, Eurochem Bald Eagle Monitoring, Edgard, LA, United States. This project involved monitoring eagle nests in accordance with USFWS National Bald Eagle Management Guidelines. Lindsey was responsible for conducting fieldwork, preparing technical reports, and ensuring compliance with the Migratory Bird Treaty Act. She also monitored a bald eagle nest to determine the presence or absence of bald eagles and the nesting status.

Senior Staff Scientist. Shell Oil Company, Riverine Oil Spill, Shreveport, LA, United States. This project was conducted in response to a riverine oil spill in Shreveport, Louisiana. Lindsey's role involved interacting with the client, consulting with various agencies, managing field staff, conducting fieldwork, and developing technical reports. She worked with the Louisiana Department of Wildlife and Fisheries to conduct fish, reptile, amphibian, and macroinvertebrate surveys to assess oiling impacts on wildlife.

Senior Staff Scientist. Sabal Trail Transmission, Sabal Trail Transmission Pipeline, FL and GA, United States. The project involved conducting USACE wetland delineations and listed species surveys for a 515-mile-long interstate natural gas pipeline in central Florida and southern Georgia. Agencies contacted on behalf of the project included the USFWS, the Georgia Department of Natural Resources, the Florida Fish and Wildlife Conservation Commission, and the Florida Natural Areas Inventory. Lindsey's role involved delineating wetlands and surveying for listed species. Surveyed species included: gopher tortoise, relict trillium, American chaffseed, Florida sand skink, crested caracara, Florida scrub-jay, Britton's beargrass, red-cockaded woodpecker, Sherman's fox squirrel, eastern indigo snake, Florida burrowing owl, and the southeastern American kestrel.

Staff Scientist. Confidential Client, Threatened and Endangered Species Surveys, Three Rivers, TX, United States. The project consisted of conducting threatened and endangered species surveys, including threatened and endangered species monitoring efforts during a 3D seismic survey. Lindsey's role involved conducting fieldwork, including monitoring to determine the presence of listed species such as black-spotted newt, sheep frog, interior least tern, mountain plover, white-faced ibis, white-tailed hawk, wood stork, Audubon's oriole, western burrowing owl, golden orb, jaguarundi, ocelot, coastal gay-feather, South Texas rush-pea, reticulate collared lizard, Texas horned lizard, Texas indigo snake, Texas tortoise, and the spot-tailed earless lizard.

Staff Scientist. Confidential Client, Ridge Road, Tampa, FL, United States. Gopher tortoise burrows were assessed for activity levels and demarked in the field, with locations

recorded. Lindsey participated in gopher tortoise and eastern indigo snake surveys.

Senior Staff Scientist. First Solar, Moapa Southern Paiute Solar Project, Mojave Desert, NV, United States. This project included a desert tortoise translocation and clearance survey in the Mojave Desert. Work included locating and excavating all desert tortoise burrows, relocating each tortoise, and conducting semiannual health assessments on the tortoises. The project involved coordination with the Bureau of Indian Affairs, the Bureau of Land Management, the USFWS, the US Environmental Protection Agency, and the local Indian tribe. Lindsey was responsible for conducting fieldwork on the project.

NEPA

Principal Scientist. FAA. Queens County, NY, United States. LaGuardia Radio Transmitter Receiver (RTR) Relocation Project. Lindsey prepared a Categorical Exclusion (CATEX) for the RTR Relocation Project at LaGuardia Airport. The project involved the construction of a new RTR, a navigational aid, needed to improve communications/airport operations at the airport.

Principal Scientist. MDWSD. Miami, FL, United States. Replacement and Relocation of Pump Station 0049. Lindsey prepared an Environmental Assessment in accordance with guidance from Housing and Urban Development (HUD), as well as the Florida Department of Economic Opportunity (DEO) on behalf of the Miami-Dade Water and Sewer Department. Lindsey conducted agency coordination with the Florida Department of Environmental Protection per the Coastal Zone Management Act and the United States Fish and Wildlife Service per the Endangered Species Act.

Principal Scientist. TDOT. Various Counties, TN, United States. NEPA On-Call (CEs, PCEs, TEERs). On behalf of TDOT, Lindsey prepared C-List Categorical Exclusions (CEs), D-List CEs, Programmatic CEs, and TEERs for various transportation projects in Tennessee. To date, Lindsey has completed sixteen NEPA-related work orders under the 2021-2026 NEPA On-Call contract.

Senior Scientist. Department of Labor. Various Locations, United States. Excess Property Disposal EA. Lindsey prepared sections of Environmental Assessments prepared for the proposed disposal and reuse of excess property at the following Job Corps Centers (JCC): Gainesville JCC, Joliet JCC, Earle C. Clements JCC, Atterbury JCC, and Homestead JCC.

Senior Scientist. Department of the Army. Boerne, TX, United States. Camp Stanley Storage Activity Lindsey prepared a programmatic Environmental Assessment for the repair/renovation of earth covered magazines at Camp Stanley Storage Activity in Boerne, Texas.

Media Sampling (Soil/Water/Vegetation) & Water Quality

Senior Scientist. West Lake Landfill, St. Louis, MO, United States. Lindsey conducted surface and subsurface soil sampling of radiologically impacted material (RIM) as part of a design investigation to delineate the extent of RIM at the West Lake Landfill Superfund Site. Lindsey conducted Thiessen polygon analyses to determine area weighted concentrations of thorium and radium at the Site. Lindsey performed sample/database management tasks, shipping samples with training in IATA DGR 62nd General Awareness Training (Shipping Hazmat by Air).

Senior Scientist. BP, Cape Girardeau, MO, United States. Lindsey conducted quarterly groundwater monitoring of volatile organic compounds (VOCs) at the BP Cape Girardeau Terminal. Lindsey collected water quality readings of purged water to determine stabilization.

Senior Scientist. Kellwood Company. New Haven, MO, United States. This project involved groundwater monitoring of VOCs at the Riverfront Superfund Site in New Haven, Missouri. Lindsey collected water quality readings of purged water to determine stabilization. Lindsey also collected groundwater samples for VOC analysis.

Environmental Scientist. Customs and Border Protection. Imperial Beach, CA, United States. The purpose of this project was to conduct an initial screening level study to provide information related to wastewater contaminants flowing into the United States portion of the Tijuana River Valley from Mexico. Lindsey collected samples from the Tijuana drainage area at six points identified by CBP, all of which have trans-boundary flow from Mexico into the Tijuana River Valley in the United States.

Project Manager. Confidential Client, Patterson Curve Production Site, Patterson, LA, United States. The project involved quarterly groundwater monitoring at an active industrial site. The groundwater monitoring and sampling data was used to assess groundwater contamination in accordance with Louisiana's Risk Evaluation/Corrective Action Program (RECAP). A RECAP report and corrective action plan was developed to address soil and groundwater contamination. Lindsey was responsible for interacting with the client, creating, and managing project budgets, consulting with agencies, managing field staff, conducting fieldwork, and developing technical reports.

Project Manager. Confidential Client, Old Ocean Groundwater Monitoring, Sweeney, TX, United States. The project involved groundwater monitoring at an active industrial facility. Annual reports were drafted to describe the status of the contamination plume, and potentiometric maps were drafted to demarcate the extent of the contamination. Lindsey was responsible for interacting with the client, creating and managing project budgets, consulting with agencies, managing field staff, conducting fieldwork, and developing technical reports.

Senior Staff Scientist. Confidential Client, Gulf of Mexico Mississippi Canyon Block 252, New Orleans, LA, United States.

The project involved collecting samples and managing data for an emergency spill response and natural resource damage assessment efforts associated with the largest accidental marine oil spill in the history of the petroleum industry. The Incident Command System was used to collaborate with government agencies and private consultants. Lindsey was responsible for interacting with the client and government agencies, managing field staff, conducting field work, and developing technical reports.

Hazardous Material Surveys/Building Inspections

Senior Scientist. Department of Veteran Affairs, Minneapolis, MN, United States. Lindsey drafted a Phase 1 Site Assessment report for the Fort Snelling National Cemetery in accordance with the American Society for Testing and Materials (ASTM) Standard Practice E1527-13 to determine if there were Recognized Environmental Concerns (RECs) at the target property.

Senior Scientist. Customs and Border Protection, Various locations, United States. Lindsey conducted feasibility studies per the General Services Administration (GSA) intent to reconfigure, expand, and fully modernize Land Port of Entries in ID, ND, NY, ME, MN, VT, and WA bringing them in line with current land port design standards and operational requirements of CBP. Properties were also assessed for hazardous materials, including lead-based paint (LBP) and asbestos.

Senior Scientist. Customs and Border Protection, Various locations, United States. Lindsey conducted environmental compliance assessments and developed regulatory tools for US Customs and Border Protection (CBP)-owned facilities in AZ, CA, FL, IL, LA, MD, ME, MI, MO, ND, NH, NJ, NY, NV, SC, TX, VA, and WI. The project was conducted in an effort to bring CBP facilities into compliance with environmental regulations (hazardous materials, hazardous waste, air emissions, solid waste, asbestos, LBP, wastewater, water quality, PCBs, storage tanks)

Senior Scientist. Customs and Border Protection, Various locations, United States. Lindsey conducted drinking water system assessments and developed corrective action plans for US Customs and Border Protection (CBP)-owned facilities in AZ, ME, MT, ND, TX, and WA. The project was conducted in an effort to bring CBP facilities into compliance with drinking water quality regulations and to provide safe drinking water at CBP facilities.

Senior Scientist. Federal Aviation Administration. Various locations, United States. Lindsey documented the presence/absence of LBP in soil samples collected from various FAA sites planned for decommissioning. FAA structures were also assessed for asbestos containing materials.

ANURADHA (ANU) KUMAR, MSC

ROLE: CULTURAL RESOURCES / NHPA LEAD



Anu is a Cultural Resources Professional meeting the Secretary of Interior's Standards Professional Qualification Standards as defined in Code of Federal Regulations 36 CFR Part 61. She has experience managing multiple transportation projects requiring compliance with a variety of federal and state environmental and historic preservation laws, including the National Environmental Policy Act, Section 106 of the National Historic Preservation Act, Section 4(f) of the US Department of Transportation Act, and Indiana Code 14-21-1. Her experience includes working with both governmental and non-governmental institutions involved in cultural resources management worldwide. Anu generates results under time and budget constraints to achieve organizational goals.

Work Experience

Cultural Resources Specialist. Parsons. 06/2022-Present. Anu coordinates Section 106 compliance with federal agencies, including the Federal Aviation Administration, the US Department of Labor (Job Corps Program), the US Department of Housing and Urban Development, and the Bureau of Land Management; state agencies such as the Florida, Indiana, Nevada, and New York State departments of transportation; private entities such as Amtrak and the Orange and Rockland Utilities; and State Historic Preservation Officers, the Advisory Council on Historic Preservation, and Native American tribes. Responsibilities included conducting, preparing, and/or managing Phase I archaeological and architectural surveys and archaeological and architectural evaluation studies for the National Register of Historic Places (Phase II) as part of data collection activities associated with Section 106 and the National Environmental Policy Act process.

Cultural Resources Specialist. Miami-Dade County Department of Transportation and Public Works, Golden Glades Bike and Pedestrian Connector, Sunshine Station, Miami Gardens, Florida, United States. 08/2022-03/2024. To improve pedestrian and bicycle access from the City of Miami of Gardens to the existing Golden Glades transit hub and the soon-to-be-upgraded Golden Glades Multimodal Transportation Facility, the Florida Department of Transportation analyzed potential viable options for providing pedestrian and bicycle facilities and developed conceptual alternatives. The study identified the Central Connector and Sunshine State Kiss-and-Ride as the top priority project. Parsons is conducting the project development and environment study for the project, along with any preliminary engineering or conceptual design needed for successful completion of the study. Anu is responsible for completing Section 106 for the project. Work includes performing a desktop cultural resources assessment, completing supplemental information on the Sunshine State Industrial Park to determine its National Register eligibility, and conducting ongoing correspondence with the Florida Department of Transportation and the Florida State Historic Preservation Office.

Architectural Historian - Section 106 Specialist. Amtrak, Frederick Douglass Tunnel Program, Baltimore, Maryland, United States. 07/2022-12/2023. Parsons, in joint venture, is providing design services for the 144-year-old Frederick Douglass Tunnel Program to modernize and transform a 4-mile-long section of the existing Northeast Corridor. This rail replacement program includes two new high-capacity tubes for electrified passenger trains, new roadway and railroad bridges, new rail systems and track, and a new Americans with Disabilities-accessible Maryland Area Regional Commuter train West Baltimore Station. Parsons is responsible for rail bridge design, construction staging, track alignment, and trackwork design, including interface management. Anu came into the project after Section 106 was completed, and as project historian, responsibilities include reviewing Section 106-related documents

TITLE

Principal Planner

YEARS OF EXPERIENCE

Total: 17

With Parsons: 2

EDUCATION

- Master of Science, Historic Preservation, University of Pennsylvania, 1992
- Bachelor, Architecture, CEPT University, India, 1989

REGISTRATIONS/CERTIFICATIONS/TRAINING

- Project Manager Certification, Parsons
- Professional Wetland Scientist (PWS) No. [REDACTED]
Society of Wetland Scientists Professional Certification Program, Inc.

KEY COMPUTER/SOFTWARE SKILLS

- ArcGIS

prepared by the subconsultant (ARCH2) related to the fulfillment of the programmatic agreement executed under Section 106 of the National Historic Preservation Act. These documents include the construction protection plan, unanticipated discoveries plan, context-sensitive designs, Historic American Buildings Survey/Historic American Engineering Record documentation, and project change transmittals.

Cultural Resources Specialist. US Government, Technical Support Services Contract 4, United States. 03/2023-09/2023. This \$1.3 billion contract, with a four-year base period and two three-year options, encompasses professional engineering, construction, equipment installation, drafting, and other technical services. Parsons' demonstrated capabilities include the ability to self-perform work and generate real-time financial and schedule information. As the prime contractor, Parsons is implementing key projects, including the Wide Area Augmentation System Aeronautical Survey Program, the Aviation Weather Camera Program, and repair/restoration of thousands of communications towers nationwide, to modernize the National Airspace System and support the Federal Aviation Administration's strategic transformation to the Next Generation Air Transportation System.

Cultural Resources Specialist. New York State Department of Transportation, Cross Bronx Expressway (I-95) Bridges Rehabilitation/Replacement Design Services, Bronx County, New York, United States. 06/2022-06/2023. Parsons is providing engineering and design services for this project to preserve and extend the life of the five Cross Bronx Expressway bridges, construct a new exit ramp for direct access from Bronx River Parkway to Cross Bronx Expressway, and develop a connector road extending from either Southern Boulevard or Boston Road to Bronx River Avenue. Anu is responsible for preparing the cultural resources section of the design approval, screening, and Section 106 finding documentation involving the replacement of five "contributing" bridges on the National Register-eligible Cross Bronx Expressway.

Cultural Resources Specialist. Consolidated Edison Company of New York, Inc., Transmission Structure Shoreline Armoring for Lines 51/65, Towers 9 and 10, Hillburn, New York, United States. 01/2023-04/2023. Parsons is providing Orange & Rockland Utilities with surveying, engineering, design, permitting, and support services for assessing and reviewing shoreline erosion; performing civil, geotechnical, and hydraulic analysis and design; and procuring required permits to restore and armor the shoreline adjacent to Towers 9 and 10 on Transmission Lines 51/65. Anu prepared and submitted the Section 106 documentation packet to the New York State Historic Preservation Office for approval of this shoreline armoring project to address erosion at Towers 9 and 10 on Lines 51/65 located

along the east bank of the Ramapo River in Hillburn, New York. Section 106 consultation with the State Historic Preservation Office was required as the project needed a permit from the US Army Corps of Engineers.

Cultural Resources Specialist. Consolidated Edison Company of New York, Inc., Transmission Structure Shoreline Armoring for Lines Y88/94, Pole 57, Haverstraw, New York, United States. 11/2022-03/2023. Parsons is providing Orange & Rockland Utilities with design engineering services for assessing and reviewing shoreline erosion; performing civil, geotechnical, and hydraulic analysis and design; and procuring required permits to restore and armor the shoreline adjacent to Pole 57 on Transmission Lines Y88/94. Anu completed and submitted the cultural resources records check and assessment to the New York State Historic Preservation Office for approval through its online Section 106 submission portal, the New York Cultural Resource Information System. The project involved installing shoreline armoring to address erosion at the Pole 57 structure on Lines Y88/94 located in proximity to Minisceongo Creek in Haverstraw, New York, and required a permit from the US Army Corps of Engineers. Section 106 was successfully completed for this project.

Program Manager - Cultural Resources Office. Indiana Department of Transportation. 01/2016-06/2022. Anu directly supervised a team of 10 qualified professional historians and archaeologists mandated to ensure compliance with all federal and state environmental and local historic preservation laws on highway transportation projects. Recruited qualified candidates to fill open positions. Developed performance goals and conducted quality and timely constructive performance feedback and performance appraisals for all Cultural Resources Office (CRO) staff. Oversaw workload management and ensured that CRO staff consistently upheld internal standards, project milestones, and productivity goals to meet project preparation and review targets. Led regular staff meetings to communicate agency directives, clarify information, offer clear direction, set team priorities and goals, and enforced procedures, resulting in effective problem solving and smoother operations. Assisted the division director with establishing staffing needs, administering the annual operating budget, and performing data governance activities for the office and the division. Drafted, amended, and oversaw the execution and management of Indiana Department of Transportation's (INDOT's) cultural resources-related interagency memorandum of understanding agreements with the Indiana Department of Natural Resources, Division of Historic Preservation & Archaeology; the Indiana Department of Administration; the Federal Highway Administration; and Indiana indigenous tribes. Developed and updated CRO policies and streamlined INDOT's Section 106

compliance procedures to eliminate identified process discrepancies and improve overall project delivery. Served as INDOT's representative to resource agencies, at public meetings, on committees, and at conferences, including speaking to a variety of audiences in various formats. Oversaw in-person and online CRO training initiatives to enhance INDOT employees' and consultants' knowledge and understanding of best practices, policy updates, and other cultural resources-related topics. Assisted project managers with coordinating planning, developing project milestones, and reviewing consultant scopes and fees for cultural resources-related items for INDOT projects. Served on the project teams of major projects, attending planning meetings to provide guidance on technical cultural resources-related issues and reviewing environmental assessment and environmental impact statement documents for content, accuracy, and compliance. Identified Section 106 and Section 4(f) issues and worked with project teams to create customized solutions for individual problems. Demonstrated excellent communication skills in resolving project issues and stakeholder concerns. Oversaw Section 106 consultations for INDOT and local public agency projects, including tribal consultations, annual quality assurance reviews to ensure project commitments and memorandum of agreement stipulations were appropriately completed, and various annual reporting activities to tribes and the Federal Highway Administration. Enhanced data collection and documentation accuracy by overseeing the preparation, authoring, and regular updating of the Cultural Resources Manual, the CRO website, and communication and policy memorandums.

Historian and Environmental Manager II. Indiana Department of Transportation. 01/2007-01/2016. Anu served as the primary cultural resources contact person responsible for timely delivery of both INDOT and local public agency projects in INDOT's Fort Wayne, Seymour, and Greenfield districts. Supported project managers and engineers as a subject matter expert on environmental regulations and policies. Performed field surveys and research to identify and evaluate cultural resources within a project's Area of Potential Effect for National Register eligibility, analyzed impacts of proposed work on historic resources, and prepared documentation and technical reports in compliance with state and federal laws, including Indiana Code 14-21-1, Section 106, Section 4(f), and the National Environmental Policy Act. Reviewed and approved cultural resources and environmental documents, including historic bridge alternatives analyses, historic property reports, 800.11 documentation, determinations of effects, and individual Section 4(f) analyses, for federal aid projects prepared by outside consulting firms and district environmental staff to ensure compliance with federal and state requirements and agency policies.

Worked collaboratively with project team members, including project managers, designers, consultants, and other environmental staff, to develop and deliver creative and workable solutions to issues related to Section 106 and Section 4(f), thereby minimizing impacts to historic resources and meeting project deadlines. Led numerous Section 106 consulting party meetings and represented INDOT in public meetings for various projects. Demonstrated leadership by improving work processes, such as modifying the content and format of historic property reports and helping train interns in the History Unit. Juggled multiple projects to ensure high-quality and timely delivery. Prioritized and organized tasks to efficiently accomplish project milestones and goals, including accommodating numerous requests for expedited reviews.

JOHN PICKLESIMER, MA, RPA

ROLE: SENIOR PRINCIPAL INVESTIGATOR – ARCHAEOLOGY



John has over 30 years of cultural resource management experience. He has successfully completed and documented over 275 Phase I, II, and III field projects throughout the United States. Since joining Gray & Pape in 1990, John has served as field director, principal investigator, and project manager for projects in Alaska, Illinois, Indiana, Iowa, Kentucky, Louisiana, Mississippi, Missouri, New York, New Jersey, Ohio, Pennsylvania, Tennessee, Texas, Virginia, Washington, and West Virginia.

Mr. Picklesimer's experience in West Virginia has consisted principally of Phase I and II investigations associated with the oil and gas industry, specifically pipelines, well pads, and associated facilities. Given his extensive experience in the state, Picklesimer has developed a good working relationship with the West Virginia Division of Arts, Culture, and History staff. Gray & Pape has access to the West Virginia SHPO GIS Interactive Map as well as years of experience utilizing this portal for Records Reviews of Historical Structures and Archaeological Site data.

Work Experience

Project Manager – Phase I investigations for the Williams - Appalachia Midstream Services' Wheeling Loop in Ohio County, West Virginia. Lead Agency; U.S. Army Corps of Engineers, Pittsburgh District.

Project Manager – Phase I investigations for the Williams - Appalachia Midstream Services' proposed Southworth WC Loop Project in Marshall County, West Virginia. Lead Agency; U.S. Army Corps of Engineers, Pittsburgh District.

Project Manager -- Phase I archaeological investigation for the proposed West Liberty West Pipeline Project in Brooke and Ohio Counties, West Virginia. Lead Agency; U.S. Army Corps of Engineers, Pittsburgh District.

Project Manager – Phase I investigations of 114 hectares for the proposed ANR Collierville Compressor Station facility in Shelby County, Tennessee. Lead Agency; Federal Energy Regulatory Commission.

Project Manager- Phase I Investigations for Columbia Gulf Transmission's proposed upgrades to the Rayne Express Pipeline in West Virginia, Kentucky, and Tennessee. Lead Agency; Federal Energy Regulatory Commission.

Principal Investigator – Phase II and III investigations for the US 27 improvements in Fayette and Scott Counties, Kentucky. Field investigations and reporting activities for this project were completed in 2008. Project included the Phase II Testing of seven sites and the Phase III Mitigation of the Kentuckiana Farms Site, an Early Fort Ancient occupation in the Inner Bluegrass. Lead Agency, Kentucky Transportation Cabinet.

Project Manager – Phase Ia Archaeological Survey of US 50 North Vernon Bypass in Center Township, Jennings County, Indiana. Prepared for the Federal Highway Administration and Indiana Department of Transportation. Lead Agency: Federal Highway Administration and Indiana Department of Transportation.

Project Manager- Phase I Investigations for Columbia Pipeline Groups proposed E-Loop Replacement Project in Bracken, Nicholas, Menifee, Counties, Kentucky. Field investigations for this project consisted of the Phase I survey and the Phase II investigations at sites 15Bk43, 15Ni79, 15Mm229, 15Mm230, and 15Rb34. Lead Agency; Federal Energy Regulatory Commission.

TITLE

Senior Principal Investigator – Archaeology

YEARS OF EXPERIENCE

Total: 30

EDUCATION

- 1999, MA, Anthropology, Kent State University
- 1987, BA, Anthropology, University of Kentucky

PROFESSIONAL EXPERIENCE

- 2006-Present Senior Principal Investigator, Gray & Pape, Inc., Cincinnati, Ohio
- 2001-2006 Principal Investigator, Gray & Pape, Inc., Cincinnati, Ohio.
- 1994-2000 Senior Field Director. Gray & Pape, Inc., Cincinnati, Ohio.
- 1991-1993 Assistant Archaeologist. Gray & Pape, Inc., Cincinnati, Ohio.
- 1990-1991 Assistant Field Director. Gray & Pape Cultural Resources Consultants, Cincinnati, Ohio.
- 1988-1991 Field Technician. Gray & Pape Cultural Resources Consultants, Cincinnati, Ohio.

RON KRAWCZYK JR., BENG

ROLE: TECHNICAL DIRECTOR – ORPHAN WELLS



Ron is a Senior Project Engineer with extensive experience in plugging and abandonment operations of early-era production wells. His expertise includes casing and wellhead design, site construction, magnetic wellbore locating, methane migration and quantification studies, and historical P&A risk analysis. Ron has overseen oil well drilling and re-plugging operations, ensuring drilling rig health and safety, and has written comprehensive plugging instructions and reports.

As the Technical Director of Orphan Well Projects, Ron has managed class II disposal wells and remediation systems, including operations, upgrades, maintenance, and troubleshooting. He has conducted Phase I and II investigations of abandoned oil production sites, managed remediation excavation sites, and performed soil, groundwater, and gas sampling.

Ron is proficient in floodplain and elevation surveying, GPS, GIS, and oilfield surface facility mapping. He has extensive experience in geophysical and magnetic surveying, geotechnical drilling oversight, and subcontractor management. His fieldwork includes health and safety oversight, Li-Cor soil gas testing, hot work fire watch, lock-out/tag-out, confined space entry, and technical training for field staff and temporary employees.

He has created geographic and topological maps using AutoCAD, GPS, GIS data, survey data, and historical aerial photographs. Ron has developed and implemented stormwater pollution prevention plans, designed and maintained wastewater collection systems, and prepared soil erosion and sedimentation control permits. He has also conducted wetland delineations and invasive species monitoring.

Ron has authored US Army Corps of Engineers joint permit applications, performed floodplain surveying and hydraulic analysis, and designed temporary waterway bypass systems. His management experience includes planning and dispatching tasks for field personnel, providing health and safety training, coordinating subcontractor services, and organizing client and regulatory meetings. Ron has written status reports, created project update presentations, obtained property owner agreements, and implemented cost-saving measures using Lean/Six-Sigma principles. He has also managed the implementation of new technologies and provided technical training.

Work Experience

Project Engineer. Confidential International Oil Company, Mid-Michigan Oilfield Remediation, Closure, and Restoration, Michigan, United States. 09/2006-02/2023. For the duration of the program Ron provided planning and scheduling of subcontractor and vendor services. He participated and organized client proposal and regulatory meetings. Conducted premobilization meetings with property owners and subcontractors. He obtained property owner license agreements. Assisted project management with yearly planning and budgeting including documentation of cost savings utilizing Lean/Six-Sigma principles and value stream mapping. He was responsible for creating, modifying, and monitoring stormwater pollution and prevention plans for a soil remediation facility. Ron provided operations, maintenance, upgrades, and repair of class II disposal well systems. He assisted with design, operation, maintenance, and repair of remediation and wastewater collection systems including retention ponds. He provided wetland delineations and invasive species monitoring and reporting and authored US Army Corps of Engineers joint permit applications to facilitate remediation of abandoned oil well and oil bulk storage sites. Additionally, Ron wrote soil erosion and sedimentation control permits and plans.

TITLE

Senior Environmental Engineer

YEARS OF EXPERIENCE

Total: 18

With Parsons: 10

EDUCATION

- Bachelor of Engineering, Mechanical Engineering, Saginaw Valley State University, Michigan, 2017

REGISTRATIONS/CERTIFICATIONS/ TRAINING

- HAZWOPER 40-hour
- HAZWOPER Supervisor 8-hour
- Technical Staff Trainer
- High-Hazard Safety Trainer
- Qualified Gas Testing
- Hydrogen Sulfide Awareness
- Asbestos Awareness
- Wetland Delineation
- Hazmat/RCRA/DOT
- Confined Space Entry
- Fall Protection/Aerial Equipment
- CPR/AED/First Aid
- MI EGLE Industrial Stormwater
- MI EGLE Construction Stormwater
- Underground Utility Location

KEY COMPUTER/SOFTWARE SKILLS

- Michigan EGLE MiWaters Reporting and Permitting System
- Michigan EGLE GeoWebFace Oil & Gas Database
- Michigan EGLE MiSTAR Reporting System
- AutoCAD Civil 3D
- Solid Edge/SOLIDWORKS
- Autodesk Inventor
- MATLAB/Simulink
- ESRI GIS Products
- Trimble Siteworks
- Geometrics MagMap
- Li-Cor Soil Flux Pro
- ABB Data Manager Pro
- Microsoft Project/Visio
- Industrial Control Systems
- SCADA units

Ron met and corresponded with Michigan Department of Environmental Quality regulators concerning permitting and compliance. He conducted creek and floodplain elevation surveys, developed cross sections, waterway temporary bypass pumping and offer dam designs, and assisted with hydraulic flow analyses. He provided design and oversight of in-situ wetland mitigation projects. He coordinated with registered professional engineers on projects, permits, stream diversion, and oil tool designs. He provided general technical report writing. Ron wrote and modified standard operating procedures and hazard analysis documents. He created quarterly project status and presentations. He performed facility visitor health and safety orientations. Ron conducted geophysical and magnetic surveying to locate buried debris and abandoned oil well bores where casing had been pulled. He performed Li-Cor flux chamber soil gas testing to identify areas of petroleum impact. Ron assisted with regional hydrogeological and chloride investigations. Used AutoCAD to create site plans, combining data from geographic information systems, GPS, field notes, and analytical data. He served as field technician, providing air monitoring, overseeing remediation excavations, conducting Phase I and II site investigations, performing soil and groundwater sampling, and installing groundwater monitoring wells. Ron oversaw and monitored oil well plugging and abandonment contractors. He also performed underground utility detection and served as attendant for hot work and confined space entries.

Ron provided oversight and soils logging for Geoprobe and drilling contractors. He organized and directed small field crews identifying, logging, and creating geographic information system maps of historical oilfield surface facilities and pipelines, and selected and maintained proper GPS logging technology. Ron conducted historical liability risk analysis of previously abandoned wells to determine risk of leaking, risk to receptors, and cost estimations for re-plugging and abandonment. He also serves as technical lead for plugging & abandonment activities involving integrity evaluations, permitting, planning, methodology, and field operations.

Project Engineer. Confidential International Oil Company, Turn-Key Orphan Well Investigation and Re-abandonment, West Branch, Michigan, United States. 12/2020-02/2023. Ron provided turn-key investigation and re-plugging of a leaking historical oil well. Conducted initial investigation, contractor selection/mobilization, cost estimations, health & safety management, landowner interface, rig pad design, floodplain surveying and permitting, soil erosion permitting, plugging instructions, well site management of plugging and abandonment operations, and final site restoration.

Project Engineer. Confidential International Oil Company, Orphan Well Methane Studies and Mitigation, Calgary, Alberta Canada. 06/2021-05/2022. This project was the study of leaking methane at over 800 well sites. Ron assisted development of risk-based and biotechnology alternatives to well re-plugging and abandonment. He was responsible for design and installation of methane monitoring and bioremediation systems at well site locations.

Project Engineer. Texas Government Land Office, Bolivar Island Coastal Restoration, Galveston County, Texas, United States. 02/2022-05/2022. This project was coastal orphan well investigation, decommissioning, and beach restoration following heavy hurricane erosion on the Gulf of Mexico. Ron provided technical direction, work plans, operating procedure review, health, safety, and contractor management. Work scope involved the assessment of and re-abandonment of exposed documented and undocumented orphan well casings onshore and beyond the surf line.

Project Engineer. New York Department of Environmental Conservation Orphan Well Program 06/2022-12/2022. This project involved the Program Management of the State's Orphan Well Abandonment funds and involved location, assessment, access agreements, permitting, contracting of oilfield services, well site management, and site restoration of over 80 wells. Ron provided technical direction, work plans, operating procedure review, health, safety, and contractor management

GLENN ULRICH, PHD

ROLE: TECHNICAL DIRECTOR – METHANE



Glenn is a Technical Director specializing in contaminant fate and transport, technology development and application in the oil and gas industry, and the sustainable remediation of contaminants and methane. He's skilled at the integrated interpretation of geology, hydrology, microbiology, geochemistry, and contaminant distribution/behavior and applying these fundamentals to help solve problems in the oil and gas industry. His responsibilities include technology development, designing field applications, and reporting.

Glenn has significant experience with methane in the oil and gas industry, including biogenic methane exploration, enhancing methane production in depleted reservoirs, and fugitive methane emissions from oil and gas wells. He has developed a methane biodegradation technology to address methane emissions from leaking natural gas production and transmission infrastructure, landfills, and other sources of this greenhouse gas.

Work Experience

Technical Director. Major O&G Company. Development of Alternative Technologies for Oil and Gas Wells Leaking Natural Gas. 2015-Present. The purpose of this program has been to measure, monitor and characterize the effects of methane being released due to well integrity failure on the environment (i.e. soil, groundwater, vegetation and flux to atmosphere), and to develop/apply natural and enhanced methane attenuation alternatives to well plugging. The program, which has run since 2015 in close coordination with the Alberta Energy Regulator, was extended for 5 years to generate important new insights on well integrity failure, fugitive gas migration, environmental impacts and fate, and alternative technologies to address methane leaks. The program involves quantifying methane and carbon dioxide emissions and variability thereof at leaking well sites, characterizing methane behavior and transport through soils and groundwater, quantifying the extent of methane biodegradation, and assessing gas leakage influences on shallow groundwater and vegetation. Much of the program work is new, and we have been flexible and innovative in creating and implementing the program for the client and the Alberta Energy Regulator.

Glenn is responsible for steering the technical scope of the project, field sampling methods, and the interpretation and reporting of results. Project findings provide more detail than previously held regarding factors controlling fugitive gas migration, environmental impacts and fugitive gas fate at well sites.

Parsons' Internal R&D. 2020-Present. Glenn has led laboratory research in Parsons' Syracuse laboratory to develop biofilters for sustained passive methane biodegradation around leaking wells, landfills, and other methane sources. Over 50 blends of materials have been tested in static bottle tests followed by flow through column testing. Several biofilter materials and mixtures stimulated methane biodegradation to rates that support field application of the technology. A methane biofilter pilot test is planned for this summer.

TITLE

Technical Director

YEARS OF EXPERIENCE

Total: 31

With Parsons: 11

EDUCATION

- Doctorate/PhD, Microbiology, University of Oklahoma, 1999
- Bachelor of Science, Microbiology, Mississippi State University, Mississippi, 1992

AWARDS

- A.I. Levorsen Memorial Award for Best Paper, entitled entitled Active Biogenesis of Methane in Ft. Union Coals of Wyoming's Powder River Basin, American Association of Petroleum Geologists 51st Annual Meeting, Rocky Mountain Division, 2005
- President's Certificate for Excellence in Oral Presentation, entitled Active Biogenesis of Methane in Wyoming's Powder River Basin, American Association of Petroleum Geologists Annual Meeting, 2005

Publications/Presentations/Patents Focused on Methane

Active Methanogenesis and Acetate Utilization in Powder River Basin Coals, United States, International Journal of Coal Geology, 76: 138-150, 2008 (coauthors G.A. Ulrich and S. Bower).

Active Biogenesis of Methane in Ft. Union Coals of Wyoming's Powder River Basin, AAPG Rocky Mountain Section, 51st Annual Meeting, 2005 (coauthors Glenn Ulrich, Roly DeBruyn, Mark Finkelstein, and Jeffrey Weber).

Active Biogenesis of Methane in Wyoming's Powder River Basin, AAPG Energy Minerals Division Annual Meeting, 2005 (coauthors Glenn Ulrich, Mark Finkelstein, Jeffrey Weber, and Roly DeBruyn).

Patent Pending System and Method for Methane Biodegradation. U.S. Patent Application Serial No. 17/647,655

Biogenic Fuel Gas Generation in Geological Hydrocarbon Deposits, US Patent 7426960, 9/23/2010 (Robert S. Pfeiffer, Gary Vanzin, Glenn Ulrich, Verlin Dannar, Roland P. DeBruyn, and James B. Dodson).

Biogenic Fuel Gas Generation in Geological Hydrocarbon Deposits, US Patent 12/129,441, 6/11/2010 (Robert S. Pfeiffer, Gary Vanzin, Glenn Ulrich, Verlin Dannar, Roland P. DeBruyn, and James B. Dodson).

Chemical Amendments for the Stimulation of Biogenic Gas Generation in Deposits of Carbonaceous Material, US Patent 7696132, 4/13/10 (Robert S. Pfeiffer, Glenn Ulrich, and Shelley Haveman).

Biogenic Fuel Gas Generation in Geological Hydrocarbon Deposits, US Patent 7640978, 1/5/2010 (Robert S. Pfeiffer, Gary Vanzin, Glenn Ulrich, Verlin Dannar, Roland P. DeBruyn, and James B. Dodson).

Thermoacetogenium phaeum Consortium for the Production of Materials With Enhanced Hydrogen Content, US Patent 7416879, 8/26/2008 (Robert S. Pfeiffer, Glenn Ulrich, and Gary Vanzin).

ERIC HELTON, BSC

ROLE: QUALIFIED MEASUREMENT SPECIALIST



Eric has over 20 years of experience providing field support and oversight for a wide range of environmental and construction projects across the United States, including West Virginia. He has supervised wellbore installation and development and is skilled in both low- and high-flow sampling techniques. Additionally, Eric has several years of experience monitoring, measuring, and capturing explosive gas (methane) emissions, as well as collecting vapor samples.

Work Experience

Field Technician. Various Clients/Projects. 05/2019-08/2024. Key projects include:

The Circleville Works Facility Enhanced in Situ Bioremediation project is part of a master services agreement in which Parsons serves as an integral part of a collaborative team for the client's corporate remediation group. Parsons designed a low-cost, full-scale application using enhanced in situ bioremediation based on a successful pilot test to treat 1,1-dichloroethene (1,1-DCE) and vinyl chloride in groundwater. Parsons then optimized the design by reducing injection well installations and optimizing the substrate mixture with both fast-acting lactate and slow-release emulsified vegetable oil substrates to extend the longevity of the application to reduce the need for additional injections. Parsons has also introduced dairy whey for a portion of the application as an alternative lower-cost, longer-lasting substrate to the previously proposed sodium lactate. Bioaugmentation is used to ensure that vinyl chloride is completely degraded to ethene. Initial results indicate that 1,1-DCE has been degraded within the treatment area from more than 2,000 µg/L to less than 5.0 µg/L within nine months, without an increase in vinyl chloride. Parsons also conducts lagoon sediment sampling, performs bathymetric surveys to characterize sediment and surface water, documents the application's effectiveness as the final remedy for the site, and evaluates long-term monitoring program optimization at the site, thereby reducing site groundwater sampling frequency and locations and generating significant short- and long-term cost savings to the client. Eric performs various tasks including installation of both monitoring and injection wells, along with well development, ground water sampling, and soil classification and sampling.

Parsons has served as program manager since January 2013 on the client's comprehensive **Operations, Maintenance, and Monitoring (OM&M) Program at 10 sites in Massachusetts, Maryland, North Carolina, New Jersey, New York, and West Virginia.** This endeavor includes implementing specified OM&M tasks, processing and paying associated direct costs, identifying and implementing remedial process optimizations, and executing approved cost reduction proposals for three-year periods. In addition, the scope requires submitting regular monitoring reports, providing records retention, and performing system curtailment. Parsons also performs quarterly technical evaluations of collected site treatment system data to verify optimal performance of groundwater treatment systems; performs annual and semiannual analyses of groundwater data collected at each of the 10 sites to determine and monitor groundwater contaminants trends; employs programmable logic controller remote access software to monitor and manipulate groundwater treatment systems from remote locations; develops and maintains a state-of-the-art database for historical and current analytical data from nine sites; develops, maintains, and strictly adheres to emergency response plans and health and safety plans for each site; and conducts periodic safety evaluations at each site. Eric operates, maintains, and repairs all aspects of the water treatment plant process and monitor and maintain wellfield pumps.

TITLE

Technician V

YEARS OF EXPERIENCE

Total: 22

With Parsons: 6

EDUCATION

- Bachelor of Science, Environmental Science, University of Cincinnati, Ohio, 2003

Parsons provided turnkey **Landfill Management Services to maintain a landfill that produced impacted groundwater** that had historically seeped from the toe of the landfill slope, resulting in stressed vegetation and surface contamination. A groundwater collection trench and wet well were installed to collect the groundwater, and a storage tank was added in the late 1990s to facilitate transfer of the collected groundwater to tank trucks for transportation and off-site disposal. Parsons was responsible for operation of the groundwater collection system. Eric's work included evaluating alternatives to the existing leachate collection system to mitigate leachate generation and designing and constructing the selected alternative; designing and installing a 2.3-acre improved landfill cap consisting of a high-density polyethylene membrane, drainage swales with V-notch flumes, and passive soil gas vents over an existing clay cap to reduce the volume of leachate produced; investigating options for improvements to leachate handling and disposal, such as adding new leachate storage facilities and telemetry and SCADA system controls, improving access roads and secondary containment, and providing on-site treatment using traditional and biological processes; and designing an impermeable cover system with associated drainage features to replace the existing stormwater management system. Primary chemicals of concern were cyanide and fluoride. Duties included groundwater sampling and leachate collection system OM&M.

Plant Operator/Well Field Technician. Montauk Energy. 09/2016-03/2019. Employer: Montauk Energy. Eric performed operation and maintenance duties associated with the landfill gas collection system which included two utility flares, one enclosed flare, and a high btu plant. Also assisted with the operation of the High BTU plant as well as completed gas well installations and several HDPE piping and construction projects.

Field Technician. Environmental Management Services. 03/2006 – 03/2016. Employer: Shaw Environmental. Eric managed the operation and maintenance of several landfill gas collection systems including several landfill gas to energy operations. Knowledge of operation and maintenance of Caterpillar 3516 and 3520 and Genbacher 316 and 320 generators used in landfill gas to energy settings. Performed explosive gas monitoring, surface emission monitoring, tuning of landfill gas wells, gas collection pipe repair and small construction projects, routine landfill gas flare operation and maintenance, blower repairs, and troubleshooting of system and/or flare problems.

Extensive experience with several kinds of pumps and blowers including pneumatic, electric, diaphragm, liquid ring, and transfer pumps, as well as fan and rotary blowers. Performed soil and groundwater-related tasks. Extensive experience in monitoring well installation, Geoprobe investigations, groundwater, air, and soil sampling, building, installing, operating and maintaining dual-phase extraction (DPE) remediation systems and site assessments. Also completed several Biological sampling studies, mainly fish, for East Kentucky Power at several of their generation plants. During this time was also involved in the design and construction of several slurry walls to mitigate seeping and/or runoff of leachate into surface water. Projects included sites throughout Ohio, Kentucky, Indiana, Pennsylvania, Maryland, Tennessee, Illinois, New York, Michigan, Missouri, and West Virginia.

Hydrogeologist. 09/2003-01/2006. Employer: Handex Environmental. Eric performed soil and groundwater-related tasks. Extensive experience in monitoring well installation, Geoprobe investigations, groundwater, air and soil sampling, operation and maintenance of dual-phase extraction (DPE) remediation systems and site assessments. Sites were located throughout Ohio, Kentucky, Indiana, and Pennsylvania.

LOGAN LACROSS, BSC

ROLE: QUALIFIED MEASUREMENT SPECIALIST



Logan is a Senior Geologist with over five years of experience in the environmental remediation, engineering and design space focusing in the oil and gas projects. Logan has provided oversight for orphan well abandonment operations, site reclamation/restoration, and petroleum tank excavations. Most recently, Logan is the lead Qualified Measurement Specialist for Parsons' Michigan EGLE Methane Monitoring project where he has sampled methane emissions from over 400 sites and trained three field technicians to the Qualified Measurement Specialist level as per the BIL Guidelines.

Work Experience

Qualified Measurement Specialist. Michigan EGLE Statewide Orphan Well Methane Monitoring & Quantification, Michigan, United States, 02/2023-Present. Parsons provides state-wide methane emissions studies and leak detection of 444 orphan wells and 60 associated facilities. Parsons developed an efficient and accurate approach utilizing TDLAS methane specific sensors to identify and quantify methane leaks to below 1 gram/hour thresholds as required by DOI guidance along with USEPA Method 21 VOC surveys. Parsons developed an automated field data capture and reporting system creating a master database for DOI reporting and interface with the state's ESRI ArcGIS Online system.

Senior Geologist. Confidential International Oil Company, Mid-Michigan Oilfield Remediation, Closure, and Restoration, Central and Northern Michigan, United States. 04/2021-08/2024. Parsons manages remediation of more than 1,000 former oilfield sites, including 675 former oil wells, tank battery sites, and spill areas in central and northern Michigan. Parsons also provides program management, investigation, remedial engineering, and construction oversight services and has restored more than 20,500 acres of land to nearly original condition under the requirements of the US Environmental Protection Agency; the Michigan Department of Environment, Great Lakes, and Energy; and the Michigan Department of Natural Resources. Logan is responsible for overseeing excavation and sampling, well abandonment, well installation and sampling, flow-line mapping, and confined space hot work; writing and contributing to closure reports; updating analytical tables; surveying TOC elevations; using Trimble to map excavations; and conducting test hole inspections.

Senior Geologist. Confidential International Oil Company, Operations, Maintenance, and Monitoring Services, Nationwide United States. 08/2020-07/2024. Parsons is providing operations, maintenance, and monitoring services for nearly 200 sites in 19 states across the United States. Services can include active remediation encompassing proven physical techniques such as soil vapor extraction, thermal oxidation, and air sparging; long-term monitoring optimization; site maintenance; and innovative remedial processes such as injection of various in situ chemical oxidation or biological enhancement substrates, along with many other tasks as required by the client. Logan is responsible for overseeing the sampling of more than 40 retail sites using low-flow sampling (peristaltic and bailer only), no-purge sampling (HydraSleeves), soil vapor sampling (EZ-Cans), and soil sampling during drilling and excavations. Responsibilities include sampling on a pipeline; checking and maintaining oil/water separators and pumps; interacting with property owners and project managers for access agreements and maintaining good work relationships; contributing to writing closure, FAR, and SSR reports; updating data tables; and helping kickoff the EQUIS program as a test subject.

TITLE

Senior Geologist

YEARS OF EXPERIENCE

Total: 7

With Parsons: 5

EDUCATION

- Bachelor in Environmental Geoscience DePauw University, 2014-2018

Geologist. Wood Environment and Infrastructure Solutions.

07/2018-07/2020. Logan used a small fishing boat to travel up the Kalamazoo River and collect soil samples from the floodplains by driving 3-foot Lexan (polycarbonate) tubing into the ground. After collecting the samples for two weeks, work involved processing floodplain and sediment samples from the river bottom at a processing station. The tubing was cut down opposite sides and split open lengthwise, then the sediment was photographed, logged, homogenized, and packed into sample bags.

Geologist. Wood Environment and Infrastructure Solutions.

07/2018-07/2020. Logan recorded weekly site visits to soil vapor extraction system trailers, including one on a chlorinated site (former dry cleaners in Alpena, Michigan) and another on a gas station site. Recorded flow and pressure for both systems at all extraction points and their main blowers. Sampled the sites monthly with Dräger tubes following industry standard operating procedures. Helped write the installation report for the chlorinated sites soil vapor extraction system and calculated the amount of volatile organic compounds in pounds removed from soil vapor in total.

Geologist. Wood Environment and Infrastructure Solutions.

07/2018-07/2020. Logan was exposed to an in situ thermal remediation system on a trichloroethylene/tetrachloroethylene site in Dansville, Illinois. Performed the groundwater sampling around the site and surveyed newly installed wells on the site.

Geologist. Wood Environment and Infrastructure Solutions.

07/2018-07/2020. Logan installed several soil sampling points to the appropriate depth (15 feet or less) using a hand auger and assembled the sample point by connecting the screen to the Teflon tubing, filling the hole with filter sand, and sealing with bentonite. Installed several sub-slab points by drilling through concrete with a hammer drill and driving a Cox-Colvin Vapor Pin with a silicon sleeve into the hole and sealing it properly.

D.1

Designated Contact Form

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Tom Drachenberg
(Address) 301 Plainfield Road, Suite #350, Syracuse, NY 13212
(Phone Number) / (Fax Number) 315-552-9688 / 315-552-9780
(email address) Thomas.Drachenberg@parsons.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

Parsons Environment and Infrastructure, Inc.

(Company) Tom Drachenberg
(Signature of Authorized Representative)
Thomas Drachenberg, PE, Program Manager 12/20/2024
(Printed Name and Title of Authorized Representative) (Date)
315-552-9688 / 315-552-9780
(Phone Number) (Fax Number)
Thomas.Drachenberg@parsons.com
(Email Address)



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

State of West Virginia
Centralized Request for Proposals
Service - Prof

Proc Folder: 1542680			Reason for Modification:
Doc Description: DEP OOG - MERP Administration			
Proc Type: Central Master Agreement			
Date Issued	Solicitation Closes	Solicitation No	Version
2024-11-12	2024-12-17 13:30	CRFP 0313 DEP2500000004	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code:	000000231966		
Vendor Name :	Parsons Environment & Infrastructure, Inc.		
Address :	301 Plainfield Road		
Street :	Suite #350		
City :	Syracuse		
State :	NY	Country : United States	Zip : 13212
Principal Contact :	Tom Drachenberg		
Vendor Contact Phone:	315-552-9688	Extension:	

FOR INFORMATION CONTACT THE BUYER

Joseph E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor
Signature X

FEIN#

94-3376767

DATE

12/20/2024

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION

The West Virginia Department of Administration, Purchasing Division is issuing this solicitation as a request for proposal ("RFP"), as authorized by W. Va. Code 5A-3-10b, for the West Virginia Department of Environmental Protection to provide administrative services for the Agency's Methane Emission Reduction Program (MERP) grant for the plugging of certain Marginal Conventional Wells (MCWs) per the attached specifications and terms and conditions.

***Online responses have been prohibited for this solicitation, if you have questions contact the Buyer - Josh Hager - Joseph.E.HagerIII@wv.gov

INVOICE TO	SHIP TO
ENVIRONMENTAL PROTECTION REAP OFFICE 601 57TH ST SE CHARLESTON WV 25304 US	STATE OF WEST VIRGINIA VARIOUS LOCATIONS AS INDICATED BY ORDER No City WV 99999 US

Line	Comm Ln Desc	Qty	Unit of Measure	Unit Price	Total Price
1	Well Nomination, Prioritization	1000.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
71141102			

Extended Description:

Requirements listed in Sections 4.2.1.1 and 4.2.1.3 of the RFP.

Paid hourly.

INVOICE TO	SHIP TO
ENVIRONMENTAL PROTECTION REAP OFFICE 601 57TH ST SE CHARLESTON WV 25304 US	STATE OF WEST VIRGINIA VARIOUS LOCATIONS AS INDICATED BY ORDER No City WV 99999 US

Line	Comm Ln Desc	Qty	Unit of Measure	Unit Price	Total Price
2	Methane Emissions Quantification (MEQ) Testing	800.00000	EA		

Comm Code	Manufacturer	Specification	Model #
77121506			

Extended Description:

Requirements listed in section 4.2.1.2 of the RFP.

Paid per-well.

INVOICE TO	SHIP TO
ENVIRONMENTAL PROTECTION REAP OFFICE 601 57TH ST SE CHARLESTON WV 25304 US	STATE OF WEST VIRGINIA VARIOUS LOCATIONS AS INDICATED BY ORDER No City WV 99999 US

Line	Comm Ln Desc	Qty	Unit of Measure	Unit Price	Total Price
3	Permitting	400.00000	EA		

Comm Code	Manufacturer	Specification	Model #
71141102			

Extended Description:
 Requirements listed in section 4.2.1.4 of the RFP.

Paid per-well.

SCHEDULE OF EVENTS		
Line	Event	Event Date

REQUEST FOR PROPOSAL

(Agency Name and RFP #)

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- 8. Certification and Signature Page**

SECTION 1: GENERAL INFORMATION

1.1. Introduction:

The West Virginia Department of Administration, Purchasing Division (hereinafter referred to as the “Purchasing Division”) is issuing this solicitation as a request for proposal (“RFP”), as authorized by W. Va. Code §5A-3-10b, for the West Virginia Department of Environmental Protection (hereinafter referred to as the “Agency”) to provide administrative services for the Agency’s Methane Emission Reduction Program (MERP) grant¹ for the plugging of certain Marginal Conventional Wells (MCWs).

The RFP is a procurement method in which vendors submit proposals in response to the request for proposal published by the Purchasing Division. It requires an award to the highest scoring vendor, rather than the lowest cost vendor, based upon a technical evaluation of the vendor’s technical proposal and a cost evaluation. This is referred to as a best value procurement. Through their proposals, vendors offer a solution to the objectives, problem, or need specified in the RFP, and define how they intend to meet (or exceed) the RFP requirements.

¹ <https://www.energy.gov/fecm/methane-emissions-reduction-program-technical-and-financial-assistance>
Revised 07/01/2021

REQUEST FOR PROPOSAL

(Agency Name and RFP #)

SECTION 2: INSTRUCTIONS TO VENDORS SUBMITTING BIDS

Instructions begin on next page.

INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. **REVIEW DOCUMENTS THOROUGHLY:** The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. **MANDATORY TERMS:** The Solicitation may contain **mandatory** provisions identified by the use of the words "**must**," "**will**," and "**shall**." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. **PRE-BID MEETING:** The item identified below shall apply to this Solicitation.

☒ A pre-bid meeting will not be held prior to bid opening

☐ A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the **mandatory** pre-bid meeting. Failure to attend the **mandatory** pre-bid meeting shall result in disqualification of the Vendor's bid. No one individual is permitted to represent more than one vendor at the pre-bid meeting. Any individual that does attempt to represent two or more vendors will be required to select one vendor to which the individual's attendance will be attributed. The vendors not selected will be deemed to have not attended the pre-bid meeting unless another individual attended on their behalf.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in but are charged with knowing all matters discussed at the pre-bid.

Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. VENDOR QUESTION DEADLINE: Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions **must be submitted on or before the date listed below and to the address listed below to be considered.** A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are non-binding.

Submitted emails should have the solicitation number in the subject line. Question

Submission Deadline: 11/27/2024 @ 4:00 PM ET

Submit Questions to: Josh Hager
2019 Washington Street, East Charleston, WV 25305
Fax: (304) 558-3970
Email: Joseph.E.HagerIII@wv.gov

5. VERBAL COMMUNICATION: Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

6. BID SUBMISSION: All bids must be submitted on or before the date and time of the bid opening listed in section 7 below. Vendors can submit bids electronically through wvOASIS, in paper form delivered to the Purchasing Division at the address listed below either in person or by courier, or in facsimile form by faxing to the Purchasing Division at the number listed below. Notwithstanding the foregoing, the Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. The Purchasing Division will not accept bids or modification of bids via email.

Bids submitted in paper, facsimile, or via wvOASIS must contain a signature. Failure to submit a bid in any form without a signature will result in rejection of your bid.

A bid submitted in paper or facsimile form should contain the information listed below on the face of the submission envelope or fax cover sheet. Otherwise, the bid may be rejected by the Purchasing Division.

VENDOR NAME:

BUYER: Josh Hager

SOLICITATION NO.: CRFP 0313 DEP2400000004

BID OPENING DATE: see section 7

BID OPENING TIME: see section 7

FAX NUMBER: 304-558-3970

Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason.

Bid Delivery Address and Fax Number:

Department of Administration, Purchasing Division 2019 Washington Street East

Charleston, WV 25305-0130

Fax: 304-558-3970

For Request for Proposal ("RFP") Responses Only: Submission of a response to a Request for Proposal is not permitted in wvOASIS. In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal prior to the bid opening date and time identified in Section 7 below, plus 3 convenience copies of each to the Purchasing Division at the address shown below. Additionally, the Vendor should clearly identify and segregate the cost proposal from the technical proposal in a separately sealed envelope.

7. BID OPENING: Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery or via delivery by mail).

Bid Opening Date and Time: 12/17/2024 @ 1:30 PM ET

Bid Opening Location:

Department of Administration, Purchasing Division

2019 Washington Street East

Charleston, WV 25305-0130

8. ADDENDUM ACKNOWLEDGEMENT: Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgement Form. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. BID FORMATTING: Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

10. ALTERNATE MODEL OR BRAND: Unless the box below is checked, any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand **shall** clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items **may** be grounds for rejection of a Vendor's bid.

☐ This Solicitation is based upon a standardized commodity established under W. Va. Code § 5A-3-61. Vendors are expected to bid the standardized commodity identified. Failure to bid the standardized commodity will result in your firm's bid being rejected.

11. COMMUNICATION LIMITATIONS: In accordance with West Virginia Code of State Rules §148-1-6.6.2, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

12. REGISTRATION: Prior to Contract award, the apparent successful Vendor **must** be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee, if applicable.

13. UNIT PRICE: Unit prices **shall** prevail in cases of a discrepancy in the Vendor's bid.

14. PREFERENCE: Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code § 5A-3-37, and must include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at: www.state.wv.us/admin/purchase/vrc/Venpref.pdf.

15A. RECIPROCAL PREFERENCE: The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. Any request for reciprocal preference must include with the bid any information necessary to evaluate and confirm the applicability of the preference. A request form to help facilitate the request can be found at: www.state.wv.us/admin/purchase/vrc/Venpref.pdf.

15. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:

For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37 and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors.

16. WAIVER OF MINOR IRREGULARITIES: The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.7.

17. ELECTRONIC FILE ACCESS RESTRICTIONS: Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

18. NON-RESPONSIBLE: The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1- 5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform or lacks the integrity and reliability to assure good-faith performance.”

19. ACCEPTANCE/REJECTION: The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.6. and § 148-1-6.3.”

20. **WITH THE BID REQUIREMENTS:** In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Director of the Purchasing Division reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under W. Va. CSR § 148-1-4.7. This authority does not apply to instances where state law mandates receipt with the bid.

21. **EMAIL NOTIFICATION OF AWARD:** The Purchasing Division will attempt to provide bidders with e-mail notification of contract award when a solicitation that the bidder participated in has been awarded. For notification purposes, bidders must provide the Purchasing Division with a valid email address in the bid response. Bidders may also monitor wvOASIS or the Purchasing Division's website to determine when a contract has been awarded.

22. **EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that **shall** form the basis of a contractual agreement. **Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid.** Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

D.2

Addendum Acknowledgement Form

REQUEST FOR PROPOSAL

(Agency Name and RFP #)

SECTION 3: GENERAL TERMS AND CONDITIONS

Terms and conditions begin on next page.

GENERAL TERMS AND CONDITIONS:

1. CONTRACTUAL AGREEMENT: Issuance of an Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance by the State of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid, or on the Contract if the Contract is not the result of a bid solicitation, signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or "Agencies" means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

2.2. "Bid" or "Proposal" means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "Vendor" or "Vendors" means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☒ **Term Contract**

Initial Contract Term: The Initial Contract Term will be for a period of One (1) Year. The Initial Contract Term becomes effective on the effective start date listed on the first page of this Contract, identified as the State of West Virginia contract cover page containing the signatures of the Purchasing Division, Attorney General, and Encumbrance clerk (or another page identified as _____), and the Initial Contract Term ends on the effective end date also shown on the first page of this Contract.

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to Three (3) successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

☐ **Alternate Renewal Term** – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within _____ days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that:

☐ the contract will continue for _____ years;

☐ the contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's Office (Attorney General approval is as to form only).

☐ **One-Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Construction/Project Oversight:** This Contract becomes effective on the effective start date listed on the first page of this Contract, identified as the State of West Virginia contract cover page containing the signatures of the Purchasing Division, Attorney General, and Encumbrance clerk (or another page identified as _____), and continues until the project for which the vendor is providing oversight is complete.

☐ **Other:** Contract Term specified in _____

4. AUTHORITY TO PROCEED: Vendor is authorized to begin performance of this contract on the date of encumbrance listed on the front page of the Award Document unless either the box for "Fixed Period Contract" or "Fixed Period Contract with Renewals" has been checked in Section 3 above. If either "Fixed Period Contract" or "Fixed Period Contract with Renewals" has been checked, Vendor must not begin work until it receives a separate notice to proceed from the State. The notice to proceed will then be incorporated into the Contract via change order to memorialize the official date that work commenced.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☒ **Open End Contract:** Quantities listed in this Solicitation/Award Document are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One-Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

☐ **Construction:** This Contract is for construction activity more fully defined in the specifications.

6. EMERGENCY PURCHASES: The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One-Time Purchase contract.

7. REQUIRED DOCUMENTS: All of the items checked in this section must be provided to the Purchasing Division by the Vendor as specified:

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits upon request and in a form acceptable to the State. The request may be prior to or after contract award at the State's sole discretion.

☐☐☐☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications regardless of whether or not that requirement is listed above.

8. INSURANCE: The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether that insurance requirement is listed in this section.

Vendor must maintain:

- ☒ **Commercial General Liability Insurance** in at least an amount of: 1 Million per occurrence.
- ☒ **Automobile Liability Insurance** in at least an amount of: 1 Million per occurrence.
- ☐ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: _____ per occurrence. Notwithstanding the forgoing, Vendor's are not required to list the State as an additional insured for this type of policy.
- ☐ **Commercial Crime and Third Party Fidelity Insurance** in an amount of: _____ per occurrence.
- ☐ **Cyber Liability Insurance** in an amount of: _____ per occurrence.
- ☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.
- ☐ **Pollution Insurance** in an amount of: _____ per occurrence.
- ☐ **Aircraft Liability** in an amount of: _____ per occurrence.
- ☐
- ☐
- ☐
- ☐

9. WORKERS' COMPENSATION INSURANCE: Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. VENUE: All legal actions for damages brought by Vendor against the State shall be brought in the West Virginia Claims Commission. Other causes of action must be brought in the West Virginia court authorized by statute to exercise jurisdiction over it.

11. LIQUIDATED DAMAGES: This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

☐ _____ for _____.

☐ Liquidated Damages Contained in the Specifications.

☒ Liquidated Damages Are Not Included in this Contract.

12. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

13. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the State and invoice at the lower of the contract price or the publicly advertised sale price.

14. PAYMENT IN ARREARS: Payments for goods/services will be made in arrears only upon receipt of a proper invoice, detailing the goods/services provided or receipt of the goods/services, whichever is later. Notwithstanding the foregoing, payments for software maintenance, licenses, or subscriptions may be paid annually in advance.

15. PAYMENT METHODS: Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

16. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

17. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia, included in the Contract, or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

18. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available. If that occurs, the State may notify the Vendor that an alternative source of funding has been obtained and thereby avoid the automatic termination. Non-appropriation or non-funding shall not be considered an event of default.

19. CANCELLATION: The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

20. TIME: Time is of the essence regarding all matters of time and performance in this Contract.

21. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code, or West Virginia Code of State Rules is void and of no effect.

22. COMPLIANCE WITH LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

SUBCONTRACTOR COMPLIANCE: Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

23. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

24. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

25. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

26. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

27. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

28. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

29. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

30. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in www.state.wv.us/admin/purchase/privacy.

31. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

32. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

SUBCONTRACTOR COMPLIANCE: Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

33. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

34. VENDOR NON-CONFLICT: Neither Vendor nor its representatives are permitted to have any interest, nor shall they acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency.

35. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

36. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

37. NO DEBT CERTIFICATION: In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State. By submitting a bid, or entering into a contract with the State, Vendor is affirming that (1) for construction contracts, the Vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, neither the Vendor nor any related party owe a debt as defined above, and neither the Vendor nor any related party are in employer default as defined in the statute cited above unless the debt or employer default is permitted under the statute.

38. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

39. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☒ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.division@wv.gov.

40. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check. Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

41. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

- a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open hearth, basic oxygen, electric furnace, Bessemer or other steel making process.
- c. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:
 1. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or
 2. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

42. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a “substantial labor surplus area”, as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

43. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$1 million, the Vendor must submit to the Agency a disclosure of interested parties prior to beginning work under this Contract. Additionally, the Vendor must submit a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-work interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

44. PROHIBITION AGAINST USED OR REFURBISHED: Unless expressly permitted in the solicitation published by the State, Vendor must provide new, unused commodities, and is prohibited from supplying used or refurbished commodities, in fulfilling its responsibilities under this Contract.

45. VOID CONTRACT CLAUSES: This Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law.

46. ISRAEL BOYCOTT: Bidder understands and agrees that, pursuant to W. Va. Code § 5A-3-63, it is prohibited from engaging in a boycott of Israel during the term of this contract.

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SECTION 4: PROJECT SPECIFICATIONS

4.1. Background and Current Operating Environment: Section 60113 of the Inflation Reduction Act (IRA) amended the Clean Air Act (CAA) by adding section 136, “Methane Emissions and Waste Reduction Incentive Program for Petroleum and Natural Gas Systems (MERP).” This section appropriated funds to the U.S. Environmental Protection Agency (EPA) to provide financial and technical assistance to owners and operators of certain natural gas and oil production wells for the purposes of methane emission reduction. Through partnership with the U.S. Department of Energy (DOE), EPA made a portion of these funds available to eligible states to permanently plug marginal conventional wells (MCWs).² West Virginia was awarded a \$37,791,464 grant under this program.³ The grant period continues through 9/30/2028, with implementation expected to conclude approx. 30-60 days prior.

To accomplish the goals of West Virginia’s MERP grant, the Agency has sub-divided grant program responsibilities among three distinct entities—the Community Benefits Committee (CBC), the Administrator, and the Agency itself. This RFP is specific to the duties and responsibilities of the Administrator, as described below.

- **The CBC** is comprised of stakeholders representing surface owners, mineral owners, industry, laborers, and the environment. The role of the CBC centers primarily around ensuring the Agency satisfies the terms of its Community Benefits Plan, particularly as it relates to stakeholder engagement. To that end, the CBC will review public feedback to develop the MCW well plugging prioritization plan/model to be applied to all wells nominated for plugging under this program.
- **The Administrator** will develop and implement an MCW nomination process, by which owners/operators of MCWs will identify or suggest candidate wells to be considered for well plugging. These wells will be referred to as “**nominated wells**”. This process will necessarily include a well owner/operator outreach component whereby the MCW plugging prioritization plan/model will be explained in detail to prospective program participants. The Administrator will open and close a well nomination period and actively solicit nominations from owners/operators of MCWs. To satisfy the grant requirement to quantify pre- and post-plugging methane emission rates from all nominated wells and incorporate those rates into the well scoring criteria, the Administrator will directly collect, or subcontract to a qualified 3rd party, methane emission quantification (MEQ) data from nominated MCWs in accordance with published guidelines.⁴ The Administrator will compile all relevant data from nominated

² For the purposes of this grant program, marginal conventional wells (MCWs) are defined as idle or producing onshore vertical (or slightly deviated) oil or natural gas wells (excluding highly deviated or horizontal wells) with a known owner/operator producing less than or equal to 15 barrels of oil equivalent per day (BOED) and/or 90 thousand cubic feet (mcf) gas per day (1 BOE = 6 mcf) over the prior 12-month period.

³ Award No. DE-FE0032425

⁴ “Methane Measurement Guidelines for Marginal Conventional Wells.” U.S. Department of Energy. Version 1, April 17, 2024.

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MCWs, and through the use of the approved MCW plugging prioritization plan/model, develop a final list of prioritized MCWs to be plugged under this program, as funding allows. These wells will be referred as the “**selected wells**.”

The responsibility to obtain all required permits associated with the plugging of selected wells lies with the owner/operator of the MCW; however, in order to facilitate permit activities and ensure efficiency of Agency-led plugging strategies, the Administrator will proactively identify the potential need for additional permits from any state and/or federal agency having jurisdiction over project activities for all selected wells. The administrator should coordinate directly with both the Agency and the owner/operator of selected MCWs in order to ensure that all permits are obtained within appropriate timelines.

The Agency has the responsibility to ensure that activities funded by its MERP grant are not likely to jeopardize species listed on the Federal List of Endangered and Threatened Wildlife and Plants or result in the destruction or adverse modification of critical habitat designated for Federal Endangered and Threatened Wildlife and Plants. Similarly, no activities funded under this MERP grant may impact any historic property listed in (or eligible for) listing in the National Register of Historic Places. To these ends, the Administrator will have the responsibility of implementing the Agency’s plan to identify “locations of concern” for selected wells.⁵ To ensure that the Agency meets its obligations under the Endangered Species Act (“ESA”), National Historic Preservation Act (“NHPA”), or other applicable statutes, the Administrator will act on the Agency’s behalf to initiate Section 106, Section 7, or other similar reviews. The Administrator will make use of tools including, but not limited to, the U.S. Fish and Wildlife Service (FWS) Information for Planning and Consultation (IPaC) database, the WV State Historic Preservation Office Interactive Map Viewer, etc. The Administrator will also initiate Tribal Consultation, in cases where projects fall within recognized ancestral lands of Indian tribes⁶, for each selected well.

- **The Agency** will initiate a series of public meetings through which to receive community feedback regarding the factors which will be incorporated into the MCW plugging prioritization plan/model. After receiving the list of selected wells, the Agency will offer for solicitation well plugging contracts through its defined purchasing procedures. The Agency will provide compliance oversight of all field activities through the use of its inspection and enforcement staff as well as supplemental quality assurance through the use of its Supplemental Quality Assurance (SQA) contract.⁷

⁵ “Locations of concern” are well locations that, based on surrounding conditions, could trigger the applicability of non-exempt Federal authorities (including but not limited to the Endangered Species Act and the National Historic Preservation Acts).

⁶ The U. S. Department of Housing and Urban Development’s Tribal Directory Assessment Tool (TDAT) can generate a suggested list of Tribes with which to communicate.

⁷ At the time of this solicitation, the Agency is in the process of reviewing RFP No. CRFP 0313 DEP25*2, which will be used to provide Supplemental Quality Assurance on well plugging locations funded by federal grants.

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4.2. Project Goals and Mandatory Requirements: The vendor must be able to provide a comprehensive solution for administering certain aspects of the Agency's MERP grant. The vendor should describe its approach and methodology for providing the services that will achieve the goals/objectives identified below. Vendor's response should include any information about how the proposed approach is superior or inferior to other possible approaches. Areas where project goals and mandatory requirements are exceeded will be included in technical scores where appropriate.

4.2.1. Goals and Objectives – The project goals and objectives are listed below.

4.2.1.1 MCW nomination process. The vendor should describe how it intends to develop an effective MCW nomination process through which to receive MCW nominations from owners/operators of MCWs (or other stakeholders) for well plugging under this program.

The vendor's proposal should consider the following items, at a minimum:

- Meaningful engagement with owners/operators of MCWs to educate them on the goals of the project and all relevant factors informing MCW plugging prioritization.
- Process development whereby sufficient information is obtained from the owners/operators of nominated wells to fully utilize the MCW plugging prioritization plan/model.
- The vendor should open and close a nomination window during which time owners/operators of MCWs (or other stakeholders) may propose wells for plugging under this program.
- A strategy to give consideration to potential well plugging nominations from stakeholders other than the owner/operators of MCWs with the understanding that participation in the MERP program is entirely voluntary.
- A timeline referring to the above activities, with milestones if appropriate

4.2.1.2 MEQ data. The vendor should describe its plan to collect (or subcontract to a qualified 3rd party) quantified methane pre-plugging emission data from each nominated well. Follow-up post-plugging emissions data will also be required for all wells plugged under this program. All MEQ analyses performed in association with this grant program must be in full compliance with the guidelines published by the U. S. Department of Energy, National Energy Technology Laboratory.⁴

The vendor's proposal should consider the following items, at a minimum:

- Qualifications of measurement specialists (QMSs).

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- Documented measurement instrumentation and methodological approaches.
- Data reporting elements to be captured, recorded, and reported.
- A timeline referring to the above activities, with milestones if appropriate

4.2.1.3 MCW Prioritization/Prioritized well list. The vendor should describe its plan to develop a prioritized list of nominated wells using its approved MCW plugging prioritization plan/model and relevant information collected during the MCW nomination process. The vendor will be expected to submit the prioritized well plugging list to the Agency.

The vendor's proposal should consider the following items, at a minimum:

- Data entry of all scored prioritization factors for each well into the Agency-selected software system.⁸
- A timeline referring to the above activities, with milestones if appropriate

4.2.1.4 Ancillary permit activity. The vendor should describe its plan to assist owners/operators of selected MCWs in the identification of any required permits from state and/or federal agencies having jurisdiction over project activities. The vendor should provide its plan to identify locations of concern.

The vendor's proposal should consider the following items, at a minimum:

- A description of how each project area will be defined and evaluated for possible jurisdiction from additional state and/or federal agencies. The proposal should include a communication strategy for both the Agency and the owner/operators of selected MCWs to ensure that project goals are met.
- A description of how Action Areas (AA) will be defined relative to the location of the selected MCW and the tools to be used to identify and review listed endangered species within each AA, and how project activities will be evaluated to determine to what extent, if any, these activities may impact those species. The vendor should submit project plans on behalf of the Agency to FWS and ultimately acquire a concurrence letter from the FWS for each project and provide that to the Agency.
- A description of how Areas of Potential Effects (APEs) will be defined relative to the location of the selected MCW and the tools to be used to identify and review areas of historic or cultural significance within the APE. Each project APE should be submitted to the WV State Historic Preservation

⁸ At the time of this solicitation, the Agency has partnered with the DOE's National Energy Technology Laboratory, NETL, to use its PRIMO software developed for this grant.

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Office (SHPO) on behalf of the Agency for consideration and ultimately acquire a project approval and provide that to the Agency.

- A description of the tools to be used to identify APEs having cultural significance as ancestral land to Indian tribes. Each project should be submitted to the respective Tribal Historic Preservation Officer (THPO) for their review and consideration. Any subsequent requests by the Indian tribes for government-to-government consultations should be reported to the Agency.
- A timeline referring to the above activities, with milestones if appropriate

4.2.2. Mandatory Project Requirements – The following mandatory requirements relate to the goals and objectives and must be met by the vendor as a part of its submitted proposal. The vendor should describe how it will comply with the mandatory requirements and identify any areas where its proposed solution exceeds the mandatory requirement. The approach/methodology that the vendor uses to comply, and areas where the mandatory requirements are exceeded, will be included in technical scores where appropriate. Failure to comply with mandatory requirements will lead to disqualification. The mandatory project requirements are listed below.

4.2.2.1 Technical progress and financial reports will be submitted to the Agency on a monthly basis. Attendance and progress updates at quarterly meetings may be required. Travel costs to attend these meetings are acceptable expenses to include in the proposed budget. Monthly reports should include a summary of all project activities undertaken in the previous month and will include detail of all billable hours. Reporting requirements also apply to measurable field activities including, but not limited to number of wells plugged, mitigated methane emissions, acres of land restored or remediated, etc. Monthly reports should be provided to the Agency no later than five working days after the last day of the reporting period.

4.2.2.2 Attendance at CBC meetings (mostly virtual) is required. Vendor shall be responsible for all mileage and travel costs, including travel time, associated with performance of this Contract. Any anticipated mileage or travel costs may be included in the flat fee or hourly rate listed on Vendor's bid, but such costs will not be paid by the Agency separately.

4.3. Qualifications and Experience: Vendor should provide information and documentation regarding its qualifications and experience in providing services or solving problems similar to those requested in this RFP. Information and documentation should include, but is not limited to, copies of any staff certifications or degrees applicable to this project, proposed staffing plans, descriptions of past projects completed (descriptions should include the location of the project, project manager name and contact information, type of project, and what the project goals and objectives were and how they

REQUEST FOR PROPOSAL

(Agency Name and RFP #)

were met.), references for prior projects, and any other information that vendor deems relevant to the items identified as desirable or mandatory below.

4.3.1. Qualification and Experience Information: Vendor should describe in its proposal how it meets the desirable qualification and experience requirements listed below.

4.3.1.1 For development and implementation of an MCW well plugging nomination process, the vendor should provide documentation of previous project management experience related to the oil and gas industry with a preferred focus on oil and gas plugging practices and techniques, sound safety practices and applicable water and mining laws. Further, the vendor should have experience in the planning and execution of public meetings.

4.3.1.2. For ancillary permitting-related activities, the vendor should provide documentation of previous project management experience related to projects involving earth disturbances. For ESA reviews, a degree in biology, natural resources, or similar is required. For NHPA reviews, a degree in history, archaeology, or architecture is required.

4.3.1.3 Any person working on behalf of the vendor to acquire pre- and post-methane emission quantification data must meet the minimum requirements as Qualified Measurement Specialists, as defined by the U. S. Department of Energy, National Energy Technology Laboratory.¹

4.3.2. Mandatory Qualification/Experience Requirements – The following mandatory qualification/experience requirements must be met by the vendor as a part of its submitted proposal. Vendor should describe how it meets the mandatory requirements and identify any areas where it exceeds the mandatory requirements. Areas where the mandatory requirements are exceeded will be included in technical scores where appropriate. Failure to comply with mandatory requirements will lead to disqualification. The mandatory qualifications/experience requirements are listed below.

4.3.2.1. The administrator may be a registered oil and gas well operator or owner (or parent/subsidiary thereof), as defined in W. Va. Code § 22-6-1(l) and (z); however, the administrator may not also be a participant in the MCW well plugging program. If the administrator does meet the definition of an oil and gas well operator or owner (or parent/subsidiary thereof), that operator or owner (or parent/subsidiary thereof) may not nominate MCWs for plugging (or have MCWs nominated on its behalf). The vendor must disclose any such business relationships or other partnerships which may introduce conflicts of interest related to well ownership or operatorship.

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- 4.3.2.2. The administrator (or parent/subsidiary or partner thereof) is not precluded from being a potential well plugging vendor participating in the competitive bid process for wells ultimately plugged under this program.

4.4. Oral Presentations (Agency Option): The Agency has the option of requiring oral presentations of all vendors participating in the RFP process. If this option is exercised, points will be allocated in Section 6.2 below at the time the RFP is issued, or via addendum prior to technical bid opening. During oral presentations, vendors may not alter or add to their submitted proposal, but only clarify information. A description of the materials and information to be presented is provided below:

Materials and Information Requested at Oral Presentation:

- 4.4.1. Description of all proposals to achieve Agency project goals, as defined herein.
- 4.4.2. Description of the qualifications of staff to be employed to meet the objectives of this RFP.
- 4.4.3. The Agency will ask clarifying questions regarding the vendor's submitted technical response.
- 4.4.4. Oral presentations will be conducted at the Agency facility provided by the Agency. Vendors should plan to provide their own media and demonstration hardware and, if preparing handouts, should prepare a number equal to the number of convenience copies of their Proposals supplied on the Bid Opening Date, unless specifically advised by the Agency otherwise.

SECTION 5: VENDOR PROPOSAL

- 5.1. **Economy of Preparation:** Proposals should be prepared simply and economically providing a concise description of the items requested in Section 4. Emphasis should be placed on completeness and clarity of the content.
- 5.2. **Incurring Cost:** Neither the State nor any of its employees or officers shall be held liable for any expenses incurred by any vendor responding to this RFP, including but not limited to preparation, delivery, or travel.
- 5.3. **Proposal Format:** Vendors should provide responses in the format listed below:
 - 5.3.1. **Two-Part Submission:** Vendors must submit proposals in two distinct parts: technical and cost. Technical proposals must not contain any cost information relating to the project. Cost proposal must contain all cost information and must be sealed in a separate envelope from the technical proposal to facilitate a secondary cost proposal opening.

REQUEST FOR PROPOSAL

(Agency Name and RFP #)

5.3.2. **Title Page:** State the RFP subject, number, vendor's name, business address, telephone number, fax number, name of contact person, e-mail address, and vendor signature and date.

5.3.3. **Table of Contents:** Clearly identify the material by section and page number.

5.3.4. **Response Reference:** Vendor's response should clearly reference how the information provided applies to the RFP request. For example, listing the RFP number and restating the RFP request as a header in the proposal would be considered a clear reference.

Proposal Submission: All proposals (both technical and cost) must be submitted to the Purchasing Division **prior** to the date and time listed in Section 2, Instructions to Vendors Submitting Bids as the bid opening date and time.

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SECTION 6: EVALUATION AND AWARD

- 6.1. Evaluation Process:** Proposals will be evaluated in two parts by a committee of three (3) or more individuals. The first evaluation will be of the technical proposal and the second is an evaluation of the cost proposal. The Vendor who demonstrates that it meets all of the mandatory specifications required, attains the minimum acceptable score and attains the highest overall point score of all vendors shall be awarded the contract.
- 6.2. Evaluation Criteria:** Proposals will be evaluated based on criteria set forth in the solicitation and information contained in the proposals submitted in response to the solicitation. The technical evaluation will be based upon the point allocations designated below for a total of 70 of the 100 points. Cost represents 30 of the 100 total points.

Evaluation Point Allocation:

Project Goals and Proposed Approach (§ 4.2)

- Approach & Methodology to Goals/Objectives (§ 4.2.1) (40) Points Possible
- Approach & Methodology to Compliance with Mandatory Project Requirements (§ 4.2.2) (5) Points Possible

Qualifications and experience (§ 4.3)

- Qualifications and Experience Generally (§ 4.3.1) (10) Points Possible
- Exceeding Mandatory Qualification/Experience Requirements (§ 4.3.2) (5) Points Possible

(Oral interview, if applicable) (§ 4.4) (10) Points Possible

Total Technical Score: 70 Points Possible

Total Cost Score: 30 Points Possible

Total Proposal Score: 100 Points Possible

- 6.3. Technical Bid Opening:** At the technical bid opening, the Purchasing Division will open and announce the technical proposals received prior to the bid opening deadline. Once opened, the technical proposals will be provided to the Agency evaluation committee for technical evaluation.

REQUEST FOR PROPOSAL

(Agency Name and RFP #)

6.4. Technical Evaluation: The Agency evaluation committee will review the technical proposals, assign points where appropriate, and make a final written recommendation to the Purchasing Division.

6.5. Proposal Disqualification:

6.5.1. Minimum Acceptable Score (“MAS”): Vendors must score a minimum of 70% (49 points) of the total technical points possible in order to move past the technical evaluation and have their cost proposal evaluated. All vendor proposals not attaining the MAS will be disqualified.

6.5.2. Failure to Meet Mandatory Requirement: Vendors must meet or exceed all mandatory requirements in order to move past the technical evaluation and have their cost proposals evaluated. Proposals failing to meet one or more mandatory requirements of the RFP will be disqualified.

6.6. Cost Bid Opening: The Purchasing Division will schedule a date and time to publicly open and announce cost proposals after technical evaluation has been completed and the Purchasing Division has approved the technical recommendation of the evaluation committee. All cost bids received will be opened. Cost bids for disqualified proposals will be opened for record keeping purposes only and will not be evaluated or considered. Once opened, the cost proposals will be provided to the Agency evaluation committee for cost evaluation.

The Purchasing Division reserves the right to disqualify a proposal based upon deficiencies in the technical proposal even after the cost evaluation.

6.7. Cost Evaluation: The Agency evaluation committee will review the cost proposals, assign points in accordance with the cost evaluation formula contained herein and make a final recommendation to the Purchasing Division.

Cost Evaluation Formula: Each cost proposal will have points assigned using the following formula for all vendors not disqualified during the technical evaluation. The lowest cost of all proposals is divided by the cost of the proposal being evaluated to generate a cost score percentage. That percentage is then multiplied by the points attributable to the cost proposal to determine the number of points allocated to the cost proposal being evaluated.

Step 1: $\text{Lowest Cost of All Proposals} / \text{Cost of Proposal Being Evaluated} = \text{Cost Score Percentage}$

Step 2: $\text{Cost Score Percentage} \times \text{Points Allocated to Cost Proposal} = \text{Total Cost Score}$

Example:

Proposal 1 Cost is \$1,000,000

Proposal 2 Cost is \$1,100,000

Points Allocated to Cost Proposal is 30

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(Agency Name and RFP #)

Proposal 1: Step 1 – $\$1,000,000 / \$1,000,000 = \text{Cost Score Percentage of } 1 (100\%)$
Step 2 – $1 \times 30 = \text{Total Cost Score of } 30$

Proposal 2: Step 1 – $\$1,000,000 / \$1,100,000 = \text{Cost Score Percentage of } 0.909091 (90.9091\%)$
Step 2 – $0.909091 \times 30 = \text{Total Cost Score of } 27.27273$

6.8. Availability of Information: Proposal submissions become public and are available for review immediately after opening pursuant to West Virginia Code §5A-3-11(h). All other information associated with the RFP, including but not limited to, technical scores and reasons for disqualification, will not be available until after the contract has been awarded pursuant to West Virginia Code of State Rules §148-1-6.3.d.

By signing below, I certify that I have reviewed this Request for Proposal in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Parsons Environment and Infrastructure, Inc.

(Company)

Thomas Drachenberg,
Program Manager



(Representative Name, Title)

315-552-9688 / 315-552-9780

(Contact Phone/Fax Number)

12/20/2024

(Date)

D.3

General Terms and Conditions Acknowledgement

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Parsons Environment and Infrastructure, Inc.

Company



Authorized Signature

12/20/2024

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.



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

State of West Virginia
Centralized Request for Proposals
Service - Prof

Proc Folder: 1542680

Doc Description: DEP OOG - MERP Administration

Proc Type: Central Master Agreement

Reason for Modification:

Addendum #1 issued to publish agency responses to vendor submitted questions and extend the bid open..... See Page 2 for complete info

Date Issued	Solicitation Closes	Solicitation No	Version
2025-12-09	2025-01-07 13:30	CRFP 0313 DEP2500000004	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code: 000000231966

Vendor Name : Parsons Environment & Infrastructure, Inc.

Address : 301 Plainfield Road
Suite #350

Street :
City : Syracuse

State : NY Country : United States Zip : 13212

Principal Contact : Thomas Drachenberg

Vendor Contact Phone: 315-552-9688 Extension:

FOR INFORMATION CONTACT THE BUYER

Joseph E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor
Signature X

FEIN# 94-3376767

DATE 12/20/2024

All offers subject to all terms and conditions contained in this solicitation

Reason for Modification:

Addendum #1 issued to publish agency responses to vendor submitted questions and extend the bid opening until 1/7/2025 @ 1:30 PM ET.

ADDITIONAL INFORMATION

The West Virginia Department of Administration, Purchasing Division is issuing this solicitation as a request for proposal ("RFP"), as authorized by W. Va. Code 5A-3-10b, for the West Virginia Department of Environmental Protection to provide administrative services for the Agency's Methane Emission Reduction Program (MERP) grant for the plugging of certain Marginal Conventional Wells (MCWs) per the attached specifications and terms and conditions.

***Online responses have been prohibited for this solicitation, if you have questions contact the Buyer - Josh Hager - Joseph.E.HagerIII@wv.gov

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION REAP OFFICE 601 57TH ST SE CHARLESTON WV 25304 US			STATE OF WEST VIRGINIA VARIOUS LOCATIONS AS INDICATED BY ORDER No City WV 99999 US		

Line	Comm Ln Desc	Qty	Unit of Measure	Unit Price	Total Price
1	Well Nomination, Prioritization	1000.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
71141102			

Extended Description:

Requirements listed in Sections 4.2.1.1 and 4.2.1.3 of the RFP.

Paid hourly.

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION REAP OFFICE 601 57TH ST SE CHARLESTON WV 25304 US			STATE OF WEST VIRGINIA VARIOUS LOCATIONS AS INDICATED BY ORDER No City WV 99999 US		

Line	Comm Ln Desc	Qty	Unit of Measure	Unit Price	Total Price
2	Methane Emissions Quantification (MEQ) Testing	800.00000	EA		

Comm Code	Manufacturer	Specification	Model #
77121506			

Extended Description:

Requirements listed in section 4.2.1.2 of the RFP.

Paid per-well.

INVOICE TO	SHIP TO
ENVIRONMENTAL PROTECTION REAP OFFICE 601 57TH ST SE CHARLESTON WV 25304 US	STATE OF WEST VIRGINIA VARIOUS LOCATIONS AS INDICATED BY ORDER No City WV 99999 US

Line	Comm Ln Desc	Qty	Unit of Measure	Unit Price	Total Price
3	Permitting	400.00000	EA		

Comm Code	Manufacturer	Specification	Model #
71141102			

Extended Description:
 Requirements listed in section 4.2.1.4 of the RFP.

 Paid per-well.

SCHEDULE OF EVENTS		
Line	Event	Event Date

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- ☒ Modify bid opening date and time
- ☐ Modify specifications of product or service being sought
- ☒ Attachment of vendor questions and responses
- ☐ Attachment of pre-bid sign-in sheet
- ☐ Correction of error
- ☐ Other

Description of Modification to Solicitation:

Addendum issued to publish and distribute the attached documentation to the vendor community.

1. To extend bid close date until 1/07/2025 @ 1:30 PM ET
2. To publish agency responses to all vendor submitted questions.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

RFI: Questions from vendors for CRFP DEP 25*04 MERP Administration

Q.1. Would the state be able to provide a current list of operating companies with stripper wells and where these wells are located in WV?

A. WV does not have a formal definition of “stripper wells;” If the question is merely asking for a list of MCWs eligible for plugging under this program, the Agency will provide that upon award. If a prospective vendor requires such a list for the purposes of bid development or research, the Agency would advise those Vendors to use the most recent annual production report (2023) posted at the URL below. This information does not include location data, but vendors will be able to easily discern which wells qualify as MCWs and the owners/operators of those wells.

<https://dep.wv.gov/oil-and-gas/databaseinfo/Pages/default.aspx>

Q.2. Should line item 2, “Methane Emissions Quantification (MEQ) Testing (Per Well),” in Attachment A, the Pricing Sheet, include the vendor’s price to return and test the well post-plugging?

A. Line item 2 considers each complete MEQ measurement to be a discrete unit. If 400 wells have both pre- and post-plugging MEQ analyses, then that is 800 MEQ units.

Q.3. Is there an expectation that post-well plugging will take place during the initial contract term of one (1) year?

A. The RFP will be awarded as a 1-year contract that is renewable. The specifications are written to be a comprehensive description of the program, with the anticipation that it be renewed. As part of the Agency’s MERP grant award, DEP provided the following anticipated timeline which may be helpful in clarifying expectations. Note that federal fiscal year 25 (FY25), quarter 1 (Q1) began October 1, 2024, and Q2 will begin January 1, 2025, etc.

Activity	FY25				FY26				FY27				FY28			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Well Nominations		X														
MEQ			X	X	X	X	X	X	X	X	X	X	X	X	X	X
Prioritized Well List			X													
Well Plugging			X	X	X	X	X	X	X	X	X	X	X	X	X	

Q.4. Should the vendor anticipate performing a clearance survey for every selected well?

A. DEP does not have a formal definition of “clearance survey;” consequently, this response is based on the assumption that the Vendor is asking about performing surveys in order to generate a mylar plat. If this assumption is accurate, the answer is no. The Agency does require such surveys and plats for its orphaned well plugging program, but that is primarily due the absence of those historic records for that class of wells. MCWs will generally have had an original plat when the well was drilled. It is also key to recognize that it is the responsibility of the owner/operator of the well to apply for and obtain all required permits. Current WV plugging rules allow for the submittal of Form WW-7 in place of a plat.

Q.5. Is the presentation from the MERP public meetings available to bidders?

A. Yes. Each of the 3 public meetings used the same meeting presentation. A video of the first meeting held at DEP HQ is available at the following URL.

<https://dep.wv.gov/oil-and-gas/abandoned-well-plugging/inflation-reduction-act/Pages/default.aspx>

Q.6. Is there a description or list of requirements for the 1000 hours of administration for nominating and prioritizing marginal wells?

A. The Agency acknowledges that the estimation of 1,000 hours of administration for well nomination and prioritization is an estimate. DEP has no further requirements than those detailed in Sections 4.2.1.1 and 4.2.1.3.

Q.7. Will the administrative or the plugging contractor need to contact the surface owners or will WVDEP Office of Oil and Gas contact the surface owners prior to construction operations?

A. It is the responsibility of the well owner/operator to apply for and obtain all required permits for plugging under this program. Accordingly, it will be the responsibility of the MCW owner/operator to provide all the required notifications for permittees (e.g., surface owner, coal owner, etc.). Current regulations do not require a specific notification of the surface owner in order to commence construction operations, but DEP would recommend maintaining open lines of communication with those parties.

Q.8. Is a survey plat required for each well to be included in the WVDEP plugging permit?

A. No. The Agency does require such surveys and plats for its orphaned well plugging program, but that is primarily due the absence of those historic records for that class of wells. MCWs will generally have had an original plat when the well was drilled. It is also key to recognize that it is the responsibility of the owner/operator of the well to apply for and obtain all required permits. Current WV plugging rules allow for the submittal of Form WW-7 in place of a plat.

Q.9. Will DOH and additional environmental permitting required be determined by the administrative or plugging contractor for each site or is the determination done by WVDEP?

A. It is the responsibility of the well owner/operator to apply for and obtain all required permits for plugging under this program. However, the Agency has created the expectation that the Administrator will assist the owner/operator of qualifying MCWs in the identification of necessary permits. Further, the Administrator is expected, under the terms of this contract, to perform desktop reviews to support ESA (Section 7) and NHPA (Section 106) reviews.

Q.10. For permitting, will the administrative contractor need to conduct courthouse research for surface, oil and gas royalty and coal owner information, or will this be done by WVDEP?

A. It is the responsibility of the well owner/operator to apply for and obtain all required permits for plugging under this program. Accordingly, it will be the responsibility of the MCW owner/operator to provide all the required notifications to surface owners.

Q.11. Will this project be released in sections or in its entirety?

A. This Administrator RFP is not being released in sections. Work will proceed in a linear fashion starting with well site nominations process development and conclude with post-plugging MEQ, as illustrated in the Gantt chart below. However, if the Vendor is referring to the plugging contracts themselves, those decisions have not yet been made. The Agency will likely develop plugging contracts from the prioritized well list that are geographically close in order to increase efficiencies.

Activity	FY25				FY26				FY27				FY28			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Well Nominations		X														
MEQ			X	X	X	X	X	X	X	X	X	X	X	X	X	X
Prioritized Well List			X													
Well Plugging			X	X	X	X	X	X	X	X	X	X	X	X	X	

Q.12. If in sections are these sections grouped geographically?

A. This Administrator RFP is not being released in sections, and only one contract will be awarded. Work will proceed in a linear fashion starting with well site nominations and conclude with post-plugging MEQ. The Administrator will have statewide responsibility. If the Vendor is referring to the plugging contracts themselves, those decisions have not yet been made. The Agency will likely

develop plugging contracts from the prioritized well list that are geographically close in order to increase efficiencies.

Q.13. What is the period for the 400 wells to be measured prior to plugging?

A. Pre-plugging MEQ evaluation will follow the well nomination process and should be initiated immediately following the closure of the MCW well nomination process.

Q.14. What is the period for the 400 wells to be measured post plugging?

A. Post-plugging MEQ evaluation should follow plugging in a timely fashion. In all cases, post-plugging MEQ must be completed prior to the administrative release of the plugging permit.

Q.15. What is the period for the 400 wells to be permitted?

A. It is the responsibility of the well owner/operator to apply for and obtain all required permits for plugging under this program. The owners/operators of selected MCWs should initiate the permitting process immediately following selection to ensure efficiency of well plugging contracting. This RFP also asks the Vendor to perform reviews of each well site that will satisfy reviews required under the Endangered Species Act (Section 7) and the National Historic Preservation Act (Section 106). These reviews should commence immediately after MCWs have been selected for well plugging.

Q.16. What is the documentation requirement for the pre- and post-P&A measurement evaluations?

A. Pre- and post-plugging MEQ measurements should be presented as a simple report indicating the quantified methane emission rate in units of g/hr. Any additional information required by the DOE's MEQ guidelines must also be included. A copy of these guidelines may be found at the following URL.

<https://netl.doe.gov/sites/default/files/2024-06/DOE-NETL%20Methane%20Measurement%20Guidelines%20for%20Marginal%20Conventional%20Wells%20April%202024.pdf>

Q.17. Page 6 Section 4.2.1.2 states "Follow up post plugging emissions data will also be required for all wells plugged under this program". Are there anticipated to be 400 wells that will be both pre and post quantified, thus making up the 800 units (400 units each for pre and post quantification)?

A. DEP has estimated that approximately 400 wells may be plugged under this program. Each well plugged will need to have a pre-plugging MEQ analysis to assist in the well prioritization process. The number of wells for which pre-plugging MEQ analysis will depend on the number of wells nominated under the program. Each of these wells (at least those of which have measured pre-plugging emissions) will require post-plugging MEQ.

Q.18. Cost item #1 has 1000 units. Will the number of units be adjusted if the actual hours are over or under 1,000 hours?

A. Yes. The numbers on the pricing sheet are merely estimates.

Q.19. Will WVDEP require site access agreements to be generated by the Administrator team and executed by owner operator to allow contractor, administrator team or WVDEP officials access to well sites for site evaluations/methane quantification/well closures/etc.?

A. It is not anticipated that special site access agreements will be necessary. In the event that a situation arises wherein site access is challenged, WVDEP will make every attempt to resolve those issues.

Q.20. Will the unit rates be set for the duration of the contract or will there be a chance to modify unit rates due to annual labor cost increase and if so, would it be on an annual basis?

A. The rates set for the contract are fixed and cannot be modified. If the Vendor elects to not renew the contract after the first performance year, the Agency will bid the remainder of the contract as an RFP.

Q.21. Approximately how many in-person meetings will the vendor be required to attend?

A. There are no planned in-person meetings at this time. Kickoff and regular status-check meetings may be held virtually; however, in-person meetings may become necessary at the discretion of the DEP.

Q.22. Certain physical / protected features such as the presence of wetlands may also trigger the need for permits and/or drive prioritization. Can the Department confirm the scope of this effort excludes field-based investigations?

A. It is the responsibility of the well owner/operator to apply for and receive all necessary permits. We envisioned that the Administrator could assist in this process through desktop reviews only. If the Administrator recognizes certain factors that could trigger jurisdictional matters in any other state or federal agency, then the administrator should inform the well owner/operator. There is no expectation that the Administrator is performing field-level reviews in order to ensure the MCW owner/operator is compliant with all jurisdictional requirements. DEP acknowledges that it asks the Vendor to take a lead role in the completion of reviews compliant with ESA §7 and NHPA §106. The Agency anticipates these being desktop reviews only.

Q.23. Has a list of potential owner operators been identified along with contact information for outreach coordination by Administrator?

A. The Administrator will be provided with a full list of owner/operators of MCWs in West Virginia with the current contact information. The Administrator should develop an outreach campaign that extends beyond merely sending mailings to the last known address of operators.

Q.24. Should the permitting evaluation also include local, county or municipal authorities having jurisdiction?

A. Yes. The owner/operator of selected MCWs will be responsible for acquiring all necessary permits including local, county, state, and federal jurisdictions.

Q.25. Are electronic signatures acceptable?

A. Yes, Electronic signatures are acceptable.

Q.26. Are we to assume the M&M line item for 800 wells includes 400 pre-plugging and 400 post plugging events, or does the 800 wells include both pre and post plugging measurements? Please clarify what is envisioned relative to this well count.

A. DEP has estimated that approximately 400 wells may be plugged under this program. Each well plugged will need to have a pre-plugging MEQ analysis to assist in the well prioritization process. The number of wells for which pre-plugging MEQ analysis will depend on the number of wells nominated under the program.

Q.27. Is there a conflict between the SQAQO contract and this contract if awarded both?

A. The Agency does not foresee a conflict of interest should the Vendor who is awarded the SQAQO contract also be awarded the Administrator contract. The purpose of the Supplemental Quality Assurance Officer (SQAQO) contract is to provide arms-length oversight over field activities performed by the well plugging contractor. DEP does anticipate how these two disparate functions could result in conflict; however, should such a conflict arise, it is incumbent upon the Vendor to develop a plan to alleviate any such concerns for conflict.

Q.28. Would the agency be interested in a cost benefit analysis for award of the Measurement and Monitoring, SQAQO and MERP programs to a single proponent?

A. No, not at this time. The respective RFPs for MEQ, SQAQO, and MERP administrator contracts are separate and distinct. Further, the MERP administrator RFP is funded by a different source than that associated with the MEQ and SQAQO contracts.

Q.29. Would the agency consider the use of a proponent's proprietary software platform for well prioritization?

A. The Agency anticipates using the PRIMO software developed by NETL for well documentation and prioritization. DEP is not required to use this software but intends to make the prioritized well list (within PRIMO) publicly available. This is the Agency's preferred solution. Proprietary software may introduce complexity with this intent and other related issues—including data ownership and access. That said, if a Vendor had a software solution that satisfies all Agency goals and does not introduce new complications or problems, the Agency may consider it.

Q.30. For the descriptions in section 4.2.2.2 of the RFP, please clarify what is intended relative to the statement "but such costs will not be paid by the Agency separately" in the sentence below.

"Any anticipated mileage or travel costs may be included in the flat fee or hourly rate listed on Vendor's bid, but such costs will not be paid by the Agency separately."

A. The Vendor will be responsible for covering all travel expenses for their employees. There is no mechanism to bill the agency separately for those expenses.

Q.31. The RFP states that MEQ will be required on each nominated well in the program. Based on the WV 2023 production table, there are approximately 60,000 MCWs. While significant participation in the program would be beneficial, a nomination rate of only 1% would mean 600 wells require MEQ. Does the WVDEP foresee a potential limit to well nominations?

A. A rough screening can be devised through the nomination process. The Agency envisions that MCW owner/operators will self-report wells as not leaking, leaking, or leaking and may be high. If the number of nominations vastly exceeds the capacity to plug, MEQ may be prioritized accordingly.

Q.32. Is the MEQ intended to be part of the ranking/prioritization system, or depending on MCW nomination volumes, would/could the MEQ be required only for the highest-ranking wells (those most likely to get plugged) without confirmation of methane leaks?

A. Yes, MEQ is intended to be part of the ranking system. If the number of nominations vastly exceeds the capacity to plug, MEQ may be prioritized accordingly.

Q.33. Is there a limit for well nominations from a single owner/operator? Based on the publicly available well database, one operator has approximately 20,000 MCWs. There is a potential for a handful of operators to monopolize the available funding.

A. The finalized prioritization model will be provided upon award. The selection of the criteria which will comprise the model is the responsibility of the Community Benefits Committee.

Q.34. If a landowner has an abandoned well on their property (not orphaned) are they allowed to nominate the well for plugging through the MERP?

A. The Agency anticipates that a landowner (or other stakeholder who is not the owner/operator) may nominate a well, but this program is strictly voluntary. If the owner/operator does not want to plug the well, it will not be considered.

Q.35. Will the ranking/prioritization model be fully developed by the CBC and Agency, or will the Administrator be responsible for some input for weighting the ranking criteria?

A. The MERP program well prioritization model will be fully developed by the CBC through public feedback.

Q.36. Would the Purchasing Division consider granting an extension to the deadline for the proposal submission? This additional time will help us provide a comprehensive, high-quality proposal that meets all the requirements outlined in the RFP.

A. The bid due date has been extended to 1/7/2025.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFP DEP25*04

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

<input checked="" type="checkbox"/> Addendum No. 1	<input type="checkbox"/> Addendum No. 6
<input type="checkbox"/> Addendum No. 2	<input type="checkbox"/> Addendum No. 7
<input type="checkbox"/> Addendum No. 3	<input type="checkbox"/> Addendum No. 8
<input type="checkbox"/> Addendum No. 4	<input type="checkbox"/> Addendum No. 9
<input type="checkbox"/> Addendum No. 5	<input type="checkbox"/> Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Parsons Environment & Infrastructure, Inc.

Company



Authorized Signature

12/20/2024

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.
sed 6/8/2012