

Technical
Proposal

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DIVISION

DEP OOG - Methane Emission Quantification | CRFP 0313 DEP2500000001

Date: August 27, 2024

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Introduction

Groundwater & Environmental Services, Inc. (GES) is pleased to submit the enclosed Centralized Request for Proposal (CRFP) to the Department of Administration Purchasing Division for the West Virginia Department of Environmental Protection (WVDEP) to provide a comprehensive methane emission quantification (“MEQ”) service for selected oil and natural gas wells outlined in the CRFP. Our team has the strong qualifications and proven success necessary to meet the objectives and needs of this very important project as this proposal will demonstrate.

- We bring extensive experience working with oil and gas assets to the table. Since 1985, we’ve collaborated with commercial clients specifically in Appalachia. This experience gives us a deep understanding of both historical and current oil and gas infrastructure. This knowledge is key to ensuring safety for ourselves, the community, and the environment when working around these sites.
- Most of the employees assigned to this project understand the long history of oil and gas exploration, the risks associated with orphaned wells, and the need to locate and address them.

The RFP requirements, outlined in the blue boxes, provide a framework for demonstrating how our offering fully meets the criteria according to Section 5.3.4. Response Reference.

4.2 Project Goals and Mandatory Requirements

4.2. Project Goals and Mandatory Requirements: The vendor must be able to provide a comprehensive methane emission rate quantification solution to satisfy the Agency's goals and objectives that is fully compliant with BIL guidelines. The vendor should describe its approach and methodology to providing the service or solving the problem described by 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.

GES will utilize ground-based measurement techniques to quantify the methane emission from the subject wells. No two wells are alike so having multiple technologies at our disposal allows us to select the appropriate tool. GES' current tool box contains a dynamic flux chamber and a high flow sampler. A flux chamber will be used if the well has no, or minimal, surface piping and infrastructure. The high flow sampler will be used if the subject well has valves, connections or other wellhead fittings that prevent the installation of a flux chamber. Both methods are described in Section 4.2.1.1 (Pre-Plugging Methane Emissions Rate from Wells) of this proposal.

The flux chamber was designed, built, and tested by GES employees and is compliance with Bipartisan Infrastructure Law (BIL) and ACR protocols. Although the flux chamber is not applicable to all situations, an advantage to employing the flux chamber, when appropriate, is that they are built by GES staff from easily sourced materials which allows us to build additional chambers quickly to meet client needs and schedules. In addition, the chambers are easily maintained by our staff, can be customized, and are less expensive than other quantification equipment currently on the market.

Beyond the flux chamber, our other field measurement equipment is procured through rental agreements with our equipment partners. Renting equipment has several advantages in that we can quickly obtain multiple units to meet client schedules, the equipment is always well maintained and can be swapped out to ensure proper maintenance, and our vendors provide on-call technical support to assist with troubleshooting to minimize downtime. Technology in this space is ever changing; therefore, by not owning equipment we minimize our investment in specific equipment and can easily adapt and obtain newer, or better, equipment that may come to market or to meet specific client program requirements.

4.2.1 Goals and Objectives

4.2.1.1 Pre-Plugging Methane Emissions Rates from Wells

The vendor should describe how they plan to provide measurements of preplugging methane emission rates from wells selected by the Agency. The plan should include descriptions of all equipment and procedures to be used. Vendor should include documentation supporting the assertion that the selected equipment satisfies BIL guidelines.

For pre-plugging, GES will review the initial methane screening results, location details, and site conditions. A measurement method will be selected (flux chamber or high flow sampler) and, on a schedule that has been coordinated with, and approved by, the Agency, a 2-person GES team will be deployed base on the weather forecast for the event as it must be free of precipitation. At least one of the GES field team members will be a Qualified Measurement Specialist (QMS).

Once onsite, our health and safety plan will be reviewed, which will address all the potential hazards and mitigation steps associated with working on or near orphan wells. For safety and measurement purposes, GES will use a Landtec SEM5000 or similar methane analyzer and a Bascom-Turner Gas Explorer 4-gas meter or similar. Prior to the start of work, the area will be screened to determine that it is safe for work to proceed. If conditions are deemed not safe, GES will leave the work area and immediately contact the Agency to discuss site conditions and next steps. Otherwise, the following information/data will be recorded before the quantification event begins regardless of method:

- Equipment model numbers, serial numbers and calibration results.
- Environmental conditions – recent precipitation, temperature, humidity, barometric pressure and wind speed with direction. Any changes in environmental conditions during the test will also be documented.
- Scan the wellhead and surrounding area and document date, time and location of methane and hydrogen sulfide readings. Record background readings of methane and hydrogen sulfide upwind of the well.
- Collect photo-documentation of the current well condition and surrounding area.
- Well identification information (ex., API number) and Global Positioning System (GPS) location.

Landtec SEM5000

QED LANDTEC SEM5000
PORTABLE METHANE DETECTOR

FEATURES

- Laser Technology
- Wide Measurement Ranges (up to 100,000 ppm)
- Integrated GPS and Bluetooth
- AQH Certified - Zone 1
- Heavy Duty Methane Gas Sensor Module
- Longevity

BENEFITS

- No Direct Gas to Face Reading
- Accurate Measurements
- Automatic Recording
- Multiple Languages
- High Accuracy for Flame, No Hydrogen
- Multiple Reporting Functions
- Easy to Use

THE EASY WAY TO MONITOR SURFACE EMISSIONS

The SEM5000 Portable Methane Detector is the ideal instrument for landfill surface emissions monitoring. It is a non-invasive, non-destructive, and non-polluting device. It is a portable, rugged, and easy to use device. It is a non-invasive, non-destructive, and non-polluting device. It is a portable, rugged, and easy to use device.

QED Environmental Systems Inc.
7000 West 10th Avenue, Suite 100, Denver, CO 80202
Tel: 303.733.1111 Fax: 303.733.1112
www.qedenv.com

SEM5000

TECHNICAL SPECIFICATION

Target Gas	Methane (CH ₄)
Detection Method	Non-Dispersive Infrared (NDIR) Absorption - Open-Path
Measurement Range	0 ppm to 100% volume
Instrument Resolution	0.5 ppm (0.5 - 100 ppm) 1 ppm (100 - 1,000 ppm) 1 ppm (1,000 - 10,000 ppm) 10 ppm (10,000 - 100,000 ppm)
Pump Flow Rate	0.5 to 2.0 L/min
Sampling Probe Outside Diameter	4 mm
Weather Safety	ATEX Zone 1 Ex II 2 G Ex up to 4-10 T3 G4 Temp: -30 °C to +50 °C
Response Time	100 - 2.5 seconds 100 - 3.5 seconds (no probe)
GPS Accuracy	2 to 4 meters
Power Supply	Li-Ion for Rechargeable Battery Pack (3.7V - 4.0V/2000mAh)
Battery Autonomy	10 hours at 20°C (with full light activation) 8 hours at maximum temperature
Battery Charge Duration	4 to 10 hours to full charge
Temperature Range	-20°C to 50°C
Warm Up Time	10 to 15 seconds
Weight	1.6 kg
Endurance Protection Level	IP65 / NEMA4
Factory Calibration Requirement	2 years
Field Calibration	Daily (next to Method 21, section 2.8.3.6)

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Following completion of equipment calibration and initial well/site assessment, the methane quantification activities will be performed. Below is a description of how methane quantification measurements will be collected via GES' flux chamber and the Semtech Hi-Flow sampler.

Flux Chamber



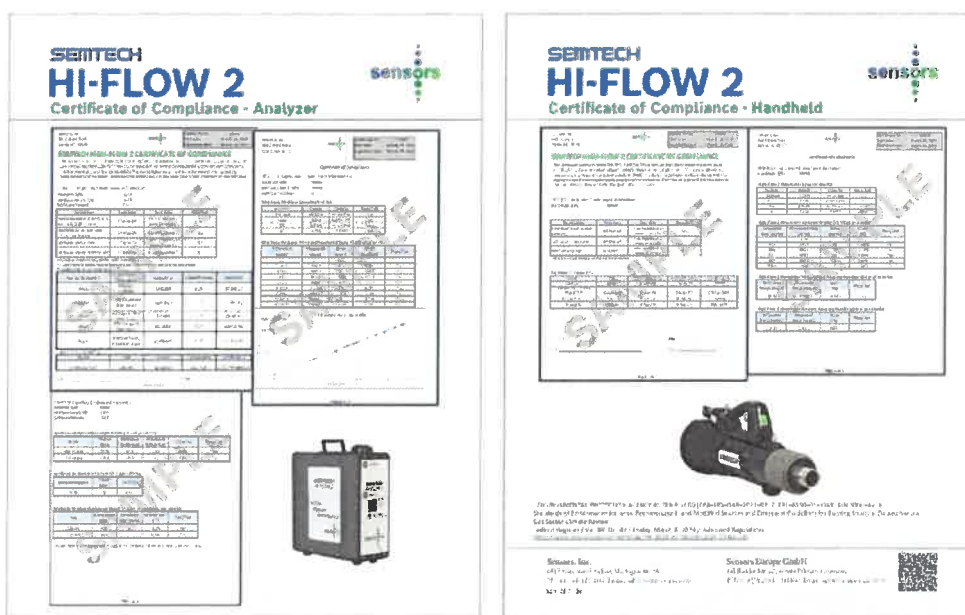
Our portable flux chamber will be placed on the wellhead and adjusted for needed annulus buffer between the wellhead and chamber wall. The battery powered fan will be activated and time recorded. Readings, including methane concentration, air flow, chamber pressure, and chamber temperature, will be collected and documented every 10 minutes. A minimum of 12 readings over a 2-hour period are required. The maximum test time will not exceed 3 hours. All data will be recorded in an electronic field form and the methane leak rate will be automatically calculated. At the completion of the test, the chamber fan will be deactivated, chamber removed, and cleaned. All materials, cleaning waste, and equipment will then be removed from the site. GES has developed a Standard Operating Procedure (SOP) for flux chamber use and it contains an expanded explanation of the method, calculations, and field forms. This document is included in **Attachment A**.

In regards to meeting BIL requirements, GES' flux chamber meets the ACR guidelines and can meet the 1 gram/hour or less measurement requirement. A project description summary illustrating GES' use of the flux chamber for methane quantification purposes is included in **Attachment B**.

High Flow Sampler

GES will utilize a Semtech Hi-Flow 2 to measure and calculate emission rates before plugging where a flux chamber is not practical. The analyzer is portable, battery powered and utilizes a Tunable Diode Laser Absorption Spectroscopy (TDLAS) to minimize gas interferences and quantifies methane leaks rates with a very-high degree of accuracy. Each sampler is supplied with a National Institute of Standards and Technology (NIST) traceable compliance certificate for both the flow measurement device and the gas analyzer module.

HI-FLOW 2





Fugitive gas emissions from a variety of sources (valves, valve packings, seals, pipe fittings, etc.) can be quantified by capturing the gas leaking from the source using a high-volume sampler coupled with the determination of the extracted and diluted gas concentration. The handheld high-volume unit uses an internal fan to draw into the unit the fugitive gas emission with additional make-up air from the surroundings. In addition, the high-volume sampler measures the total volumetric flow rate of the gas mixture passing through the device using an averaging pitot tube. The flowrate can be adjusted by the user by changing the fan speed. Temperature and pressure of the gas mixture is also measured. The measured methane concentration, volumetric flowrate, temperature, and pressure are all used to determine the methane leak rate in real-time. For wellheads with multiple leaks, an anti-static bag or wrap will be used to cover and contain the leaks to one sampling point.

The Semtech Hi-Flow 2 is the only high flow methane sampler to meet the rigorous requirements outlined by ACR. ACR reporting requirements are detailed in "Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from the Plugging of Orphaned Oil and Gas (OOG) Wells", available on the ACR website (<https://acrcarbon.org/methodology/plugging-orphaned-oil-and-gas-wells/>), which is also referenced in the Department of Interior (DOI) methane measurement guidelines (i.e., BIL guidelines)

In order to generate reports aimed at meeting ACR's requirements, the Hi-Flow2 Host Software is set up to run the test and report the results in a format that can be downloaded. The preconfigured tests will run for the correct time automatically. Refer to the table below for descriptions of the ACR test procedures.

Procedure	Instructions
ACR High Leak Measurement	Leak measurements should be taken at the unplugged well. This test will run for about 2 hours, sampling for 30 one-minute intervals, and requires no user input.
ACR Leak Background	Leak background should be taken upwind of the well-being measured for this ACR test. This test will run for about 10 minutes, and requires no user input.
ACR Low Leak Measurement	Leak measurement should be taken at the unplugged well. This test will run for about 2 hours, sampling for 7 ten-minute intervals, and requires no user input.
ACR Medium Leak Measurement	Leak measurement should be taken at the unplugged well. This test will run for 2 hours, sampling 13 five-minute intervals, and requires no user input.
ACR Post Plug Check	Post-plug check should be taken within 5 cm of the ground, near the plugged well. This test will run for about 5 minutes, and requires no user input.

For all methods described above, a pre-plugging quantification report will be provided summarizing the name(s) of the QMS performing the work, well identification and GPS position, equipment used, table of field measurements, leak rate calculations, photo-documentation, and a figure showing the aerial location of the site. Modifications to the report can be made, as requested by the Agency. Reports will be submitted to the

Agency electronically no more than one week after completing the quantification event. In addition, electronic data can be formatted for upload to Agency and/or BIL-required databases that may be used.

Per the BIL guidance, a Quality Assurance/Quality Control (QA/QC) process is recommended; therefore, GES plans to perform a second set of measurements at approximately 5% of the wells. The QA/QC measurements will be completed as part of the pre-plugging scope of work.

It is important to note that during any screening or quantification activities, GES will not alter the wellhead or infrastructure around the wellhead in any way.

4.2.1.2 Post-Plugging Methane Emissions Rates from Wells

The vendor should describe how they plan to provide measurements of post-plugging methane emission rates from plugged wells having a measured preplugging methane emission rate greater than 1 gram per hour. The plan should include descriptions of all equipment and procedures to be used. Vendor should include documentation supporting the assertion that the selected equipment satisfies BIL guidelines.

Plugged wells are to be tested for leakage. A 2-person GES field team will conduct screening with a Landtec SEM5000 or similar within five centimeters of the ground surface of the plugged well for at least five minutes. If well casing remains above grade, it will also be screened. If methane concentrations exceeding two parts per million (ppm) above background are detected, then post-plugging quantification will be completed. At least one of the GES field team members will be a QMS and GES will be prepared to conduct quantification measurements during the same mobilization as the post-plugging screening.

Post-plugging measurements and reporting will be conducted in the same manner as pre-plugging. These steps are summarized in Section 4.2.1.1.

4.2.1.3 Cost-Effective Screening Protocol

The vendor should describe in detail how they will develop a cost-effective sensitive screening protocol by which wells not initially appearing to be leaking may be tested for emissions. The plan should include descriptions of all equipment and procedures to be used. Vendor should include documentation supporting the assertion that the selected equipment satisfies BIL guidelines.

For methane screening, GES will coordinate with the Agency to determine a schedule prior to mobilizing. GES will then mobilize a team of two people outfitted with a Landtec SEM5000 or similar methane analyzer and a Bascom-Turner Gas Explorer 4-gas meter or similar. Prior to the start of work, our health and safety plan will be reviewed, which will address all the potential hazards and mitigation steps associated with working on or near orphan wells and the area will be screened to determine that it is safe for work to proceed. If conditions are deemed not safe, GES will leave the work area and immediately contact the Agency to discuss site conditions and next steps. If conditions are deemed safe, GES will proceed with methane screening activities.

The team will inspect and observe each well in their current status without disturbance to the well, wellhead, or any associated equipment. GES will screen for methane in the vicinity of the well using a methane-specific meter (Landtec SEM5000 or equivalent) capable of measuring from 1-1,000 ppm. Findings will be documented on dedicated field forms and photographs taken of the wellhead, any associated equipment and surroundings. If methane is detected, any potential site access issues will be documented on the field forms and supporting photographs taken.

The following information/data will be recorded during screening events:

- Equipment model numbers, serial numbers and calibration results.

- Environmental conditions – precipitation, temperature, humidity, barometric pressure and wind speed with direction. Any changes in environmental conditions will also be documented.
- Methane and hydrogen sulfide readings.
- Photo-documentation of the current well condition and surrounding area.
- Well identification information (ex., API number) and GPS location.

A methane screening report will be provided summarizing the names of the field staff performing the work, well identification and GPS position, equipment used, table of field measurements, photo-documentation, and a figure showing the aerial location of the site. Modifications to the report can be made, as requested by the Agency. Reports will be submitted to the Agency electronically no more than one week after completing the screening event. In addition, electronic data can be formatted for upload to Agency and/or BIL-required databases that may be used.

4.2.1.4 Agency Personnel Training

If the vendor proposes to provide equipment only, it should describe how it will train Agency personnel to effectively use and deploy such equipment to the standards identified in BIL guidelines.

GES is not proposing to provide equipment only and associated training.

4.2.1.5 Equipment Use to Acquire Methane Emission Rates

Vendor should describe any previous demonstrated successes using equipment to acquire methane emission rate quantification for wells and/or related oil and gas infrastructure.

GES collaborated with the Department of Energy's National Energy Technology Laboratory (NETL) and the Well Done Foundation to test our custom-designed flux chamber for methane quantification at abandoned oil and gas (AOOG) wells. Field testing successfully validated our flux chamber design after laboratory analysis and emission calculations were compared to other proven methods used on the same wells.



The Semtech Hi-Flow 2 is made by Sensors, Inc. who was founded in 1969 and has become an innovative leader in gas emission measurement equipment. The Semtech Hi-Flow 2 is the only high flow sampler to meet the rigorous requirements of the ACR "Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from the Plugging of Orphaned Oil and Gas (OOG) Wells".

View Sensors, Inc. press release at [Hi-Flow Press Release May 26 2023.pdf \(sensors-inc.com\)](https://www.sensors-inc.com/press-releases/semtech-hi-flow-2-the-preferred-high-flow-sampler-for-methane-emissions-monitoring-reporting-and-verification-of-greenhouse-gas-emissions-reductions-and-removals-from-the-plugging-of-orphaned-oil-and-gas-oog-wells) to learn more on being a leading provider of gas emissions measurement solutions.

4.2.2 Mandatory Project Requirements

4.2.1.1 All vendor plans must be in full compliance with BIL guidelines

Our response to this is referenced above in the 4.2.1.1 Pre-plugging section as requested in the RFP.

4.3 Qualifications and Experience

4.3.1 Qualifications and Experience Information

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 were met.), references for prior projects, and any other information that vendor deems relevant to the items identified as desirable or mandatory below.

GES's Firm Background

GES was founded in 1985 in Pennsylvania. Since our inception, we have served upstream, midstream, and downstream oil and gas clients and have contracted directly with state agencies. Specific to our government clients, we have contracts with several Federal and state agencies across the United States. Therefore, we have a firm understanding of the various contracting mechanisms, and have a successful record of complying with these contracts, including procurement and invoicing requirements. Similar to the BIL funding, we successfully executed over 30 environmental investigation projects under the American Recovery and Reinvestment Act (ARRA) and successfully complied with the federal-funding requirements.

Applicable Staff Certifications and Degrees

Specific to this scope of work, we have worked throughout West Virginia since 1994 performing various soil, groundwater and surface water remedial investigations and employ West Virginia-licensed Professional Engineers and a West Virginia Licensed Remediation Specialist. Please refer to **Attachment C** at the end of the license holder's resume for copies of their certifications and licenses. We employ Professional Geologists, Professional Engineers, environmental scientists, QMS staff, air quality specialists, ecological specialists, sUAS operators, chemists, data visualization specialists, and technical field staff. We are a full-service environmental consulting firm that can self-perform all aspects of environmental projects from project management to field execution.

Experience

Specific to orphan wells, GES holds state contracts in Arizona and New Mexico to provide various services such as due diligence, site assessment, site characterization, site remediation, and methane emissions screening/quantification.

GES has a long history of supporting oil and gas clients in the Appalachia. We have collected tens of thousands of water samples for various natural gas exploration and production companies during various phases of drilling operations (ex., pre-drill and post-drill) as well as supporting with investigations of stray gas incidents/complaints and mitigation. As part of these scopes of work, GES has gained vast experience with working around and measuring methane and other gases utilizing various pieces of equipment and measurement techniques, as well as reviewing and interpreting data to meet client and regulatory requirements.

When executing pre/post-drill water testing events; prior to sample collection, water samples collected by GES field staff are screened in the field for multiple water-quality parameters, including methane. Field-measurements for methane and other gases are collected at the sample location, in the headspace of the cold and/or hot water, and the vicinity of the well. Water samples are then analyzed via third-party laboratories and GES' Chemists then perform data validation on the laboratory reported data. Attention is given to dissolved methane concentrations to determine pre-existing concentrations to determine any potential changes in methane concentrations that may be related to our client's drilling operations. Attention to quality field execution; including equipment calibration and use, field documentation, and sample collection/management is always employed to ensure that legally defensible data are collected. In addition to water samples, our staff have collected samples in support of stray gas investigations, such as isotopic analysis of samples collected from natural gas well casings and headspace of surface water, water within well cellars, and potable wells. In the event that mitigation measures are needed, GES has designed, constructed, and installed venting systems on potable wells; installed vented well caps on potable wells; and installed methane detection monitors/alarms within residential homes.

GES was also contracted by one of the largest oil and gas operators in the United States to perform a long-term methane study in Pennsylvania. The project objective was to gain insight into the variability of methane gas in the well headspace and dissolved in groundwater. Eleven domestic supply wells were selected for the study based on initial dissolved methane concentrations categorized as low (<5 milligrams per liter [mg/L]), moderate (5-15 mg/L), and high (>15 mg/L). An initial 30-day pilot study was performed at one of the wells, and the findings from the pilot study helped GES design and fit the remaining supply wells with customized equipment setups based on the configuration of the well and property owner preferences. Each well headspace was continuously monitored for methane gas, oxygen, and carbon dioxide. In addition, transducers and flow meters were deployed at each well to monitor water levels and well pumping rates and weather stations were installed to provide accurate weather data in close proximity to each well. Utilizing remote monitoring technology, data were collected real-time every minute for a period of 11 to 23 months, depending on location. The results of the study concluded that dissolved methane concentrations in groundwater in the bedrock aquifers of the study area vary temporally with seasonal changes in water table elevations, as well as that groundwater pumping action can lead to significant variability in methane headspace concentrations.

Leak detection and repair (LDAR) is another area where GES has supported our clients. Our forward looking infrared (FLIR)-licensed camera operators have performed onsite leak detection inspections to identify active, or potential, leaks in order for our clients to make timely repairs and maintain safety and compliance. We also deploy our sUAS fleet with various imaging cameras, including methane detection and quantification, to perform arial terminal/refinery, pipeline right-of-way, and landfill inspections. In addition to arial methane sensing, our FAA-licensed sUAS pilot team also execute magnetometry flights to support projects such as location of AOOG wells, subsurface pipelines, and buried drums.

Our commercial and government clients have an increasing interest in the voluntary carbon market; therefore, GES is closely following the carbon market and the various carbon registries and protocols, including ACR and BCarbon, and we understand how important project planning, project execution and data collection, project reporting, and project validation are to our clients and the market. GES is currently, actively participating in the BCarbon Methane Subcommittee for their Methane Capture and Reclamation Protocol.

Project Examples and References

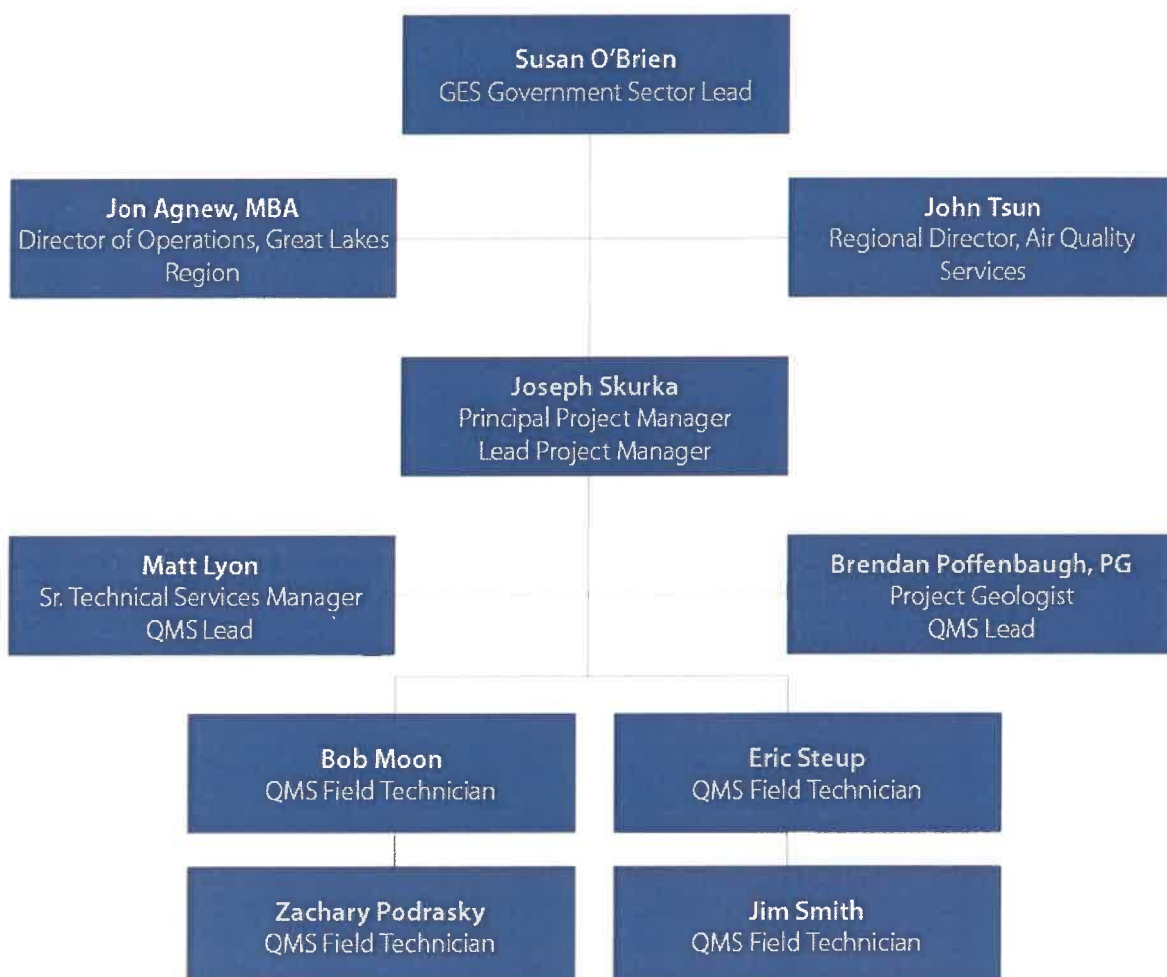
Additional example projects are provided in **Attachment B**. These project examples contain the project location, scope, outcome, GES project manager name and contact information, and client reference contacting information.

Staffing Plan

This project will be managed out of GES' Cranberry Township, PA office and led by Principal Project Manager Joe Skurka. Mr. Skurka will be the primary point of contact and lead any interaction with Agency personnel. Technical and execution support will be provided by Matt Lyon and Brendan Poffenbaugh. An organizational chart is provided below and presents additional senior-level support and supporting roles that will fall under Mr. Skurka and his primary team.

Resumes for Key Personnel are provided in **Attachment C**.

Organization Chart



4.3.1.1. Qualified Measurement Specialist

Vendor should meet the definition of “qualified measurement specialist,” as defined in BIL guidelines OR be able to train Agency staff to meet that definition.

Matt Lyon and Brendan Poffenbaugh have several years of methane measurement experience using various pieces of equipment for screening and quantification. Mr. Lyon, with support from John Tsun, designed and built GES’ flux chamber which has been tested and complies with BIL and ACR protocols. Subsequently, Mr. Lyon has been training GES field staff on the proper use and maintenance of our flux chambers to ensure appropriate and accurate quantification measurements are collected.

In addition, Matt Lyon and Brendan Poffenbaugh have received training and certification to operate the Semtech Hi-Flow 2 fugitive methane analyzer and have also been deemed qualified as train-the-trainer to train additional GES staff on the proper operation of the Semtech Hi-Flow analyzer. Copies of their training certificates are included in **Attachment C**.

GES has developed an internal QMS certification program. This program was developed by Tom Baylis, GES’ Vice President of Health, Safety, Security, and Environment (HSSE) who is also a Certified Industrial Hygienist (CIH); GES’ AOOG Well Program lead, Holly Smoker; and our QMS leads, Matt Lyon and Brendan Poffenbaugh.

The program consists of a one-day classroom training followed by field training at AOOG well sites utilizing the specific equipment that will be used for methane screening and quantification, as well as equipment used to monitor the breathing zone to determine if the work area is safe (ex., 4-gas meter).

The instructors for the classroom training are Tom Baylis, Matt Lyon, Brendan Poffenbaugh, as well as representatives from our equipment vendor partners who are also subject matter experts in the proper use, calibration, and maintenance of the equipment they provide.

Prior to the classroom training, we require trainees to review, and sign-off that they reviewed, the United States Department of Interior *Assessing Methane Emissions from Orphaned Wells to Meet Reporting Requirements of the 2021 Infrastructure Investment and Jobs Act, Methane Measurement Guidelines* document. When needed, additional regulatory and/or client requirements are incorporated into the training process.

Following completion of the classroom training, Mr. Lyon and Mr. Poffenbaugh execute hands-on field training on equipment calibration, maintenance, installation, and data collection. The minimum number of hours of training for each staff is 20. However, staff do not only need to meet a minimum number of hours, but also must be deemed competent to successfully plan for, and execute, a methane emissions screening and quantification event before receiving QMS certification.

By employing an internal certification program, we can cost effectively and efficiently provide QMS certification to additional GES, such as new hires, or as our volume of work increases and additional QMS staff are needed to meet client schedules.

4.3.1.2. Equipment to Acquire Methane Emission Rate Quantification

Vendor should describe any previous demonstrated successes using equipment to acquire methane emission rate quantification for wells and/or related oil and gas infrastructure.

Our response to this is referenced above in the 4.2.1.5 Equipment Use to Acquire Methane Emission Rates section as requested in the RFP.

Standard Operating Procedure

SOP #:	FM-11.5 Rev. 000
Review Date:	N/A
Origin Date:	05/07/2024

Title: Flux Chamber Use on Abandoned and Orphan Oil and Gas Wells

1. Purpose/Scope

The objective of this standard operating procedure (SOP) is to provide direction and guidance for collection of emissions data from abandoned and orphan oil and gas (AOOG) wells using the Groundwater & Environmental Services, Inc. (GES) designed flux chamber. Methane is the most common gas measured during flux chamber deployment, but other gases such as volatile organic compounds (VOCs), oxygen, and hydrogen sulfide can be measured as well. The flux chamber is designed for use at locations where it can be readily placed over a well. Equipment and field procedures may need to be modified for scenarios where existing infrastructure (ex., piping connections, pump jacks) or other obstructions are present. A diagram of the flux chamber is included as **Attachment 1**.

2. References

American Carbon Registry (ACR: Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Plugging Orphan Oil and Gas Wells in the U.S. and Canada, Version 1.0 (May 2023)

Kang, M., Kanno, C. M., Reid, M. C., Zhang, X., Mauzerall, D. L., Celia, M. A., Chen, Y., & On-stott, T. C. (2014). Direct measurements of methane emissions from abandoned oil and gas wells in Pennsylvania.

Riddick, S., Mauzerall, D., Celia, M., Kang, M., & Bandilla K. (2020). Variability observed over time in methane emissions from abandoned oil and gas wells. *International Journal of Greenhouse Gas Control*, 100 (2020) 103116.

Williams, J. P., Regehr, A., & Kang, M. (2021). Methane Emissions from Abandoned Oil and Gas Wells in Canada and the United States. *Environmental Science & Technology*, 55(1), 563–570.

3. Flux Chamber Introduction

Flux chambers are devices that can directly measure emission rates (i.e., mass flux) from the ground or a point source (e.g., AOOG well) to the atmosphere and are widely used in environmental science for the measurement of greenhouse gases, pesticides, and fertilizer flux to the atmosphere. Flux chambers, historically referred to as emissions isolation flux

Standard Operating Procedure

SOP #:	FM-11.5 Rev. 000
Review Date:	N/A
Origin Date:	05/07/2024

chambers, have been in use since at least the 1980s. Flux chambers provide a method for collecting emission rate data from AOOG wells that may be useful in documenting baseline emissions as well as post-well plugging emissions. The equipment described in this SOP is capable of providing data to calculate emissions as low as 1 gram per hour (g/hr).

ACR, formerly The American Carbon Registry, specifically requires the use of a flux chamber to measure methane emissions from orphaned wells to be considered for carbon credits issued by ACR. Accordingly, this SOP complies with ACR requirements, but use of the flux chamber is not exclusive to projects for which ACR carbon credits are desired.

3.1 Flux Chamber Types and Specifications

There are two types of flux chamber arrangements approved by ACR: non-steady-state non-through flow (NSS-NTF or static), and steady-state through-flow (SS-TF or open dynamic chamber). The GES preferred emissions measurement method is the SS-TF/dynamic method.

Regardless of chamber type, it includes fans mounted outside the chamber to ensure that the gases inside the chamber are well-mixed. The fans provide sufficient circulation without affecting pressures inside the chamber. The upper portion of the chamber has a vent to prevent pressure buildup. Additional details on both types of chambers are provided below.

3.1.1 NSS-NFT/Static Chamber Principles of Operation

- Allows VOC concentrations to accumulate in the chamber.
- Gas flux from the well is calculated from the chamber headspace concentration change over time.
- Data collected from non-steady-state chamber measurements include a time series of methane concentrations in the chamber using a hand-held instrument and the known chamber volume.
- Sample is collected from the chamber sample port.

3.1.2 SS-TF/Dynamic Chamber Principles of Operation

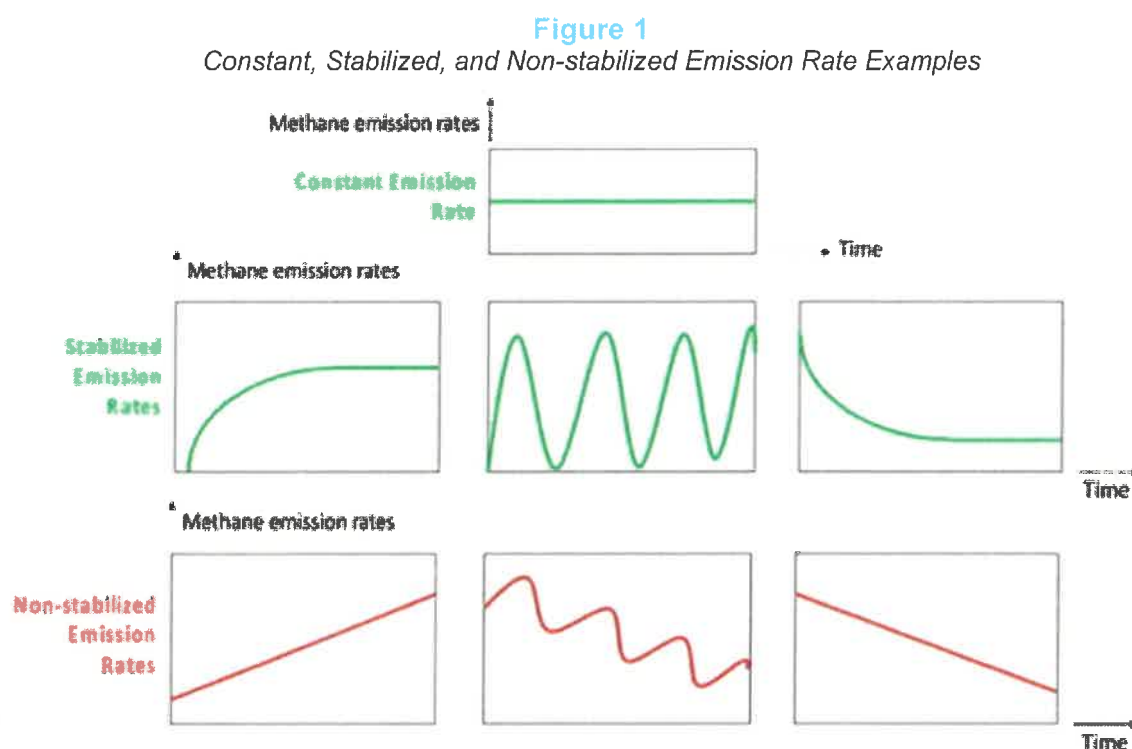
- Chamber has a continuous flow of a known gas (e.g., ambient air) at a fixed rate using a fan or other source of regulated air flow.
- Data collected from steady-state chamber measurements includes equilibrium methane concentrations, air flow through the chamber, and methane concentrations in the gas (ambient air) introduced through the chamber.
- Sample is collected from the chamber sample port.

Standard Operating Procedure

SOP #: FM-11.5 Rev. 000
Review Date: N/A
Origin Date: 05/07/2024

3.2 Flux Chamber Data Collection and Calculations

Static and dynamic are direct emission measurement techniques. Regardless of method, measured emission rates should stabilize during testing for best results. When adhering to the ACR method, stable emission rates over the sampling period are demonstrated by graphing the results, fitting a line to the data to show a resulting slope of less than 1%. For all other projects a minimum and maximum time framed test will be used. See **Figure 1** below for examples of emission rate conditions.



Source: American Carbon Registry, [Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Plugging Orphan Oil and Gas Wells in the U.S. and Canada, Version 1.0, May 2023](#)

- Data required for NSS-NTF/static chamber calculations:
 - Chamber volume.
 - Time rate of change in methane concentration
 - The required time period for this measurement is 10 minutes. If sampling equipment records readings at a higher resolution, rates shall be averaged over 10-minute period.

Standard Operating Procedure

SOP #: FM-11.5 Rev. 000
Review Date: N/A
Origin Date: 05/07/2024

3.2.1 Methane Emission Rate – NSS-NTF/Static Chambers

$$Q_s = V_{eff} \times \frac{dC}{dt}$$

Where:

Q_s = methane flow rate from the well determined using a static chamber ($\frac{mass}{time}$)

V_{eff} = effective chamber volume (volume)

Q_s = methane flow rate from the well determined using a static chamber ($\frac{mass}{time}$)

$\frac{dC}{dt}$ = Time rate of change in methane concentration inside the chamber ($\frac{mass}{volume \times time}$)

Source: American Carbon Registry, Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Plugging Orphan Oil and Gas Wells in the U.S. and Canada, Version 1.0, May 2023

- Data required for SS-TF/dynamic calculations
 - Flow of air (cubic feet per minute [cfm]) flushed through the chamber
 - Methane concentration in the chamber at equilibrium
 - Methane concentration of the air flushed through the chamber (ambient air)

3.2.2 Methane Emission Rate – SS-TF/Dynamic Chambers

$$Q_d = q (C_{eq} - C_b)$$

Where:

Q_d = methane flow rate from the well determined using a dynamic chamber ($\frac{mass}{time}$)

q = flow of air flushed through the chamber ($\frac{volume}{time}$)

C_{eq} = Methane concentration in the chamber at equilibrium ($\frac{mass}{volume}$)

C_b = Methane concentration of air flushed through the chamber ($\frac{mass}{volume}$)

Source: American Carbon Registry, Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Plugging Orphan Oil and Gas Wells in the U.S. and Canada, Version 1.0, May 2023

Standard Operating Procedure

SOP #:	FM-11.5 Rev. 000
Review Date:	N/A
Origin Date:	05/07/2024

4. Equipment/Materials

A basic checklist of suggested equipment and supplies needed to implement this SOP include, but is not limited to:

- GES Flux Chamber, power supply, fans, and accessories
- Bascom-Turner Gas Explorer EGS-611 Detector, or similar (with calibration gas)
- Hand tools (e.g., shovel, spade, trowel)
- GPS unit with compass (cellular phone if GPS unit isn't available – 20-foot accuracy)
- Appropriate PPE (boots, safety glasses, gloves, hard hat, flame resistant [FR] clothing)
- Camera
- Weather station (wind, temperature, barometric pressure, humidity)

5. Preparation

- Conduct site visit, if appropriate, to check well locations and on-site conditions. If a site visit is not practical, view the area on Google Earth.
- Review the field work directive (FWD), project documents, and the health and safety requirements with the Project Manager (PM) or Case Manager (CM).
- Check the weather forecast of the work area for any precipitation events. If any is predicted the event must be rescheduled.
- Obtain required equipment and supplies.
- Charge equipment batteries and test equipment operation before leaving for on-site work.

6. Procedure

The following procedure is a general outline that will be used for chamber installation and testing on each well. During the field event, changes may be needed to allow for safe and accurate data collection. Existing onsite equipment at or on the AOOG wells will vary for each location. A wellhead should never be modified for chamber installation.

1. Assemble and inspect flux chamber; document serial number and chamber condition.
2. Calibrate methane analyzer; document equipment model number, serial number and calibration procedures and results.
3. Mobilize equipment to wellhead.

Standard Operating Procedure

SOP #: FM-11.5 Rev. 000
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 Origin Date: 05/07/2024

Attachment 1: Flux Chamber Diagram



Standard Operating Procedure

SOP #: FM-11.5 Rev. 000
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 Origin Date: 05/07/2024





Standard Operating Procedure

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Review Date: N/A
Origin Date: 05/07/2024

Attachment 2: Flux Chamber Data Collection Form

Example: Flux Chamber Data Collection Sheet



Date: _____	
Well ID/API Number: _____	
Onsite Staff: _____	

Well Information	Flux Chamber Information
Owner: _____	Serial Number: _____
Latitude: _____	Configuration: Static <input checked="" type="checkbox"/> Dynamic
Longitude: _____	Dynamic Airflow: _____

Methane Analyzer Information	
Make: _____	Pre-Calibration Reading: _____
Model: _____	Calibration Time (Military): _____
Seral Number: _____	Post-Calibration Reading: _____

Weather Conditions	
Precipitation: _____	Humidity: _____
Temperature (°F): _____	Barometric Pressure (inHg): _____
Wind Speed (mph): _____	Sky Conditions: _____
Wind Direction: _____	

Background Methane Readings	
Wellhead Reading: _____	Upwind Reading: _____

Sketch of reading locations with approximate distances. Include wind direction.

* Wellhead

* Readings taken 5' from well

Standard Operating Procedure

SOP #:	FM-11.5 Rev. 000
Review Date:	N/A
Origin Date:	05/07/2024

Example: Flux Chamber Data Collection Sheet



Date: _____
Well ID/API Number: _____
Slope: ▲ #DIV/0!

Chamber Configuration

Static / Dynamic

[illegible]



Appendix B – Project Descriptions



PD#1 PROJECT DETAILS

Location:
Hanover Township, Washington
County, PA

GES Project Manager:
David Matt Lyon
(610) 637-8251

Client Reference
Amanda Veazey
CSR Energy Group
(814) 694-5132
aveazey@csrenergysgroup.com

Flux Chamber Design/Build and Testing for Methane Quantification at AOOG Wells

Objective

GES collaborated with the Department of Energy's National Energy Technology Laboratory (NETL) and the Well Done Foundation to test the custom-designed flux chamber for methane quantification at abandoned and orphaned oil and gas (AOOG) wells.

The purpose of the testing was to determine if GES' flux chamber design was able to meet guidelines outlined in the federal program reporting requirements for methane emissions reductions described in Section 40601 (Orphaned well site plugging, remediation, and restoration) of Title V (Methane Reduction Infrastructure) of the 2021 Bipartisan Infrastructure Law (BIL; Public Law 117-58).

Solution

Field testing at the Hillman State Park successfully validated our flux chamber design. Subsequent modifications have focused on enhancing portability, extending battery life for longer testing periods, and improving adaptability to

diverse well and field conditions.

Beyond testing our own flux chamber, we collaborated with the Well Done Foundation to compare our designs and measurements against their deployed chamber. The DOE NETL also had a long-term methane study, using flux chambers, underway within Hillman State Park and we were able to collaborate with them regarding design and measurements.

GES successfully established relationships with the DOE NETL and Well Done Foundation, both renowned subject matter experts in methane emission testing.

Results

Initially, the flux chamber was designed and built in preparation for methane quantification work that is required when performing AOOG well plugging using IJA funding. Opportunities have since expanded to state-funded programs, C&E, and commercial clients for various applications, including the Voluntary Carbon Market.



PD#2 PROJECT DETAILS

Location:

Apache, Coconino, and Navajo Counties, AZ

GES Project Manager:

Byron Baden
(540) 735-5243

Client Reference

Chris Schmidt, PE
Oil & Gas Unit Manager, AZ Dept.
Of Env. Quality
(602)-771-4501
schmidt.chris@azdeq.gov

BIL-Funded Orphan Well Site Reconnaissance

Goals and Objectives

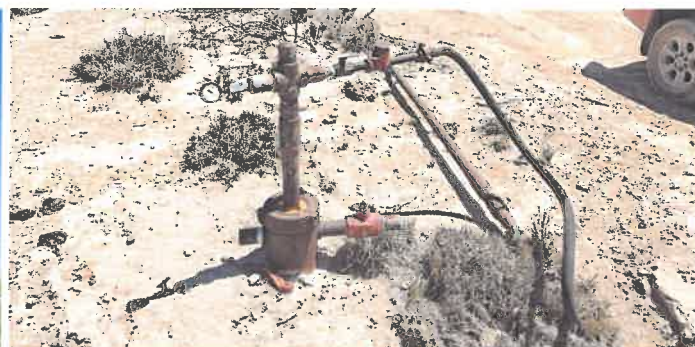
GES inspected 15 orphan wells located in remote areas of the Arizona high desert for presence of methane, current state of condition, wellhead integrity, and condition of any ancillary production equipment. The area immediately surrounding the well, along with the wellhead and fittings were screened for methane using a Landtec SEM5000.

The observations and measurements were recorded on dedicated field forms along with the associated API number for each well. Weather conditions and wellhead location latitude and longitude were recorded. Methane readings, including background readings, were recorded along with a summary of wellhead and associated equipment condition. Photographs were also taken of each location. The field data was summarized in a letter report, with a summary of process and findings, a table of all field data, photo log, and a figure illustrating well locations, well type, and status.

Approximately half the wells being assessed were located using drones equipped with a magnetometer, as no surface expression was present for the well. Following initial locating and assessment of the well, GES returned to collect soil and soil vapor samples from near the well. Additionally, if the well was open to the atmosphere and did not exhibit hazardous conditions, GES attempted to gauge fluid within the well and collect a sample if present.

Results

The reconnaissance did not identify any wells that had detectable levels of methane emissions. The project was completed on time and within the proposed budget.



Orphan Well Methane Measurement Site Reconnaissance

PD#3 PROJECT DETAILS

Location:

Pecos County, TX

GES Project Manager:

Marc Viola
(832) 474-7994

Client Reference:

Ben Veres, CEO
Kateri Environmental Corp.
(312) 358-5733
ben@katericarbon.com

Ian Hazelhoff, Director of New

Markets
Kateri Environmental Corp.
(205) 807-0800
ian@katericarbon.com

Objective

GES inspected 24 orphan well locations for presence of methane, current state of condition, wellhead integrity, and condition of any ancillary production equipment. The area immediately surrounding the well, along with the wellhead and fittings were screened for methane using a Landtec SEM5000.

The objective was to identify wells that may be leaking and for which quantification could be conducted as part of ACR protocols in order to participate in the Voluntary Carbon Market.

Solution

The observations were recorded on dedicated field forms. Where available, the API identifier was recorded. Weather conditions and wellhead location latitude and longitude were recorded. Methane readings and background readings were recorded along with a summary of wellhead and associated equipment condition.

Photographs were also taken of each location. The field data was summarized in a letter report, with a summary of process and findings, a table of all field data, photo log, and a figure illustrating well locations, well type, and status.

Results

The reconnaissance discovered eight wells with detectable concentrations of methane; additional quantification work will be completed as the next step. The project was completed on time and within the proposed budget.



PD#4 PROJECT DETAILS

Location:

WV, Western PA, Eastern OH

GES Project Manager:

Brendan Poffenbaugh, PG
(419) 944-9425

Client Reference

Fred Baldassare, Owner/Principal
Geoscientist
Echelon Applied Geoscience
Consulting
(412)-406-7497
fbaldassare@echelonagc.com

Stray Gas Response and Mitigation

Objective

Clients present with fugitive methane (stray gas) migration issues. The goals of these investigations are to identify the magnitude and source of each stray gas incident, identify potential health and safety hazards, mitigate (to the extent possible) these hazards, and recommend any operational changes and/or repairs that may be necessary to resolve the situations.

Solution

Field staff utilize combustible gas indicators to locate, investigate, and identify the magnitude and source of the stray gas, assess potential health and safety hazards, mitigate (to the extent possible) the hazards, and recommended any operational changes and/or repairs that may be necessary to resolve the situations.

Stray gas projects involve a comprehensive investigation of methane migration. These projects can range from small-scale gas well, water well, and/or indoor air sampling to extensive surveys covering

several acres of land with numerous data collection points. These data sources include soil, water, gas well, and mine gas samples, as well as ambient air and indoor air quality assessments in various structures. Combustible gas analyses range from simple concentration determination to stable isotope geochemistry analyses.

Due to potential safety hazards, initial response to these incidents may necessitate emergency measures such as disconnecting utilities and evacuating buildings.

Results

The work performed for these projects provides clients with the data, interpretations, and reporting necessary to fulfill state agency requirements for closing out complaints and incidents. First and foremost, however, the field work aids in assessing the potential hazards posed to the welfare of the general public and allows the client to make informed decisions relating to actions necessary to ensure public safety and the integrity of their assets.

Appendix C – Key Professional Resumes and Licenses

D. Matthew Lyon

Senior Technical Manager

EDUCATION

BS, Environmental
Science/Geology –
Pennsylvania State University

LICENSES/REGISTRATIONS

Part 107 Remote Pilot's License
– FAA

Commonwealth of
Pennsylvania Certified Drinking
Water Plant Operator – Client ID
353234

EXPERTISE

- Methane emissions measurements
- Remediation system fabrication
- Construction management
- OM&M
- Mobile chemical oxidation units
- Remediation technologies
- Well installation
- PLC systems

Matt Lyon is a senior technical manager and has 27 years of experience designing, fabricating, installing, and performing operation, maintenance, and monitoring (OM&M) of remediation systems and environmental equipment for petroleum and industrial clients. As a part of GES' abandoned and orphaned oil & gas (AOOG) well team, he has designed and built our flux chamber that is compliant with Bipartisan Infrastructure Law (BIL) and ACR protocols. He is also a Qualified Measurement Specialist (QMS) and has helped to develop GES' QMS certification program and training our field staff. As a member of GES' Max-Ox Group, he has been a part of the design and fabrication team for GES' HypeAir mobile chemical oxidation units and is certified in the operation of Semtech Hi-Flow 2 methane analyzers.

Matt has been involved in more than 100 different remediation projects. He has managed the construction and startup of many large remediation projects for Fortune 500 companies throughout the United States and the Caribbean. The systems and procedures include soil vapor extraction (SVE), non-aqueous phase liquids (NAPL) and total fluids recovery, groundwater pumping, dual-phase extraction, in-situ chemical oxidation injection (ISCO, including hydrogen peroxide and ozone injection), vacuum-enhanced sampling, and field monitoring and sampling. He also is trained and experienced in monitoring and recovery well installation using air rotary, auger, and direct-push methods; and in drone operation. Matt has extensive knowledge with programmable logic control (PLC) systems and controls, ozone generators, and other environmental equipment.

Project Experience

Flux Chamber Design and Testing on Orphan Oil and Gas Wells

Designed and fabricated a flux chamber that was used during methane emission quantification on multiple orphaned wells within Hillman State Park. Data was collected and compared with other flux chamber designs and testing methods. These methods included static chambers, dynamic chambers and high flow samplers.

Environmental Field Compliance using Drones for Major Expansion of Natural-Gas-Liquids Pipeline System

Performed aerial inspections using small unmanned aircraft systems for large horizontal directional drilling (HDD) sites.

Residential Water Well Monitoring for Methane

Designed, fabricated and installed real-time monitoring systems for multiple residential water wells as part of a long-term methane monitoring program for one of the largest oil and gas operators in the United States.

System includes sensors to monitor various gas parameters, off-gas flow, pressure, liquid level and turbidity. Real-time data is posted to the web for viewing by the client.

Feasibility Testing Platform Design

Provided senior technical support for the design and construction of a mobile feasibility testing unit capable of testing multiple remediation technologies (air sparge, SVE, groundwater pumping, product recovery, chemical oxidation). The unit utilizes wireless transducers and meters for monitoring and a PLC-based control system for operation. Worked closely with equipment vendors and trained staff on operation of the unit.

Construction and Subcontractor Oversight at Transportation Facility

Served as the senior construction supervisor overseeing multiple subcontractors for the installation of a vacuum-enhanced groundwater extraction system employing pneumatic total fluids pumps to recover gasoline and diesel-impacted groundwater. Oversight included excavation, backfill, and resurfacing of piping trenches for the installation of the subgrade PVC and ABS piping network and installation of all equipment.

Commonwealth of PA General Technical Assistance Contract (GTAC) Construction Management Services

Performed construction management for the installation of the drinking-water system installed in the town of Intercourse, PA. The system included the installation of 50,000 feet of pipe, water-treatment plant, and 500,000-gallon water tower.

Documentation/Inspection of Public Water-System Construction, GTAC

Implemented the use of unmanned aircraft systems to assist in the day-to-day documentation and inspection of the various project components (water tower, building foundations, piping, etc.).

HypeAir Mobile Chemical Oxidation Truck Design

Assisted senior engineers in the design and fabrication of a mobile chemical oxidation truck. With experience gained from the pilot unit, recommended many upgrades for an enhanced secondary truck. The truck utilizes remote monitoring and a PLC-based control system to inject ozone, peroxide, and air, along with SVE capabilities, to remediate groundwater impacts.

Mass Recovery SVE Manifold Design

Developed, designed, and fabricated an automated SVE manifold that analyzes influent vapor concentrations, flow, and vacuum. From these analyses, the control panel software adjusts the flow from each well/piping network to optimize mass recovery.

Reductive Injection System Design

Designed and fabricated a nitrogen injection trailer for sites where reductive remediation is feasible. The system generates nitrogen from compressed air utilizing membranes, air heaters, and receiver tanks.

Training

Operation and Procedures of the SEMTECH HI-
FLOW 2 Methane Analyzer

Loss Prevention System (LPS)

OSHA HAZWOPER – initial, refresher, and
supervisor

RCRA and DOT Training

Electrical Troubleshooting and Maintenance

Groundwater Treatment Plant Maintenance and
Troubleshooting I/II – GES

HazCom GHS Training

Soft Skills Training

Safe Driver Training

First Aid and CPR/AED – American Red Cross

Commonwealth of Pennsylvania

Department of Environmental Protection

State Board for Certification of

Water and Wastewater Systems Operators

Client ID: 353234 **Expires: Mar 31, 2026**

Certificate No. W24843, Water

C,E 9,12

DAVID M LYON

1433 ELBOW LN

CHESTER SPRINGS PA 19425-1605

Joseph Skurka

Principal Project Manager

EDUCATION

MS, Environmental Pollution Control – Pennsylvania State University

BS, Environmental Science – West Virginia University

AFFILIATIONS

PA Council of Professional Geologists

EXPERTISE

- Program/project management
- Technical project oversight and support
- Remedial alternatives analysis
- Remediation oversight/management
- Quality initiatives

Joseph Skurka is a principal project manager responsible for overseeing and managing projects in West Virginia, Pennsylvania, and Ohio as part of GES' abandoned and orphaned oil & gas (AOOG) well team. He has over 25 years of experience in the environmental consulting/engineering field performing environmental site assessment, remediation, and compliance work for PA Hazardous Sites Cleanup Act (HSCA), Leaking Underground Storage Tank (LUST), Resource Conservation and Recovery Act (RCRA), CERCLA (Superfund), hazardous/solid waste landfill, and industrial sites. Joe currently serves as a principal project manager and as program/regional manager for several key client accounts. Joe is responsible for all aspects of project management including remedial action planning and implementation, and has significant experience with negotiation and management of innovative contracts, including pay-for-performance contracting. He is very experienced with conceptual site model development and preparing site investigation, remedial/corrective action, and closure reports; managing and analyzing data; and providing client technical support.

Project Experience

Investigation, Remedial Alternatives Evaluation, Monitoring, and Maintenance of HSCA and LUST Sites, PA Department of Environmental Protection (PADEP) General Technical Assistance Contract (GTAC) Program

Provided senior management, oversight, and technical support for site characterization, conceptual site model development, and remedial alternatives analyses for a portfolio of sites in accordance with PA Act 2 and federal Superfund regulatory requirements and guidance. Projects included close coordination with PADEP regional project managers to investigate a broad range of constituents in impacted soil, groundwater, sediment, surface water, soil gas, and indoor air environments using strategic sampling approaches. Constituents of concern included chlorinated volatile organic compounds (VOCs), semi-volatiles, petroleum hydrocarbons, and heavy metals. Projects also involved successful implementation of post-remedial care plan requirements involving cap maintenance and compliance monitoring programs for former EPA National Priorities List (NPL) sites.

Assessment and Remediation at Retail Petroleum Sites

Performed site characterization, remedial action, and closure activities based on client, regulatory, state insurance fund, and site-specific requirements. Remediation strategies included small- and large-scale vacuum-enhanced groundwater extraction, soil vapor extraction, total-phase extraction, air sparging, remedial excavation, chemical oxidation, monitored natural attenuation, and risk assessment. Successfully achieved PA Act 2 release of liability applying statewide health, site-specific, and background closure alternatives under time and materials and pay-for-performance based contracting scenarios.

Response Management and Rapid Site Characterization for Large-Scale Petroleum Release

Coordinated/managed rapid response for an approximately 2,000-gallon subsurface gasoline release that significantly impacted a downgradient residential neighborhood. Developed conceptual site model utilizing standard and innovative (geophysical) site characterization tools. Utilized GIS/EQuIS data management tools for timely project data evaluation and informed decision making under a compressed site investigation schedule. Effectively managed public relations stemming from residential vapor intrusion issues. Remedial action plan was developed, negotiated, and approved by PADEP to meet PA Act 2 requirements. Installation of a large-scale vacuum-enhanced groundwater extraction system was completed on schedule, requiring negotiated agreements with multiple third-party stakeholders. Operation, maintenance, and monitoring (OM&M) of remedial system is ongoing at 90-100% run-time, demonstrated hydraulic control of the contaminant plume and substantial plume mass recovery.

Site OM&M at Former Industrial Landfill NPL site

Management of Consent Decree required remedial action, controls, monitoring program, and partial NPL delisting support for a former 60-acre capped industrial/commercial landfill property. The facility historically accepted waste, including household refuse, construction debris, medical waste, and calcium sulfate waste products during its operation, with constituents of concern including VOCs, TCL metals, and general chemistry constituents. Supported implementation and maintenance of engineered controls, including a site-wide passive ventilation system for methane and hydrogen sulfide gases, construction-related activities for landfill cap maintenance, and institutional control monitoring/maintenance and certification. Project data evaluation, updated conceptual site model development, and pathway elimination assessment led to successful client negotiation for partial delisting of land/soil portion of the landfill property and 47 adjacent/downgradient parcels from the NPL.

Monitoring at Active and Closed Municipal Solid-Waste Landfill Sites

Implemented state-permit-required hydrogeological and groundwater/surface-water quality monitoring programs. Managed consolidation of 25 years of historical monitoring data into an EQuIS-based data evaluation, management, and reporting system. Supported general landfill gas monitoring network and leachate management systems tasks. Providing ongoing support for groundwater, surface-water, and leachate data management and compliance reporting.

Training

Loss Prevention System (LPS)

OSHA HAZWOPER – initial, refresher, and supervisor

Characterization and Remediation of Fractured Rock – CLU-IN Seminar, ITRC

PA UST Class A/B Operator Training – Practical American Safety Solutions, LLC

Risk-Based Corrective Action Applied at Petroleum Release Sites – ASTM Standard E 1739

Project Management for the Environmental Professional – GES

Connecticut Remediation Standard Regulations – CT DEP

Environmental Statistics in Pennsylvania – PA Council of Professional Geologists

Groundwater Fate & Transport Technical Training Course – PADEP Land Recycling Program Act 2

Qualified Safety Training

Hazardous Waste Management and Compliance Training – Lion Technologies, Inc.

Land Recycling Program Act 2 Client Workshop – PADEP

Human Health Risk Assessment Technical Training Course – PADEP Land Recycling Program

Ecological Risk Assessment Technical Training Course – PADEP Land Recycling Program

Optimizing the Use of Geophysical Data – THG Geophysics, Ltd.

RCRA and DOT Training

Environmental Management Systems – ISO 14001: 2015 Foundations Course

Vapor Intrusion Technical Training Course – PADEP Land Recycling Program Act 2

Law of Easements: Legal Issues/Practical Considerations – Thorp, Reed & Armstrong, LLP

Contaminated Soils, Sediments, & Water – University of Massachusetts

Innovative Site Remediation Technologies – EnviroExpo Symposium

Presenting Data and Information – Yale University

Safe Driver Training

First Aid and CPR/AED – American Red Cross

Brendan Poffenbaugh

Project Geologist

EDUCATION

BS, Geology – University of Toledo

Graduate Certificate –
Geographic Information
Systems – Pennsylvania State
University

LICENSES/REGISTRATIONS

Professional Geologist – PA
(PG005309), IN (2716)

Pennsylvania Certified Asbestos
Inspector and Management
Planner (062158)

Pennsylvania Certified Lead
Inspector and Risk Assessor
(007595)

AFFILIATIONS

National Groundwater
Association

Geological Society of America

EXPERTISE

- Fugitive methane investigations
- Methane emission quantification
- Site investigation and remediation
- Permitting/compliance
- Fieldwork coordination and oversight
- Water well, groundwater and soil sampling
- Horizontal Directional Drilling (HDD) oversight
- GIS applications
- Waste management

Brendan Poffenbaugh is a project geologist with 12 years of experience in the environmental consulting industry. Brendan performs a variety of environmental and geological services including fugitive methane investigations, methane emissions quantification, Phase I and Phase II environmental site assessments (ESAs), water and soil sampling, and drilling and monitoring well construction oversight. He is also a Qualified Measurement Specialist (QMS) and has helped to develop GES' QMS certification program and train our field staff. His additional field responsibilities include determining soil boring and monitoring well locations to evaluate horizontal and vertical extent of impacts; remediation oversight; groundwater and soil sampling; well gauging; soil boring and monitoring well installation oversight; soil gas sampling and evaluation; horizontal directional drilling (HDD) oversight; and aquifer testing.

Brendan also has extensive experience providing oversight for subsurface investigations. Brendan's project management responsibilities include oversight, scheduling and coordination of field technicians and training staff on proper sampling and evaluation techniques, and field equipment operation. He has also managed pre-drilling water sampling programs for multiple natural gas operators and has supported these programs in Pennsylvania, Ohio, and West Virginia. He creates maps in support of field projects and technical reports and also manages databases to keep current with statewide health standard updates. Brendan prepares and reviews site work plans, permits, remedial investigation plans, remedial action, and other site characterization reports for regulatory submittal to multiple state agencies, including the West Virginia Department of Environmental Protection (WVDEP), Pennsylvania Department of Environmental Protection (PADEP), and Ohio Environmental Protection Agency (OEPA), and.

Project Experience

Fugitive Methane Investigation and Remediation

Characterized and analyzed fugitive methane sites using field data and observations. Sampled gas wells and incident locations for stable carbon isotope geochemistry. Located and delineated the extent of methane impacts to soil and water wells. Prepared and implemented remediation plans for impacted water wells, soils, and structures. Prepared summary and technical reports for clients and state agencies

Methane Emission Quantification

Design, construction, installation, and maintenance of laboratory-grade methane mass flow meters at multiple plugged gas wells across Pennsylvania. Allowed clients to remotely monitor and quantify methane emissions.

Water Sampling

Installed and operated temporary sampling pumps. Sampled monitoring wells and private residential supplies for stable carbon isotope geochemistry. Characterized and analyzed impacts to water sources. Properly collected and transported water samples.

Soil Sampling and Remediation

Characterized and delineated soil impacts at emergency spill response sites. Properly collected and transported soil samples. Directed subcontractors during soil remediation efforts and analyzed soil parameters utilizing field meters. Prepared reports for remedial action plans and final summarizations of remediation efforts for PADEP Bureau of Oil and Gas Submittal and the PA Act 2 Remediation Program

Water Well Construction Oversight

Determined well sites using fracture trace analysis. Directed drilling and plugging efforts. Deciphered geologic strata and created logs of boreholes. Conducted high-capacity aquifer tests and monitored in-situ water well conditions using transducers. Prepared reports for remedial action plans and final summarizations of remediation efforts for PADEP Bureau of Oil and Gas Submittal and the PA Act 2 Remediation Program.

Environmental Site Assessments (Phase I/II ESA)

Completes Phase I and Phase II ESA field activities and reports. Phase I activities include review of online records, owner and local government interviews, and site reconnaissance to identify potential recognized environmental conditions. Phase II activities include design and implementation sampling and analysis plans, oversight of drilling subcontractors for installation of soil borings and/or monitoring wells, soil logging and sampling, and groundwater sampling.

Horizontal Directional Drilling (HDD) Oversight

Provided oversight of geological and environmental aspects of horizontal directional drilling (HDD) activities. Inspected HDD project areas for inadvertent returns of drilling fluid. Documented and reported on HDD activities. Collaborated with HDD inspectors to complete required documentation and permits.

Soil Infiltration Testing

Setup and executed infiltration and percolation tests and analyzed the data derived from the infiltration and percolation tests.

Asbestos Inspections

Prepared and conducted asbestos inspections. Collected samples of suspected asbestos-contained materials. Prepared reports of findings for clients.

Permitting Applications and Submittals

Preparation, completion, and submittal of waste management, Susquehanna River Basin Commission (SRBC), National Pollutant Discharge Elimination System (NPDES), Underground Injection Control (UIC), Clean Water, and air permit applications.

Mapping

Utilized ArcGIS software to create site and analytical maps for field work and project reports. Collected, compiled, and organized data layers and sets for mapping and technical projects.

Training

Operation and Procedures of the SEMTECH HI-FLOW 2

Loss Prevention System (LPS)

OSHA HAZWOPER – initial, refresher, and supervisor

SafeLand USA Training

Safe Driver Training

First Aid and CPR/AED – American Red Cross

RCRA Hazardous Waste Management Certification



BUREAU OF PROFESSIONAL AND OCCUPATIONAL AFFAIRS

P. O. Box 2649

Harrisburg, PA 17105-2649

05/09/2024

License Information

BRENDAN MICHAEL POFFENBAUGH

BRIDGEVILLE, Pennsylvania 15017

Board/Commission: State Registration Board for Professional Engineers, Land Surveyors and Geologists

LicenseType: Professional Geologist

Specialty Type:

License Number: PG005309

Status: Active

Status Effective Date: 04/24/2017

Issue Date: 04/24/2017

Expiration Date: 09/30/2025

Last Renewal: 08/30/2023

Disciplinary Action Details

No disciplinary actions were found for this license.

This site is considered a primary source for verification of license credentials provided by the Pennsylvania Department of State.

John Tsun

Regional Director, Air Quality Services

EDUCATION

BE, Mechanical Engineering –
City College of New York

LICENSES/REGISTRATIONS

Certified Smoke Reader (EPA
Method 9)

Certified Vapor Barrier
Inspector for LIQUID BOOT® and
Geo-Seal® Installations

AFFILIATIONS

American Society of Mechanical
Engineers

Air & Waste Management
Association

Society of American Military
Engineers

EXPERTISE

- Air-quality monitoring and modeling
- Regulatory compliance and permitting
- Dust, noise, vibration, and odor mitigation

John Tsun is a regional director of air quality services and a principal engineer with over 34 years of experience managing environmental compliance projects for sites including petroleum, landfills, pharmaceutical, chemical, and power-generation facilities and governmental agencies. As a part of GES' abandoned and orphaned oil & gas (AOOG) well team, he has supported the design of our flux chamber that is compliant with Bipartisan Infrastructure Law (BIL) and ACR protocols. He also serves as a technical lead for our Qualified Measurement Specialist (QMS) teams and is a subcommittee member for the BCarbon Methane Capture and Reclamation (MCR) Protocol.

John specializes in air-quality-related projects, including ambient air-quality monitoring, air dispersion, and consequence modeling, soil vapor dispersion modeling, vapor intrusion barrier installation, vapor intrusion sampling, vibration monitoring, bi-axial tilt monitoring, crack gauge installation and monitoring, and noise monitoring. He is well-versed in regulatory compliance and preparation of air permit documents, computer simulation modeling, and Title V compliance reporting.

In addition, John has experience conducting dust, noise, odor, and vibration monitoring, modeling, and mitigation for industrial, petroleum industry, federal, state and municipal government and industrial facilities at active, commercial, abandoned state and federal superfund sites. He has provided National Environmental Policy Act (NEPA) support and evaluation of air quality and noise.

Project Experience

Flux Chamber Design and Testing on Orphan Oil and Gas Wells

Designed and tested a flux chamber that was used during methane emission quantification on multiple orphaned wells within Hillman State Park. Data was collected and compared with other flux chamber designs and testing methods. These methods included static chambers, dynamic chambers and high flow samplers.

Methane Capture Protocol

Part of the GES Team that designed a prototype flux chamber to ensure it meets the Department of Interior (DOI) and American Carbon Registry (ACR) methane monitoring protocols guidelines and participated in the testing event at Hillman State Park in Burgettstown, PA. The purpose of the sampling event was to compare the prototype flux chamber results to 1) Existing monitoring wells maintained by DOI, 2) Methane monitor equipment approved by other State Environmental Agencies, and 3) Whether the results meet the DOI and

ACR methane monitoring protocol guidelines. QA/QC Methane calculation spreadsheet and assisted in developing internal SOP for methane monitoring.

Air Emissions Limits Evaluation at Industrial Coatings Facility,

Based on the projected production volume of coating of metal finish to plastic bottle caps, calculations were used to determine if this process would exceed the volatile organic compound (VOC) emissions limits under the existing approved NJDEP air permit. If permitted VOC limits are exceeded, provide a strategy to avoid any exceedance of the permitted VOC limits and present long-term options to increase production volume to meet future market demands.

Methane Gas Monitoring, Sampling, and Reporting

Responsible for yearly activities at the landfill, which included quarterly methane gas monitoring; quarterly groundwater gauging; annual groundwater sampling; semi-annual Title V deviation reporting; and annual Title V compliance reporting. In addition, worked with NJDEP in obtaining approval for installation of a redesigned passive methane extraction system.

H2S Monitoring

Responsible for monitoring hydrogen sulfide (H₂S) gas from the landfill at the nearby residents due to complaints of odors. Erosion and inadequate cover contributed to landfill gas formation and release.

New Jersey Department of Environmental Protection (NJDEP) Title V Programs Supervision

Developed and implemented Operating Permit Program in the state. Duties included coordinating work assignments with prime contractor(s) and NJDEP; manpower loading projections and budgeting; development of model operating permits for different Standard Industrial Classification (SIC) codes; pre-application meetings with affected facilities; technical evaluations of operation permit applications; review of permits from surrounding states; public hearing support; development and execution of work plans; training of NJDEP/vendor personnel regarding operating permit elements as promulgated under 40 CFR Part 70; and meetings with different industry advisory groups.

Title V Compliance Program

Technical lead for the Title V Compliance Program at a military base located in Maryland. Work includes QA/QC of all regulatory submittals, preparation of Title V renewal, permitting support, emissions audit, and PHA and RMP audit.

Facility-wide Air Permitting and Compliance

Provided regulatory compliance support for an international company that produces polyesters and polyols, polyurethanes (coatings, adhesives, sealants, and elastomers), and specialty resins for composites and coatings. As the technical lead, work includes QA/QC of all Regulatory submittals, facility-wide audit, development of permit strategies for existing and future expansion operations, and lead the on-site support team to ensure air emissions compliance with regulatory requirements.

Consequence Analysis at Resins Plant

Performed off-site consequence analysis for a resins plant. The Process Hazard Analysis Software Tools (PHA_{ST}) model was used to verify and compare results from scenarios using Fauske. After model verification, additional studies included determining the wind speed which will result in plume touchdown at the LEL for different chemicals; droplet size; final liquid fraction; liquid and vapor mass; effects of low flow on vapor cloud

dispersion; effects of different release durations; and determining ignitable vapor mass at a known ignition point.

Process Hazard Analysis for Petroleum Refinery

Conducted a process hazard analysis using PHAST (Process Hazard Analysis Software Tools). This included determining the consequence/results from potential catastrophic releases for a control room design study in the refinery. The model included the evaluation of hazardous and/or explosive vapor plumes, including methane, and potential affects on human health and risk of fire and explosion. Task included creating a database system to manipulate model simulation results and merge various databases for predicting impacts and probabilities.

Air-Monitoring Oversight at Superfund Site

As part of construction oversight, represented Borough of Edgewater during air monitoring questions and answer sessions and oversaw the air-monitoring program, which addresses odors and dust prevention and incorporates best practices to meet air-quality health standards. A one-mile radius air-monitoring network includes on-site and perimeter monitoring and air monitors at residential properties adjacent to the site.

Training

Loss Prevention System (LPS)	Secret Security Clearance – Department of Homeland Security
OSHA HAZWOPER – initial and refresher	CALPUFF (an air-quality dispersion model)
10-hr Construction Safety and Health – OSHA	American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD)
Confined Space Training – OSHA	Plume Rise Model Enhancements (ISC-Prime)
Air Permit Seminar	SESOIL and AT122D Model
Air Pollution Meteorology	Liquid Boot Certified Inspector
Hazardous Materials Chemistry	Geo-Seal Certified Inspector
Air Pollution Dispersion Modeling Courses	Safe Driver Training
Noise Seminar	First Aid and CPR/AED – American Red Cross
Metro-North Railroad Contractor Safety Training	HazCom GHS Training
NYC Transit Track Safety Certification – MT	



CERTIFICATE OF COMPLETION

This certificate is hereby awarded to

David M. Lyon

for the completion of four hours instruction on the
Operation and Procedures of the SEMTECH HI-FLOW 2

May 6, 2024

Date

Carolyn Heath Haag

CAROLYN HEATH HAAG
President & Chairwoman of the Board



CERTIFICATE OF COMPLETION

This certificate is hereby awarded to

Brendan Poffenbaugh

for the completion of four hours instruction on the
Operation and Procedures of the SEMTECH HI-FLOW 2

May 6, 2024

Date

A handwritten signature in black ink that reads "Carolyn Heath Haag".

CAROLYN HEATH HAAG
President & Chairwoman of the Board



CONTRACTOR LICENSE

AUTHORIZED BY THE
West Virginia Contractor
Licensing Board

NUMBER: WV027671

CLASSIFICATION:
SPECIALTY

GROUNDWATER AND ENVIRONMENTAL SERV
DBA GROUNDWATER AND ENVIRONMENTAL SERV
1599 ROUTE 34 SUITE 1
WALL TWP, NJ 07727

DATE ISSUED

EXPIRATION DATE

OCTOBER 24, 2023

OCTOBER 24, 2024

Authorized Signature

Chair, West Virginia Contractor
Licensing Board



WEST VIRGINIA
CONTRACTOR
LICENSING BOARD

A copy of this license must be readily available for inspection by the Board on every job site where contracting work is being performed. This license number must appear in all advertisements, on all bid submissions, and on all fully executed and binding contracts. This license is non-transferable. This license is being issued under the provisions of West Virginia Code, Chapter 30, Article 42.



2024 Corporation Annual Report

Unified Business Identifier:UF000060125001

For filing with the West Virginia Secretary of State
a Business for West Virginia Partner
tel: (304) 558-8000

Would you be interested in learning about resources to help you sell your products and services overseas? No

Is this a minority owned business? No

Is this a woman owned business? No

Do you own or operate more than one business in West Virginia? No

Number of businesses

Number of counties

Does your organization employ individual(s) who currently serve or someone who has served as a member of the United States Armed Forces? Yes

How many

Does the owner of the organization currently serve or has served as a member of the United States Armed Forces? No

Would you like to be contacted by a WWSBDC business coach? No

I certify the information provided is true. I further certify that I am an officer or individual holding a power-of-attorney and am duly authorized to file this report on behalf of the corporation, as required by the West Virginia Code. I agree that the electronic entry of my name below represents my signature and authorization for this filing.

Michael F Lemon

Authorized By

OFFICER

Capacity

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFP DEP 25*01

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.

Groundwater & Environmental Services, Inc.

Company



Authorized Signature

August 27, 2024

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.
Revised 6/8/2012

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) Joseph Skurka, Principal Project Manager

(Address) 508 Thomson Park Dr, Cranberry Township, PA 16066

(Phone Number) / (Fax Number) 800-267-2549 x3618

(email address) jsturka@GESonline.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.

Groundwater & Environmental Services, Inc.

(Company)

(Signature of Authorized Representative)

Joseph Skurka, Principal Project Manager, August 27, 2024

(Printed Name and Title of Authorized Representative) (Date)

Office: 800.267.2549 ext. 3623

(Phone Number) (Fax Number)

JSkurka@gesonline.com

(Email Address)

REQUEST FOR PROPOSAL

(WVDEP CRFP 25*01)

Proposal 1: Step 1 – $\$1,000,000 / \$1,000,000 =$ Cost Score Percentage of 1 (100%)
Step 2 – $1 \times 30 =$ Total Cost Score of 30

Proposal 2: Step 1 – $\$1,000,000 / \$1,100,000 =$ Cost Score Percentage of 0.909091 (90.9091%)
Step 2 – $0.909091 \times 30 =$ 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.

Groundwater & Environmental Services, Inc.
(Company)

Joseph Skurka, Principal Project Manager
(Representative Name, Title)

800-267-2549 x3623

(Contact Phone/Fax Number)

August 27, 2024

(Date)



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: 1465803			Reason for Modification: Addendum #1 issued to publish agency responses to vendor submitted questions, extend bid due date, c..... See Page 2 for complete info
Doc Description: DEP OOG - Methane Emission Quantification			
Proc Type: Central Master Agreement			
Date Issued	Solicitation Closes	Solicitation No	Version
2024-08-14	2024-08-27 13:30	CRFP 0313 DEP2500000001	2

BID RECEIVING LOCATION


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

VENDOR

Vendor Customer Code:
Vendor Name : Groundwater & Environmental Services, Inc.
Address : 508 Thomson Park Drive
Street :
City : Cranberry Township
State : Pennsylvania Country : United States Zip : 16066
Principal Contact : Joseph Skurka
Vendor Contact Phone: (800) 267-2549 Extension: 3623

FOR INFORMATION CONTACT THE BUYER

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

Vendor Signature X  FEIN# 232335424 DATE August 27, 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, extend bid due date, correct contract terms.

ADDITIONAL INFORMATION

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 methane emission quantification ("MEQ") services for selected oil and natural gas wells 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	4.2.1.1 Measure pre-plugging methane emissions	200.00000	EA		

Comm Code	Manufacturer	Specification	Model #
77121506			

Extended Description:
4.2.1.1 Measure pre-plugging methane emissions

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	4.2.1.2 Measure post-plugging methane emissions	200.00000	EA		

Comm Code	Manufacturer	Specification	Model #
77121506			

Extended Description:
4.2.1.2 Measure post-plugging methane emissions

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
13	4.2.1.3 Screen wells for methane emissions	200.00000	EA		

Comm Code	Manufacturer	Specification	Model #
77121506			

Extended Description:
4.2.1.3 Screen wells for methane emissions

SCHEDULE OF EVENTS		
Line	Event	Event Date

	Document Phase	Document Description	Page 4
DEP2500000001	Final	DEP OOG - Methane Emission Quantification	

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions