ACR 894

Tradewater OOG 1

January 6, 2025

Tradewater, LLC

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A.
PROJECT OVERVIEW

A1. PROJECT TITLE

Tradewater OOG 1 (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 three orphaned gas wells in the state of Indiana that have been determined to be emitting methane.

Background Information

Over the past three years, and in development of our first and second OOG projects, a team of experts spearheaded by Tradewater visited over 100 orphaned oil and gas wells in Indiana with the goal of understanding key features of these wells. The team consisted of a PhD staff engineer with experience in methane detection technology, a mechanical engineer well equipment experience, and a natural gas professional with over 30 years in the field. Together, they discovered a collection of wells with significant surface pressure and high emissions rates that 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, for the majority of field-tested orphaned wells, high surface pressure and flow rate measurements indicate that these wells have a substantial amount of natural gas left in their reservoirs. 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 expensive and labor-intensive to plug; because of this, they have sat on State orphaned well lists for long periods of time—some for decades.

The wells addressed in this Project are 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 wells 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 wells in the Project is emitted into the atmosphere as the wells remain unplugged and without any mitigating actions. Without a solvent owner, the wells are a State responsibility and will not be remediated in the near term. In the absence of the Project, they would therefore continue to release methane unabated.

Upon first access, the wells were found to be in the following states of disrepair:

Well 49918 contained a rusted wellhead with casing that included a large orbital valve and a broken pressure gauge. There was approximately 20 feet of short, wide auxiliary piping including a separator, broken chart recorder, and various tees connected to other pipes. It was located in the middle of a corn field.

Well 52561 contained a rusted wellhead with casing that included a ball valve, broken tee, and broken pressure gauge. It appeared to have wasps living in the broken tee. This well was located at the edge of a forest.

In the middle of a different cornfield, Well 12860 contained a wellhead with surface casing and tubing. The surface casing had deteriorated cement packed to the production casing. The tubing had a severely rusted union and a ball valve. There was approximately 4 foot by 4 foot gray auxiliary piping in a contorted pile connected to the tubing.

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 wells. Mitigation is achieved by plugging the wells in accordance with state regulations, engineering recommendations, and State-approved plugging plans. The Project measures the quantity of emissions avoided by measuring emissions from the wells 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 wells in the Project were flowing, a cast iron bridge plug was set atop the lowest perforation or open hole. Cement was used as a top plug from a minimum of 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 sites will be remediated according to state regulations.

Post-plugging emissions confirmation samples were taken with an SEM5000 Portable Methane Detector. This measurement was performed or supervised by a Tradewater Qualified Emissions Measurement Specialist (QEMS).

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 when a wellhead is present) 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 Emissions Measurement Specialist (QEMS), who has a minimum of 20 hours of training and experience on the instruments described in ACR's Methane Measurement Method Approval Form (MMMAF). 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, and Errata and Clarifications (2024-09-13) 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 wells included in the Project are 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 QEMS.	The wells included in the Project were emitting methane when they were first accessed by Tradewater, as confirmed by leakage assessments and/or the Leaking Well Status Attestation.

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 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".	The wells included in the project have no designated operator. They were registered on the Indiana Department of Natural Resources List of Orphan Sites as of April 2023 and before the state of Indiana approved transfer of each well to Tradewater (Well 49918 – 5/3/2023, Well 52561 – 7/11/2024, and Well 12860 – 7/11/2024). 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 operators for these wells either had their permits revoked through an administrative proceeding (wells 52561 and 49918), as evidenced by the wells' statuses as "Revoked" in the Indiana DNR database prior to Tradewater plugging the wells. This proves there is no designated operator for the well. For well 12860, the well is simply classified as "Orphaned" in the DNR database, meaning no operators could be identified and the well remains without a designated operator. Both classifications are 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-andgas/files/ogabandoned_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 of the Methodology. The reporting period ends on the date that the last well in the project meets the post-plugging monitoring requirements of Section 4.7 of the Methodology. For clarity, the duration of the reporting period is the time between the first and last wells	The reporting period begins on 08/09/2023, the date the first well underwent the post-plugging monitoring assessment, and ends on 9/13/2024, the date the last post-plugging monitoring occurred for the third well.

	completing post-plugging monitoring.	
Start Date (Section 1.2.1)	The project start date is the date the first well is confirmed to have no post-plugging emissions.	The Project start date is the date of first confirmed no post-plugging emissions, as demonstrated by the recorded date of post-plugging monitoring for the well first monitored in the Project. The start date is 08/09/2023.
Crediting Period (Section 1.3, E&C Clarification 4)	The crediting period is limited to a single, twenty-year period from the project start date. The Crediting Period begins when it is first demonstrated through post-plugging measurements that there are no emissions from a well plugged as part of a project. The Crediting Period ends twenty years after it is demonstrated through post-plugging measurements that there are no emissions from the final well measured in the project. All wells in a project must be plugged and demonstrated through post-plugging measurements that there are no emissions within 24 months of the project start date. The maximum possible Crediting Period duration is therefore 22 years.	The crediting period for the Project is within the maximum duration across all wells of 22 years, beginning on the project start date. The Crediting Period for this project is 08/09/2023-09/12/2044.
Regulatory Surplus Test (Section 3.2.1 and E&C 2b)	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. There is no regulatory or other legal requirement to prevent the release of methane.	No federal, state, or local laws require the plugging of the orphaned wells in the Project, as plugging requirements apply only to wells with a known solvent operator. The wells included in this project do not have a solvent operator. 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 wells 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, provided 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 including orphan status of wells in the Project, and State approvals to assume responsibility and plug. Tradewater also provides agreements referencing undisputed title to 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. Succinctly, the business-as-usual scenario is the absence of plugging, allowing leaking wells to continue to leak methane and other gases into the atmosphere. Therefore, the emissions reductions are additional as they exceed those that would have occurred under the business-as-usual scenario.

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. In the state of Indiana, orphaned wells may be plugged by a project developer through the submission of a plugging plan, which subsequently must be approved by the Indiana Department of Natural Resources (IN DNR) before proceeding. The plugging is monitored by the IN DNR and then affirmed as plugged through the completion and upload of a plugging report. 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.
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. Indiana Department of Natural Resources confirms the wells as plugged upon the approval of the Well Plugging Report (form 54874) for each individual well.
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 applicable threshold specified in the methodology.	Section 4.5 of the Methodology describes how leakage can occur for this project type. Emissions from the orphaned gas wells in this Project come from 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, 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 validated by the VVB GHD Limited, an accredited, ACR-approved VVB for this project type.
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.

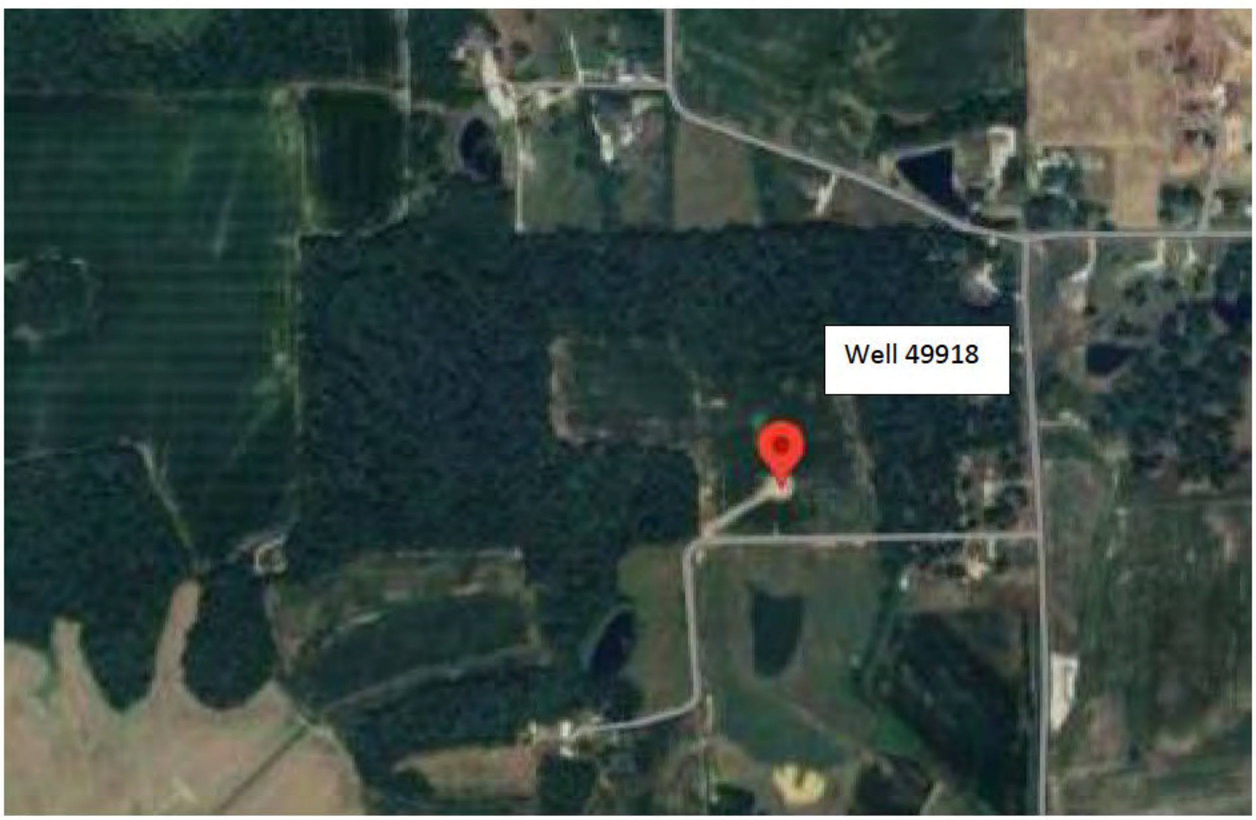
A6. PROJECT LOCATION

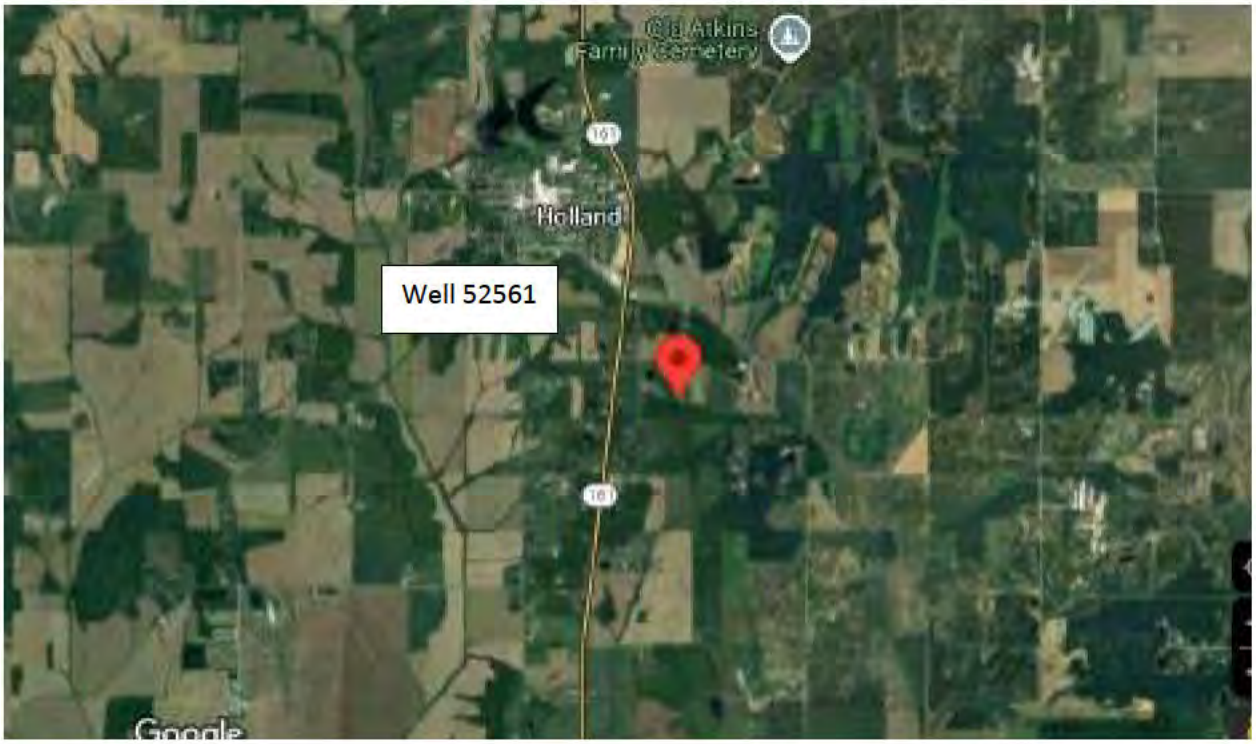
The Project includes three wells in Boone and Dubois County, Indiana, United States. The Well ID, associated county, and geographic coordinates for well access are listed in Table 3.

Table 3: Project Wells

Well ID	County Name	Geographic Coordinates
49918	Dubois	38.274, -86.893
12860	Boone	40.083, -86.307
52561	Dubois	38.234,-87.027


Well 12860


Well 49918



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 wells included in the Project.

The Indiana Department of Natural Resources is responsible for the management of orphaned 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 Department of Natural Resources (IN 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,	(312) 273-5122 tbrown@tradewater.us

1550 W. Carroll Ave., STE 213, Chicago, IL 60607 United States	Carbon Credit Title		Signatory	
		Cassandra Whitford	Methane Project Development Manager, Project Expert, QEMS	(312) 273-5122 cwhitford@tradewater.us
		Kapilan Tamilselvan	Environmental Project Manager, Project Expert (received QEMS status during project)	(312) 273-5122 ktamilselvan@tradewater.us
		Victor Molina	Operations Manager, QEMS	(312) 273-5122 vmolina@tradewater.us
		Gina Sabatini Mattei	Manager of Verification & Logistics, Project Manager	(312) 273-5122 gsabatini@tradewater.us
Tradewater Well Services, LLC	Service Provider	Gabe Plotkin	Founding Partner Strategic Advisor	(312) 273-5122 gplotkin@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
[redacted]	Landowner (Well 12860)	[redacted]	Landowner	[redacted]
[redacted]	Landowner (Well 52561)	[redacted]	Landowner	[redacted]
[redacted]	Landowner (Well 49918)	[redacted]	Landowner and Representative for the Trust	[redacted]
[redacted]	Plugging Contractor	[redacted]	Plugging manager, consulting Geologist	[redacted]
[redacted]	Operational Consultant	[redacted]	Consultant and QEMS	[redacted]

QEMS by Well and Equipment

Well	Instrument	Cassandra Whitford	[redacted]	Kapilan Tamilselvan	Victor Molina
49918	SEM5000	x			In training
	Silversmith	In training	X		In training
	Vaetrix	X	x		In training

52561	SEM5000	X		In training	X
	Silversmith	X	X	In training	
	Vaetrix	X	X	In training	
12860	SEM5000	X		In training	X
	Alicat	X		In training	X
	Vaetrix	x	x	In training	x

A9. AGGREGATION AND PROGRAMMATIC DEVELOPMENT APPROACH

This is an Aggregated Project. See Appendix D for more information.

The three wells included in this project are under the management of a single project proponent, Tradewater, and each well is on the property of a different landowner. Tradewater is the Project Developer Account holder, and a Reversal Risk Mitigation Agreement is not applicable (non-AFOLU project). Additionally, there is no required inventory statistical precision requirement for this project type.

A single Methodology is applied as identified in section B1. There is a single overarching Start Date of 08/09/2023. This is the earliest implementation date among the sites, as it is in reference to the first well plugged and confirmed to no longer be leaking through post-plugging emissions measurement.

There are no additional or different risk factors associated with this project type when presented as an Aggregated Project as compared to the wells assessed on an individual basis. All sites are included within this GHG Plan and emissions reductions are reported in adherence to the Methodology as described in sections A5, B3, and H2.

Further, each site meets the requirements for Aggregation:

- Meets all eligibility criteria of well location in the US or Canada; wells are found to be emitting methane when first accessed by the parties involved in the project; the wells meet one of the listed categories, specifically “wells with no designated operator”; and there are no regulatory or legal requirement to prevent the release of methane from these wells.

- Each well is included in the project by Tradewater prior to the completion of Validation, and no additional wells are added once Validation is complete.

- Each well site is available for a site visit during Validation.
- The sites intend to be validated within 2 years of the project Start Date, as they are undergoing or completing Validation as of the date of this document.
- The well sites are presented in a Site Information Table within the Multi-Site Design Document (Appendix D), including a unique identification number for each site; activities on each site; name and contact information for each landowner; site-specific implementation date; and description of evidence confirming the implementation date. Geographic size of each site and geographic boundaries are not applicable for non-AFOLU project types.
- All information required in the Monitoring Report is consolidated into one report. No additional sites will be added after Validation.

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 locations of the orphaned wells, which are located in Indiana, United States as specifically identified in Section A6 of this plan. The reporting period for this project is 08/09/2023 – 09/13/2024. The start of the crediting period coincides with the beginning of the reporting period and ends on 09/12/2044.

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 wells the Project Proponent plugged in the Project.

At the end of a well's productive life, it is required by Indiana Administrative Code Section 312 Article 29 to be plugged to prevent air and water pollution. Instead of being properly plugged, the wells in this project were orphaned by the designated operators and subsequently listed on the Indiana Department of Natural Resources List of Orphan Sites. The wells defaulted 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 three orphaned gas wells in Dubois County and Boone County, Indiana that would otherwise remain unplugged and emitting methane to the atmosphere.

The wells were 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 wells were 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 a minimum of 50 feet below the underground source of drinking water, and the wells were cut off 5 feet below grade. Post-plugging emissions confirmation samples were recorded for each well to confirm that the well locations have 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 per well by subtracting project emissions from the baseline emissions, which are the calculated emissions that are mitigated over the 20 year crediting period.

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 wells in this Project resulted in avoided methane emissions, post-plugging emissions confirmation samples were taken and compared to an ambient methane concentration sample taken at each well 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 wells included in the Project was plugged through review of the plugging report and upload of the reports 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[1]. 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 of these conditions, plugging orphaned wells is considered additional as it goes well above and beyond the baseline scenario.

C2. PERFORMANCE STANDARD

The wells included in the Project meet the orphaned well description and eligibility section in the Methodology, and are 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 wells 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 or LPM)
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 or Alicat mass flow meter is connected via a direct flow set up. For the Silversmith setup, the gas [redacted]. For the Alicat setup, the gas [redacted] The meters report data in MCF/day or LPM, which must be converted to Scf/hr to align with the Methodology. The Silversmith produced contains a data point approximately once every 5 minutes. The Alicat produced a data point approximately once every 10 seconds.
Data Source	Silversmith or Alicat, as approved in the submitted MMMAF.
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, Environmental Project Manager, Operations Manager, and QEMS
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 MMMAF.
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 (E&C)
Data Uncertainty	Low
Monitoring Frequency	Once every second 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, Environmental Project manager, Operations Manager, and QEMS.
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 MMMAF.
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 (E&C)
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, Environmental Project Manager, Operations Manager, and QEMS.
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 or Alicat, 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 (E&C)
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, Environmental Project 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	An initial trip precedes official inclusion of a well in a project to determine whether an orphaned well 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 (E&C)
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 Developer: Methane Project Manager, Environmental Project Manager, and additional Tradewater team members.
Responsibilities of Parties Involved	Assess eligibility 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 field activities performed to plug 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 (E&C)
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 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, Operations Manager, and QEMS.
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 MMMAF.
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 (E&C)
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, Operations Manager, and QEMS
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."*

Table 6: Project Wells and Environmental Conditions

Well ID	49918	12860	52561
Measurement 1			
Precipitation	0 in	0 in	0 in
Temperature	47 degrees F	66 degrees F	70 degrees F
Humidity	39%	62%	57%
Wind Speed	10 mph	6 mph	8 mph
Barometic Pressure	30.15 in	29.96 in	30.06 in
Measurement 2			
Precipitation	0 in	0 in	0 in
Temperature	68 degrees F	69 degrees F	68 degrees F
Humidity	63%	41%	63%
Wind Speed	5 mph	10 mph	2 mph
Barometic Pressure	30.11 in	30.25 in	30.21 in

E.

GHG QUANTIFICATION

E1. BASELINE SCENARIO

Section 4.2.1 Equation 2: Baseline Emissions (Pre-Plugging) Calculation from the Methodology and associated E&C 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 (3 wells)
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), 0.0423 lb CH_4/scf CH_4 at 1 atm and 60 °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 60°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 MMMAF.
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 MMMAF.

Deductions for ambient methane concentrations are done to reduce the impact of ambient methane concentration levels on the well gas flow rate calculations. However, this does not apply in a direct-connection set-up. Therefore, Equation B does not apply but is included here for reference.

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

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 (%).
$Conc_{measured,ambient}$	Concentration of methane in ambient measurement (%),using a method approved in the submitted MMMAF.

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 60°F respectively for all wells included in the Project.

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):

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

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 activities required 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 of whom 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 is 24,092.74 mtCO2e per year. The baseline emissions for a 20-year period are 481,854.89 mtCO2e with project emissions at 37.42 mtCO2e. The emissions reduction number of 481,817.46 is subject to a 5% uncertainty deduction. This project therefore is expected to net a credit total of: 457,725 mtCO2e.

E9. EX-ANTE ESTIMATION METHODS

Please see 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 wells 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 wells plugged were highly contaminated with hydrogen sulfide and posed a serious risk of injury or even death to those exposed to the leaking gas. One well, Well 12860, emitted a black powder which when released in high quantities could ignite upon exposure to air. Plugging this well avoided this particular safety and health risk to the nearby community.

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 wells were located in close proximity to farmland, homes, and in the case of Well 52561, a pond which supports local wildlife. In general, leaking wells can also contaminate soil, a problem for farmers attempting to grow crops in the vicinity of these wells, and nearby forests which may be affected by chemical runoff.

Plugging the orphaned gas wells in this Project prevented the negative environmental impacts outlined above and are an overall net positive for the community of nearby landowners, farmers, and nearby residents in Boone and Dubois counties, 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 maps below to orient the proximity of the well to nearby homes, property, farmland, and water sources.


Well 49918

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 landowners are listed in section A8. Direct communication was held with the landowners 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 wells 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.

As orphan wells exist without a solvent or designated 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 wells and responsibility for plugging them is evidenced by the State approved plugging plan naming Tradewater. These approvals were granted as follows:

Well 12860 – 7/11/2024

Well 49918 – 5/3/2023

Well 52561—7/11/2024

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 08/09/2023, 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
Project Term	Not applicable
Crediting Period	08/09/2023-09/12/2044
Reporting Period	08/09/2023 – 09/13/2024
Frequency of Monitoring, Reporting, and Verification	Once per reporting period
Relevant Activities: Measurement 1	Well 12860: 4/30/2024 Well 49918: 10/18/2022 Well 52561: 4/18/2024
Relevant Activities: Measurement 2	Well 12860: 5/31/2024 Well 49918: 5/23/2023 Well 52561: 5/30/2024
Plugging Date	Well 12860: 9/5/2024 Well 49918: 7/13/2023 Well 52561: 7/29/2024
Post-Plugging Monitoring Confirmation	Well 12860: 9/13/2024 Well 49918: 8/9/2023 Well 52561: 9/13/2024

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
D	Multi-Site Design Document*	No	N/A

Bibliography

1. U.S. EPA. (2019). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018 (Reports and Assessments EPA 430-R-20-002). United States Environmental Protection Agency. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2017

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 16:07 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 1
2	**ACR Project ID**	ACR894
3	**Provide an overview of the project activity.** Tradewater has plugged 3 orphaned gas wells across Dubois County (Wells 49918 and 52561) and Boone County (Well 12860), Indiana, USA to prevent release of methane emissions.	
4	**Provide the GHG Project's geographic location.** Boone and Dubois Counties, 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 wells. Stakeholders also include landowners, all of whom are private citizens.	

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 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 vicinity 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:**
   We have not identified an effect on forests, grasslands, wetland, or high conservation value habitats.
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. In this case, the wells are located on and near farmland, and improved soil conditions support crop growth.
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	12/12/2024

Sustainable Development Goals (SDGs) Contribution Report

INDUSTRIAL PROJECTS

VERSION 1.1

2024-10-11

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 #: 894

Project Name: Tradewater OOG 1

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 Orphaned 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	69,107.1	Kg CH4/year

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	509,810.3	Kg CH4/year

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	281,537.8	Kg CH4/year

Annual Emission Rate for a Well		
Well	Year	Qpre-plugging,p (kg CH4/Year)
52561	2024	281,537.8
12860	2024	69,107.1
49918	2023	509,810.3

ACR894_Calculations

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
	MT CO2e	Year
BE	285,493.8	2023
	196,361.1	2024
BE total	481,854.9	

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

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

	MT CO2e	Year
PE	29.7	2023
	7.7	2024
PE total	37.4	

Equation 5: Total GHG Emission Reductions

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

UNC	5%	
	MT CO2e	Year
ER	271,190.9	2023
	186,535.7	2024
Total ER	457,726.6	

Deductions

	MT CO2e	Year
ER	14,273.2	2023
	9,817.7	2024
Total ER	24,090.9	

Fossil fuel consumed

Year	Gallons	Type of fuel	Emission factor (kg CO2/Gallon)
2023	2831	Diesel	10.49
2024	737	Diesel	10.49
			0

ACR894_Calculations

Well 12860 Measurement 1

Flow: ALICAT										
10-Minute Time Windows										
Period	Timestamp Start	Timestamp end	Gas Flow (L/min)	Instrument Temperature (C°)	Instrument Pressure (PSIa)	Temperature (Rankine)	Pressure (atm)	Gas Flow (cf/h)	Corrected Gas Flow (scf/h) (Equation A)
1	3:39:42 PM 30/04/2024	3:49:41 PM 30/04/2024	265.25	29.04	14.22	543.94	0.97	562.03	519.56
2	3:49:42 PM 30/04/2024	3:59:41 PM 30/04/2024	265.62	29.33	14.22	544.46	0.97	562.81	519.77
3	3:59:42 PM 30/04/2024	4:09:41 PM 30/04/2024	264.85	29.30	14.22	544.41	0.97	561.19	518.33
4	4:09:42 PM 30/04/2024	4:19:41 PM 30/04/2024	264.28	29.33	14.22	544.47	0.97	559.97	517.14
5	4:19:42 PM 30/04/2024	4:29:41 PM 30/04/2024	264.79	29.29	14.22	544.38	0.97	561.07	518.18
6	4:29:42 PM 30/04/2024	4:39:41 PM 30/04/2024	264.39	29.41	14.22	544.61	0.97	560.22	517.17
7	4:39:42 PM 30/04/2024	4:49:41 PM 30/04/2024	264.83	29.58	14.22	544.91	0.97	561.15	517.76
8	4:49:42 PM 30/04/2024	4:59:41 PM 30/04/2024	265.04	29.60	14.22	544.95	0.97	561.58	518.12
9	4:59:42 PM 30/04/2024	5:09:41 PM 30/04/2024	265.53	29.29	14.22	544.38	0.97	562.62	519.64
10	5:09:42 PM 30/04/2024	5:19:41 PM 30/04/2024	263.85	28.82	14.22	543.54	0.97	559.06	517.03
11	5:19:42 PM 30/04/2024	5:29:41 PM 30/04/2024	264.03	28.01	14.22	542.09	0.97	559.45	518.84
12	5:29:42 PM 30/04/2024	5:39:41 PM 30/04/2024	263.20	27.33	14.22	540.87	0.97	557.69	518.29

Pressure			
10-Minute Time Windows			
Period	Timestamp Start	Timestamp end	Pressure (PSI)
1	3:39:42 PM 30/04/2024	3:49:41 PM 30/04/2024	0.665
2	3:49:42 PM 30/04/2024	3:59:41 PM 30/04/2024	0.643333333
3	3:59:42 PM 30/04/2024	4:09:41 PM 30/04/2024	0.633333333
4	4:09:42 PM 30/04/2024	4:19:41 PM 30/04/2024	0.648333333
5	4:19:42 PM 30/04/2024	4:29:41 PM 30/04/2024	0.651666667
6	4:29:42 PM 30/04/2024	4:39:41 PM 30/04/2024	0.675
7	4:39:42 PM 30/04/2024	4:49:41 PM 30/04/2024	0.693333333
8	4:49:42 PM 30/04/2024	4:59:41 PM 30/04/2024	0.7
9	4:59:42 PM 30/04/2024	5:09:41 PM 30/04/2024	0.698333333
10	5:09:42 PM 30/04/2024	5:19:41 PM 30/04/2024	0.698333333
11	5:19:42 PM 30/04/2024	5:29:41 PM 30/04/2024	0.695
12	5:29:42 PM 30/04/2024	5:39:41 PM 30/04/2024	0.67

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

Concentration: SEM 5000				
10-Minute Time Windows				
Period	Timestamp Start	Timestamp end	Gas value (%)	Corrected CH4 Conc (%) (Equation B)
1	3:39:42 PM 30/04/2024	3:49:41 PM 30/04/2024	79.58	79.58%
2	3:49:42 PM 30/04/2024	3:59:41 PM 30/04/2024	79.46	79.46%
3	3:59:42 PM 30/04/2024	4:09:41 PM 30/04/2024	79.50	79.50%
4	4:09:42 PM 30/04/2024	4:19:41 PM 30/04/2024	79.50	79.50%
5	4:19:42 PM 30/04/2024	4:29:41 PM 30/04/2024	79.61	79.61%
6	4:29:42 PM 30/04/2024	4:39:41 PM 30/04/2024	79.75	79.75%
7	4:39:42 PM 30/04/2024	4:49:41 PM 30/04/2024	79.81	79.81%
8	4:49:42 PM 30/04/2024	4:59:41 PM 30/04/2024	79.78	79.78%
9	4:59:42 PM 30/04/2024	5:09:41 PM 30/04/2024	79.76	79.76%
10	5:09:42 PM 30/04/2024	5:19:41 PM 30/04/2024	79.63	79.63%
11	5:19:42 PM 30/04/2024	5:29:41 PM 30/04/2024	79.61	79.61%
12	5:29:42 PM 30/04/2024	5:39:41 PM 30/04/2024	79.76	79.76%

Well 12860 Measurement 1 Constants and Emissions Rate

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
5	60	minutes per hour

Emissions Rate				
10-Minute Time Windows				
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Stability Check
1	0	600	413.47	Max
2	601	1200	412.99	414.47
3	1201	1800	412.10	Min
4	1801	2400	411.15	411.15
5	2401	3000	412.54	Factor
6	3001	3600	412.45	1.01
7	3601	4200	413.23	
8	4201	4800	413.36	
9	4801	5400	414.47	
10	5401	6000	411.74	
11	6001	6600	413.03	
12	6601	7200	413.39	

ACR894_Calculations

Well 12860 Measurement 2

Flow: ALICAT										
10-Minute Time Windows										
Period	Timestamp Start	Timestamp end	Gas Flow (L/h)	Instrument Temperature (C°)	Instrument Pressure (PSIa)	Temperature (Rankine)	Pressure (atm)	Gas Flow (cf/h)	Corrected Gas Flow (scf/h) (Equation A)
1	10:45:58 AM 31/05/2024	10:55:57 AM 31/05/2024	260.14	27.84	14.38	541.79	0.98	551.21	517.22
2	10:55:58 AM 31/05/2024	11:05:57 AM 31/05/2024	258.95	27.85	14.37	541.80	0.98	548.68	514.75
3	11:05:58 AM 31/05/2024	11:15:57 AM 31/05/2024	259.85	28.28	14.37	542.58	0.98	550.60	515.70
4	11:15:58 AM 31/05/2024	11:25:57 AM 31/05/2024	260.16	29.02	14.37	543.90	0.98	551.25	515.00
5	11:25:58 AM 31/05/2024	11:35:57 AM 31/05/2024	260.44	29.46	14.37	544.71	0.98	551.85	514.77
6	11:35:58 AM 31/05/2024	11:45:57 AM 31/05/2024	259.80	28.84	14.37	543.59	0.98	550.48	514.47
7	11:45:58 AM 31/05/2024	11:55:57 AM 31/05/2024	260.45	29.35	14.37	544.50	0.98	551.86	514.93
8	11:55:58 AM 31/05/2024	12:05:57 PM 31/05/2024	259.18	29.30	14.37	544.41	0.98	549.17	512.56
9	12:05:58 PM 31/05/2024	12:15:57 PM 31/05/2024	260.21	29.75	14.37	545.22	0.98	551.36	513.79
10	12:15:58 PM 31/05/2024	12:25:57 PM 31/05/2024	259.75	29.52	14.37	544.81	0.98	550.38	513.21
11	12:25:58 PM 31/05/2024	12:35:57 PM 31/05/2024	258.79	29.17	14.36	544.18	0.98	548.35	511.77
12	12:35:58 PM 31/05/2024	12:45:57 PM 31/05/2024	260.05	29.35	14.36	544.50	0.98	551.01	513.87

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

Concentration: SEM 500				
10-Minute Time Windows				
Period	Timestamp Start	Timestamp end	Gas value (%)	Corrected CH4 Conc (ppm) (Equation B)
1	10:45:58 AM 31/05/2024	10:55:57 AM 31/05/2024	80.62	80.62%
2	10:55:58 AM 31/05/2024	11:05:57 AM 31/05/2024	80.07	80.07%
3	11:05:58 AM 31/05/2024	11:15:57 AM 31/05/2024	79.54	79.54%
4	11:15:58 AM 31/05/2024	11:25:57 AM 31/05/2024	79.18	79.18%
5	11:25:58 AM 31/05/2024	11:35:57 AM 31/05/2024	79.05	79.05%
6	11:35:58 AM 31/05/2024	11:45:57 AM 31/05/2024	78.02	78.02%
7	11:45:58 AM 31/05/2024	11:55:57 AM 31/05/2024	77.56	77.56%
8	11:55:58 AM 31/05/2024	12:05:57 PM 31/05/2024	78.29	78.29%
9	12:05:58 PM 31/05/2024	12:15:57 PM 31/05/2024	79.32	79.32%
10	12:15:58 PM 31/05/2024	12:25:57 PM 31/05/2024	80.21	80.21%
11	12:25:58 PM 31/05/2024	12:35:57 PM 31/05/2024	80.75	80.75%
12	12:35:58 PM 31/05/2024	12:45:57 PM 31/05/2024	81.06	81.06%

Pressure			
10-Minute Time Windows			
Period	Timestamp Start	Timestamp end	Pressure (PSI)
1	10:45:58 AM 31/05/2024	10:55:57 AM 31/05/2024	1.10
2	10:55:58 AM 31/05/2024	11:05:57 AM 31/05/2024	1.10
3	11:05:58 AM 31/05/2024	11:15:57 AM 31/05/2024	1.10
4	11:15:58 AM 31/05/2024	11:25:57 AM 31/05/2024	1.10
5	11:25:58 AM 31/05/2024	11:35:57 AM 31/05/2024	1.10
6	11:35:58 AM 31/05/2024	11:45:57 AM 31/05/2024	1.10
7	11:45:58 AM 31/05/2024	11:55:57 AM 31/05/2024	1.10
8	11:55:58 AM 31/05/2024	12:05:57 PM 31/05/2024	1.10
9	12:05:58 PM 31/05/2024	12:15:57 PM 31/05/2024	1.10
10	12:15:58 PM 31/05/2024	12:25:57 PM 31/05/2024	1.10
11	12:25:58 PM 31/05/2024	12:35:57 PM 31/05/2024	1.10
12	12:35:58 PM 31/05/2024	12:45:57 PM 31/05/2024	1.10

Well 12860 Measurement 2 Constants and Emissions Rate

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
5	60	minutes per hour

Emissions Rate				
10-Minute Time Windows				
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Stability Check
1	0	600	416.98	Max
2	601	1200	412.14	416.98
3	1201	1800	410.17	Min
4	1801	2400	407.80	399.36
5	2401	3000	406.91	Factor
6	3001	3600	401.39	1.04
7	3601	4200	399.36	
8	4201	4800	401.30	
9	4801	5400	407.56	
10	5401	6000	411.66	
11	6001	6600	413.26	
12	6601	7200	416.56	

Well 12860 Methane Stability

Summary			
Measurement	Methane emissions Rate (scf/h)	90% of M1 average (scf/h)	110% of M1 average (scf/h)
M1 average	412.83	371.54	454.11
M2 average	408.76		
Difference (%)	**0.99%**		

Stability Analysis						
10-Minute Time Windows			M1		M2	
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Difference with the Average (%)	Emissions Rate (scf/h)	Difference with the Average (%)
1	0	600	413.47	0.16%	416.98	2.01%
2	601	1200	412.99	0.04%	412.14	0.83%
3	1201	1800	412.10	-0.18%	410.17	0.34%
4	1801	2400	411.15	-0.41%	407.80	-0.23%
5	2401	3000	412.54	-0.07%	406.91	-0.45%
6	3001	3600	412.45	-0.09%	401.39	-1.80%
7	3601	4200	413.23	0.10%	399.36	-2.30%
8	4201	4800	413.36	0.13%	401.30	-1.82%
9	4801	5400	414.47	0.40%	407.56	-0.29%
10	5401	6000	411.74	-0.26%	411.66	0.71%
11	6001	6600	413.03	0.05%	413.26	1.10%
12	6601	7200	413.39	0.14%	416.56	1.91%

Well 12860 Pressure Stability

set	
Measurement	Pressure (PSI)
M1	0.67
M2	1.10

Stability Analysis						
10-Minute Time Windows			M1		M2	
Period	Time start (s)	Time end (s)	Pressure (PSI)	Difference with the Average (%)	Pressure (PSI)	Difference with the Average (%)
1	0	600	0.67	-1.14%	1.10	-0.03%
2	601	1200	0.64	-4.36%	1.10	0.13%
3	1201	1800	0.63	-5.84%	1.10	0.13%
4	1801	2400	0.65	-3.61%	1.10	0.13%
5	2401	3000	0.65	-3.12%	1.10	0.13%
6	3001	3600	0.68	0.35%	1.10	-0.33%
7	3601	4200	0.69	3.08%	1.10	-0.18%
8	4201	4800	0.70	4.07%	1.10	-0.18%
9	4801	5400	0.70	3.82%	1.10	-0.03%
10	5401	6000	0.70	3.82%	1.10	-0.03%
11	6001	6600	0.70	3.32%	1.10	0.13%
12	6601	7200	0.67	-0.39%	1.10	0.13%

ACR894_Calculations

Well 49918 Measurement 1

CH4 Ambient Conc	Moisture correction Factor (MCF) (Dry basis)	Temperature (F)	Temperature (Rankine)	Pressure (PSIa)	Pressure (atm)
0	1	60	519.67	14.65	0.9968739

Flow: Silversmith					
10-Minute Time Windows					
Period	Timestamp Start	Timestamp end	Gas Flow (MCF/day)	Gas Flow (cf/h)	Corrected Gas Flow (scf/h) (Equation A)
1	1:36:41 PM 19/10/2022	1:46:40 PM 18/10/2022	104.83	4368.06	4354.40
2	1:46:41 PM 18/10/2022	1:56:40 PM 18/10/2022	103.30	4304.17	4290.71
3	1:56:41 PM 18/10/2022	2:06:40 PM 18/10/2022	101.70	4237.50	4224.25
4	2:06:41 PM 18/10/2022	2:16:40 PM 18/10/2022	99.83	4159.72	4146.72
5	2:16:41 PM 18/10/2022	2:26:40 PM 18/10/2022	98.35	4097.92	4085.11
6	2:26:41 PM 18/10/2022	2:36:40 PM 18/10/2022	97.47	4061.11	4048.42
7	2:36:41 PM 18/10/2022	2:46:40 PM 18/10/2022	97.40	4058.33	4045.65
8	2:46:41 PM 18/10/2022	2:56:40 PM 18/10/2022	96.15	4006.25	3993.73
9	2:56:41 PM 18/10/2022	3:06:40 PM 18/10/2022	95.50	3979.17	3966.73
10	3:06:41 PM 18/10/2022	3:16:40 PM 18/10/2022	94.28	3928.13	3915.85
11	3:16:41 PM 18/10/2022	3:26:40 PM 18/10/2022	94.00	3916.67	3904.42
12	3:26:41 PM 18/10/2022	3:36:40 PM 18/10/2022	93.25	3885.42	3873.27

Concentration: SEM 5000				
10-Minute Time Windows				
Period	Timestamp Start	Timestamp end	Gas value (%)	Corrected CH4 Conc (%) (Equation B)
1	12:36:41 PM 19/10/2022	12:46:40 PM 19/10/2022	74.41	74.41%
2	12:46:41 PM 19/10/2022	12:56:40 PM 19/10/2022	74.82	74.82%
3	12:56:41 PM 19/10/2022	1:06:40 PM 19/10/2022	75.04	75.04%
4	1:06:41 PM 19/10/2022	1:16:40 PM 19/10/2022	75.13	75.13%
5	1:16:41 PM 19/10/2022	1:26:40 PM 19/10/2022	75.07	75.07%
6	1:26:41 PM 19/10/2022	1:36:40 PM 19/10/2022	75.01	75.01%
7	1:36:41 PM 19/10/2022	1:46:40 PM 19/10/2022	74.93	74.93%
8	1:46:41 PM 19/10/2022	1:56:40 PM 19/10/2022	74.81	74.81%
9	1:56:41 PM 19/10/2022	2:06:40 PM 19/10/2022	74.63	74.63%
10	2:06:41 PM 19/10/2022	2:16:40 PM 19/10/2022	74.57	74.57%
11	2:16:41 PM 19/10/2022	2:26:40 PM 19/10/2022	74.52	74.52%
12	2:26:41 PM 19/10/2022	2:36:40 PM 19/10/2022	74.47	74.47%

ACR894_Calculations

Well 49918 Measurement 1

Pressure			
10-Minute Time Windows			
Period	Timestamp Start	Timestamp end	Pressure (PSI)
1	12:36:41 PM 19/10/2022	12:46:40 PM 19/10/2022	20.05
2	12:46:41 PM 19/10/2022	12:56:40 PM 19/10/2022	20.22
3	12:56:41 PM 19/10/2022	1:06:40 PM 19/10/2022	20.74
4	1:06:41 PM 19/10/2022	1:16:40 PM 19/10/2022	21.24
5	1:16:41 PM 19/10/2022	1:26:40 PM 19/10/2022	21.29
6	1:26:41 PM 19/10/2022	1:36:40 PM 19/10/2022	21.21
7	1:36:41 PM 19/10/2022	1:46:40 PM 19/10/2022	21.19
8	1:46:41 PM 19/10/2022	1:56:40 PM 19/10/2022	20.92
9	1:56:41 PM 19/10/2022	2:06:40 PM 19/10/2022	20.58
10	2:06:41 PM 19/10/2022	2:16:40 PM 19/10/2022	20.49
11	2:16:41 PM 19/10/2022	2:26:40 PM 19/10/2022	20.42
12	2:26:41 PM 19/10/2022	2:36:40 PM 19/10/2022	20.53

Well 49918 Measurement 1 Constants and Emissions Rate

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

Emissions Rate				
10-Minute Time Windows				
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Stability Check
1	0	600	3240.03	Max
2	601	1200	3210.34	3240.03
3	1201	1800	3170.00	Min
4	1801	2400	3115.36	2884.43
5	2401	3000	3066.81	Factor
6	3001	3600	3036.79	1.12
7	3601	4200	3031.21	
8	4201	4800	2987.87	
9	4801	5400	2960.57	
10	5401	6000	2920.12	
11	6001	6600	2909.39	
12	6601	7200	2884.43	

ACR894_Calculations
Well 49918 Measurement 2

Temperature (F)	Temperature (Rankine)	Pressure (PSIa)	Pressure (atm)
60	519.67	14.65	0.9968739

Flow: Silversmith					
10-Minute Time Windows					
Period	Timestamp Start	Timestamp end	Gas Flow (MCF/day)	Gas Flow (cf/h)	Corrected Gas Flow (scf/h) (Equation A)
1	10:34:11 AM 22/05/2023	10:44:10 AM 22/05/2023	106.70	4445.83	4431.94
2	10:44:11 AM 22/05/2023	10:54:10 AM 22/05/2023	105.25	4385.42	4371.71
3	10:54:11 AM 22/05/2023	11:04:10 AM 22/05/2023	103.90	4329.17	4315.63
4	11:04:11 AM 22/05/2023	11:14:10 AM 22/05/2023	102.00	4250.00	4236.71
5	11:14:11 AM 22/05/2023	11:24:10 AM 22/05/2023	101.55	4231.25	4218.02
6	11:24:11 AM 22/05/2023	11:34:10 AM 22/05/2023	100.60	4191.67	4178.56
7	11:34:11 AM 22/05/2023	11:44:10 AM 22/05/2023	99.55	4147.92	4134.95
8	11:44:11 AM 22/05/2023	11:54:10 AM 22/05/2023	98.95	4122.92	4110.03
9	11:54:11 AM 22/05/2023	12:04:10 PM 22/05/2023	97.95	4081.25	4068.49
10	12:04:11 PM 22/05/2023	12:14:10 PM 22/05/2023	97.40	4058.33	4045.65
11	12:14:11 PM 22/05/2023	12:24:10 PM 22/05/2023	96.40	4016.67	4004.11
12	12:24:11 PM 22/05/2023	12:34:10 PM 22/05/2023	95.65	3985.42	3972.96

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

Concentration: SEM 500				
10-Minute Time Windows				
Period	Timestamp Start	Timestamp end	Gas value (%)	Corrected CH4 Conc (%) (Equation B)
1	10:34:11 AM 23/05/2023	10:44:10 AM 23/05/2023	73.77	73.77%
2	10:44:11 AM 23/05/2023	10:54:10 AM 23/05/2023	73.46	73.46%
3	10:54:11 AM 23/05/2023	11:04:10 AM 23/05/2023	73.17	73.17%
4	11:04:11 AM 23/05/2023	11:14:10 AM 23/05/2023	72.78	72.78%
5	11:14:11 AM 23/05/2023	11:24:10 AM 23/05/2023	72.50	72.50%
6	11:24:11 AM 23/05/2023	11:34:10 AM 23/05/2023	72.28	72.28%
7	11:34:11 AM 23/05/2023	11:44:10 AM 23/05/2023	72.02	72.02%
8	11:44:11 AM 23/05/2023	11:54:10 AM 23/05/2023	71.82	71.82%
9	11:54:11 AM 23/05/2023	12:04:10 PM 23/05/2023	71.63	71.63%
10	12:04:11 PM 23/05/2023	12:14:10 PM 23/05/2023	71.38	71.38%
11	12:14:11 PM 23/05/2023	12:24:10 PM 23/05/2023	71.18	71.18%
12	12:24:11 PM 23/05/2023	12:34:10 PM 23/05/2023	70.86	70.86%

ACR894_Calculations

Well 49918 Measurement 2

Pressure			
10-Minute Time Windows			
Period	Timestamp Start	Timestamp end	Pressure (PSI)
1	10:34:11 AM 23/05/2023	10:44:10 AM 23/05/2023	7.62
2	10:44:11 AM 23/05/2023	10:54:10 AM 23/05/2023	7.57
3	10:54:11 AM 23/05/2023	11:04:10 AM 23/05/2023	7.51
4	11:04:11 AM 23/05/2023	11:14:10 AM 23/05/2023	7.43
5	11:14:11 AM 23/05/2023	11:24:10 AM 23/05/2023	7.37
6	11:24:11 AM 23/05/2023	11:34:10 AM 23/05/2023	7.33
7	11:34:11 AM 23/05/2023	11:44:10 AM 23/05/2023	7.31
8	11:44:11 AM 23/05/2023	11:54:10 AM 23/05/2023	7.28
9	11:54:11 AM 23/05/2023	12:04:10 PM 23/05/2023	7.25
10	12:04:11 PM 23/05/2023	12:14:10 PM 23/05/2023	7.18
11	12:14:11 PM 23/05/2023	12:24:10 PM 23/05/2023	7.11
12	12:24:11 PM 23/05/2023	12:34:10 PM 23/05/2023	7.10

Well 49918 Measurement 2 Constants and Emissions Rate

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

Emissions Rate				
10-Minute Time Windows				
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Stability Check
1	0	600	3269.55	Max
2	601	1200	3211.29	3269.55
3	1201	1800	3157.72	Min
4	1801	2400	3083.58	2815.30
5	2401	3000	3058.18	Factor
6	3001	3600	3020.17	1.16
7	3601	4200	2978.07	
8	4201	4800	2951.97	
9	4801	5400	2914.36	
10	5401	6000	2887.58	
11	6001	6600	2850.31	
12	6601	7200	2815.30	

ACR894_Calculations

Well 49918 Methane Stability

Summary			
Measurement	Methane emissions Rate (scf/h)	90% of M1 average (scf/h)	110% of M1 average (scf/h)
M1 average	3044.409375	2739.968437	3348.850312
M2 average	3016.506411		
Difference (%)	**0.92%**		

Stability Analysis						
10-Minute Time Windows			M1		M2	
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Difference with the Average (%)	Emissions Rate (scf/h)	Difference with the Average (%)
1	0	600	3240.0	6.43%	3269.5	8.39%
2	601	1200	3210.3	5.45%	3211.3	6.46%
3	1201	1800	3170.0	4.13%	3157.7	4.68%
4	1801	2400	3115.4	2.33%	3083.6	2.22%
5	2401	3000	3066.8	0.74%	3058.2	1.38%
6	3001	3600	3036.8	-0.25%	3020.2	0.12%
7	3601	4200	3031.2	-0.43%	2978.1	-1.27%
8	4201	4800	2987.9	-1.86%	2952.0	-2.14%
9	4801	5400	2960.6	-2.75%	2914.4	-3.39%
10	5401	6000	2920.1	-4.08%	2887.6	-4.27%
11	6001	6600	2909.4	-4.43%	2850.3	-5.51%
12	6601	7200	2884.4	-5.25%	2815.3	-6.67%

Well 49918 Pressure Stability

Summary	
Measurement	Pressure (PSI)
M1	20.74
M2	7.34

Stability Analysis						
10-Minute Time Windows			M1		M2	
Period	Time start (s)	Time end (s)	Pressure (PSI)	Difference with the Average (%)	Pressure (PSI)	Difference with the Average (%)
1	0	600	20.05	-3.33%	7.62	3.82%
2	601	1200	20.22	-2.51%	7.57	3.11%
3	1201	1800	20.74	0.02%	7.51	2.36%
4	1801	2400	21.24	2.42%	7.43	1.27%
5	2401	3000	21.29	2.66%	7.37	0.48%
6	3001	3600	21.21	2.26%	7.33	-0.11%
7	3601	4200	21.19	2.17%	7.31	-0.43%
8	4201	4800	20.92	0.89%	7.28	-0.77%
9	4801	5400	20.58	-0.78%	7.25	-1.22%
10	5401	6000	20.49	-1.21%	7.18	-2.18%
11	6001	6600	20.42	-1.56%	7.11	-3.13%
12	6601	7200	20.53	-1.03%	7.10	-3.20%

ACR894_Calculations

Well 52561 Measurement 1

Temperature (F)	Temperature (Rankine)	Pressure (PSIa)	Pressure (atm)
60	519.67	14.65	0.9968739

Flow: Silversmith					
10-Minute Time Windows					
Period	Timestamp Start	Timestamp end	Gas Flow (MCF/day)	Gas Flow (cf/h)	Corrected Gas Flow (scf/h) (Equation A)
1	3:27:01 PM 18/04/2024	3:37:00 PM 18/04/2024	41.80	1741.67	1736.22
2	3:37:01 PM 18/04/2024	3:47:00 PM 18/04/2024	40.25	1677.08	1671.84
3	3:47:01 PM 18/04/2024	3:57:00 PM 18/04/2024	41.80	1741.67	1736.22
4	3:57:01 PM 18/04/2024	4:07:00 PM 18/04/2024	41.55	1731.25	1725.84
5	4:07:01 PM 18/04/2024	4:17:00 PM 18/04/2024	46.83	1951.39	1945.29
6	4:17:01 PM 18/04/2024	4:27:00 PM 18/04/2024	44.40	1850.00	1844.22
7	4:27:01 PM 18/04/2024	4:37:00 PM 18/04/2024	41.35	1722.92	1717.53
8	4:37:01 PM 18/04/2024	4:47:00 PM 18/04/2024	44.30	1845.83	1840.06
9	4:47:01 PM 18/04/2024	4:57:00 PM 18/04/2024	42.90	1787.50	1781.91
10	4:57:01 PM 18/04/2024	5:07:00 PM 18/04/2024	43.60	1816.67	1810.99
11	5:07:01 PM 18/04/2024	5:17:00 PM 18/04/2024	41.60	1733.33	1727.91
12	5:17:01 PM 18/04/2024	5:27:00 PM 18/04/2024	43.00	1791.67	1786.07

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

Concentration: SEM 5000				
10-Minute Time Windows				
Period	Timestamp Start	Timestamp end	Gas value (%)	Corrected CH4 Conc (%) (Equation B)
1	3:27:01 PM 18/04/2024	3:37:00 PM 18/04/2024	94.04	94.04%
2	3:37:01 PM 18/04/2024	3:47:00 PM 18/04/2024	94.11	94.11%
3	3:47:01 PM 18/04/2024	3:57:00 PM 18/04/2024	94.52	94.52%
4	3:57:01 PM 18/04/2024	4:07:00 PM 18/04/2024	94.92	94.92%
5	4:07:01 PM 18/04/2024	4:17:00 PM 18/04/2024	95.99	95.99%
6	4:17:01 PM 18/04/2024	4:27:00 PM 18/04/2024	96.28	96.28%
7	4:27:01 PM 18/04/2024	4:37:00 PM 18/04/2024	96.01	96.01%
8	4:37:01 PM 18/04/2024	4:47:00 PM 18/04/2024	94.75	94.75%
9	4:47:01 PM 18/04/2024	4:57:00 PM 18/04/2024	94.05	94.05%
10	4:57:01 PM 18/04/2024	5:07:00 PM 18/04/2024	94.19	94.19%
11	5:07:01 PM 18/04/2024	5:17:00 PM 18/04/2024	94.53	94.53%
12	5:17:01 PM 18/04/2024	5:27:00 PM 18/04/2024	94.70	94.70%

ACR894_Calculations

Well 52561 Measurement 1

Pressure			
10-Minute Time Windows			
Period	Timestamp Start	Timestamp end	Pressure (PSI)
1	3:27:01 PM 18/04/2024	3:37:00 PM 18/04/2024	6.32
2	3:37:01 PM 18/04/2024	3:47:00 PM 18/04/2024	6.72
3	3:47:01 PM 18/04/2024	3:57:00 PM 18/04/2024	6.74
4	3:57:01 PM 18/04/2024	4:07:00 PM 18/04/2024	6.22
5	4:07:01 PM 18/04/2024	4:17:00 PM 18/04/2024	6.90
6	4:17:01 PM 18/04/2024	4:27:00 PM 18/04/2024	6.60
7	4:27:01 PM 18/04/2024	4:37:00 PM 18/04/2024	6.54
8	4:37:01 PM 18/04/2024	4:47:00 PM 18/04/2024	6.54
9	4:47:01 PM 18/04/2024	4:57:00 PM 18/04/2024	6.60
10	4:57:01 PM 18/04/2024	5:07:00 PM 18/04/2024	6.68
11	5:07:01 PM 18/04/2024	5:17:00 PM 18/04/2024	6.40
12	5:17:01 PM 18/04/2024	5:27:00 PM 18/04/2024	7.05

Well 52561 Measurement 1 Constants and Emissions Rate

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

Emissions Rate				
10-Minute Time Windows				
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Stability Check
1	0	600	1632.79	Max
2	601	1200	1573.29	1867.32
3	1201	1800	1641.03	Min
4	1801	2400	1638.10	1573.29
5	2401	3000	1867.32	Factor
6	3001	3600	1775.62	1.19
7	3601	4200	1649.01	
8	4201	4800	1743.38	
9	4801	5400	1675.80	
10	5401	6000	1705.72	
11	6001	6600	1633.46	
12	6601	7200	1691.45	

ACR894_Calculations

Well 52561 Measurement 2

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

Flow: Silversmith					
10-Minute Time Windows					
Period	Timestamp Start	Timestamp end	Gas Flow (MCF/day)	Gas Flow (cf/h)	Corrected Gas Flow (scf/h) (Equation A)
1	1:50:05 PM 30/05/2024	2:00:04 PM 30/05/2024	41.80	1741.67	1736.22
2	2:00:05 PM 30/05/2024	2:10:04 PM 30/05/2024	40.80	1700.00	1694.69
3	2:10:05 PM 30/05/2024	2:20:04 PM 30/05/2024	46.10	1920.83	1914.83
4	2:20:05 PM 30/05/2024	2:30:04 PM 30/05/2024	40.55	1689.58	1684.30
5	2:30:05 PM 30/05/2024	2:40:04 PM 30/05/2024	39.47	1644.44	1639.30
6	2:40:05 PM 30/05/2024	2:50:04 PM 30/05/2024	43.90	1829.17	1823.45
7	2:50:05 PM 30/05/2024	3:00:04 PM 30/05/2024	40.57	1690.28	1684.99
8	3:00:05 PM 30/05/2024	3:10:04 PM 30/05/2024	40.65	1693.75	1688.46
9	3:10:05 PM 30/05/2024	3:20:04 PM 30/05/2024	40.35	1681.25	1675.99
10	3:20:05 PM 30/05/2024	3:30:04 PM 30/05/2024	40.25	1677.08	1671.84
11	3:30:05 PM 30/05/2024	3:40:04 PM 30/05/2024	47.40	1975.00	1968.83
12	3:40:05 PM 30/05/2024	3:50:04 PM 30/05/2024	47.85	1993.75	1987.52

Temperature (F)	Temperature (Rankine)	Pressure (PSIa)	Pressure (atm)
60	519.67	14.65	0.9968739

Concentration: SEM 500				
10-Minute Time Windows				
Period	Timestamp Start	Timestamp end	Gas value (%)	Corrected CH4 Conc (%) (Equation B)
1	1:50:05 PM 30/05/2024	2:00:04 PM 30/05/2024	94.50	94.50%
2	2:00:05 PM 30/05/2024	2:10:04 PM 30/05/2024	94.32	94.32%
3	2:10:05 PM 30/05/2024	2:20:04 PM 30/05/2024	94.16	94.16%
4	2:20:05 PM 30/05/2024	2:30:04 PM 30/05/2024	94.98	94.98%
5	2:30:05 PM 30/05/2024	2:40:04 PM 30/05/2024	95.59	95.59%
6	2:40:05 PM 30/05/2024	2:50:04 PM 30/05/2024	95.27	95.27%
7	2:50:05 PM 30/05/2024	3:00:04 PM 30/05/2024	94.50	94.50%
8	3:00:05 PM 30/05/2024	3:10:04 PM 30/05/2024	93.35	93.35%
9	3:10:05 PM 30/05/2024	3:20:04 PM 30/05/2024	94.55	94.55%
10	3:20:05 PM 30/05/2024	3:30:04 PM 30/05/2024	94.25	94.25%
11	3:30:05 PM 30/05/2024	3:40:04 PM 30/05/2024	93.24	93.24%
12	3:40:05 PM 30/05/2024	3:50:04 PM 30/05/2024	91.95	91.95%

ACR894_Calculations

Well 52561 Measurement 2

Pressure			
10-Minute Time Windows			
Period	Timestamp Start	Timestamp end	Pressure (PSI)
1	1:50:05 PM 30/05/2024	2:00:04 PM 30/05/2024	4.98
2	2:00:05 PM 30/05/2024	2:10:04 PM 30/05/2024	4.76
3	2:10:05 PM 30/05/2024	2:20:04 PM 30/05/2024	4.94
4	2:20:05 PM 30/05/2024	2:30:04 PM 30/05/2024	4.90
5	2:30:05 PM 30/05/2024	2:40:04 PM 30/05/2024	5.08
6	2:40:05 PM 30/05/2024	2:50:04 PM 30/05/2024	4.92
7	2:50:05 PM 30/05/2024	3:00:04 PM 30/05/2024	4.47
8	3:00:05 PM 30/05/2024	3:10:04 PM 30/05/2024	5.01
9	3:10:05 PM 30/05/2024	3:20:04 PM 30/05/2024	5.10
10	3:20:05 PM 30/05/2024	3:30:04 PM 30/05/2024	4.69
11	3:30:05 PM 30/05/2024	3:40:04 PM 30/05/2024	4.55
12	3:40:05 PM 30/05/2024	3:50:04 PM 30/05/2024	5.31

Well 52561 Measurement 2 Constants and Emissions Rate

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

Emissions Rate				
10-Minute Time Windows				
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Stability Check
1	0	600	1640.66	Max
2	601	1200	1598.35	1835.75
3	1201	1800	1802.95	Min
4	1801	2400	1599.78	1566.95
5	2401	3000	1566.95	Factor
6	3001	3600	1737.28	1.17
7	3601	4200	1592.36	
8	4201	4800	1576.15	
9	4801	5400	1584.57	
10	5401	6000	1575.66	
11	6001	6600	1835.75	
12	6601	7200	1827.54	

ACR894_Calculations

Well 52561 Methane Stability

Summary			
Measurement	Methane emissions Rate (scf/h)	90% of M1 average (scf/h)	110% of M1 average (scf/h)
M1 average	1685.58	1517.02	1854.14
M2 average	1661.50		
Difference (%)	1.43%		

Stability Analysis						
10-Minute Time Windows			M1		M2	
Period	Time start (s)	Time end (s)	Emissions Rate (scf/h)	Difference with the Average (%)	Emissions Rate (scf/h)	Difference with the Average (%)
1	0	600	1632.79	-3.13%	1640.66	-1.25%
2	601	1200	1573.29	-6.66%	1598.35	-3.80%
3	1201	1800	1641.03	-2.64%	1802.95	8.51%
4	1801	2400	1638.10	-2.82%	1599.78	-3.71%
5	2401	3000	1867.32	10.78%	1566.95	-5.69%
6	3001	3600	1775.62	5.34%	1737.28	4.56%
7	3601	4200	1649.01	-2.17%	1592.36	-4.16%
8	4201	4800	1743.38	3.43%	1576.15	-5.14%
9	4801	5400	1675.80	-0.58%	1584.57	-4.63%
10	5401	6000	1705.72	1.20%	1575.66	-5.17%
11	6001	6600	1633.46	-3.09%	1835.75	10.49%
12	6601	7200	1691.45	0.35%	1827.54	9.993%

Well 52561 Pressure Stability

Summary	
Measurement	Pressure (PSI)
M1	6.61
M2	4.89

Stability Analysis						
10-Minute Time Windows			M1		M2	
Period	Time start (s)	Time end (s)	Pressure (PSI)	Difference with the Average (%)	Pressure (PSI)	Difference with the Average (%)
1	0	600	6.32	-4.33%	4.98	1.87%
2	601	1200	6.72	1.75%	4.76	-2.77%
3	1201	1800	6.74	1.93%	4.94	0.88%
4	1801	2400	6.22	-5.94%	4.90	0.23%
5	2401	3000	6.90	4.37%	5.08	3.74%
6	3001	3600	6.60	-0.12%	4.92	0.60%
7	3601	4200	6.54	-1.05%	4.47	-8.59%
8	4201	4800	6.54	-0.98%	5.01	2.41%
9	4801	5400	6.60	-0.17%	5.10	4.25%
10	5401	6000	6.68	1.04%	4.69	-4.06%
11	6001	6600	6.40	-3.22%	4.55	-7.09%
12	6601	7200	7.05	6.72%	5.31	8.54%

Multi-Site Design Document

VERSION 1.1

2023-12-01

BACKGROUND ACR has established procedures for GHG projects to include multiple facilities, fields, or parcels (hereafter referred to collectively as "Sites") as an Aggregated project or as a Programmatic Development Approach (PDA) project so that they may achieve efficiencies of scale and other potential project administrative benefits while preserving the accounting principles of the ACR Standard and its approved methodologies, and the integrity of the monitoring, reporting, and verification processes.

INSTRUCTIONS ACR requires that a Multi-Site Design Document be provided by Aggregated or PDA GHG Projects to describe how the Project conforms to ACR Standard requirements specifically governing multi-site projects. This template first addresses general Aggregation and PDA requirements. It then provides a Site Information Table, where details concerning individual Sites shall be recorded. This document is considered an appendix to the GHG Project Plan and must be uploaded to the ACR Registry, denoted as a GHG Project Plan document type. This appendix is subject to validation and will be public.

SECTION I: PROJECT INFORMATION		
1	**Project Title**	Tradewater OOG 1
2	**ACR Project ID#**	ACR894
3	**Date Form Completed**	10/17/2024

SECTION II: GENERAL REQUIREMENTS		
1	**If the GHG Project includes multiple landowners/facility owners, is the Project Proponent also the ACR Project Developer Account Holder?**	☒ Yes ☐ No

2	**Is a single ACR-approved methodology version implemented on all Sites, or is a pair of ACR-approved methodologies implemented as specifically allowed by the methodologies?** **Identify the methodology name and version.**	☒ Yes ☐ No 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)
3	**What is the overarching project Start Date? (MM/DD/YYYY)** **Does it correspond to the earliest Implementation Date among the Sites?**	08/09/2023 ☒ Yes ☐ No
4	**For AFOLU projects including multiple landowners, has the Project Proponent entered into a legally binding Reversal Risk Mitigation Agreement with ACR?**	☐ Yes ☐ No ☒ N/A
5	**For AFOLU projects, is reversal risk analyzed and the Buffer Pool Contribution Percentage calculated for the overall GHG Project?**	☐ Yes ☐ No ☒ N/A
SECTION III: AGGREGATION REQUIREMENTS		
1	**Is the GHG Project utilizing Aggregation?**[1] *If Yes, complete remaining question in this section.*	☒ Yes ☐ No
2	**If required by the chosen methodology, is the inventory statistical precision calculated at the Aggregated Project level?**	☐ Yes ☐ No ☒ N/A
SECTION IV: PROGRAMMATIC DEVELOPMENT APPROACH REQUIREMENTS		

[1] A GHG Project that contains multiple Sites with a single Start Date and Crediting Period. No new Sites can be added after the validation.

1	**Is the GHG Project utilizing the Programmatic Development Approach?**[2] *If Yes, complete remaining questions in this section.*	☐ Yes ☒ No

2 Project Boundaries

Describe the anticipated project boundaries, including geographic, temporal, and GHG assessment boundaries.

N/A

3 Baseline Scenario

Describe the baseline scenario of the GHG Project and the anticipated contribution of future Sites or Cohorts toward the GHG Project as a whole.

N/A

4 Monitoring, Reporting, and Verification

Provide the anticipated schedule of monitoring, reporting, and validation/verification for Sites, Cohorts, and the GHG Project as a whole.

N/A

5 Management System

Describe the management system that includes the following:

- The reason why all expected project participants and Sites cannot be included upon initial validation.
- A clear definition of the roles and responsibilities of personnel involved in monitoring, reporting, validation/verification, and recruitment of new Sites.
- The eligibility criteria for recruiting new Sites to the PDA.
- Procedures to avoid double counting, that no Site or group of Sites has been or will be registered on ACR as part of another GHG project.
- A Site-level QA/QC process for record and documentation control (to be made available to the VVB at time of validation).

N/A

[2] A GHG Project in which successive Cohorts of Sites are added incrementally to a Project over time.

6	**All Sites must undergo validation prior to issuance of ERTs against its associated project activities. Have all Sites been validated?**	☐ Yes ☐ No

SECTION V: SITE INFORMATION TABLE

INSTRUCTIONS Complete the following table, outlining the attributes of the Sites enrolled in the GHG Project. PDA Projects must update this table and reupload it to the Registry at each validation as new Sites are enrolled. For AFOLU projects, clearly define the geographic boundary uniquely identifying each Site (including maps and/or spatial files as required by the chosen methodology) using additional sheets as necessary. Omit or provide additional rows for Sites as needed.

UNIQUE SITE ID	UNIQUE COHORT ID (PDA ONLY)	LANDOWNER/ OPERATOR NAME AND CONTACT DETAILS (EMAIL AND PHONE)[3]	SITE-SPECIFIC IMPLEMENTATION DATE (MM/DD/YYYY)	DESCRIPTION OF IMPLEMENTATION DATE AND SUPPORTING DOCUMENTATION	CREDITING PERIOD DATES (MM/DD/YYYY-MM/DD/YYYY)	SHORT NARRATIVE DESCRIPTION OF SITE'S PROJECT ACTIVITIES, INCLUDING ITS DEMONSTRATION OF ELIGIBILITY AND ADDITIONALITY.	GEOGRAPHIC SIZE (ACRES OR HECTARES; AFOLU ONLY)

[3] Contact details may be redacted in the publicly maintained version of this table.

12860	N/A	[redacted]	9/13/2024	Date of post-plugging monitoring confirming absence of post-plugging emissions is located in raw data files obtained from measurement equipment on the day that post-plugging monitoring occurred. The post plugging monitoring date for the well is the implementation date.	9/13/2024 – 9/12/2044	See attachment	N/A

52561	N/A	[redacted]	9/13/2024	Date of post-plugging monitoring confirming absence of post-plugging emissions is located in raw data files obtained from measurement equipment on the day that post-plugging monitoring occurred. The post plugging monitoring date for the well is the implementation date.	9/13/2024 – 9/12/2044	See attachment	N/A

49918	N/A	[redacted]	08/09/2023	Date of post-plugging monitoring confirming absence of post-plugging emissions is located in raw data files obtained from measurement equipment on the day that post-plugging monitoring occurred. The post plugging monitoring date for the well is the implementation date.	08/09/2023-08/08/2043	See attachment.	N/A
						TOTAL	**N/A**

Appendix to the MSDD

Multi-Site Design Document for Aggregated Project ACR894 (Tradewater OOG 1)

The three wells included in this project were determined as eligible through initial monitoring which confirmed the wells are in a leaking state. They were confirmed as orphaned through the Indiana Department of Natural Resources List of Orphan Sites. Access rights from the affiliated landowners enabled our project expert to take readings on site of each well. In Indiana, oil and gas wells are regulated under Title 312 Article 29 of the Indiana Administrative Code, which requires the owner or operator to plug and abandon a well. As these wells do not have solvent operators, they will remain unplugged as there is no one required to plug them. Therefore, the wells reach additionality status.

Generally, each well is approached with the following operations:

1. Land access is permitted by the landowner to Tradewater project manager.
2. Initial monitoring of well occurs to determine if it is leaking.
3. After well has been identified as an eligible well, pre-plugging monitoring occurs.
4. Within this time period, formal Landowner Access Agreements are signed.
5. Well is plugged by state-sanctioned pluggers.
6. Post-plugging monitoring occurs.

The implementation date of the well is the date in which Tradewater has confirmed there are no post-plugging emissions. It is evidenced by field data taken during post-plugging monitoring.

ACR894_GHGPlan_v10 - Redacted

Final Audit Report 2025-03-17

Created:	2025-03-17
By:	Tradewater Administrator (dvl@tradewater.us)
Status:	Signed
Transaction ID:	CBJCHBCAABAAvu17v3N2SZNQzhzrY2eAMS6I8G1KS-cs

"ACR894_GHGPlan_v10 - Redacted" History

Document created by Tradewater Administrator (dvl@tradewater.us)

2025-03-17 - 7:03:54 PM GMT

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Email viewed by Timothy Brown (tbrown@tradewater.us)

2025-03-17 - 10:06:55 PM GMT

Document e-signed by Timothy Brown (tbrown@tradewater.us)

Signature Date: 2025-03-17 - 10:07:12 PM GMT - Time Source: server

Agreement completed.

2025-03-17 - 10:07:12 PM GMT