ACR 915

Tradewater OOG 2

September 26, 2024

Tradewater, LLC

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A.
PROJECT OVERVIEW

A1. PROJECT TITLE

Tradewater OOG 2 (hereinafter referred to as “Project”).

A2. PROJECT TYPE

Plugging Orphaned Oil and Gas Wells

A3. NON-TECHNICAL EXECUTIVE SUMMARY OF PROJECT

Description of Project Activity

The project activity is the plugging of one orphaned gas well in the state of Indiana that has been determined to be emitting methane.

Background Information

Over the last year and a half, and in development of the first and second OOG projects, Tradewater visited nearly 100 orphaned oil and gas wells in Indiana with the goal of understanding key features of these wells. Tradewater’s team of experts, including a PhD staff engineer with experience in methane detection technology, a geologist with extensive knowledge of the area, and a natural gas professional with over 30 years of experience, has discovered a phenomenon in which wells with significant surface pressure (some up to 800 psi) were orphaned by operators and left to languish on private landowner property.

These wells are actively leaking methane and present a unique and urgent problem. First, the majority of field-tested orphaned wells presenting sustained surface pressure have been gas wells. The constant equilibrium pressure on these gas wells indicates a substantial amount of natural gas left in the reservoir. Given that the major component of natural gas is methane, there are thus large quantities of methane that would be emitted over time if not plugged. Second, these wells are typically more expensive and labor-intensive to plug; because of this, they have sat on state orphaned well lists for long periods of time—decades in many instances.

The well addressed in this Project is a perfect example of these problems.

Project Purpose and Objectives

The purpose of this Project is to mitigate the emissions that would have been released by the orphaned well in absence of the plugging activity.

A4. PROJECT ACTION

Description of Prior Physical Conditions

In the business-as-usual scenario, methane from the orphaned gas well in the Project is emitted into the atmosphere as the well remained unplugged and without any mitigating actions. Without a solvent owner, the well is a state responsibility and will not be remediated in the near term, continuing to release methane unabated in absence of the Project.

At the site, the well contained a wellhead with casing and tubing standing approximately 7 feet tall. The tubing contained a broken pressure gauge. There was additional piping sticking out from either side of the casing with broken and stuck valves. An SEM5000 was used to assess the leak, and we discovered leaks at the broken pressure gauge and one of the valves off of the casing.

Description of how the Project will Achieve GHG Reductions

The Project achieved emissions reductions through the mitigation of methane emissions produced by the leaking orphaned oil and gas well. Mitigation is achieved by plugging the well in accordance with state regulations, engineering recommendations, and a state-approved plugging plan. The Project measures the quantity of emissions avoided by measuring emissions from the well in accordance with a Registry-approved methane measurement technique before plugging the wells and confirming successful emissions mitigation through post-plugging emissions testing. The post-plugging emissions testing includes screening the well to confirm there are no more leaks.

Description of Project Technologies, Products, Services, and Expected Level of Activity

Plugging activities follow state regulations and are included in each individual well's Well Plugging Plan (form 54872). Tradewater contracted a third-party company comprised of oil and gas experts to perform plugging activities. In Indiana, specific licenses for pipe pulling and well plugging companies do not exist. Because the orphaned gas well in the Project was flowing, a cast iron bridge plug was set atop the lowest perforation or open hole. Cement was used as a top plug from 50 feet below the lowest underground source of drinking water to 3 feet below the surface. The casing was cut off 5 feet below the surface and removed and the site will be remediated according to state regulations.

A post-plugging emissions confirmation sample was taken with an SEM5000 Portable Methane Detector. This measurement was performed or supervised by a Tradewater emissions measurement specialist.

Equipment Description

All equipment was administered correctly and utilized per the procedures and situations described in their respective manuals. Equipment units were factory calibrated prior to use on the required or recommended schedule of the manufacturer, and field calibrated as needed and required by the manufacturer use guidance. All equipment was used only within known specified ranges, as referenced in the manuals, as well as the requirements of the Methodology. This is proven via a comparison of the limits set in manuals and the ranges recorded when sampling occurred.

As mentioned, field calibrations occur when necessary to ensure data captured in the field accurately represents the environmental conditions and the characteristics of the well.

Because of the resolution of the instruments used and a strict adherence to both the manufacturer limits and constraints of the Methodology, the sampling events yield a confidence level of greater than or equal to 95% as stated by the Methodology.

Measurements of methane concentration, gas flow rate, and flowing pressure (as required in a direct-connection set-up) are all recorded simultaneously. As each instrument must be turned on manually, the initiation of the readings begins at different points in time. However, all the reported 10-minute measurement intervals contain data that were recorded simultaneously in all three instruments. The raw data files include date, time, and location data to easily match to the measurement event.

All measurements are taken by a qualified measurement specialist, who has a minimum of 20 hours of training and experience on the instruments described in the Measurement Approval Form. The specialists are listed in section A.8.

A5. PROOF OF PROJECT ELIGIBILITY

The project is eligible under the *Methodology for the Quantification, Monitoring, Reporting, and Verification of Greenhouse Gas Emissions Reductions and Removals from Plugging Orphaned Oil and Gas Wells in the U.S. and Canada*, Version 1.0. Additional eligibility requirements as noted in the ACR Standard, Version 8.0 are included below.

Table 1: Eligibility Requirements from the Methodology

Criteria	**Requirement**	**Evidence of Eligibility**
Location (Section 1.1)	The well is located in the U.S. or Canada.	The well included in the Project is located in Indiana, United States.
Emission Status (Section 1.1)	The well is found to be emitting methane when first accessed by the parties involved in the project, as named in the GHG Project Plan, including the project proponent, project developer, entities holding title to the land, and other project participants such as technical consultants and qualified measurement specialists.	The well included in the Project was emitting methane when it was first accessed by Tradewater, as confirmed by pre-plugging measurements.
Well Classification (Section 1.1)	The well is included under any of the following categories: Wells with no designated operator, Wells considered “plugged” by the operator or regulator (if one was in	This well has no designated operator. The well included in the Project was registered on the Indiana Department of Natural Resources List of Orphan Sites as of April 2023.

	place) or could have been inadequately or improperly plugged and are still leaking methane, or Wells that do not appear on a jurisdiction's orphan well list. These wells do not have a solvent operator and would be classified as "unknown orphans".	Under Indiana law, 312 IAC 29-2-94, an operator is defined as a person who has been issued a permit for a well or is engaged in activities on a well requiring a permit. The operator for this well had his permit revoked through an administrative proceeding, as evidenced by the well's status as "Revoked" in the Indiana DNR database prior to Tradewater plugging the well. This proves there is no designated operator for the well. Furthermore, through confirmation from Indiana DNR, Indiana makes no differentiation in how it treats orphaned wells and revoked wells. They are each considered to be abandoned without being properly plugged and having an operator or owner who is unknown. See IDNR website https://www.in.gov/dnr/oil-and-gas/files/og-abandoned_oil_wells_program.pdf
Reporting Period (Section 1.2)	The reporting period begins on the date that a well in the project first meets the post-plugging monitoring requirements of Section 4.7. The reporting period ends on the date that the last well in the project meets the post-plugging monitoring requirements of Section 4.7. For clarity, the duration of the reporting period is the time between the first and last wells completing post-plugging monitoring.	. The reporting period is provided in the included Monitoring Report and in this document.
Start Date (Section 1.2.1)	The project start date is the date the first well is confirmed to have no post-plugging emissions.	Indiana Department of Natural Resources confirms the well as plugged upon the approval of the Well Plugging Report (form 54874) for each individual well. The Project start date is the date the first well was confirmed to have no post-plugging emissions, as demonstrated by the Well Plugging Report for the well included in the Project.

Crediting Period (Section 1.3)	The crediting period is limited to a single, twenty-year period from the project start date.	The crediting period for the Project is twenty years, beginning on the project start date. The crediting period is provided in the included Monitoring Report.
Regulatory Surplus Test (Section 3.2.1)	The Regulatory Surplus test requires that OOG well plugging projects are surplus to regulations, i.e., the emission reductions achieved by plugging these wells are not required by applicable regulation.	No federal, state, or local laws require the plugging of the orphaned well in the Project, as plugging requirements apply only to wells with a known solvent operator. The well included in this project does not have a solvent operator.
Regulatory Surplus Test (E&C 2b)	There is no regulatory or other legal requirement to prevent the release of methane.	A review of the Indiana Administrative Code found no regulations on fugitive emissions from orphaned wells. Orphaned wells do not have a solvent operator, and therefore other existing regulatory requirements for plugging do not apply (See section C3). There are no regulatory requirements to prevent the release of methane from these orphaned wells. No federal, state, or local laws required the prevention of methane emissions from the orphaned well in the Project.
Performance Standard (Section 3.2.2)	As regulations are not uniform in the different states and provinces, orphan wells that comply with all eligibility requirements in the Methodology are considered additional.	The plugging of orphaned wells in the U.S. and Canada is determined to be additional by the performance standard set in the Methodology, provide the Project meets all eligibility criteria. The Project meets the eligibility criteria as described in this section.

Table 2: Eligibility Requirements from the ACR Standard, Version 8.0, Chapter 3

Criterion	Requirement	Evidence of Project Eligibility
Minimum Project Term	The duration of the Minimum Project Term for specific project types is defined in the relevant ACR sector requirements and/or methodology. Project types with no risk of reversal after crediting have no required Minimum Project Term.	There is no risk of reversal for this project. The minimum project term is therefore not applicable.

Real	ERTs shall only be issued for a GHG emission reduction or removal that has been verified against an approved ACR Methodology to have already occurred. ACR will not credit a projected stream of credits on an ex-ante basis.	The GHG reductions occurred after the methane emission was permanently abated by plugging the wells. The carbon credits will be issued by the ACR after the project is successfully verified against the approved ACR Methodology
Title	The Project Proponent shall provide documentation and attestation of undisputed title to all carbon credits prior to registration. Title to credits shall be clear, unique, and uncontested.	Tradewater LLC has provided documentation, orphan status of wells in the Project, and State approvals to assume responsibility and plug. In aggregate, this provides Tradewater LLC undisputed title to all carbon credits. Title to carbon credits is clear, unique, and uncontested.
Additional	GHG emission reductions and removals are additional if they exceed those that would have occurred in the absence of the project activity and under business as usual scenario.	This project passes the regulatory surplus test as demonstrated in Section C.
Regulatory Compliance	Adherence to all national and local laws, regulations, rules, procedures, other legally binding mandates and, where relevant, international conventions and agreements directly related to project activities.	This project meets all national and local laws and other legally binding mandates.
Permanent	For GHG projects with a risk of reversal of GHG emission reductions or removals, Project Proponents shall analyze and mitigate risk, and monitor, report, and compensate for reversals.	The risk of reversal is minimal for projects under this methodology and wells are confirmed plugged by the jurisdiction.
Net of Leakage	ACR requires Project Proponents to address, account for and mitigate certain types of leakage, according to the relevant sector requirements and methodology conditions. Project Proponents must deduct for leakage that reduces the GHG emission reduction and/or removal benefit of a GHG project in excess of any	Section 4.5 of the Methodology describes how leakage can occur for this project type. Emissions from the orphaned gas well in this Project come from unmitigated release of gas. Once a well is plugged and confirmed to be no longer emitting, there

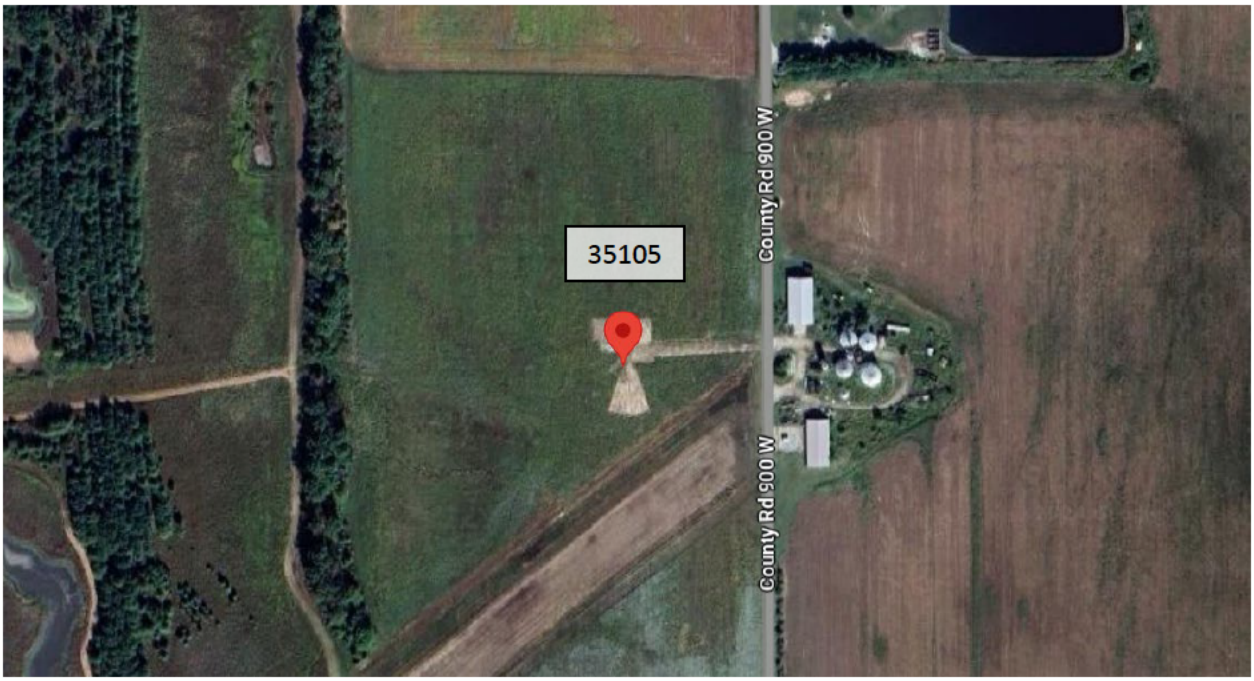
	applicable threshold specified in the methodology.	is no action from the O&G industry that may be done on that well to result in additional emissions. Plugging of orphaned wells does not increase the number of orphaned wells, and consequently should not result in the increase of fugitive methane emitting to the atmosphere. “Leakage” for this Methodology, and therefore this project, is considered zero.
Independently Validated	ACR requires third-party validation of the GHG Project Plan by an accredited, ACR-approved VVB once during each Crediting Period and prior to issuance of ERTs.	This project is third party validated by the VVB GHD Limited.
Independently Verified	Verification must be conducted by an accredited, ACR-approved VVB prior to any issuance of ERTs for a given Reporting Period and must be conducted at minimum specified intervals.	This project is verified by the VVB GHD Limited, an accredited, ACR-approved VVB for this project type.
Environmental and Social Impact Assessments	ACR requires that all GHG projects develop and disclose an impact assessment to ensure compliance with environmental and social safeguards best practices. GHG projects must “do no harm” in terms of violating local, national, or international laws or regulations.	The impact assessment for this project is attached as an Appendix to this document.

A6. PROJECT LOCATION

The Project includes one well in Greene County, Indiana, United States. The Well ID, associated county, and geographic coordinates for well access are listed in Table 3.

Table 3: Project Well

Well ID	**County Name**	**Geographic Coordinates**
35105	Greene	38.997292, -87.110474



A7. REGULATORY COMPLIANCE

Indiana Administrative Code 312 IAC 29-33-1 requires the **owner or operator** to plug and abandon a well that is no longer permitted or in production. However, orphaned wells do not have a solvent operator, so requirements to plug do not apply to the orphaned well included in the Project.

The Indiana Department of Natural resources is responsible for the management of orphan oil and gas wells in the state of Indiana.

Plugging activities follow state regulations as specified by Title 312 Article 29 Section 33 of the Indiana Administrative Code. Well Plugging Plans are approved by the Indiana DNR before plugging begins and Indiana DNR inspectors visit wells during the plugging process and after plugging is complete to confirm activities adhere to state regulations.

A8. PARTIES

Table 4: Involved Parties

Entity	Responsibility	Name	Title, Project Role	Contact
Tradewater, LLC	Project Proponent,	Timothy H. Brown	Chief Executive Officer, Signatory	(312) 273-5122 tbrown@tradewater.us

1550 W. Carroll Ave., STE 213, Chicago, IL 60607 United States	Offset Title Holder	Gabriel Plotkin	Founding Partner Strategic Advisor, Signatory	(312) 273-5122 gplotkin@tradewater.us
		Cassandra Whitford	Methane Project Development Manager, Project Expert	(312) 273-5122 cwhitford@tradewater.us
		Gina Sabatini Mattei	Manager of Verification & Logistics, Project Manager	(312) 273-5122 gsabatini@tradewater.us
Indiana Department of Natural Resources	Regulator	Brian Royer	Regulatory Contact, Enforcement Manager DNR, Reclamation Division, Oil and Gas Program	Broyer@dnr.IN.gov
IN DNR Division of Fish and Wildlife	Land Owner	[redacted]	Contact Person	[redacted]
[redacted]	Plugging Contractor	[redacted]	Consulting Geologist	[redacted]
[redacted]	Operational Consultant	[redacted]	Consultant and Emissions Specialist	[redacted]

A9. AGGREGATION AND PROGRAMMATIC DEVELOPMENT APPROACH

Not applicable.

B.
METHODOLOGY

B1. APPROVED METHODOLOGY

The Project used the Methodology for the Quantification, Monitoring, Reporting, and Verification of Greenhouse Gas Emissions Reductions and Removals from Plugging Orphaned Oil and Gas Wells in the U.S. and Canada, Version 1.0 (May 2023), hereinafter referred to as 'the Methodology'.

B2. METHODOLOGY JUSTIFICATION

The Project involves the mitigation of eligible orphan oil and gas wells by plugging those that emit methane as uncontrolled emissions. The Methodology is best suited to quantify, monitor, report, and verify this Project as it is specific to the sectoral scope and project activities implemented by the Project.

B3. PROJECT BOUNDARIES

The geographic boundary of the Project is contained to the location of the orphan well, which is located in Indiana, United States as specifically identified in Section A6 of this plan. The reporting period for this project is 01/22/24 - 01/22/24. The start of the crediting period coincides with the beginning of the reporting period and ends on 01/21/2044.

B4. IDENTIFICATION OF GHG SOURCES AND SINKS

Table 5: SSRs

SSR	Description	GHG	Baseline (B) Project (P)	Included or Excluded
1. Orphan O&G wells that emit methane	Emissions from orphan wells	CH_4	B	Included
2. Plugging operations (equipment)	Emissions from mobile mechanical equipment for plugging	CO_2 CH_4 N_2O	P	Included

B5. BASELINE SCENARIO

The baseline scenario selected is the business-as-usual case, which is the unmitigated release of methane from the unplugged OOG well the Project Proponent plugged in the Project.

At the end of a well's productive life, it is required by regulations to be plugged to prevent air and water pollution. Instead of being properly plugged, the well in this project was orphaned by the operator that is no longer a solvent operator and the well has been on the Indiana Department of Natural Resources List of Orphan Sites for five years or more. The well fell to the state to plug, but there is no mandate to plug it and further there is a lack of funding for plugging these challenging orphaned wells. The business-as-usual case means that this well would continue to sit unplugged and continue emitting methane to the atmosphere unmitigated.

B6. WITH-PROJECT SCENARIO

The project scenario is the plugging of one orphaned gas well in Greene County, Indiana that would otherwise remain unplugged and at risk of emitting methane to the atmosphere.

The well was plugged according to Rule 312 IAC 29-33 - Temporary Abandonment of Wells and Well Plugging Requirements of the Indiana Administrative Code by a contracted plugging company with license to operate in the state of Indiana. Because the well was flowing gas, a cast iron bridge plug was set as a bottom plug, as approved by the Oil and Gas Field Supervisor of the Indiana Department of Natural Resources. A cement top plug was set 50 feet below the underground source of drinking water, and the well was cut off 5 feet below grad. A post-plugging emissions confirmation sample was recorded to confirm that the well location has no remaining emissions.

B7. GHG EMISSIONS REDUCTIONS AND REMOVALS

The Project reduces GHG emissions by preventing the release of methane from uncontrolled orphaned gas wells to the atmosphere. In the baseline scenario, methane is released through continual leaks or from degrading surface equipment, degrading casing, or other physical changes in the well. The GHG emissions reductions were calculated by subtracting project emissions from baseline emissions.

B8. PERMANENCE

The risk of reversal is minimal for projects under this Methodology, and permanence requires the demonstration of project integrity and emissions prevention. In order to demonstrate that plugging the orphaned gas well in this Project resulted in avoided methane emissions, a post-plugging emissions confirmation sample was taken and compared to an ambient methane concentration sample as required by the Methodology. No atmospheric leakage was detected exceeding the allowable threshold as indicated by the Methodology.

After an oil or gas well is plugged, the Project Proponent must confirm that the well has been marked “plugged”, or equivalent, by the appropriate jurisdiction. The Indiana DNR data system affirmed that the orphaned gas well included in the Project was plugged through review of the plugging report and upload of the report to the DNR online system.

C.
ADDITIONALITY

C1. BASELINE

The baseline case for orphaned wells is unmitigated release of methane. According to some reports,up to 6.6 million metric tons of carbon dioxide equivalent are released yearly from orphaned and abandoned wells in the United States. Orphaned wells contain no solvent operator, so under the baseline scenario there is no active engagement for plugging wells or managing the methane release. Orphaned wells often default to the state, which lacks the funding to plug the wells. Additionally, there are no mandates for plugging these wells, and common practice does not include plugging of the wells in the absence of a legal requirement. As a result, plugging orphaned wells is considered additional as it goes well above and beyond the baseline scenario.

C2. PERFORMANCE STANDARD

The well included in the Project meets the orphaned well description and eligibility section in the Methodology, and is therefore considered to pass the Performance Standard Test. See section A5 above for Project eligibility details.

C3. REGULATORY SURPLUS TEST

In order to pass the regulatory surplus test, a project must not be mandated by existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of the start date that directly or indirectly affect the credited offsets.

Indiana Administrative Code 312 IAC 29-33-1 requires the owner or operator to plug and abandon a well that is no longer permitted or in production. However, orphaned wells do not have a solvent operator, so requirements to plug do not apply to the orphaned well included in the Project.

Neither the Indiana Administrative Code 312 IAC 29-33-1, nor any other existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of the Project start date require the project activity and its associated GHG reductions/removal enhancements. Therefore, the Project passes the Regulatory Surplus Test.

C4. COMMON PRACTICE TEST

Not applicable.

C5. IMPLEMENTATION BARRIERS TEST

Not applicable.

D.
MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

Data or Parameter Monitored	$Q_{measured, i}$
Unit of Measurement	Scf/hr (after being converted from MCF/day)
Project Implementation	Field measurement taken during two 2-hour minimum sampling events of volume flow of methane
Technical Description of Monitoring Task	Silversmith HIP6000 flow meter is connected via a direct flow set up. The gas [redacted] Silversmith meter. The meter reports data in MCF/day which must be converted to Scf/hr to align with the Methodology. The table produced contains a data point approximately once every 5 minutes.
Data Source	Silversmith, as approved in the submitted Methane Measurement Method Approval Form
Data Collection Procedures	Data is stored on the instrument software and downloaded into a readable format (Excel) and then transferred to SharePoint.
Methodology Reference	Equation A (E&C)
Data Uncertainty	Low
Monitoring Frequency	Approximately every 5 minutes over the course of two 2-hour-minimum sampling events.
Reporting Procedure	Excel download
QA/QC Procedure	Raw files are saved and untouched, whereas data is processed in a separate file. During measurement, at least two team members are responsible for instrument observation and data output monitoring. All processed data is checked by an internal reviewer.
Data Archiving	All measurements, regardless of inclusion in a project or not, are saved to the Tradewater Sharepoint indefinitely.
Parties Involved	Project Developer: Methane Project Development Manager and Emissions Specialist
Responsibilities of Parties Involved	Set up sampling equipment, take measurements, save data, process data
Notes	Measured simultaneously with methane concentration and pressure.

Data or Parameter Monitored	$Conc_{measured,\ i}$
Unit of Measurement	% volume
Project Implementation	Field measurement taken during two 2-hour minimum sampling events of methane concentration
Technical Description of Monitoring Task	The QED Landtec SEM5000 Portable Methane Detector is used to measure methane concentration. Measurements are taken at approximately ambient pressure by way of a [redacted] An average methane concentration is then determined.
Data Source	SEM5000, as approved in the submitted Methane Measurement Method Approval Form
Data Collection Procedures	Data is stored on the instrument, downloaded to instrument software, and then downloaded from instrument software into a readable format (Excel) and then transferred to Sharepoint.
Methodology Reference	Equation B, 1
Data Uncertainty	Low
Monitoring Frequency	Every 10 seconds over the course of two 2-hour-minimum sampling events
Reporting Procedure	Excel download
QA/QC Procedure	Raw files are saved and untouched, whereas data is processed in a separate file. During measurement, at least two team members are responsible for instrument observation and data output monitoring. All processed data is checked by an internal reviewer.
Data Archiving	All measurements, regardless of inclusion in a project or not, are saved to the Tradewater Sharepoint indefinitely.
Parties Involved	Project Developer: Methane Project Development Manager and Emissions Specialist
Responsibilities of Parties Involved	Set up sampling equipment, take measurements, save data, process data
Notes	Measured simultaneously with methane flow and pressure.

Data or Parameter Monitored	Flowing Pressure
Unit of Measurement	psi

Project Implementation	Field measurement taken during two 2-hour minimum sampling events of pressure
Technical Description of Monitoring Task	The Vaetrix Digital Chart Recorder is connected using a tee setup to the existing wellhead.
Data Source	Vaetrix, as approved in the submitted Methane Measurement Method Approval Form
Data Collection Procedures	Data is stored on the instrument, downloaded to software, then downloaded to a computer in PDF form which is then uploaded to Sharepoint.
Methodology Reference	Erratum 11 and 16, Equation A
Data Uncertainty	Low
Monitoring Frequency	Every 10 seconds over the course of two 2-hour-minimum sampling events
Reporting Procedure	PDF download
QA/QC Procedure	Raw files are saved and untouched, whereas data is processed in a separate file. During measurement, at least two team members are responsible for instrument observation and data output monitoring. All processed data is checked by an internal reviewer.
Data Archiving	All measurements, regardless of inclusion in a project or not, are saved to the Tradewater Sharepoint indefinitely.
Parties Involved	Project Developer: Methane Project Development Manager and Emissions Specialist
Responsibilities of Parties Involved	Set up sampling equipment, take measurements, save data, process data
Notes	Measured simultaneously with methane concentration and flow.

Data or Parameter Monitored	n
Unit of Measurement	Number of 10-minute intervals from pre-plugging sampling events
Project Implementation	Averaged from 10 minutes worth of data to create interval for assessing stability.
Technical Description of Monitoring Task	Simultaneous measurements of methane concentration, methane emission rate, and flowing pressure are taken using the respective instruments previously described and data is processed to identify 10-minute windows of data

	which are averaged to create a single interval. There are 24 intervals.
Data Source	SEM5000, Silversmith, Vaetrix
Data Collection Procedures	Data is downloaded from the three instruments and raw versions saved and untouched. Copies of the raw data are processed to assess and define the intervals.
Methodology Reference	4.1.4; Equation 1
Data Uncertainty	Low
Monitoring Frequency	Data is assessed for each parameter twice per project (measurement 1 and 2)
Reporting Procedure	Excel document
QA/QC Procedure	One member of the Tradewater team processes the data using custom-built tools, and a second team member reviews the tool and results for accuracy and conformity to the methodology.
Data Archiving	All measurements and assessments, regardless of inclusion in a project or not, are saved to the Tradewater Sharepoint indefinitely.
Parties Involved	Project Developer: Methane Project Development Manager and, additional Tradewater team members
Responsibilities of Parties Involved	Process measured data and assess for conformity to the Methodology.
Notes	

Data or Parameter Monitored	w
Unit of Measurement	Wells
Project Implementation	Number of wells included in the project
Technical Description of Monitoring Task	Many wells are assessed prior to being added to a project, but the wells included must meet the criteria laid out in the Methodology to be eligible, stable, and leaking under the baseline scenario.
Data Source	Documentation may include time-stamped georeferenced data, reports, and/or pictures including pictures of the deployed measurement system, as well as handwritten field notes
Data Collection Procedures	Validation trips precede official inclusion of a well in a project to determine whether an orphaned well identified through a desk audit of possible wells (with granted approval to access) is first in

	fact leaking, and second is safe to proceed with measurement and plugging activities. Wells that meet all Methodology criteria and are successfully plugged will be counted as a well in the project.
Methodology Reference	Equation 2
Data Uncertainty	Low
Monitoring Frequency	Assessed throughout the scope of the project but definitively confirmed prior to the start of Verification.
Reporting Procedure	Number of wells confirmed in updated Project Set Up information and asserted in project documents.
QA/QC Procedure	The Tradewater team meets frequently to assess the makeup of the project.
Data Archiving	All wells investigated, whether they are included in the project or not, are saved to Sharepoint indefinitely.
Parties Involved	Project Proponent
Responsibilities of Parties Involved	Assess viability of wells for inclusion in the project.
Notes	

Data or Parameter Monitored	FF_j
Unit of Measurement	gallons
Project Implementation	Fuel used for plugging activities and considered for project emission deductions
Technical Description of Monitoring Task	The plugging contractor tracks the amount of time each fuel-burning piece of equipment is on site and used in a plugging activity on a day-by-day basis. This time is tracked in invoices, where the plugging contractor describes the amount of field used for the wells in the project. Fuel used is calculated or estimated using the known fuel burn for each piece of equipment. Fuel usage is then aggregated. The project proponent then converts the fuel usage into project emissions by using the working hours of the fossil fuel consuming equipment to calculate the fossil fuel usage based on the fuel consumption rate of each equipment.
Data Source	Plugging company invoice

Data Collection Procedures	The plugging contractor supplies Tradewater with the fuel invoice.
Methodology Reference	Equation 3
Data Uncertainty	Medium
Monitoring Frequency	1/fuel/plugging activity
Reporting Procedure	Invoice
QA/QC Procedure	The project proponent will accept fuel numbers across multiple sites, even sites not included in the project, to garner the most conservative value for fuel usage in the project. Any discrepancies or errors are discussed with the plugging contractor and rectified.
Data Archiving	All invoices, regardless of inclusion in a project or not, are saved to the Tradewater Sharepoint indefinitely.
Parties Involved	The plugging contractor and Project Developer: Methane Project Development Manager
Responsibilities of Parties Involved	Invoice working hours of the fossil fuel consuming equipment and calculate the fossil fuel usage.
Notes	

Data or Parameter Monitored	Post-plugging methane screening
Unit of Measurement	ppm
Project Implementation	Field measurement taken after plugging the well
Technical Description of Monitoring Task	The QED Landtec SEM5000 Portable Methane Detector is used to measure methane concentration at the ground surface and any portion of the plugged well casing that remains above grade after plugging. In some cases, plugged wells have already been cut off below grade but not yet buried; in this instance, any portion of the casing that is visible is measured. Measurements are taken at ambient pressure and temperature.
Data Source	SEM5000
Data Collection Procedures	Data is stored on the instrument software, downloaded to instrument software, and then downloaded into a readable format (Excel) and then transferred to Sharepoint.

Methodology Reference	Clarifications 3, 4, 8, 13, Errata 16
Data Uncertainty	Low
Monitoring Frequency	1/well
Reporting Procedure	Excel download
QA/QC Procedure	Raw files are saved and untouched, where data is processed in a separate file. During measurement, at least two team members are responsible for instrument observation and data output monitoring. All processed data is checked by an internal reviewer.
Data Archiving	All measurements, regardless of inclusion in a project or not, are saved to the Tradewater Sharepoint indefinitely.
Parties Involved	Project Developer: Methane Project Development Manager and Emissions Specialist
Responsibilities of Parties Involved	Set up sampling equipment, take measurements, save data, process data
Notes	

Data or Parameter Monitored	Pre-plugging: $Conc_{measured, ambient}$ Post-plugging: ambient methane emissions
Unit of Measurement	ppm
Project Implementation	Field ambient measurement taken before and after plugging the well
Technical Description of Monitoring Task	The QED Landtec SEM5000 Portable Methane Detector is used to measure ambient methane concentration. Measurements are taken at ambient pressure and temperature.
Data Source	SEM5000, as approved in the submitted Methane Measurement Method Approval Form
Data Collection Procedures	Data is stored on the instrument software and downloaded into a readable format (Excel) and then transferred to Sharepoint.
Methodology Reference	Errata 16, Clarification 8 and Equation B
Data Uncertainty	Low
Monitoring Frequency	Pre-plugging: 1/sampling event Post-plugging: 1/well
Reporting Procedure	Excel download

QA/QC Procedure	Raw files are saved and untouched, where data is processed in a separate file. During measurement, at least two team members are responsible for instrument observation and data output monitoring. All processed data is checked by an internal reviewer.
Data Archiving	All measurements, regardless of inclusion in a project or not, are saved to the Tradewater Sharepoint indefinitely.
Parties Involved	Project Developer: Methane Project Development Manager
Responsibilities of Parties Involved	Set up sampling equipment, take measurements, save data, process data
Notes	$Conc_{measured,\ ambient} = 0$ due to direct flow measurements, "*Ambient emissions measurements are not required during pre-plugging sampling events if measurement equipment is directly connected to the leaking well, and therefore not impacted by the ambient methane.*"

E.
QUANTIFICATION

E1. BASELINE SCENARIO

Section 4.2.1 Equation 2: Baseline Emissions (Pre-Plugging) Calculation from the Methodology will be used to calculate annual baseline emissions (BE):

$$BE = ((\sum_{p=1}^{w} Q_{pre-plugging,p}) \times (GWP_{100}(CH_4))/1000 \times 20$$

Where

BE	Baseline emissions over the Crediting Period for the well in the project (MT CO_2e per year)
$Q_{pre\text{-}plugging,p}$	Methane emission rate for well, p [kg CH_4/year]
w	Total number of wells to be plugged in a project (1 well)
Kg to MT	1000
$GWP_{100}(CH_4)$	100-year global warming potential for methane (CH_4)
20	Years in Crediting Period

In order to get the methane emission rate for the well, Equation 1 from the Errata & Clarifications is used.

$$Q_{pre-plugging,p} = \frac{\sum_{i=1}^{n}(Q_{measured,i} \times Conc_{measured,i} \times MCF)}{n} \times \rho \times 0.454 \times 8{,}760$$

Where

$Q_{pre\text{-}plugging,p}$	Methane emission rate for well, p [kg CH_4/year]
$Q_{measured,i}$	Well gas flow rate for 10-minute interval, I, from minimum 2-hour stability period of both pre-pugging sampling events for well p (scf/hr)
$Conc_{measured,i}$	Concentration of methane in the well gas stream for 10-minute interval, i, from minimum 2-hour stability period of both pre-plugging sampling events for well p (%)
MCF	Moisture correction factor taken as 1 because $Q_{measured,i}$ and $Conc_{measured,i}$ are measured on a dry basis
n	Number of 10-minute intervals, i, from stability periods of both pre-plugging sampling events (minimum 2-hours each for a minimum quantity of 24 interval readings)
ρ	Standard density of methane (lb CH_4/scf CH_4), 0.0447 lb CH_4/scf CH_4 at 1 atm and 32 °F
0.454	Conversion of lb to Kg
8,760	Hours per year

The well gas flow rate ($Q_{measured,I}$) was corrected for standard temperature and pressure, as the gas flow measurement equipment does not internally correct flow rate to standard conditions. Therefore, Equation A from the Errata & Clarifications is applied to correct the gas flow rate to a standard pressure and temperature of 1 atm and 32°F respectively.

$$Corrected\ Q_{measured,i} = Q_{measured,i} \times \frac{519.67}{Gas\ Temp_{measured,i}} \times \frac{Gas\ Pressure_{measured,i}}{1}$$

Where

Corrected $Q_{measured,i}$	Well gas flow rate for 10-minute interval, i, from minimum 2-hour stability period of both pre-plugging sampling events for well p, corrected for temperature and pressure (scf/hr). This value is used as $Q_{measured,I}$ in the preceding equation.
$Q_{measured,i}$	Well gas flow rate for 10-minute interval, I, from minimum 2-hour stability period of both pre-pugging sampling events for well p (scf/hr), using a method approved in the submitted Methane Measurement Method Approval Form
519.67	519.67 degrees Rankine (°R)
Gas $Temp_{measured,i}$	Measured absolute temperature of well gas flow for 10-minute interval, i (°R, where °R = °F + 459.67)
Gas $Pressure_{measured,\ i}$	Measured absolute pressure of flowing pressure for 10-minute interval, i (atm), using a method approved in the submitted Methane Measurement Method Approval Form

Deductions for ambient methane concentrations are done to reduce the impact of ambient methane concentration levels on the well gas flow rate calculations. Therefore, Equation B from the Errata & Clarifications is applied.

$$Corrected\ Conc_{measured,i} = Conc_{measured,i} - Conc_{measured,ambient}$$

Where

Corrected $Conc_{measured,i}$	Concentration of methane in the well gas stream for each 10-minute interval, i, from minimum 2-hour stability period of both pre-plugging sampling events for well p (%). This value is used as $Conc_{measured,I}$ in the preceding equation.
$Conc_{measured,i}$	Concentration of methane in the well gas stream for each 10-minute interval, i, from minimum 2-hour stability period of both pre-plugging sampling events for well p (%),using a method approved in the submitted Methane Measurement Method Approval Form
$Conc_{measured,ambient}$	Concentration of methane in ambient measurement (%),using a method approved in the submitted Methane Measurement Method Approval Form

The well gas flow rate ($Q_{measured,I}$) was corrected for standard temperature and pressure, as the gas flow measurement equipment does not internally correct flow rate to standard conditions. Therefore, Equation A from the Errata & Clarifications is applied to correct the gas flow rate to a standard pressure and temperature of 1 atm and 32°F respectively.

E2. AFOLU PROJECT INVENTORY

Not applicable.

E3. WITH-PROJECT SCENARIO

Section 4.4 Equation 3: CO_2 Emissions from Fossil Fuel Combustion for Equipment Used at Plugging Project will be used to quantify Project Emissions (PE):

$$PE = \sum_{j=1}^{y} (\frac{FF_j * FF_{EF,j}}{1000})$$

Where

PE	CO_2e emissions from fossil fuel used in equipment at plugging project (t CO_2e)
$FF_{,j}$	Total quantity of fossil fuel j consumed (gallons) in all plugging activitiesrequired for project completion
$FF_{,EF,j}$	Fuel specific emission factor for fuel j 10.49 kg CO_2e per gallon diesel, and 8.81 kg CO_2e per gallon of gasoline
y	Total number of fossil fuels used at plugging project
Kg to MT	1000

E4. LEAKAGE

According to ACR Standard 8.0, leakage is defined as a decrease in the sequestration or increase in emissions outside project boundaries resulting from project implementation. It refers to secondary effects where the GHG emission reductions of a project may be negated by shifts in market activity or shifts in materials, infrastructure, or physical assets associated with the project.

Emissions from the orphaned gas well in this Project are likely to come from failed equipment and unmitigated release of gas. Once a well is plugged and confirmed to be no longer emitting, there is no action from the O&G industry that may be done on that well to result in additional emissions. Plugging of orphaned wells does not increase the number of orphaned wells, and consequently should not result in the increase of fugitive methane emitting to the atmosphere. “Leakage” for this Methodology is considered zero.

E5. UNCERTAINTY

The Methodology requires this Project to apply a 5% uncertainty deduction from quantified emissions reductions. This is a conservative requirement to account for ongoing research and data collection regarding both the migration of reservoir methane to neighboring wells and the long-term integrity of well plugs.

E6. QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

QA/QC for managing data and information is outlined in Section D1.

Additional QA/QC procedures include the following, as applicable: following calibration procedures as outlined by the equipment manuals, saving raw files and completing necessary data processing in a separate file, assessing data stability, utilizing field notes and instrument data outputs to corroborate timestamps, and periodic reviews of instrument outputs while taking data as well as while plugging. Moreover, at least two project members employed by the Project Developer are assigned to perform and/or observe measurement activities. Any data integration or analysis is performed by a project member and checked by an internal reviewer, both who are employed by the Project Developer. If any reports used include an extensive amount of data that is manually assessed or migrated, the project Developer selects a subset of data in each report to assess via a sampling and quality check process.

E7. GHG EMISSION REDUCTIONS AND REMOVALS

Net reductions and removals are quantified using the equation from the Methodology below,

$$Total\ ER = (BE - PE) \times (1 - UNC)$$

Where, in addition to the above variables,

Total ER	Total emissions reductions from project (MT CO_2e)
BE	Baseline emissions over Crediting Period for all wells in project (MT CO2e) from Equation 2
PE	Project CO2 emissions from fossil fuel combustion for equipment used at plugging project (MT CO2e) from Equation 3
UNC	5% uncertainty deduction

E8. *EX ANTE* CARBON CREDIT PROJECTION

Current baseline estimate will be approximately 42,824.9 mtCO2e per year. The baseline emissions for a 20-year period is 856,498 mtCO2e with project emissions at 44 mtCO2e. The emissions reduction number of 856,454 is subject to a 5% uncertainty deduction. This project therefore will net a credit total of: 813,632 mtCO2e.

E9. EX-ANTE ESTIMATION METHODS

Please see the file ACR915_ERs_v4.0 (Appendix C) for more information.

F.
ENVIRONMENTAL AND SOCIAL IMPACTS

F1. ENVIRONMENTAL AND SOCIAL IMPACT SUMMARY

Tradewater is unaware of any negative environmental or socio-economic impacts from this project. Since there is currently no regulation that requires the plugging of wells specifically classified as "orphaned," the Project creates a solution to this problem. Although regulations do exist for wells not classified as "orphaned" or those not on the orphan list, those regulations do not apply to the well in this project (see Section C3 for more information).

Orphaned wells pose a variety of community and environmental issues on top of the risk of the emission of methane to the atmosphere. In addition to emitting methane, these wells emit other chemicals, including benzene which is a known carcinogen, and hydrogen sulfide, a toxic, noxious gas. In this particular case, the well plugged was highly contaminated with hydrogen sulfide and posed a serious risk of injury or even death to those exposed to the leaking gas.

Orphaned wells may be located anywhere, including near or in fragile ecosystems, and are thus at risk of leaking fluids or gases into these locations. Because of their wide range of locations, they are also at risk of contaminating waterways like rivers and streams. Further, since oil and gas wells penetrate the underground source of drinking water, they risk contaminating water for the communities they are drilled in. For this project, the well was located on state lands which are accessible by the public, and further surrounded by residential farmland including water sources and retention ponds.

Perhaps most notable, the well is located on state land Goose Pond Fish and Wildlife Area which serves as a public resource for outdoor recreational activities. About 12,000 people visit annually to observe wildlife, fish, and hunt. This land is part of the Wetland Reserve Program.

Plugging the orphaned gas well in this Project prevented the negative environmental impacts outlined above and are an overall net positive for the community of nearby landowners, farmers, and the public in Greene County, IN.

F2. SUSTAINABLE DEVELOPMENT GOALS

Sustainable Development Goals Statement

The Project supports United Nations Sustainable Development Goals (SDG) as follows:

Direct Positive Impact to SDG Targets:

SDG 12.4 – Responsible Consumption and Production: Orphaned wells can be expected to emit harmful methane and other toxic gases into the atmosphere, as well as leak other contaminants into water systems and soil. Additionally, unplugged wells impede the ability to safely utilize the surrounding area and in some cases are a mar on the landscape. Responsible consumption includes environmentally sound management throughout the entire lifecycle of a chemical or system and plugging the wells yields the most responsible and safe outcome.

SDG 13.2 – Climate Action: Methane is a short-lived climate pollutant, meaning that it does the most damage in the first years following its release into the atmosphere. For these reasons, the IPCC recognizes the reduction of methane emissions as the most effective immediate strategy for slowing down warming. The oil and gas industry represents a significant source of methane emissions, and the plugging of orphaned oil and gas wells accelerates global strategies to mitigating near-term climate change and enabling long-term planning and impacts to develop.

Indirect Positive Impact to SDG Targets:

SDG 9.4 – Industry, Innovation, and Infrastructure: It is assumed that plugging of orphaned wells is the last step in an orphaned well's lifecycle. The current technology of plugging improves the existing state of the well by eliminating emissions entirely, thereby creating the most resource-efficient scenario. Across the world and the US, enforcement and implementation of plugging is inconsistent, but the adoption of incentive-creating methodologies is one answer to this problem facing the energy sector.

Indirect Positive (Conditional)

SDG 3.9 – Good Health and Wellbeing: Orphaned oil and gas wells pose a risk to the surrounding environment as much as they emit harmful greenhouse gases. After wells are orphaned, the hydrocarbons and extraction chemicals left behind impact underground aquifers, surface waters, and surrounding lands. Plugging orphaned wells properly closes in the borehole and prevents the vertical and lateral transmission or migration of fluids and/or pollutants to the surrounding formation, rock, soil, and air. This further ensures that health and wellbeing is maintained by limiting and reversing air, water, and soil pollution in the vicinity of the wells. Please see the map below to orient the proximity of the well to nearby homes, property, farmland, and water sources. As previously mentioned, the well was located on state lands used as a recreation area for up to 12,000 visitors annually. Plugging the well ensures safe access for wildlife enjoyers at Goose Pond.

SDG 15.1 – Life on Land: Tradewater recognizes that this project type is affiliated with the conditional SDG "Life on Land" which refers to returning the land to native habitat. Tradewater acknowledges this possibility but is not claiming this SDG for this project.

F3. STAKEHOLDER COMMENTS AND CONSULTATION

Stakeholders include Indiana DNR, and communication with them is documented in our plugging plan. IN DNR monitored the plugging activities and was in close communication with Tradewater throughout the plugging approval process through to the confirmed plugging of the well. Stakeholders also include landowners. For this project, the landowner is Indiana DNR: Fish and Wildlife. Direct communication was held with a representative (Property Manager Kalli Dunn) and any issues regarding access and remediation are handled in direct oral communication and were documented in a letter and access agreement, signed by TW and the landowner. This document covered prior and informed consent as well as the confidential agreement on benefit sharing between Tradewater and landowner. No comments were received during the public comment period for this project.

G.
OWNERSHIP AND TITLE

G1. PROOF OF TITLE

Tradewater LLC is the Project Proponent. Tradewater LLC led all plugging activities and possesses the right to all carbon credits derived from plugging the orphaned gas well in this Project. Access to the landowner's property is obtained through a Landowner Access Acknowledgement that provides Tradewater the right to access the property and plug the wells. In this case, the well was located on state lands and a representative from the Indiana DNR served as the contact for the landowner.

As orphan wells exist without a solvent owner, the responsibility of the wells is conveyed to the state and no specific entity is legally responsible for (by title) or held liable for the fugitive emission from any leaking well. When the state grants approval to access the well for the purpose of plugging, the responsibility of the well is conveyed to the entity performing the plugging, and plugging is executed according to the state-approved plans.

In the state of Indiana, 312 IAC 29-33 sets out the rules and regulations regarding orphaned wells. Tradewater's authority to plug the well and responsibility for plugging it is evidenced by the state approved plugging plan naming Tradewater. This approval was granted on 9/5/2023.

G2. CHAIN OF CUSTODY

Chain of Custody conditions are not applicable to this project, as the credits have not been bought or sold previously and the Project does not have a forward option contract.

G3. PRIOR APPLICATION

The project proponent has not applied for GHG emission reductions or removal credits for the project through any other GHG emissions trading system or program.

H.
PROJECT TIMELINE

H1. START DATE

This Project started on 01/22/2024, which corresponds to the completion of plugging activities of the first plugged well included in the Project after demonstration that there were no emissions from the plugged well. The project start date is consistent with the ACR Standard requirement that the start date is the date on which the Project begins reducing GHG emissions against its baseline.

H2. PROJECT TIMELINE

Relevant Project Activities	Timeline
Initiation of Project Activities	October 18, 2022
Project Term	Not applicable
Crediting Period	01/22/2024 – 1/21/2044
Reporting Period	01/22/2024 – 1/22/2024
Frequency of Monitoring, Reporting, and Verification	Once per reporting period
Relevant Activities: Measurement 1	Well 35105: 6/27/2023
Relevant Activities: Measurement 2	Well 35105: 8/25/2023
Relevant Activities: Plugging Operations as determined by Tradewater(includes consultation, planning, etc.) through to post-plugging confirmation sampling.	Well 35105: 9/27/2023 - 1/22/2024
Plugging Date	01/08/2024
Post-Plugging Monitoring Confirmation	01/22/2024
Relevant Activities: Post-plugging Confirmation Sampling	Well 35105: 1/22/2024

Appendices

Appendix	Document Title	Provided under separate cover? (Yes/No)	Filename *if provided under separate cover*
A	Environmental and Social Impact Assessment*	No	N/A
B	SDG Contributions Report*	No	N/A
C	Ex-Ante Estimates	No	N/A

Attestations

The Project Proponent hereby represents and warrants to the American Carbon Registry, its affiliates and supporting organizations, and any assignee of substantially all of the assets comprising the ACR, that all information contained herein and in all appendices is true, correct, and complete to the best of their knowledge, information, and belief and they further agree to notify ACR promptly in the event that the Project Proponent becomes aware that any representation or warranty set forth above or in any appendix submitted under separate cover was not true when made.

Project Proponent Signature:	
Project Proponent Representative Signature:	X Timothy Brown (Mar 17, 2025 16:09 MDT)
Name:	Timothy H. Brown
Title:	Chief Executive Officer
Organization:	Tradewater, LLC
Date:	**March 17, 2025 (Redacted Version)**

Environmental and Social Impact Assessment

VERSION 1.0

2023-07-01

Chapter 8 of the *ACR Standard v8.0* requires all Project Proponents to prepare and disclose an environmental and social impact assessment. The use of this template, provided within or as an appendix to the GHG Project Plan, is required. Please respond to the questions below as completely and accurately as possible based on project details.

SECTION I: GENERAL PROJECT DETAILS		
1	**Project Title**	Tradewater OOG 2
2	**ACR Project ID**	ACR915
3	**Provide an overview of the project activity.** Tradewater has plugged 1 orphaned gas well in Greene County, Indiana, USA to prevent release of methane emissions.	
4	**Provide the GHG Project's geographic location.** Greene County, Indiana, United States	
5	**Provide an overview of the GHG Project's relevant stakeholders (i.e., individuals or groups that can potentially affect or be affected by the project activities and who may live within or outside the Project area).** Stakeholders include Indiana DNR, and communication with them is documented in our plugging plan. IN DNR monitored the plugging activities and was in close communication with Tradewater throughout the plugging approval process through to the confirmed plugging of the well. Stakeholders also include landowners. For this project, the landowner is Indiana DNR: Fish and Wildlife. Direct communication was held with a representative (Property Manager Kalli Dunn).	

SECTION II: ENVIRONMENTAL & SOCIAL RISKS AND IMPACTS

Taking into account the scope and scale of the project activity, provide an assessment of the GHG Project's environmental and social risks and impacts for the project duration for each of the areas below. Categorize each risk/impact as positive, negative, or neutral and substantiate the selected category, noting all defined and defensible assumptions.

When the GHG Project poses risks of negative impacts, describe how impacts will be avoided, reduced, mitigated or compensated, commensurate with the risk, and detail how risks and negative impacts will be monitored, how often, and by whom.

1 BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES

1A Terrestrial and Marine Biodiversity and Ecosystems

☒Positive ☐Negative ☐Neutral

1. **Describe the reasoning for selection:**
   Through plugging, water ecosystems are improved due to the sealing off of the well which could otherwise leak contaminants such as oil and other residues into water systems, as well as leach toxic compounds. Soil is also kept free from these harmful substances, affecting subsurface soil organisms and further affecting animals and plants that live on the surface. In this case, nearby retention ponds are positively affected in that the environmental issues described above are avoided.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

1B **Habitat of Rare, Threatened, and Endangered Species, Including Areas Needed for Habitat Connectivity**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   We have not identified any threatened species or endangered habitats in the vincinity of, or affected by, the project sites.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

1C **Natural Forests, Grasslands, Wetlands, or High Conservation Value Habitats**

☒Positive ☐Negative ☐Neutral

1. **Describe the reasoning for selection:**
   The well is situated on public land which is home to watersystems and recreational areas. Leaking wells pose a risk to contaminating waterways, groundwater, and drinking water and communities they service. The well in the Project was located on the grounds of the Goose Pond Fish and Wildlife Area, a public source for recreation and is part of the Wetland Reserve Program. The wetland area is therefore preserved through the project activity.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

1D **Soil Degradation and Soil Erosion**

☒Positive ☐Negative ☐Neutral

1. **Describe the reasoning for selection:**
   Continual leaking of the oil and gas wells will eventually corrode and degrade soil. By properly plugging the well and eliminating the above-ground features, new opportunities for utilizing the land including the soil in this area arise and improve the overall soil condition, especially when returned to a natural state.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

1E **Water Consumption and Stress**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   Water consumption and stress is not related to the project activity.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

2 RESOURCE EFFICIENCY AND POLLUTION PREVENTION

2A Pollutant Emissions to Air

☒Positive ☐Negative ☐Neutral

1. **Describe the reasoning for selection:**
   Oil and gas wells will continue to emit methane gas into the air and atmosphere. In addition, hydrogen sulfide and other toxic gases, many of which are classifed as carcinogens, are emittedf along with methane. By capping the wells, the negative impact to the air is eliminated.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

2B Pollutant Discharges to Water, Noise, and Vibration

☒Positive ☐Negative ☐Neutral

1. **Describe the reasoning for selection:**
   Similar to the positive impact to air, the wells will leach various pollutants and chemicals into water systems unless plugged. Plugging will help keep water systems and ground water cleaner than the business-as-usual scenario.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

2C **Generation of Waste and Release of Hazardous Materials, Chemical Pesticides, and Fertilizers**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   This project neither removes nor creates hazardous materials, chemical pesticides, or fertilizers.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

3 LABOR RIGHTS AND WORKING CONDITIONS

3A **Safe And Healthy Working Conditions for Employees**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   The project activity does not contribute to nor work against safe and healthy working conditions for employees.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

3B **Fair Treatment of All Employees, Avoiding Discrimination, and Ensuring Equal Opportunities**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   The project activity does not contribute to nor work against fair treatment of employees.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

3C **Forced Labor, Child Labor, or Trafficked Persons, and Protections for Contracted Workers Employed by Third Parties**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   The project activity does not contribute to nor work against forced labor, child labor, trafficked persons, or protections for contracted workers employed by third parties.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

4 LAND ACQUISITION AND INVOLUNTARY RESETTLEMENT

4A Forced Physical and/or Economic Displacement

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   The project activity does not contribute to nor work against forced physical or economic displacement of persons.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

5 RESPECT FOR HUMAN RIGHTS, STAKEHOLDER ENGAGEMENT

5A Human Rights and Discrimination

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   The project activity does not contribute to nor work against discrimination.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

5B Abidance by the International Bill Of Human Rights[1] and Universal Instruments Ratified by the Host Country

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   Abidance by the International Bill of Human Rights and Universal Instruments is not applicable to the project activity.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

5C **Consideration and Response to Local Stakeholders' Views**

☒Positive ☐Negative ☐Neutral

1. **Describe the reasoning for selection:**
   Tradewater coordinates with landowners through formal landowner access agreements and maintains communication with them throughout the plugging process.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

[1] https://www.ohchr.org/en/what-are-human-rights/international-bill-human-rights

6 GENDER EQUALITY

6A Equal Opportunities in the Context of Gender

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   The project activity does not contribute to nor work against equal opportunities in the context of gender.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

6B Violence Against Women and Girls

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   The project activity does not contribute to nor work against violence against women and girls.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

6C Equal Pay for Equal Work

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   The project activity does not contribute to nor work against equal pay for equal work.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

SECTION III: COMMUNITY-BASED PROJECTS

1

Community-based projects are those in which project activities engage or otherwise impact one or more communities. A community includes groups of people who live within or adjacent to the project area, including indigenous peoples and other local communities, as well as any groups that derive income, livelihood, or cultural values from the area.

Is the Project a community-based Project? ☐ Yes ☒ No

2

If the project **IS** a community-based project, include a description of the community(ies), stakeholder engagement, and benefit sharing arrangements below.

2A

Community and Stakeholder Identification and Consultation

1. **Describe the process to identify community(ies) affected by the GHG Project:**
   N/A
2. **Provide detailed information regarding the community stakeholder consultation process undertaken as part of the project design and implementation, including demonstration that the consultations with Indigenous Peoples and local communities were conducted in a manner that is inclusive, culturally appropriate, and respectful of local knowledge:**
   N/A
3. **Provide documentation of meetings held, attendees, and meeting minutes, as well as stakeholder comments and concerns and how those were addressed. These documents can be provided as attachments with file references stated below:**
   N/A

2B **Indigenous Peoples, Local Communities, Cultural Heritage, and Free Prior and Informed Consent**

Where the project directly or indirectly impacts Indigenous Peoples and local communities, including livelihoods, ancestral knowledge, and cultural heritage, describe the steps taken to:

1. **Recognize, respect, and promote the protection of the rights of Indigenous Peoples and local communities in line with applicable human rights law, and the United Nations Declaration on the Rights of Indigenous Peoples and ILO Convention 169 on Indigenous and Tribal Peoples[2]:**
   N/A
2. **Identify the rights-holders possibly affected (including customary rights of local rights holders):**
   N/A
3. **Avoid eviction or any physical or economic displacement, including through access restrictions to lands, territories, or resources:**
   N/A
4. **Preserve and protect cultural heritage consistent with Indigenous Peoples and local community(ies) protocols/rules/plans on the management of cultural heritage and/or UNESCO Cultural Heritage Conventions:**
   N/A
5. **As applicable, provide evidence of Free, Prior and Informed Consent by describing the process that was conducted to ensure that: consent was sought sufficiently in advance of any project, plan, or action taking place; consent was independently decided upon collectively by the rights-holders without coercion, intimidation, or manipulation; and consent was based on accessible, accurate, timely, and sufficient information provided in a culturally appropriate way:**
   N/A

[2] https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

2C **Relocation or Resettlement**

1. **Was there/will there be any relocation or resettlement resulting from project design or implementation?**
   N/A
   a. **If yes, describe the circumstances:**
      N/A
   b. **If yes, was the relocation or resettlement a result of voluntary land transaction(s) between the buyer and seller?**
      N/A
   c. **If yes, did the relocation or resettlement change the land use of the affected groups or communities?**
      N/A
   d. **If yes, was relocation or resettlement involuntary (e.g., through eminent domain)?**
      N/A

2D **Robust Benefit Sharing**

1. **Describe how a benefit sharing plan (that includes arrangements that are appropriate to the context and consistent with applicable national rules and regulations) was or will be designed and implemented:**
   N/A
2. **Has a draft or final benefit sharing plan been shared with affected communities in a form, manner, and language understandable to them?**
   N/A
3. **Has/will the benefit-sharing outcomes be made public (subject to legal restrictions)?**
4. N/A

2E **Negative Impacts and Mitigation Measures**

Identify any risks or claims of negative environmental and/or social impacts other than those listed in Part II:

1. **Describe the negative impact, risk, or claim:**
   N/A
2. **Describe how any negative impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **Detail how negative risks and impacts will be monitored, how often, and by whom:**
   N/A

SECTION IV: PREPARER INFORMATION	
Name	Timothy H. Brown
Title	CEO
Organization	Tradewater LLC
Date	9/26/2024

Sustainable Development Goals (SDGs) Contribution Report

INDUSTRIAL PROJECTS

VERSION 1.0

2023-07-19

This report, as required in the *ACR Standard v8.0* , provides a qualitative assessment of the positive impacts the project is delivering to the United Nations Sustainable Development Goals (SDGs). The identified contributions are based on the standardized *ACR SDG Contributions Reporting Tool* .

ACR Project #:	915
Project Name:	Tradewater OOG 2

1. Select the applicable ACR project type from the drop-down menu below. This will auto populate the UN SDG targets to which project implementation is likely to positively contribute, as conservatively identified in the ACR SDG Contributions Reporting Tool.
2. If your project positively contributes to any additional SDG targets, such as the "conditional" targets identified in the ACR SDG Contributions Reporting Tool, please include those in the extra rows provided.
3. Provide a description of how the project contributes to each of the SDG targets identified.
4. Where the SDG objectives of the host country are relevant and such is feasible, provide information on how the project activity is consistent with the SDG objectives of the host country.
5. Hide any unused rows, save the completed template as a PDF, and upload it to the ACR Registry with the GHG Project Plan.

Project Type:	Plugging Orphan Oil and Gas Wells in the U.S. and Canada

DIRECT POSITIVE IMPACT TO SDG TARGETS	DESCRIPTION OF PROJECT'S CONTRIBUTION(S) TO SDG TARGET
SDG 12: Ensure sustainable consumption and production patterns 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	Orphaned wells can be expected to emit harmful methane and other toxic gases into the atmosphere, as well as leak other contaminants into water systems and soil. Additionally, unplugged wells impede the ability to safely utilize the surrounding area and in some cases are a mar on the landscape. Responsible consumption includes environmentally sound management throughout the entire lifecycle of a chemical or system and plugging the wells yields the most responsible and safe outcome.
SDG 13: Take urgent action to combat climate change and its impacts 13.2 Integrate climate change measures into national policies, strategies and planning	Methane is a short-lived climate pollutant, meaning that it does the most damage in the first years following its release into the atmosphere. For these reasons, the IPCC recognizes the reduction of methane emissions as the most effective immediate strategy for slowing down warming. The oil and gas industry represents a significant source of methane emissions, and the plugging of orphaned oil and gas wells accelerates global strategies to mitigating near-term climate change and enabling long-term planning and impacts to develop.

INDIRECT POSITIVE IMPACT TO SDG TARGETS	DESCRIPTION OF PROJECT'S CONTRIBUTION(S) TO SDG TARGET

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.	It is assumed that plugging of orphaned wells is the last step in an orphaned well's lifecycle. The current technology of plugging improves the existing state of the well by eliminating emissions entirely, thereby creating the most resource-efficient scenario. Across the world and the US, enforcement and implementation of plugging is inconsistent, but the adoption of incentive-creating methodologies is one answer to this problem facing the energy sector.
SDG 3 Ensure healthy lives and promote well-being for all at all ages 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Orphaned oil and gas wells pose a risk to the surrounding environment as much as they emit harmful greenhouse gases. After wells are orphaned, the hydrocarbons and extraction chemicals left behind impact underground aquifers, surface waters, and surrounding lands. Plugging orphaned wells properly closes in the borehole and prevents the vertical and lateral transmission or migration of fluids and/or pollutants to the surrounding formation, rock, soil, and air. This further ensures that health and wellbeing is maintained by limiting and reversing air, water, and soil pollution in the vicinity of the wells.

INFORMATION ON HOW THE PROJECT ACTIVITY IS CONSISTENT WITH THE SDG OBJECTIVES OF THE HOST COUNTRY, WHERE THE SDG OBJECTIVES ARE RELEVANT, AND SUCH IS FEASIBLE.	N/A

Appendix C

Equation 1: Annual Emission Rate for a Well

$$Q_{pre-plugging,p} = \frac{\sum_{i=1}^{n}(Q_{measured,i} \times Conc_{measured,i} \times MCF)}{n} \times \rho \times 0.454 \times 8{,}760$$

Density	0.0423	lb CH4/scf CH4 (at 1 atm and 60º F)
MCF (dry basis)	1	
n	24	
Qpre-plugging,p	1529462.391	Kg CH4/year

Annual Emission Rate for a Well	
Well	Qpre-plugging,p (kg CH4/Year)
35105	1529462.391

Equation 2: Baseline Emissions (Pre-Plugging)

$$BE = \frac{\sum_{p=1}^{w}(Q_{pre-plugging,p})}{1{,}000} \times GWP_{100CH4} \times 20$$

GWP100CH4	28	MT CO2e/MTCH4
BE	856498.939	MT CO2e

Equation 3: Project CO2 Emissions from Fossil Fuel Combustion for Equipment Used at Plugging Project

$$PE = \sum_{j=1}^{y} \frac{FF_j \times EF_j}{1{,}000}$$

PE	43.86918	MT CO2e

Equation 5: Total GHG Emission Reductions

$$\mathbf{TotalER = (BE - PE) \times (1 - UNC)}$$

UNC	5%	
TotalER	813632.316	MT CO2e

Fossil fuel consumed			
Invoice	Gallons	Type of fuel	Emission factor (kg CO2/Gallon)
35105	4182	Diesel	10.49
	0	Gasoline	8.81

M1

CH4 Ambient Conc	Moisture correction Factor (MCF) (Dry basis)
0	1

Temperature (F)	Temperature (Rankine)	Pressure (PSIa)	Pressure (atm)
60	519.67	14.65	0.9968708

Constants		
Row	Value	ValueDefined
1	24	Hours per day
1	1,000	Cubic feet per MCF
2	28.3168	Liters per cubic foot, ideal gases
3	0.000001	1 part per million
4	0.068046	PSIA to atm

Pressure

10-Minute Time Windows

Period	Elapsed S	Elapsed S	Pressure (PSI)	Stability Check (4, 1.4.)
1	9998	10597	728.975	0.999054487
2	10598	11197	730.695	0.999282022
3	11198	11797	731.13	0.999496529
4	11798	12397	731.5883333	0.999505886
5	12398	12997	731.95	0.999956738
6	12998	13597	731.9816667	0.99976098
7	13598	14197	732.1566667	0.999929647
8	14198	14797	732.2083333	0.99977698
9	14798	15397	732.3716667	0.999867551
10	15398	15997	732.4833333	0.999551954
11	15998	16597	732.8116667	1.000079608
12	16598	17197	732.7533333	#DIV/0!

Concentration SEM 5000

10-Minute Time Windows

Period	Elapsed Start (Seconds)	Elapsed Stop (Seconds)	Gas value (ppm)	Stability Check (4, 1.4.)	Corrected CH4 Conc (ppm) Equation 6)
1	568	1167	871177.8778	1.002892027	871177.8778
2	1168	1767	868665.6733	0.889716278	868665.6733
3	1768	2367	877665.5256	0.879050659	877665.5256
4	2368	2967	896472.1665	0.9789184	896472.1665
5	2968	3567	915764.3045	0.881405887	915764.3045
6	3568	4167	948116.649	0.883812057	948116.649
7	4168	4767	948372.0078	0.985461175	948372.0078
8	4768	5367	962461.3106	0.992736765	962461.3106
9	5368	5967	968505.9365	0.992693963	968505.9365
10	5968	6567	975458.4498	0.999794851	975458.4498
11	6568	7167	975858.6464	0.996159887	975858.6464
12	7168	7767	979620.4994	#DIV/0!	979620.4994

Flow Silvercloth

10-Minute Time Windows

Period	Elapsed Start (Seconds)	Elapsed Stop (Seconds)	Gas Flow (MCF/day)	Stability Check (4, 1.4.)	Gas Flow (cf/h)	Corrected Gas flow (scf/h) Equation A)
1	14094	13993	252.95	1.080367913	105.39.58333	10506.60554
2	13894	14593	244.1333333	1.015332247	9755.555556	9725.058713
3	14594	15193	240.65	1.018997128	9610.416667	9580.370543
4	15194	15793	226.85	1.060187856	9441.25	9401.768969
5	15794	16393	214.5	0.88748776	8895.833333	8868.036069
6	16494	16993	240.5666667	0.985185485	10023.61111	9991.2763
7	16894	17593	261.85	0.990555499	10160.41667	10128.68419
8	17594	18193	246.175	0.990365274	10257.29167	10225.22635
9	18194	18793	248.6	1.016638776	10358.33333	10325.95215
10	18794	19393	245	1.049230585	10208.33333	10176.47336
11	19394	19993	234.5	0.951007742	9729.166667	9698.752109
12	19994	20593	245.4	#DIV/0!	10225	10193.08543

Emissions Rate

10-Minute Time Windows

Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Stability Check (4, 1.4.)
1	0	600	9153.148454	1.083491763
2	601	1200	8447.824675	1.009663334
3	1201	1800	8408.613671	0.997569651
4	1801	2400	8428.422404	1.002952831
5	2401	3000	8121.019067	0.879685845
6	3001	3600	9019.995142	0.970664783
7	3601	4200	9605.732109	0.97605493
8	4201	4800	9841.384752	0.980050498
9	4801	5400	10011.07194	1.008295121
10	5401	6000	9828.711188	1.049085182
11	6001	6600	9464.611809	0.947853991
12	6601	7200	9685.406652	#DIV/0!

M2

CH4 Ambient Conc	Moisture correction Factor (MCF) (Dry basis)
0	1

Temperature (F)	Temperature (Rankine)	Pressure (PSIa)	Pressure (atm)
60	519.67	14.65	0.9968709

Constants		
Row	Value	Value/Defined
1	24	Hours per day
1	1,000	Cubic feet per MCF
2	28.3168	Liters per cubic foot, ideal gases
3	0.000001	1 part per million
4	0.068046	PSIA to atm

Pressure
10-Minute Time Windows

Period	Elapsed S	Elapsed S	Pressure (PSI)	Stability Check (4.1.4.)
1	5400	5999	695.5466667	1.000356459
2	6000	6599	695.4683333	0.999578199
3	6600	7199	695.6616667	0.999821268
4	7200	7799	696.7616667	1.000212685
5	7800	8399	696.6116666	0.999576701
6	8400	8999	696.9083333	0.999560155
7	9000	9599	697.215	1.000353685
8	9600	10199	695.8833333	1.002220529
9	10200	10799	696.3616667	0.998134005
10	10800	11399	695.6383333	0.997336852
11	11400	11999	697.0566667	0.997782351
12	12000	12599	696.2066667	#DIV/0!

Concentration SEM 500
10-Minute Time Windows

Period	Elapsed Start (Seconds)	Elapsed Stop (Seconds)	Gas value (ppm)	Stability Check (4.1.4.)	Corrected CH4 Conc (ppm) (Equation 6)
1	7579	8178	980181.8047	0.999069936	980181.8047
2	8179	8778	981044.658	0.998822362	981044.658
3	8779	9378	981391.5011	0.999222407	981391.5011
4	9379	9978	982955.9394	0.999882748	982955.9394
5	9979	10578	982971.9294	0.999034648	982971.9294
6	10579	11178	984821.8473	1.000810676	984821.8473
7	11179	11778	984113.1748	1.001905873	984112.1748
8	11779	12378	985145.9548	1.002366548	985145.9548
9	12379	12978	978944.9209	1.001646576	978944.9209
10	12979	13578	977816.905	1.001246736	977816.905
11	13579	14178	976116.9445	1.001192667	976116.9445
12	14179	14778	974854.1492	#DIV/0!	974854.1492

Flow Silversmith
10-Minute Time Windows

Period	Elapsed Start (Seconds)	Elapsed Stop (Seconds)	Gas Flow (MCF/day)	Stability Check (4.1.4.)	Gas flow (cf/h)	Corrected Gas Flow (cf/h) (Equation A)
1	8474	8973	238.75	1.0180788	9956.25	9127.636667
2	8974	9573	236.85	0.994736771	9035.416667	9007.171851
3	9574	10173	218	1.027917067	9083.333333	9056.917935
4	10174	10773	232.1	0.983029153	8837.5	8808.874091
5	10774	11373	235.7	0.994022346	8967.5	8938.606176
6	11474	11973	236.75	1.005460647	9322.916667	9293.772287
7	11974	12573	221.55	0.977587189	9272.916667	9243.928492
8	12574	13173	227.65	1.015634544	9485.416667	9455.764436
9	13174	13773	234.15	0.987589454	9339.583333	9310.386962
10	13774	14373	226.9666667	1.036239753	9456.944444	9427.38139
11	14374	14973	218.0333333	1.029518882	9126.388889	9097.858985
12	14974	15574	252.75	#DIV/0!	9864.583333	9834.871759

Emissions Rate
10-Minute Time Windows

Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Stability Check (4.1.4.)
1	0	600	8946.177178	1.012630365
2	601	1200	8836.637042	0.992562282
3	1201	1800	8864.684074	1.0278117 41
4	1801	2400	8658.71708	0.983294158
5	2401	3000	8806.942809	0.964391552
6	3001	3600	9144.346643	1.006220161
7	3601	4200	9087.818751	0.979460462
8	4201	4800	9278.392652	1.017997621
9	4801	5400	9114.855843	0.989017876
10	5401	6000	9253.699175	1.007516446
11	6001	6600	8880.574216	1.040961772
12	6601	7200	8635.544788	#DIV/0!

ACR915_GHGPlan_v5.1 - Redacted

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