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**Ms. Gina Sabatini**
**Manager of Verification and Logistics**
**Tradewater, LLC**
**1550 W. Carroll, Suite 213**
**Chicago, Illinois**
**60607**

**Validation and Verification Report**
**Tradewater OOG 1 (ACR894), Tradewater, LLC, Dubois and Boone Counties, Indiana, United States, under ACR**

Dear Ms. Sabatini

# 1. Introduction

Tradewater, LLC (Client, Tradewater) retained GHD Services Inc. (GHD) to undertake a validation and verification of project Tradewater OOG 1 (Project, TW OOG1) for the August 9, 2023 – September 12, 2044, crediting period and August 9, 2023 – September 13, 2024 reporting period. The Project involves two (2) wells located in Dubois County and one (1) well located in Boone County of Indiana, United States and follows the requirements of ACR (Program). The Project is listed under the Program ID: ACR894.

The Program requires the validation of the Greenhouse Gas Project Plan (GHG Project Plan) for each crediting period and verification of the Monitoring Report (Monitoring Report) for each reporting period by an independent third-party accredited under *ISO 14065 Greenhouse Gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition* (ISO 14065). GHD Limited is accredited by the ANSI National Accreditation Board (ANAB) under ISO 14065 as a greenhouse gas validation and verification body (VVB).

GHD has prepared this Validation and Verification Report in accordance with ISO Standard ISO 14064 Greenhouse gases - Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions (ISO 14064-3:2019) and with the Program requirements.

# 2. Validation and Verification Objective

The objective of the validation is to provide Client and the Program with an opinion on whether the GHG Project Plan for the Project is free of material misstatement and that the information reported is accurate and consistent with the requirements of the Program.

The objective of the verification is to provide Client and Program with an opinion on whether the Monitoring Report for the reporting period is free of material misstatement and that the information reported is accurate and consistent with the requirements of the Program.

# 3. Level of Assurance

The ACR does not specify a level of assurance for validation.

GHD conducted the verification to a reasonable level of assurance.

# 4. Validation and Verification Standards

For the validation and verification, GHD applied ISO 14064-3:2019 and the Program validation and verification standards.

# 5. Validation and Verification Criteria

GHD applied the following validation and verification criteria:

– ISO 14064 Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements, ISO, April 2019 (ISO 14064-2)
– ISO 14064 Greenhouse gases – Part 3: Specification with guidance for the verification and validation of greenhouse gas statements, ISO, April 2019 (ISO 14064-3)
– IAF Mandatory Document for the Use of Information and Communication Technology (ICT) for Auditing/Assessment Purposes: Issue 2, Version 4, International Accreditation Forum, Inc., June 2023 (IAF MD 4: 2023) *
– The ACR Standard: Requirements and Specifications for the Quantification, Monitoring, Reporting, Verification, and Registration of Project-Based GHG Emissions Reductions and Removals, ACR, Version 8.0, dated July 2023 (ACR Standard)
– ACR Validation and Verification Standard Version 1.1, ACR, dated May 2018 (ACR VV Standard)
– ACR 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, ACR, Version 1.0, dated May 2023 (Methodology)
– Errata and Clarifications: ACR 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, ACR, dated 2024-09-13(E&C) *

Note:

* - Denotes change from Proposal

# 6. Validation and Verification Team & Independent Reviewer

## 6.1 Roles, Responsibilities & Qualifications

| Lead Validator/Verifier/Technical Expert | |
|---|---|
| Name | Gordon Reusing, P. Eng., M.Sc. |
| Role | The lead validator/verifier led the validation and verification and was responsible for development of the validation and verification plan. The lead validator/verifier reviewed the risk assessment and evidence gathering plan, recalculation of raw data, data management and draft findings. The lead validator/verifier prepared and signed the validation and verification opinion and validation and verification report. The lead validator/verifier conducted a site visit of the Facility. |
| Qualifications | Mr. Reusing is a greenhouse gas (GHG) Lead Verifier, Lead Validator, and Peer Reviewer with extensive experience including GHG programmes in Alberta, British Columbia, Saskatchewan, Ontario, Quebec, Nova Scotia, California, and programmes operated by the United Nations Framework Convention on Climate Change (UNFCCC) Clean Development Mechanism (CDM), The Gold Standard, The Climate Registry (TCR), the Carbon Disclosure Project (CDP), and Verra: Verified Carbon Standard (VCS). He has completed numerous GHG quantification studies for the oil and gas sector, including upstream, midstream and downstream facilities. Mr. Reusing has conducted GHG verifications as a Lead Verifier, Technical Expert and Peer Reviewer in many jurisdictions, including, but not limited to, British Columbia, Alberta, Ontario, Quebec, and Nova Scotia. |

| Validator/Verifier | |
|---|---|
| Name | Angela Kuttemperoor, E.I.T. |
| Role | The validator/verifier developed and revised the validation/verification plan and evidence gathering plan, developed a risk assessment, recalculated raw data, reviewed management of data, and prepared draft findings and the draft validation and verification report. |
| Qualifications | Ms. Kuttemperoor is an Air Engineer-In-Training with GHD's Greenhouse Gas Assurances Services Team and has 3 years of experience in greenhouse gas verification work. Ms. Kuttemperoor has a Bachelor of Environmental Engineering from the University of Guelph. Ms. Kuttemperoor has experience as a verifier under the Ontario Emissions Performance Standards program and federal Output-based Performance Standards program. Ms. Kuttemperoor has expertise in voluntary offset project validations and verifications conducted under the Climate Action Reserve, American Carbon Registry and Verified Carbon Standard for landfill gas destruction and ozone-depleting substances destruction projects. Ms. Kuttemperoor has experience with compliance offset verifications for ozone-depleting substances conducted under the California Air Resources Board. Ms. Kuttemperoor has experience in verifications conducted under the Carbon Offsetting and Reduction Scheme for International Aviation. |

| Validator/Verifier | |
|---|---|
| Name | Elnaz Senobari Vayghan, E.I.T., M.Sc. |
| Role | The validator/verifier developed and revised the validation/verification plan and evidence gathering plan, developed a risk assessment, recalculated raw data, reviewed management of data, and prepared draft findings and the draft validation and verification report. |
| Qualifications | Ms. Senobari is an Air and Climate professional with GHD based in Vancouver office and is a member of the air and greenhouse gas department. She graduated with a Masters degree in Chemical and Petroleum Engineer with specialization in Energy and Environmental Systems from the University of Calgary. She has extensive knowledge and experience in GHG quantification and verification in various sectors, including the oil and gas, mining and material production, and upgrading and refining sectors. She has experience being involved in carbon offsets projects and emission reduction projects in oil and gas and land use sector. She has been involved with reporting under the Greenhouse Gas Industrial Reporting and Control Act in British Columbia, The Management and Reduction of Greenhouse Gases in Saskatchewan and the Environmental Protection and Enhancement Act (APEA) as well as the Technology Innovation and Emissions Reduction (TIER) regulation in Alberta. She also has been involved with federal reports with NPRI, MSAPR, and SGRR. |

| Independent Reviewer/Technical Expert | |
|---|---|
| Name | Sean Williams, P. Eng. |
| Role | The independent reviewer conducted an independent review of the risk assessment, evidence gathering plan, working papers, validation and verification plan, validation and verification report, and findings. The independent reviewer approved the issuance of the opinion. |
| Qualifications | Mr. Williams is a Project Manager, GHG Lead Verifier and Technical Expert and with over 10 years of experience in environmental consulting and is a licensed Professional Engineer in the provinces of Alberta, Saskatchewan and Ontario. Mr. Williams has experience in completing greenhouse gas verifications, permit applications, air and noise compliance assessments, completion of annual inventory reports under various voluntary, provincial and federal regulations across Canada. Mr. Williams is an accredited lead verifier under the California Air Resources Board and Oregon Department of Environmental Quality. Mr. Williams has significant air and GHG expertise in a variety of industrial sectors, including oil sands extraction and upgrading, refineries, chemical plants, mining and mineral production, power generation facilities, waste management and metals production. Mr. Williams serves as the Greenhouse Gas Assurances Services (GGAS) Manager for GHD's ANAB accreditation. |

# 7. Project Description

The Project involves plugging of the following orphan oil and gas wells located in Indiana, United States:

– Two (2) commercial gas wells (permit # 49918 and 52561) located in Dubois County, plugged during 2023:
  - Listed on April 2023 Indiana DNR Orphan Well list with status 'Revoked'
– One (1) non-commercial gas well (permit # 12860) located in Boone County, plugged during 2024:
  - Listed on April 2023 Indiana DNR Orphan Well list with status 'Orphaned'

Per the ACR Orphan Well Plugging Methodology, the baseline scenario involved methane emissions released into the atmosphere in the absence of the requirement by any party to plug the well and prevent the release of emissions. The Project condition involved emissions released from the combustion of fossil fuels from mobile equipment during plugging operations. Indiana Department of Natural Resources (DNR) confirmed that all wells

associated with project TW OOG1 listed above were orphaned, having no solvent or designated operator and that the Indiana DNR maintains oversight of the wells, however, do not have mandate to plug the wells. Tradewater Well Services, LLC was granted approval from the State to plug the well in accordance with Indiana well plugging requirements and documented in the Indiana well Plugging Plans and Report.

Baseline pre-plugging measurements were taken using a direct flow measurement method which requires a direct connection to the wellhead to take flow, methane and pressure readings. The measurement method was approved by ACR as documented in the approved Methane Measurement Method Approval Form (MMMAF). A deviation regarding the timing of submission of the MMMAF was approved, as discussed in Section 16.2.2. Baseline emissions were quantified using the chosen 2-hour stability period for each well. Fossil fuel usage for project emission quantification were determined using fuel invoices for plugging operations in 2023 and 2024. Post-plugging confirmation sampling of the wells confirmed that methane concentrations were no more than 2ppm above ambient methane levels post-plugging. In accordance with the Methodology, emissions reductions were claimed over the 20-year crediting period per well. Tradewater Well Services, LLC transferred ownership of all credits to Tradewater, LLC through a Transfer of Rights agreement.

## 7.1 Client Contact

Ms. Gina Sabatini (Manager of Verification and Logistics) was GHD's Client contact for this validation and verification.

# 8. Validation and Verification Scope

The following sections describe the scope of the validation and verification.

## 8.1 Project Boundary

Table 1 below presents the sources, sinks, and reservoirs (SSRs) for the Project, that were included in the Project Boundary, as defined in the Project Methodology.

***Table 1 Project's Sources, Sinks, Reservoirs***

| SSR | | Source Description | GHG | Baseline (B) Project (P) | Included (I) or Excluded (E) |
|---|---|---|---|---|---|
| 1. | Orphan O&G wells that emit methane | Emissions from orphan wells | $CH_4$ | B | I |
| 2. | Plugging Operations (Equipment) | Emissions from mobile mechanical equipment for plugging | $CO_2$<br>$CH_4$<br>$N_2O$ | P | I |

## 8.2 Geographical and Operational Boundaries

The validation and verification included the SSRs from the Project wells located at the following addresses in Indiana, United States.

***Table 2 Project Well Locations***

| Well ID | County | Geographic Coordinates |
|---|---|---|
| 49918 | Dubois | 38.27487, -86.893 |
| 52561 | Dubois | 38.234, -87.027 |
| 12860 | Boone | 40.083, -86.307 |

GHD notes that the Project as validated/verified, includes more wells than originally shown in the Project listing, consistent with information found in the Monitoring Report.

## 8.3 Reporting and Crediting Period

The start date for the Project is August 9, 2023. The crediting period for this validation for the Project is from August 9, 2023 – September 12, 2044.

The reporting period for this verification for the Project is from August 9, 2023 – September 13, 2024.

## 8.4 Use of this Report

The Validation and Verification report was prepared for the use of Client and the Program.

References from GHD's Validation and Verification Report must use the language in which the opinion was issued and reference the date of issuance of GHD's Validation and Verification Report, the applicable validation and verification period and the associated program for which the validation and verification was conducted. The GHG assertion provided by GHD can be freely used by Client for marketing or other purposes other than in a manner misleading to the reader. The GHD mark shall not be used by Client in any way that might mislead the reader about the validation and verification status of the organization. The GHD mark can only be used with the expressed consent of GHD and then, only in relation to the specific time period validated and verified by GHD.

## 8.5 Use of Information and Communication Technology

As part of the validation and verification process, GHD utilized information and communication technology (ICT) in accordance with IAF Mandatory Document for the use of Information and Communication Technology for Auditing/Assessment Purposes (IAF MD 4:2023) for various aspects of the validation and verification, including conducting video/tele-conferencing with various personnel.

The decision to use ICT was permissible if GHD and Client agreed on using ICT. The agreed ICT method was MS Teams. By accepting GHD's proposal, Client agreed to the use of the afore mentioned ICT method and its associated information security, data protection and confidentiality measures. Any other ICT method(s) were agreed to in writing (email) between GHD and Client prior to use. The parties did not agree to the use of an ICT method which either party did not have the necessary infrastructure to support. Throughout the entire validation and verification process, including use of ICT, GHD abided by the confidentiality procedures.

## 8.6 Reported GHG Emissions and Emissions Reductions

The baseline and project emissions and emissions reductions as calculated, and reported in the Monitoring Report are indicated in Table 3 below. GHD notes that all calculated totals were rounded down for reporting and emissions reductions being claimed for the crediting period have been rounded down to the nearest whole number, as per Section 2.B.4 of the ACR Standard.

*Table 3 Reported Emissions and Emissions Reductions*

| Vintage | Baseline Emissions (tonnes $CO_2e$) | Project Emissions (tonnes $CO_2e$) | GHG Reductions/Removals (ERRs) (tonnes $CO_2e$) | Deductions (tonnes $CO_2e$) |
|---|---|---|---|---|
| ***Tradewater GHG Calculations*** | | | | |
| 2023 | *285,493.7515* | *29.69719* | *271,190.8516* | *14,273.20272* |
| 2024 | *196,361.1363* | *7.73113* | *186,535.7349* | *9,817.67025* |
| **Total** | ***481,854.8878*** | ***37.42832*** | ***457,726.5866*** | ***24,090.87298*** |

| Vintage | Baseline Emissions (tonnes $CO_2e$) | Project Emissions (tonnes $CO_2e$) | GHG Reductions/Removals (ERRs) (tonnes $CO_2e$) | Deductions (tonnes $CO_2e$) |
|---|---|---|---|---|
| **Monitoring Report** | | | | |
| 2023 | – | – | **271,190** | – |
| 2024 | | | **186,535** | |
| **Total** | **481,854** | **37** | **457,725** | **24,090** |

# 9. Strategic Analysis

To understand the activities and complexity of the Project, and to determine the nature and extent of the validation and verification activities, GHD completed a strategic analysis. The strategic analysis involved consideration of the details of the Project Site and its operations, the GHG Project Plan and Monitoring Report and its preparation, and the validation and verification requirements per the Program. The information considered in the strategic analysis is documented in GHD's working papers and was used to inform the assessment of risks and the development of an evidence gathering plan.

# 10. Assessment of Risk and Magnitude of Potential Errors, Omissions or Misrepresentations

GHD conducted an assessment of the risk and magnitude of potential errors, omissions or misrepresentations associated with the GHG Project Plan assertion and Monitoring Report statement. GHD then identified areas where qualitative or quantitative errors could occur and assigned risks to the areas. The inherent and control risks were evaluated, and detection risks were established. The risks were identified as high, medium, and low. The risk assessment was a key input to developing an effective evidence gathering plan.

# 11. Evidence-Gathering Plan

GHD developed an Evidence-Gathering Plan (EGP) for internal use based on review of the objectives, criteria, scope, and level of assurance detailed above, along with consideration of the strategic analysis and assessment of risks. The EGP was designed to lower the validation and verification risk to an acceptable level and specified the evidence (data and information) to be reviewed as part of the validation and verification in the evidence-gathering activities. The EGP was reviewed and approved by the Lead Validator/Verifier prior to issuing the validation and verification plan. The EGP is dynamic and was revised, as required, throughout the course of the validation and verification. Any modifications to the EGP were reviewed and approved by the Lead Validator/Verifier, with the final EGP completed prior to issuing the final validation and verification report and opinion.

# 12. Validation and Verification Plan

GHD developed a Validation and Verification Plan based on a preliminary review of the data initially provided. GHD submitted the Validation and Verification Plan to Client on March 29, 2024, prior to GHD's Site visit to well

49918 on April 25, 2024, after plugging, and well 12860 on May 31, 2024, prior to plugging and during the M2 measurement. GHD's Validation and Verification Plan was revised, as required, throughout the course of the validation and verification to address questions or initial concerns with data originally provided.

A copy of the final Validation/Verification Plan is included in Appendix A.

# 13. Quantitative Testing

Quantitative data or raw data was made available to GHD.

GHD used the data to check conformance of the Project with the Program's Methodology requirements. Where data was not available, GHD conducted a qualitative assessment and assessed that the methodologies used in the development of the GHG Project Plan conform to the Program's applicable Methodology.

GHD used the data to recalculate and check the GHG emission calculations and assess the methodologies that were used in the development of the Monitoring Report.

# 14. Materiality Level

The quantitative materiality for this verification was set at 5 percent of the reported emissions reductions, as per the requirements of the Program. In addition, a series of discrete errors, omissions, or misrepresentations of individual or a series of qualitative factors, when aggregated, may have been considered material. Per the ACR Standard, individual or aggregation of errors or omissions greater than the ACR materiality threshold of ±5% required restating. Individual and aggregation of errors or omissions greater than ±1% but less than ±5% are required to be qualified in the Verification Opinion but do not require restating.

Materiality was also assessed on a qualitative level, including conformance with the applicable Program and Methodology requirements. Non-conformance with Program requirements may be considered a material error unless the Program approved a deviation.

# 15. Validation and Verification Procedures

## 15.1 Conflict of Interest (COI) and Independence

GHD has undergone a thorough evaluation for conflict of interest (COI) and independence for this validation and verification work. This included a review of other potential work conducted by GHD for Client and Project listed in the scope of work. We have confirmed that this validation and verification work can be successfully completed without undue risk of impartiality and conflict of interest. We have assessed the following key aspects:

– Validation evaluation
– Verification evaluation
– Team evaluation

GHD has rigorous COI and validator and verifier competency evaluation procedures that are followed for every validation and verification project. Our documented procedures ensure that all COI and independence criteria are properly evaluated. GHD's COI program ensures that both the company and the Project Team have no potential COIs.

GHD has also evaluated and approved our Validation and Verification Team's competencies. GHD sets competency requirements in terms of education, validation and verification experience, and experience in the sector. GHD can attest that we have highly qualified staff with the appropriate technical expertise for the validation/verification work.

Based on the COI risk levels of the ACR Validation and Verification Standard, GHD identified a low risk for COI, based on the fact that GHD has previously only conducted validations and verifications for the Project Proponent and that project Tradewater OOG1 is the second Orphan Well Plugging project for which GHD has conducted a validation/verification for the Project Proponent.

GHD submitted the ACR COI form for project TW OOG1 to the ACR Registry on February 21, 2024, and re-submitted on February 28, 2024. ACR provided authorization to commence the validation and verification on March 4, 2024, and the revised form is listed as approved on the ACR registry.

## 15.2 Kick-Off Call

Upon award of the contract, GHD conducted a kick-off call between Client and the GHD project team to review the validation and verification process and objectives, project operations, project schedule, site visit schedule and information requests.

The kick-off call for TW OOG1 was held on March 7, 2024, and attended by Elnaz Senobari Vayghan (Validator/Verifier, GHD), Angela Kuttemperoor (Validator/Verifier, GHD), Tim Brown (CEO, Tradewater), Gina Sabatini (Manager of Verification and Logistics, Tradewater) and Tip Stama (Director, Verification & Logistics, Tradewater).

## 15.3 Issues Communications

During the course of the document review and interviews, questions and clarifications were identified by the Project Team; these were communicated with Client either verbally, by email, or in an Issues Log. Client and/or Project staff had the opportunity to respond to identified issues prior to the completion of GHD's draft and final validation and verification reports. Material issues identified by GHD were requested to be corrected by Client.

The Findings List is available in Appendix B.

## 15.4 Independent Review

GHD conducted an independent review of the validation and verification, which included a review of findings, emission calculations and opinion developed by the validation and verification team.

## 15.5 Methodologies Used to Assess/Validate and Verify Emissions Data

The validation and verification procedures were used to assess the following:

1. Accuracy and completeness of GHG Project Plan and Monitoring Report
2. Uncertainty of external data sources used
3. Emission assumptions
4. Accuracy of emission calculations
5. Potential magnitude of errors and omissions

To sustain a risk-based assessment, the GHD Project Team identified and determined risks related to the GHG emissions during the desk reviews, site visit and the follow-up interviews as applicable. The GHD Project Team

focused on the accuracy and completeness of provided information. The components of the document review and follow-up interviews were:

– Document Review:
  - Review of data and information to confirm the correctness and completeness of presented information
  - Cross-checks between information provided in the GHG Project Plan and Monitoring Report and information from independent background investigations
  - Determine sensitivity and magnitude analysis for parameters that may be the largest sources of error
  - Comparison of reported emissions and emissions reductions with the previous reporting period(s)
– Follow-up Interviews:
  - On-site
  - Via telephone
  - Via email
  - Via ICT

The document review established to what degree the presented GHG Project Plan and Monitoring Report documentation met the validation and verification standards and criteria.

The GHD Project Team's document review during the review process comprised of, but was not limited to, an evaluation of whether or not:

– The documentation is complete and comprehensive and follows the structure and criteria required by the Program.
– The monitoring methodologies are justified and appropriate.
– The assumptions behind the inventory are conservative and appropriate.
– The GHG emission calculations are appropriate and use conservative assumptions for estimating GHG emissions and emissions reductions.
– The GHG information system and its controls are sufficiently robust to minimize the potential for errors, omissions, or misrepresentations.

The GHD Project Team interviewed Project staff to:

– Cross-check information provided
– Test the correctness of critical formulae and calculations
– Review data management and recording procedures

GHD completed checks of data from point of collection (meter, scale, etc.), through the Project data management systems, then it's use in the development of the Monitoring Report. A sample of raw data was collected for checks and recalculations as applicable. Where errors or anomalies were identified that could lead to a material misstatement, GHD requested further raw data samples to assess the pervasiveness of the errors or anomalies, as applicable. GHD identified the source and magnitude of data or methodology errors or anomalies; however, as a validation and verification body, GHD did not provide solutions to issues identified, where applicable.

## 15.6 Details of Site Visit

Well 49918

Gordon Reusing of the GHD Project Team visited plugged well 49918 during the validation/verification, on April 25, 2024. The well was visited along with several other plugged wells, including the well verified under project TW OOG2 and additional wells that were originally included in project TW OOG1.

GHD observed the ambient measurement for plugged well 49918, which was buried and remediated. GHD confirmed through witness of measurement by Tradewater, a methane concentration of 2.3 ppm both upwind and around the well at ground, simulating the ambient and post-plugging sampling measurements previously conducted by Tradewater for post-plugging measurement requirements per the Methodology. The post-plugging sampling (ground) measurement did not exceed 2ppm above the ambient (upwind) measurement therefore did not exceed the allowable threshold for post-plugging emissions per the Methodology. As noted, this was previously confirmed by Tradewater for the exposed well before burying, as part of procedures for the post-plugging confirmation sampling, that the 2ppm threshold was not exceeded. GHD witnessed calibration of the methane analyzer with zero air and methane at 500 ppm before measurements were taken by Tim Brown of Tradewater.

GHD interviewed the following people:

– Tim Brown, CEO, Tradewater who was responsible for submission of the project methane measurement method for ACR approval, in conjunction with the Project Emission Measurement Specialists

Well 12860

Gordon Reusing visited un-plugged well 12860 during the validation/verification and during baseline measurement 2, which occurred on May 31, 2024. GHD witnessed the following procedures associated with the baseline measurement:

– Measurement equipment set-up and installation of Alicat flow meter, as suitable for low-flow regime wells (<20 MCD/day)
– Installation of gas filter in line with flow set-up, due to the observation of black particles in plume
– Field calibration of Landtec methane analyzer
– GHD confirmed through witness of measurement by Tradewater, a methane concentration of 2.5 ppm upwind
– Set up of Vaetrix and digital pressure chart recorder
– At least 5 hours of data collected after which Tradewater stopped data collection

GHD interviewed the Emissions Measurement Specialists for the M2 measurement:

– Cassandara Whitford, Methane Project Development Manager, Tradewater
– Kevin Lock, Operational Consultant, Natural Gas Services (contracted by Tradewater)
– Kapilan Tamilselvan, Environmental Project Manager, Tradewater (Emissions Specialist in Training)

Through the site visits, GHD was able to verify the project boundary and location, confirm that procedures were conducted in accordance with Methodology requirements and that personnel responsible for project monitoring and data analysis were sufficiently trained and qualified.

# 16. Validation and Verification Findings

The following provides details of GHD's findings as well as GHD's conclusions.

## 16.1 Effectiveness of ICT

Summary of ICT Techniques Used

GHD discussed with Client the availability of ICT technologies. Client agreed to the use of ICT by accepting GHD’s proposal. GHD reviewed and confirmed the effectiveness of these techniques.

Findings and Conclusions

The decision to use ICT was permissible if GHD and Client agreed on using ICT. The agreed ICT method was MS Teams. By accepting GHD's proposal, Client agreed to the use of the afore mentioned ICT method and its associated information security, data protection and confidentiality measures.

GHD and Client successfully used MS Teams to hold calls, video conferences and share screens. GHD and Client used an online SharePoint folder (Dropbox) and email to share files.

GHD and Client encountered no issues using ICT as a part of this validation and verification; transfer of data between Client and GHD was smooth, and MS Teams calls did not encounter any technical issues.

Based on GHD's review, the ICT technologies used were acceptable and reasonable for use in the validation and verification, and GHD was able to maintain the acceptable level of assurance. The ICT techniques were effective in supporting the validation and verification activities.

## 16.2 Validation Findings

### 16.2.1 Project Boundary

#### 16.2.1.1 Geographic Boundary

GHD confirmed through visiting well 12860 that it was located in Boone County, Indiana, United States.

GHD confirmed through review of geographic coordinates listed on the GHG Project Plan, that well 49918 and 52561 were located in Dubois County, Indiana, United States.

GHD reviewed the Project well Plugging Reports to confirm that all wells were plugged by Tradewater, as per the Methodology requirement that the project boundary be confined to all wells aggregated to be plugged by a single Project Proponent. GHD confirmed the Project followed the latest ACR Standard requirements for aggregation, as per details provided in the Multi-Site Design Document Appendix in the GHG Project Plan.

#### 16.2.1.2 GHG Assessment Boundary

GHD reviewed the Project operations to confirm that all emission sources and sinks are included in the Report. Specifically, GHD completed the following:

– Conducted an in-person site visit and interviewed personnel
– Reviewed data management systems
– Reviewed MMMAF and direct flow set-up diagrams
– Reviewed fossil fuel invoice statements for plugging operations

Per the Methodology, physical boundaries of the project are orphaned wells identified as emitters. GHD confirmed that all wells were listed on INDR's Orphan Well List and confirmed through review of the leakage attestation and methane measurement raw data that all wells were identified as leaking. GHD confirmed that per the Methodology, baseline emissions as quantified in the project only consisted of active emissions directly connected to the well which are confirmed to cease upon plugging.

Per R&S Operating LLC fuel usage invoices, GHD observed that equipment and activities associated with plugging operations included tank trucks for hourly water haul, backhoe, excavator, pick-up truck, service rig, tool truck + man, water truck - cdl driver mobilized, welding truck + welder, winch dozer, winch truck + float / lowboy and other transportation. GHD confirmed that these are mobile mechanical equipment for plugging and all require diesel fuel.

During the site visit, GHD verified that all applicable baseline and project emission sources and sinks were included in the project boundary and GHG Project Plan.

## 16.2.2 ACR and Methodology Eligibility

GHD reviewed the Project operations to confirm that it meets the requirements of the ACR Standard and Methodology for the project.

The project eligibility requirements are outlined in Chapter 3 of the ACR Standard. GHD reviewed the Project against the eligibility requirements in the Standard as detailed below.

***Table 4 ACR Project Eligibility***

| ACR Criterion | Definition | GHD Assessment |
|---|---|---|
| Start Date | ACR defines the Start Date for all non-AFOLU projects as the date on which the GHG Project began to reduce GHG emissions against its baseline. ACR defines the eligible Start Date(s) for AFOLU project types in Appendix A, "ACR Requirements for AFOLU Projects". All Start Date definitions also apply to Site-specific Implementation Dates within Programmatic Development Approach (PDA) projects. | See Table 5 Methodology Eligibility for review of project start date for conformance with the ACR Methodology. The project start date per the Methodology aligns with the ACR Standard start date definition, where the 20-year crediting period is calculated from the project start date, therefore the project start date is the date the project began to reduce emissions against its baseline. |
| Minimum Project Term | The minimum length of time for which a Project Proponent commits to project continuance, monitoring, reporting, and verification. | As per the ACR Standard, project types with no risk of reversal after crediting have no required Minimum Project Term. The ACR Well Plugging Methodology does not further outline a minimum project term. As there is no risk of reversal for orphan well projects, this criterion is not applicable for this project. Per the ACR Standard, Minimum Project Term applies only to AFOLU projects that have had ERTs issued that are associated with GHG removals (sequestration). |
| Crediting Period | Crediting Period is the finite length of time for which a GHG Project Plan is valid, and during which a GHG project can generate carbon credits against its baseline scenario. Crediting Periods are limited in temporal duration to require Project Proponents to reconfirm at intervals appropriate to the project type that the baseline scenario remains realistic and credible, the project activity remains additional, and GHG accounting best practice is being used. | See Table 5 Methodology Eligibility for review of project crediting period for conformance with the ACR Methodology. The crediting period per the Methodology aligns with the ACR Standard crediting period definition, where the 20-year crediting period is calculated from the project start date, therefore it is the finite period of time for which project can reduce emissions against its baseline and for which the GHG Project Plan is valid. |

| ACR Criterion | Definition | GHD Assessment |
|---|---|---|
| Real | A real credit is the result of a project action that yields quantifiable and verifiable GHG emission reductions and/or removals. | GHD reviewed raw data, photos and field notes documenting evidence of leakage to confirm that the well associated with the project was leaking and suitable to be plugged. GHD reviewed the activity data used to quantity baseline emissions including flow and methane concentration measurements to confirm that emissions reductions are real. GHD confirmed that this is documented in the GHG Project Plan. |
| Title | Title is a legal term representing rights and interests in a carbon credit, a future stream of credits, or a GHG project delivering credits. | Tradewater established a Transfer of Rights Agreement during project TW OOG2, with effective date April 1, 2024 and confirmed to be applicable to the current project TW OOG1. GHD reviewed the Transfer of Rights Agreement to confirm that Tradewater Well Services, LLC transferred all ownership rights for the project to Tradewater, LLC. GHD confirmed that Tradewater, LLC is listed as the party with rights to the project on the GHG Project Plan.<br>An Attestation letter provided by Mr. Brian Royer of the Indiana DNR dated October 7, 2024, indicates that as of the following dates the project wells were not properly plugged, and no designated operator or solvent operator was responsible for plugging the wells:<br>– 49918 - 1/24/2022<br>– 12860 - 11/4/2023<br>– 52561 - 7/9/2023<br>It attests that Tradewater was granted authority to plug the well upon submission of the Plugging Plan and the authority began on the following dates:<br>– 49918 - 5/3/2023<br>– 12860 - 7/11/2024<br>– 52561 - 7/11/2024<br>GHD reviewed the signed Plugging Plans as obtained from the Indiana Well Records Viewer online database to confirm that the plugging plans were approved on the above dates. |
| 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 a business-as-usual scenario.<br>Every GHG project shall demonstrate they either:<br>Meet an ACR-approved performance standard and pass a regulatory surplus test, as detailed in the applicable methodology, or pass a three-pronged test of additionality in which the GHG Project:<br>1. Exceeds regulatory/legal requirements;<br>2. Goes beyond common practice; and<br>3. Overcomes at least one of three implementation barriers: institutional, financial, or technical. | See Table 5 Methodology Eligibility for review of project additionality via the Regulatory Surplus Test and Practice-Based Performance Standard assessments, as specified by the ACR Methodology. |

| ACR Criterion | Definition | GHD Assessment |
|---|---|---|
| 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. | Per the Attestation letter provided by Mr. Brian Royer of the Indiana DNR dated October 7, 2024, 'Indiana DNR inspectors observe and sign off on the plugging process, either by being present on site or by reviewing photographic evidence of plugging activities. This is done to confirm that plugging is done in conformance with the steps set out in the Plugging Plan and Indiana rules and regulations. This was true for Well Numbers 49918, 12860, and 52561.'<br>GHD reviewed the signed Well Plugging Reports for well 12860, and 52561 as well as the Well Plugging Report and signed Abandonment Certification Report for well 49918 to confirm that INDR approved plugging operations. Based GHD's review of the Indiana Well Records database, no violations were found for the wells. GHD confirmed that well plugging was conducted in accordance with the Indiana Regulations and a state-approved Plugging Plan.<br>GHD reviewed the project Land Access Agreements to confirm that Tradewater had permission to the properties for the purposes of plugging the wells. GHD confirmed that this is documented in the GHG Project Plan. |
| Permanent | Permanence refers to the longevity of GHG emission reductions and removals, and the risk of reversal (i.e., the risk that atmospheric benefit will not be permanent). Reversals may be unintentional or intentional. | GHD reviewed the post-plugging confirmation sampling raw data and confirmed that all wells indicated emissions well within 2ppm above atmospheric methane. GHD reviewed photos to confirm that Tradewater took post-plugging measurements around the well casing of the unburied wells. During GHD's site visit to well 49918 and for the purposes of the site visit, Tradewater took a confirmation sample following the procedures for buried wells, as the well was subsequently buried, and re-confirmed that the well was not leaking beyond the allowable threshold.<br>GHD notes that for wells 49918 and 52561, post-plugging confirmation sampling was conducted months after plugging of the wells and for well 12860 the confirmation sample was taken one week after plugging. GHD does not expect the variation to impact results of the confirmation sample. |
| Net of Leakage | Leakage is an increase in GHG emissions or decrease in sequestration outside the project boundaries that occurs because of the project action. | Per the ACR Methodology, leakage is not applicable for the Orphan Well Plugging project type. |
| Independently Validated | Validation is the systematic, independent, and documented process for the evaluation of a GHG Project Plan against applicable requirements of the ACR Standard and approved methodology. | GHD has conducted an independent validation of the GHG Project Plan for the current crediting period. |

| ACR Criterion | Definition | GHD Assessment |
|---|---|---|
| Independently Verified | Verification is the systematic, independent, and documented assessment by a qualified and impartial third party of the GHG statement for a specific Reporting Period. | GHD has conducted an independent verification of the project Monitoring Report and statement for the current reporting period. |
| Environmental and Social Impact Assessments | GHG projects have the potential to generate positive and negative environmental and social impacts. Appropriate safeguard procedures can identify, evaluate, and manage potential negative impacts. Positive impacts can contribute to sustainable development objectives. | GHD reviewed the SDG contributions form, Social Impact Form, GHG Project Plan and Monitoring Report to confirm that SDG contributions and social impacts were appropriately identified and reported for the project. GHD confirmed the SDGs matched the descriptions and classifications set out in the ACR SDG Contributions tool. No negative impacts were associated for the project. GHD confirmed that SDG contributions reported in the GHG Project Plan matched the SDG contributions form. GHD confirmed that stakeholders and stakeholder engagement for the project were appropriate and reported. |

The Methodology eligibility requirements are outlined in the ACR Methodology, as modified by the E&C. GHD reviewed the Project against the eligibility requirements as detailed below.

***Table 5 Methodology Eligibility***

| Methodology Criterion | GHD Assessment |
|---|---|
| **Eligibility** | |
| The well is located in the U.S. or Canada | Per project documentation including geographic coordinates as listed on raw data, the wells are located in the state of Indiana, United States. GHD confirmed that this is documented in the GHG Project Plan. |
| The well is found to be emitting methane when first accessed by the parties involved in the project, as named in the GHG Project Plan, including the project proponent, project developer, entities holding title to the land, and other project participants such as technical consultants and qualified measurement specialists. | GHD reviewed the Leaking Well Attestation dated September 17, 2024 provided for well 49918 to confirm that all parties involved in the project attest that the well was leaking. The Attestation was updated on December 13, 2024, to include wells 12860 and 52561 in the attestation. GHD confirmed that this is documented in the GHG Project Plan.<br>The occurrence of emissions for all wells is subsequently confirmed through the methane concentrations and flow measured during baseline measurements for all wells in the project. |
| The well is included under any of the following categories<br>– Wells with no designated operator<br>– 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<br>– Wells that do not appear on a jurisdictions orphaned well list. These wells do not have a solvent operator and would be classified as “unknown orphans” | Well 12860 was listed on Indiana DNR’s April 11, 2023 Orphan Well list as an Orphaned well of type non-commercial gas. Based on this GHD confirmed that the well is classified as a well with no designated operator.<br>Well 49918 and 52561 was listed on the Orphan Well list as Revoked wells of type gas (commercial). GHD reviewed email correspondence between Indiana DNR and Tradewater to confirm this indicates a status such that the operational permit of the well has been revoked, through legal proceedings. IDNR maintains oversight of Orphaned and Revoked wells however does not have mandate to plug the wells. Per Attestation letter provided by Mr. Brian Royer of the Indiana DNR dated October 7, 2024, ‘the project wells were not properly plugged, and no designated operator or solvent operator was responsible for plugging the wells.’<br>Based on review of the Indiana Well Records Viewer, GHD identified temporary abandonment requests/permits for wells |

| Methodology Criterion | GHD Assessment |
|---|---|
| | 12860 and 49918 as issued pre- year 2000. This suggests that previous well operators may have attempted to plug the wells, however the wells as observed by DNR were ultimately found as unplugged or improperly plugged. As confirmed by the DNR, the commercial revoked well (49918) would have subsequently had the permit formally revoked and the non-commercial well 12860 was identified as orphaned. |
| There is no regulatory or other legal requirement to prevent the release of methane | See Section Regulatory Surplus Test below for assessment. |
| **Reporting Period** | |
| 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 completing post-plugging monitoring. | Per the E&C, the reporting period start date is the date of the first instance of post-plugging confirmation sampling that occurred for a well in the project. It occurred on August 9, 2023, for well 49918.<br>GHD reviewed the methane measurement raw data to confirm that it did not exceed 2ppm above the ambient measurement taken on that day. The final post-plugging sampling occurred on September 13, 2024, for both wells 12860 and 52561 and demonstrated mitigation of emissions.<br>Therefore, the project reporting period was correctly determined to be 8/9/2023 - 9/13/2024. GHD confirmed that this is documented in the GHG Project Plan. |
| **Start Date** | |
| For this methodology, the start date corresponds to the completion of plugging activities of the first plugged well included in a project, after demonstration that there are no emissions from the plugged well—according to Section 5.2. This date will be confirmed by the jurisdiction when the well is reclassified as plugged or decommissioned. All wells in a project must be plugged within 24 months of the project start date.<br>Per Section 3 of the E&C, it is clarified that post-plugging monitoring is the trigger for the Start Date, start of the Reporting Period, and start date of the Crediting Period. | Per the E&C, the project start date aligns with the reporting period start date as described above, and the crediting period start date of August 9, 2023. |
| **Crediting Period** | |
| 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 (i.e., the same date as the project start date and Reporting Period start date). 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 (i.e., the same date as the Reporting Period end date). 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, resulting in a maximum Crediting Period duration across all wells in the project of 22 years. | Per the E&C, the project crediting period start date aligns with project and reporting period start date as described above, of August 9, 2023. For a multi-well project, the crediting period end date is the reporting period end date plus 20 years. Therefore, the project crediting period is 8/9/2023 - 9/12/2044. GHD confirmed that this is documented in the GHG Project Plan. |

| Methodology Criterion | GHD Assessment |
|---|---|
| **Project Validation Deadline** | |
| Validation must be completed within 12 months of the plugging of the last well in the project. The E&C clarifies that this refers to the date of plugging (e.g., cementing of a well) for the last well plugged in the project and that it is a distinction from the first post-plugging monitoring, which is the trigger for the Start Date, start of the Reporting Period, and start date of the Crediting Period. | GHD reviewed the signed well Plugging Report confirm that the last well plugged in the project was well 12860 which was plugged on September 5, 2024. The validation deadline is 12 months from this date and is therefore September 4, 2025. |
| **Regulatory Surplus Test** | |
| 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. | GHD verified that 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.<br>Per Attestation letter provided by Mr. Brian Royer of the Indiana DNR dated October 7, 2024, no designated operator or solvent operator was responsible for plugging the wells in the project. GHD verified that the Indiana well plugging regulation only applies to active owners, therefore the project wells were considered not applicable under the Code and plugging considered surplus to regulations. |
| **Practice-Based Performance Standard** | |
| All wells that meet this methodology's orphaned well description and eligibility section are considered to pass the performance standard. | As discussed in the Eligibility section above, the wells are considered to meet the ACR Methodology's orphan well description and eligibility requirements, thereby passing the performance standard additionality test. |
| **Quantification of GHG Emissions Reductions** | |
| Project Proponents shall submit a Methane Measurement Method Approval Form to ACR and obtain approval prior to collection of pre-plugging methane measurements. More detail provided in Section 4.1 of the ACR Methodology. | The Methane Measurement Method Approval Form (MMMAF) was approved on November 8, 2024, after the start of project activities. The MMMAF was re-submitted on December 13, 2024 to update Kapilan Tamilselvan from an Emissions Specialist on the project, to having received training for activities during the project. A deviation for submitting the MMMAF out-of-sequence was approved by ACR on November 11, 2024, as described in Section 16.2.3 Project Deviations. |
| At least one qualified emissions measurement specialist will be needed to quantify methane prior to plugging and remediating a well. The measurement specialist should not only be proficient at using gas measurement instrumentation, but also able to recognize and avoid/mitigate safety hazards related to the oil and gas well, field conditions, weather variables, etc., to maintain personal safety. | The project Monitoring Report indicates that Cassandra Whitford, Victor Molina and Kevin Lock are the Qualified Emissions Measurement Specialists for certain methane measurement methods and equipment, which were employed for this project's three wells. MMMAF indicates that they are trained and qualified to perform measurements. The Monitoring Report indicates that Kapilan Tamilselvan received training on SEM5000, Silversmith, Vaetrix, and Alicat under wells 52561 & 12860.<br>GHD interviewed the above personnel during the site visit of well 12860 and confirmed that they oversee all monitoring activities and are qualified to perform functions. |

| Methodology Criterion | GHD Assessment |
|---|---|
| Ambient emissions measurements taken during pre-plugging sampling events and post-plugging measurements must be completed with a detection limit of 1 ppm or less. 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. | MMMAF indicates that QED Landtec SEM5000 methane detector is used for measurements and has a minimum detection limit of 0.5ppm GHD confirmed that the device operating manual indicates a minimum measurement range of either 0 ppm or 1 ppm. GHD confirmed that the specification fact sheet indicates a minimum detection limit of 0.5 ppm. Both indicate that the 1ppm or less requirement is met by the analyzer.<br>The September 2024 E&C was released after the completion of project activities with post-confirmation sampling on January 22, 2024, and indicated that ambient emissions measurements are no longer required as per the original ACR Methodology, if equipment is directly connected to the leaking well. GHD confirmed through reviewing the original MTM, MMMAF and reviewing video evidence of the measurement flow set-up, that the methane analyzer is directly connected to the leaking well, as enclosed within a diffusion box receiving flow, and unable to be impacted by the presence of ambient methane.<br>Although not required, ambient pre-plugging measurements were taken but not used to correct baseline emissions per Equation B or C of the E&C, as appropriate. |
| To determine the net GHG reductions for wells, monitoring of methane emissions before and after plugging the well is required. The 100-year global warming potential value used in this chapter is specified in the most recent ACR Standard. | AR5 global warming potential per ACR Standard Version 8, has been used in baseline emissions quantification. |
| **Methane Measurement Methods** | |
| Project Proponents shall submit a Methane Measurement Method Approval Form to ACR for approval. The form shall be submitted during GHG Project Plan preparation (after project listing) and approved prior to collection of pre-plugging methane measurements. This form collects information about the parties participating in the project methane measurement activities, the name and qualifications of the qualified measurement specialist(s), and the proposed method(s) and equipment. Completed forms and any supplemental documents shall be uploaded to the Project Documents section for the applicable project on the ACR Registry.<br>– Project Proponents must provide documentation that equipment was administered correctly, including calibration; demonstrate that the flow rates measured were within the specified range for the equipment used; and that the equipment, as administered in the field, met all accuracy and precision requirements set out in this methodology and the ACR Standard, including:<br>The direct sampling approach yields a value with at least 95% confidence. | See ‘Quantification of GHG Emissions Reductions’ section for review of MMMAF submission requirements.<br>Calibration records indicate that the Silversmith and Alicat model flow meters produces measurements at greater than 95% accuracy. The operating manual for the QEM Landtec methane analyzer indicates that it produces measurements at greater than 95% accuracy. GHD understands that this ensures that the direct sampling approach yields a value with at least 95% confidence. |

| Methodology Criterion | GHD Assessment |
|---|---|
| There can be confirmation of proper operation in accordance with manufacturer's specifications—ensuring data is accurately aggregated over the correct amount of time. | GHD reviewed equipment calibration records and data as found within the raw data files to confirm proper operation of the equipment and that data was aggregated over the correct amount of time. GHD notes that Tradewater re-confirms the length of the stability period as used for calculations, by determining the elapsed time for data collection from the equipment reading timestamps. |
| Measurements of methane concentration, well gas flow rate, and flowing pressure (if wellhead is present) must be measured and recorded simultaneously. Methane-specific flow rates may be collected in lieu of separate measurements for methane concentration and well gas flow rate. Each reading shall include documentation of the measurement date, time, and location so measured data can be verified | GHD confirmed that methane concentration, well gas flow rate and flowing pressure was measured and recorded simultaneously per reading times and frequencies recorded on measurement data. Methane and flow data was collected separately and calculated to obtain a methane-specific emissions rate. All readings included documentation of the measurement date and time. GHD reconfirmed the location of readings where necessary; to confirm they were associated with the project wells. |
| A qualified measurement specialist' shall have training and field experience with the specific equipment and methods that have been proposed and approved by ACR for use at the targeted well sites. Ideally the measurement specialist will have 20+ hours of training and experience with the specific equipment type and/or methods. | As stated in the MMMAF and GHG Project Plan, measurement specialists have the required experience and are qualified to conduct project activities per Methodology requirements. |
| **Methane Analyzer Specifications** | |
| The methane analyzer must be able to quantify methane-specific concentrations. Combustible gas or multi-gas sensors typically used for determining explosion risk shall not be used. Moreover, the analyzer shall meet or exceed the following specifications:<br>– Working range of environmental conditions (e.g., temperature, humidity, well conditions such as flow rate, pressure, the presence of fluid, and must be used in a manner that ensures accuracy and safety) | Methane analyzer is not a multi-gas analyzer and quantifies methane-specific concentrations as confirmed by the operating manual and methane measurements. GHD reviewed the device operating manual to confirm that the methane analyzer meets working range of environmental conditions. |
| – Methane-specific detection must demonstrate that concentrations detected are within the factory specified range of detection equipment | Per page 6 of the device operating manual, the factory specified range of detection equipment is 0 -1,000,000 ppm. GHD confirmed that the methane measurements for each sampling event as used for emissions calculations was within the specified detection range. No negative values were identified, and no values were identified that indicated greater than 100% methane concentration. |
| **Temporal Variation** | |
| Emissions measurements are required to determine pre-plugging methane flow for every well in the project boundary. Two pre-plugging sampling events, at least 30-days apart, are required at each well, as demonstrated in Figure 3 of the ACR Methodology. | GHD confirmed that first (M1) and second (M2) baseline measurements were taken as follows:<br>49918: M1:10/19/2022, M2: 5/23/2023<br>52561: M1:4/18/2024, M2: 5/30/2024<br>12860: M1:4/30/2024, M2: 5/31/2024<br>GHD notes that for well 12860, the M2 measurement is 31 days from M1. Based on GHD's review clock times or unforeseen variables have not been identified to reduce the temporal variation below 30 days. GHD confirmed that all wells in the project maintained a minimum of 30 days between M1 and M2. |

| Methodology Criterion | GHD Assessment |
|---|---|
| **Baseline Emissions** | |
| Baseline emissions will be calculated according to the following steps:<br>– Immediately preceding or concurrent with each pre-plugging sampling event (if required) and the post-plugging measurements, background levels of methane must be recorded from a distance of 10-15 feet upwind of the well to be plugged. For the purposes of this requirement, 'upwind' means in the direction that the wind is blowing from at the time of measurement. This measurement may be taken with the same sampling device as the well measurements. | See 'Quantification of GHG Emissions Reductions' section for confirmation that pre-plugging ambient methane measurements were not required due to direct flow set-up.<br>Based on GHD's witness of an ambient measurement taken during pre-plugging M2 for well 12860 and witness of a post-plugging measurement taken for well 49918, GHD understands that Tradewater takes ambient methane measurements at a distance of 10-15 feet upwind of the well for all wells in the project. |
| – The sampling method shall encompass the emitting well and at least 10 cm of immediately adjacent soils to also capture any methane emissions that may be migrating up the well annulus. | GHD confirmed that this Methodology requirement does not apply to the project which uses a direct flow set-up and therefore does not encompass the emitting wells. The flow set up was approved by ACR via the MMMAF. Based on the site visit to well 12860, GHD understands that emissions are appropriately measured in alignment with the well configuration. |
| **Emission Reductions from Plugging/ Permanence and Reversal Risk** | |
| A methane detector shall be used to screen the ground surface and any portion of the plugged well casing that remains above grade after plugging. For buried wells, a surface area of 1 square meter (1 $m^2$) above the wellhead shall be measured. The detector can be a handheld methane sensor and shall have a lower detection limit of 1 ppm methane or less. The equipment shall be placed within 5 centimeters (5 cm) of the ground and/or well casing. Each area requiring screening shall be screened for at least 5 minutes.<br>If a methane concentration exceeding 2 ppm above background is detected, the methane emissions rate must be measured in accordance with the approved Methane Measurement Method Approval Form. The methane emission rate, corrected for pressure and temperature, measured directly, or calculated from simultaneously measured methane concentration and well gas flow rate shall not exceed 1.0 gram per hour (g/hr.). If the measured methane emission rate exceeds 1.0 gram per hour (g/hr.), then the plugged well shall be re-plugged and re-tested prior to credits being issued for that well. | GHD confirmed during the site visits that post-plugging measurements were taken as prescribed by the Methodology, using an eligible methane sensor and screening for both ambient and post-plugging measurements for all wells occurred for at least 5 minutes.<br>Based on the review of the confirmation sampling methane measurement raw data, methane concentration exceedance beyond 2ppm was not observed for any wells. GHD confirmed that based on this evidence, no further testing was required. |
| Project Proponents must demonstrate that the well has been designated as "plugged", or equivalent, by the appropriate jurisdiction. | Per Attestation letter provided by Mr. Brian Royer of the Indiana DNR dated October 7, 2024, the wells were plugged on the following dates:<br>– 49918 - 7/13/2023<br>– 12860 - 9/5/2024<br>– 52561 - 7/29/2024<br>GHD reviewed the signed well Plugging Reports to re-confirm the plugging dates. GHD confirmed that well 49918 is listed on the INDR Well Records Viewer database with the Status of 'Plugd & Abandnd' and wells 12860 and 52561 with the status of 'Plugged.' GHD expects that the status titles indicate an equivalent status for all wells and is known to INDR. |

| Methodology Criterion | GHD Assessment |
|---|---|
| **Monitoring and Data Collection** | |
| Measurements of simultaneously collected methane concentrations, well gas flow rate, and flowing pressure (if wellhead is present) over reported sampling event – including time-stamped, georeferenced videos, pictures or reports | See 'Methane Measurement Methods' section for review of simultaneously collected measurement readings. GHD confirmed that time-stamped, georeferenced videos, pictures or reports were provided. |
| Documentation to be collected and reported to ACR per Section 5: Data Collection and Parameters to be Monitored of the ACR Methodology and Section 16, Errata: Data Collection and Parameters to be Monitored (2024-09-09) of the E&C. | GHD confirmed that all applicable project documentation was retained.<br>Per Attestation letter provided by Mr. Brian Royer of the Indiana DNR dated October 7, 2024, Indiana rules and regulations do not contain any licensing requirements for pipe pullers or well pluggers in the oil and gas industry. Therefore, no related documentation was retained or required to be retained by Tradewater. |

## 16.2.3 Project Deviations

The Methane Measurement Method Approval Form (MMMAF) was approved on November 8, 2024, after the collection of pre-plugging measurements. The MMMAF was updated on December 13, 2024, to revise the Emissions Specialist status of Kapilan Tamilselvan. A deviation for submitting the MMMAF out-of-sequence was approved by ACR on November 11, 2024.

## 16.2.4 Double Issuance and Double Use of Carbon Credits

Per the ACR Standard, the Project Proponent is required to disclose any other registrations of the Project under other offset registries. As per Section 10.A of the ACR Standard, GHD reviewed registry project listings under registries including Climate Action Reserve and Verra: Verified Carbon Standard to confirm that the Project is not claiming emission reductions outside of the ACR.

## 16.2.5 Monitoring Plan

### 16.2.5.1 Data Management System

Methane, flow and pressure readings are taken by the instruments and stored directly on the instrument or on the device's associated instrument software. Data is downloaded from the instrument or instrument software and transferred to a computer and subsequently uploaded to the Project's SharePoint. Raw data for methane and flow readings are available in excel format, while pressure readings are available in pdf format and converted to excel format for processing and data analysis. GHD confirmed data management procedures for the project, during the in-person site visits conducted.

### 16.2.5.2 Calibration Procedures

GHD reviewed 2022- 2024 calibration certificates for each monitoring device and confirmed the following calibration frequencies:

- SilverSmith flow meter: *annual,* as conducted by manufacturer Silversmith, Inc. or Transcat Calibration Laboratories. Tradewater attests that Silversmith does not mandate nor recommend a calibration schedule, and calibrations occur on an as-needed basis. GHD confirmed that calibrations/field checks occurred prior to use of the flow meter in the filed.
- Alicat flow meter: *annual,* as conducted by manufacturer Alicat Scientific, Inc.
- QED Landtec methane analyzer: *every two years,* as conducted by QED Environmental Systems, Inc. or Field Environmental Instruments Inc.

– Vaetrix: *annual,* as conducted by JM Test Systems, Inc.

GHD verified that all equipment was factory calibrated prior to use and used within the calibration window of the equipment as demonstrated in the below tables.

***Table 6 Project Well Calibrations***

| Well-49918 | | | | |
|---|---|---|---|---|
| **Equipment:** | **Manufacturer:** | **Serial Number:** | **Project Applicable Factory Calibration Date:** | **Project Activity/ Date:** |
| Flow meter | SilverSmith | 2564-34183 | 7/19/2022 | M1: 10/19/2022 |
| | | | 2/27/2023*, 5/17/2023 | M2: 5/23/2023 |
| Methane analyzer | QED Landtec | 19338 | 10/10/2022 | M1: 10/19/2022, M2: 5/23/2023 |
| | | 41056 | 10/11/2022 | Post-plugging: 8/9/2023 |
| Pressure sensor | Vaetrix | 1659610952 | 10/7/2022 | M1: 10/19/2022 |
| | | 1662566265 | 5/16/2023 | M2: 5/23/2023 |

| Well-52561 | | | | |
|---|---|---|---|---|
| **Equipment:** | **Manufacturer:** | **Serial Number:** | **Project Applicable Factory Calibration Date:** | **Project Activity/ Date:** |
| Flow meter | SilverSmith | 2564-34183 | 2/20/2024 | M1:4/18/2024, M2: 5/30/2024 |
| Methane analyzer | QED Landtec | 41268 | 11/10/2023 | M1:4/18/2024, M2: 5/30/2024 |
| | | 41728 | 10/30/2023 | Post-plugging: 9/13/2024 |
| Pressure sensor | Vaetrix | 1620928794 | 2/28/2024 | M1:4/18/2024, M2: 5/30/2024 |

| Well-12860 | | | | |
|---|---|---|---|---|
| **Equipment:** | **Manufacturer:** | **Serial Number:** | **Project Applicable Factory Calibration Date:** | **Project Activity/ Date:** |
| Flow meter | Alicat | 485553 | 4/18/2024 | M1:4/30/2024, M2: 5/31/2024 |
| Methane analyzer | QED Landtec | 41268 | 11/10/2023 | M1:4/30/2024, M2: 5/31/2024 |
| | | 41728 | 10/30/2023 | Post-plugging: 9/13/2024 |
| Pressure sensor | Vaetrix | 1620928794 | 2/28/2024 | M1:4/30/2024, M2: 5/31/2024 |

** GHD notes that the Silversmith flow meter calibration conducted on July 19, 2022, was a field check performed by Silversmith to ensure proper set-up and operation of the equipment. This was followed by calibrations in 2023 and 2024 as documented above.*

Additionally, for the Landtec methane analyzers, field checks occur prior to use in the field, as prescribed by the device operating manual and documented to be completed for the project by the field check calibration certificates. GHD confirmed that field checks occurred prior to pre-plugging, post-plugging and all ambient measurements.

### 16.2.5.3 QA/QC Procedures

GHD confirmed that adequate QA/QC procedures occur internally for the project. On-site, these include monitoring of project data during the measurement events, analyzing for stability and collecting monitoring for sufficient durations to obtain enough data for stability analysis and quantification (>2 hours). GHD confirmed that Tradewater syncs the start time for readings for the different measurement devices to allow for similar processes of data collection between the equipment and accuracy of readings used for stability analysis.

GHD confirmed that raw data files as provided for verification were unmodified and data organization of files as located on the project SharePoint ensured that well data was kept separate and could be traced back to the associated well. GHD confirmed that documentation procedures including photos, field notes and raw data

allowed for the corroboration and confirmation of project data and occurrence of project events. GHD confirmed that the Tradewater team performs QA/QC of the data during data processing and analysis.

#### 16.2.5.4 Sampling Methods

Sampling methods include pre-plugging measurements for baseline methane emissions rates and post-plugging measurements for the presence of post-plugging emissions. Baseline emissions measurements were taken using the project's approved direct flow sampling technique specified in the approved Methane Measurement Method Approval Form (MMMAF). During GHD's site visit to well 12860 for baseline measurement M2, GHD confirmed that baseline sampling procedures were conducted in accordance with the MMMAF and the Methodology. GHD notes the following differences in flow-set up and procedure for the following wells:

Well 49918 and 52561:

– Using Silversmith flow meter due to high flow regime observed for the well.
– Flow meter has been set to read temperature and pressure at 60°F and 0.997 atm. Simultaneous temperature and pressure readings not available with flow readings, therefore each 10-minute interval of collected data is normalized to the required STP of 60°F and 1 atm during emissions calculations, based on the known STP of instrument.
– Using gas-liquid separator

Well 12860:

– Using Alicat flow meter due to low flow regime observed for the well.
– Flow meter has not been set to perform internal pressure and temperature correction. Simultaneous temperature and pressure readings available with flow readings, therefore each 10-minute interval of collected data is normalized to the required STP of 60°F and 1 atm during emissions calculations, using the instrument's measured pressure and temperature readings.
– Using a gas filter instead of a gas-liquid separator

GHD confirmed that all of the above-noted differences as observed during the site visit, are indicated in the approved MMMAF and that all methods and measurements occurred as specified by the MMMAF.

GHD confirmed that post-plugging sampling begins with taking an ambient methane measurement and is followed by screening of the exposed well casing for emissions confirmation. During GHD's site visit to well 49918, GHD witnessed a post-plugging measurement for the well after burial and remediation to confirm the similar procedure that was followed for post-plugging for the unburied wells. GHD confirmed that post-plugging sampling procedures were conducted in accordance with the approved MMMAF and the Methodology.

## 16.3 Verification Findings

### 16.3.1 SSR 1 – Baseline Emissions (Pre-Plugging Orphan Well Emissions)

#### 16.3.1.1 Annual Emissions

GHD verified that annual emissions were calculated as follows, per Equation 1 of the Methodology E&C.

*Table 7 Assessment of Parameters used in Equation 1 for the Calculation of Annual Emissions*

| Annual Emissions Equation Parameter | Assessment |
|---|---|
| Flow data | Well 49918 and 52561: Gas flow measured using the Silversmith flow meter produced readings in units of MCF LFG/day.<br>Well 12860: Gas flow measured using the Alicat flow meter produced readings in units of L/min.<br>GHD confirmed that readings were converted to units of acf/hr prior to normalization. |
| Flow Data Adjustments – Normalization to Standard Temperature & Pressure (STP) | Well 49918 and 52561: GHD confirmed per calibration documentation that the Silversmith flow meter normalizes to a base pressure of 14.65 psi (0.996874 atm) and base temperature 60°F. Tradewater used the above known values of STP of the flow meter in Equation A of the E&C to further normalize the data to the standard pressure of 1 atm, as appropriate.<br>Well 12860: GHD confirmed per calibration documentation that the Alicat flow meter normalizes to a standard pressure of 14.69595 psia (1 atm) and base temperature of 25°C (77°F). Tradewater used the measured temperature and pressure as recorded by the instrument (concurrent with flow measurements), in Equation A of the E&C to normalize the data to the standard pressure of 1 atm and 60F as appropriate. |
| Methane data | Methane concentration for all wells was measured using the Landtec methane analyzer and raw data contained readings in units of ppm. All flow measurements were converted to units of % volume by division by 10000. |
| Methane Data Adjustments – No Ambient Methane Deductions Applied | GHD confirmed that due to the direct flow set up of the gas measurement system, methane concentration could not be detected within the gas methane concentrations measured as the methane analyzer is enclosed in a diffusion box which is properly sealed and only receiving well gas flow. Ambient methane concentration for the pre plugging requirements are not required as specified by the E&C, however, were taken as project activities occurred prior to the release of the E&C. As per the above, ambient methane concentration deductions from the measured sampling event methane concentration were not required.<br>GHD confirmed that methane readings as used for emissions calculations used the 'gasValueRel' raw data, which are readings which do not include a subtraction of ambient methane as performed by the instrument, unlike the 'gasValueAbs' data for which the deduction is included. |
| Emission Rate | Methane emission rates (scf/hr) were calculated using the corrected well gas flow measurements and methane concentration measurements. |
| Moisture | Well 49918 and 52561: Moisture factor of one (1) applied, as GHD confirmed that a moisture correction was not required as the properties of the gas are analyzed after the liquid has been removed by the gas separator and therefore the gas is already analyzed by equipment on a dry basis, as indicated on the MMMAF.<br>Well 12860: Moisture factor of one (1) applied, as a gas-liquid separator was not required. |
| Methane Density | GHD confirmed that Tradewater appropriately applied a methane density of 0.0423 lbs CH4/ scf CH4 associated with an STP of 60°F and 1 atm, in alignment with the STP of the normalized emission rates. |
| Calculation method | GHD verified that annual emissions were calculated for all wells based on the average emission rate of 24 data points from the 2 hour stabilized periods for the sampling events. The emission rates were converted to units of Kg CH4/year using the factors specified in Equation 1. |

Recalculation

GHD re-calculated annual emissions and identified an immaterial discrepancy that was corrected by Tradewater. No further discrepancies were identified.

### 16.3.1.2 Stability

GHD verified that stability was assessed in accordance with Section 12, Errata: Emissions Stabilization Requirements of the Methodology E&C.

The stability criteria associated with the various parameters including flow, methane concentration and pressure were analyzed using the same 2-hour period per baseline event for each well. Table 8 below indicates the 2-hour periods used for stability analysis, per timestamps found on the instrument raw data.

*Table 8 Chosen Stability Periods for M1/M2 Baseline Measurements for Project Wells*

| Event | Well-49918 | Well-52561 | Well-12860 |
|---|---|---|---|
| M1 | **10/19/2022** \| 12:36:41 PM - 2:36:40 PM | **4/18/2024** \| 3:27:01 PM - 5:27:00 PM | **4/30/2024** \| 3:39:42 PM - 5:39:41 PM |
| M2 | **5/23/2023** \| 10:34:11 AM - 12:34:10 PM | **5/30/2024** \| 1:50:05 PM - 3:50:00 PM | **5/31/2024** \| 10:45:58 AM - 12:45:57 PM |

** Due to differing clock times of the instruments, the listed timestamps may not reflect the real time in eastern time zone (ET) that the measurements were taken, as recorded as (time on phone) in the field notes associated with the wells.*

GHD noted that for well 49918, the flow data chosen for the M1 measurement 2-hour stability period was 1 hour later (1:36:41 PM – 3:36:41 PM) than the stability period chosen for methane and pressure data (12:36:41 PM - 2:36:41 PM), based on timestamps found within the raw data files. Tradewater asserted that this is due to the internal clock time of the flow meter being 1 hour ahead of the clock time of the methane analyzer and pressure sensor, however that the stability periods chosen for the three instruments were the same in real-time. GHD observed that field notes indicated that flow measurement for M1 started at 12:57 PM ET. Therefore, Tradewater indicated that the real time of the stability period chosen for all three instruments (in eastern time) was 1:36:41 PM - 3:36:41 PM. GHD observed based on the data that flow measurements were more consistent during this time period in the raw data, than the hour before, to confirm that the chosen stability period was reasonable and aligned with the time period chosen for stability analysis for the other instruments.

GHD verified that Tradewater applied excel formulas to appropriately aggregate data for the 10-minute interval averages, as required where measurement frequencies were greater than per minute, such as for flow measurements, where timestamps did not exist at necessary points in the raw data to define the 10-minute intervals. GHD's assessment of stability for the Project wells is demonstrated in Table 9.

*Table 9 Stability Assessment for Project Wells*

| Stability Criterion | Assessment |
|---|---|
| 10-minute interval methane emission rates (scf/hr) over the minimum 2-hour stability period, corrected for moisture content (if applicable) and ambient methane concentration, fall within **±10% of the average methane emission rate.**<br>The average is calculated as the arithmetic mean of the 10-minute interval methane emission rates (scf/hr) over the minimum 2-hour stability period, corrected for moisture content (if applicable) and ambient methane concentration. Over a 2-hour stability period, a minimum of eleven of the twelve 10-minute interval data points must fall within this bound. If the stability period is longer than two hours, the minimum number of 10-minute interval points that must be within ±10% of the average increases proportionally and rounded up to the nearest whole number (e.g., 17 of 18 data points, 22 of 23 data points, and 22 of 24 data points must be within ±10%). | Emission rates (scf/hr) were not corrected for moisture content and ambient methane concentration, as not applicable.<br>Well 49918 and 12860:<br>For both baseline measurements M1 and M2, all emission rates were within 10% of the calculated average emission rate for each measurement event.<br>Well 52561:<br>For both baseline measurements M1 and M2, 11/12 emission rates were within 10% of the calculated average emission rate for each measurement event.<br>The 12$^{th}$ 10-min interval average for M2 was marginally within 10% of the M2 overall average. |

| Stability Criterion | Assessment |
|---|---|
| 10-minute interval methane emission rates (standard cubic feet per hour, or scf/hr) over the minimum 2-hour stability period, corrected for moisture content (if applicable) and ambient methane concentration, do not vary from one another **by a factor greater than 10.**<br>As clarified by ACR, this should not be assessed interval to interval but should be assessed for the highest and lowest interval averages per measurement event, which cannot vary by more than a factor of 10. | Emission rates (scf/hr) were not corrected for moisture content and ambient methane concentration, as not applicable.<br>All wells<br>For both baseline measurements M1 and M2, all emission rates were within 2x (well within 10x) of the highest and lowest 10-min interval averages for the measurement event. |
| 10-minute interval flowing pressure readings (psi) over the minimum 2-hour stability period fall within **±10% of the average flowing pressure.**<br>The average is calculated as the arithmetic mean of the 10-minute interval methane emission rates (psi) over the minimum 2-hour stability period. Over a 2-hour stability period, a minimum of eleven of the twelve 10-minute interval data points must fall within this bound. If the stability period is longer than two hours, the minimum number of 10-minute interval points that must be within ±10% of the average increases proportionally and rounded up to the nearest whole number (e.g., 17 of 18 data points, 22 of 23 data points, and 22 of 24 data points must be within ±10%). | All wells<br>For both baseline measurements M1 and M2, all average pressure readings (psi) were well within 10% of the calculated average pressure for each measurement event. |
| Methane emission rate from second sampling event must be within **10% of the methane emission rate from the first sampling event.** | Well 49918 and 12860:<br>The calculated average emission rate for M2 was within 1% of the calculated average emission rate for M1.<br>Well 52561:<br>The calculated average emission rate for M2 was within 2% of the calculated average emission rate for M1. |

#### 16.3.1.3 Baseline Emissions

GHD verified that baseline emissions were calculated in accordance with Equation 2 of the Methodology E&C.

Baseline emissions were calculated using the sum of the annual emissions for all wells in the project. The total crediting period duration for the project was just over 21 years, due post-plugging monitoring for wells 52561 and 12860 being completed on 9/13/2024 (just over a year after post-plugging monitoring for well 49918 on 8/9/2023). However, per Equation 2 of the methodology, baseline emissions are to be calculated over a 20-year crediting period, as applicable to crediting period for an individual well in the project. GHD confirmed that baseline emissions were calculated for the length of the 20-year crediting period.

GHD confirmed that the 100-year global warming potential for methane used of 28, was from IPCC AR5, per ACR Standard V8.0.

Recalculation

GHD re-calculated baseline emissions and identified an immaterial discrepancy due to incorrect cell references for the conversion of methane readings into volume % for the well 52561 M2 baseline emissions analysis. Tradewater corrected the discrepancy, no further discrepancies were identified. GHD confirmed that baseline emissions were appropriately reported in the GHG Project Plan and Monitoring Report.

### 16.3.2 SSR 2 – Project Emissions (On-site plugging equipment)

GHD verified that project emissions were calculated in accordance with Equation 3 of the Methodology E&C.

GHD reviewed the invoice dates on Tradewater's 2023 and 2024 fuel usage invoices for proximity to the well plugging dates to confirm that they were associated with plugging operations for the wells in the project. GHD identified that for well 52561, the invoice dates were not close to the plugging date for the well. Tradewater

explained that the invoice dates reflect when a bill was added to ledger and not the day of fuel usage. Furthermore, Tradewater asserted that the fuel invoices may include charges for plugging operations for more than the three wells in the project, due to multiple wells being visited per day for ongoing OOG projects, and that these extra project emissions are deducted in the quantification for project OOG1.

GHD verified that by including fuel usage associated with more than only the wells plugged in the project, the project's project emissions as calculated are expected to be higher than actual and resulting in conservative reporting of emissions reductions.

GHD verified that diesel emission factor used matched the value listed in the E&C (10.49 Kg $CO_2e$/gallon diesel). GHD confirmed that project emissions were not extrapolated over the length of the 20-year crediting period and were calculated once using fuel invoices rendered over the course of plugging activities for the wells.

Recalculation

GHD re-calculated project emissions and identified no discrepancies. GHD confirmed that project emissions were appropriately reported in the GHG Project Plan and Monitoring Report.

### 16.3.3 Emissions Reductions

GHD verified that emissions reductions were calculated in accordance with Equation 5 of the Methodology E&C.

Emissions reductions were appropriately calculated as baseline minus project emissions. GHD verified that the uncertainty deduction of 5% was correctly applied to emission reductions.

GHD confirmed that vintage allocation of the emissions reductions as reported in the Monitoring Report, were based on the plugging dates/post-plugging monitoring periods of the wells as follows:

– 2023 ERs: Associated with well 49918 for which plugging, and confirmation sampling occurred in 2023
– 2024 ERs: Associated with wells 52561 and 12860 for which plugging, and confirmation sampling occurred in 2024

Emissions reductions as reported per vintage, were calculated by subtracting project emissions for the vintage year (2023 or 2024) from baseline emissions for the vintage year and applying deductions.

Recalculation

GHD re-calculated total emissions reductions and identified no discrepancies. GHD confirmed that emissions reductions and deductions were appropriately reported in the GHG Project Plan and Monitoring Report.

GHD confirmed that the emissions reductions by vintage were appropriately reported on the ACR registry, as submitted for validation/verification.

### 16.3.4 Reporting Period Comparison

Orphan well projects only have one reporting period, therefore this is the first and only validation and verification conducted by GHD for the TW OOG1 project.

## 16.3.5 Verification of Monitoring Procedures

### 16.3.5.1 Monitoring Parameter

The following parameters have been monitored by Tradewater during the Project:

*Table 10 Reported Monitoring Parameters in GHG Project Plan and Monitoring Report*

| Parameter | Q measured, i |
|---|---|
| As per Monitoring Report | |
| Units | Scf/hr |
| Description | Field measurement taken during two 2-hour minimum sampling events of volume flow of methane |
| Methodology Section | Errata and Clarification |
| Equation #(S) | A |
| Source of Data | SilversmithHIP6000 flow meter or Alicat mass flow meter |
| Measurement Frequency | Approximately every 5 minutes (Silversmith) or every 10 seconds (Alicat) over the course of two 2-hour-minimum sampling events, simultaneous to methane concentration and pressure |
| As per GHG Project Plan | |
| 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 first passes through a separator where fluid is separated out to prevent anything but gas to flow through the flow meter. For the Alicat setup, the gas first passes through a particulate filter where solids are separated out to prevent anything but gas to know through the flow meter. 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, and Qualified Emissions Measurement Specialist. |
| Responsibilities of Parties Involved | Set up sampling equipment, take measurements, save data, process data |
| Notes | Measured simultaneously with methane concentration and pressure. |

| Parameter | Conc measured, i |
|---|---|
| As per Monitoring Report | |
| Units | % volume |
| Description | Field measurement taken during two 2-hour minimum sampling events of methane concentration |
| Methodology Section | Errata and Clarifications |
| Equation #(S) | B,1 |
| Source of Data | SEM5000 |
| Measurement Frequency | Once every second over the course of two 2-hour-minimum sampling events, simultaneous with methane flow and pressure. |
| As per GHG Project Plan | |
| 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 diffusion box. 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 |
| 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, and Qualified Emissions Measurement Specialist |
| Responsibilities of Parties Involved | Set up sampling equipment, take measurements, save data, process data |
| Notes | Measured simultaneously with methane flow and pressure |

| Parameter | Flowing Pressure |
|---|---|
| As per Monitoring Report | |
| Units | psi |
| Description | Field measurement taken during two 2-hour minimum sampling events of pressure |
| Methodology Section | Errata 11 and 16 |
| Equation #(S) | Equation A |
| Source of Data | Vaetrix |

| Parameter | Flowing Pressure |
|---|---|
| Measurement Frequency | Every 10 seconds over the course of two 2-hour-minimum sampling events, simultaneous with methane concentration and flow |
| As per GHG Project Plan | |
| 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 |
| 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, and Qualified Emissions Measurement Specialist |
| Responsibilities of Parties Involved | Set up sampling equipment, take measurements, save data, process data |
| Notes | Measured simultaneously with methane concentration and flow. |

| Parameter | n |
|---|---|
| As per Monitoring Report | |
| Units | Number of 10-minute intervals from pre-plugging sampling events |
| Description | Averaged from 10 minutes' worth of data to create interval for assessing stability |
| Methodology Section | 4.1.4 |
| Equation #(S) | 1 |
| Source of Data | SEM5000, Silversmith or Alicat, Vaetrix |
| Measurement Frequency | Data is assessed for each parameter twice per project (measurement 1 and 2) |
| As per GHG Project Plan | |
| 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 |

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

| Parameter | W |
|---|---|
| As per Monitoring Report | |
| Units | Wells |
| Description | Number of wells included in the project |
| Methodology Section | Section 4.1 and 5.2; E&C revised Equation 2 |
| Equation #(S) | 2 |
| Source of Data | Documentation may include time-stamped georeferenced data, reports, and/or pictures including pictures of the deployed measurement system, as well as handwritten field notes |
| Measurement Frequency | Throughout project and confirmed prior to verification begins |
| As per GHG Project Plan | |
| 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 |
| Data Uncertainty | Low |
| Monitoring Frequency | Assessed throughout the scope of the project but definitively confirmed prior to the start of Verification. |

| Parameter | W |
|---|---|
| Reporting Procedure | Number of wells confirmed in updated Project Set Up information and asserted in project documents. |
| QA/QC Procedure | The Tradewater team meets frequently to assess the makeup of the project. |
| Data Archiving | All wells investigated, whether they are included in the project or not, are saved to SharePoint indefinitely. |
| Parties Involved | Project Proponent |
| Responsibilities of Parties Involved | Assess eligibility of wells for inclusion in the project. |
| Notes | |

| Parameter | FFj |
|---|---|
| As per Monitoring Report | |
| Units | Gallons |
| Description | Fuel used for plugging activities and considered for project emission deductions |
| Methodology Section | Errata & Clarifications; Section 4.4 |
| Equation #(S) | 3 |
| Source of Data | Plugging company invoice |
| Measurement Frequency | 1/fuel/plugging activity |
| As per GHG Project Plan | |
| Unit of Measurement | gallons |
| Project Implementation | Fuel used for plugging activities and considered for project emission deductions |
| Technical Description of Monitoring Task | The plugging contractor tracks the amount of time each fuel-burning piece of equipment is on site and used in a plugging activity on a day-by-day basis. This time is tracked in invoices, where the plugging contractor describes the amount of field used for the wells in the project. Fuel used is calculated or estimated using the known fuel burn for each piece of equipment. Fuel usage is then aggregated. The project proponent then converts the fuel usage into project emissions by using the working hours of the fossil fuel consuming equipment to calculate the fossil fuel usage based on the fuel consumption rate of each equipment. |
| Data Source | Plugging company invoice |
| Data Collection Procedures | The plugging contractor supplies Tradewater with the fuel invoice. |
| Methodology Reference | Equation 3 |
| Data Uncertainty | Medium |
| Monitoring Frequency | 1/fuel/plugging activity |
| Reporting Procedure | Invoice |
| QA/QC Procedure | The project proponent will accept fuel numbers across multiple sites, even sites not included in the project, to garner the most conservative value for fuel usage in the project. Any discrepancies or errors are discussed with the plugging contractor and rectified. |
| Data Archiving | All invoices, regardless of inclusion in a project or not, are saved to the Tradewater SharePoint indefinitely. |
| Parties Involved | The plugging contractor and Project Developer: Methane Project Development Manager |

| Parameter | FFj |
|---|---|
| Responsibilities of Parties Involved | Invoice working hours of the fossil fuel consuming equipment and calculate the fossil fuel usage. |
| Notes | |

| Parameter | Post-plugging methane screening |
|---|---|
| As per Monitoring Report | |
| Units | ppm |
| Description | Field measurement taken after plugging the well |
| Methodology Section | Errata and Clarifications |
| Equation #(S) | N/A |
| Source of Data | SEM5000 |
| Measurement Frequency | 1/well |
| As per GHG Project Plan | |
| Unit of Measurement | ppm |
| Project Implementation | Field measurement taken after plugging the well |
| Technical Description of Monitoring Task | The QED Landtec SEM5000 Portable Methane Detector is used to measure methane concentration at the ground surface and any portion of the plugged well casing that remains above grade after plugging. In some cases, plugged wells have already been cut off below grade but not yet buried; in this instance, any portion of the casing that is visible is measured. Measurements are taken at ambient pressure and temperature. |
| Data Source | SEM5000 |
| Data Collection Procedures | Data is stored on the instrument software, downloaded to instrument software, and then downloaded into a readable format (Excel) and then transferred to SharePoint. |
| Methodology Reference | Clarifications 3, 4, 8, 13, Errata 16 |
| Data Uncertainty | Low |
| Monitoring Frequency | 1/well |
| Reporting Procedure | Excel download |
| QA/QC Procedure | Raw files are saved and untouched, where data is processed in a separate file. During measurement, at least two team members are responsible for instrument observation and data output monitoring. All processed data is checked by an internal reviewer. |
| Data Archiving | All measurements, regardless of inclusion in a project or not, are saved to the Tradewater SharePoint indefinitely. |
| Parties Involved | Project Developer: Methane Project Development Manager and Emissions Specialist |
| Responsibilities of Parties Involved | Set up sampling equipment, take measurements, save data, process data |
| Notes | |

| Parameter | Pre-plugging: Conc measured, ambient<br>Post-plugging: ambient methane emissions |
|---|---|
| As per Monitoring Report | |
| Units | ppm |
| Description | Field ambient measurement taken before and after plugging the well |
| Methodology Section | Errata and Clarifications |
| Equation #(S) | B |
| Source of Data | SEM5000 |
| Measurement Frequency | Pre-plugging: 1/sampling event<br>Post-plugging: 1/well |
| As per GHG Project Plan | |
| 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 |
| Data Uncertainty | Low |
| Monitoring Frequency | Pre-plugging: 1/sampling event<br>Post-plugging: 1/well |
| Reporting Procedure | Excel download |
| QA/QC Procedure | Raw files are saved and untouched, where data is processed in a separate file. During measurement, at least two team members are responsible for instrument observation and data output monitoring. All processed data is checked by an internal reviewer. |
| Data Archiving | All measurements, regardless of inclusion in a project or not, are saved to the Tradewater SharePoint indefinitely. |
| Parties Involved | Project Developer: Methane Project Development Manager |
| Responsibilities of Parties Involved | Set up sampling equipment, take measurements, save data, process data |
| Notes | Conc measured, ambient = 0 due to direct flow measurements, "*Ambient emissions measurements are not required during pre-plugging sampling events if measurement equipment is directly connected to the leaking well, and therefore not impacted by the ambient methane*." |

### 16.3.6 GHD Review of Monitoring Parameters

GHD reviewed the GHG Project Plan for this Project and determined that the parameters monitored, and the approach taken by the Project Proponent to determine the emission reductions conforms to the ACR Methodology. GHD confirmed that the monitoring parameters listed and described in the GHG Project Plan were appropriately reported in the Monitoring Report as included in Section 16.3.5.1 above. GHD identified that the monitoring frequency of the Landtec methane analyzer was listed as every 10 seconds instead of per second. Tradewater updated the Monitoring Report and Project Plan to apply the correction.

GHD confirmed that the 'non-steady state enclosure-based measurement' associated monitoring parameters as provided in the E&C did not apply to the project and were not included as part of the project's monitoring

parameters. GHD confirmed that all applicable parameters were included and aligned with the unit, source and frequency of monitoring requirements of Table 5.2.1 of the E&C.

## 16.4 Summary of Errors, Omissions, Misstatements or Non-Compliances Identified

Quantitative materiality for GHG emissions reductions for this verification was set at plus or minus 5 percent of the total reported emissions reductions. The quantitative aggregated magnitude of offset errors, omissions, and misstatements for the GHG Project Plan and Monitoring Report is 0 percent, which is less than the materiality threshold of 5 percent.

Materiality was also assessed on a qualitative level, including conformance with the applicable Program and Methodology requirements. No material qualitative non-conformances were identified.

## 16.5 Corrections Made to GHG Project Plan

Tradewater made the following significant changes to the GHG Project Plan during the validation:

- Updated reported baseline emissions and emissions reductions per immaterial discrepancies identified.
- Correction of project total crediting period duration.
- Added table detailing on-site environmental conditions to Section A6 of the GHG Project Plan, per Methodology E&C requirement.
- Updated the applicable temperature and methane density referenced for annual emission calculations.
- Updated monitoring frequency of methane analyzer in monitoring parameter tables.
- Minor updates to Environmental and Social Impact Assessment and Multi-Site Design Document.
- Updated to latest ACR GHG Project Plan template V3.1, GHD confirmed no significant changes.

## 16.6 Corrections Made to Monitoring Report

Tradewater made the following significant changes to the Monitoring Report during the verification:

- Updated reported baseline emissions and emissions reductions per immaterial discrepancies identified.
- Correction of project total crediting period duration.
- Updated monitoring frequency of methane analyzer in monitoring parameter tables.
- Updated Section VIII of Monitoring Report to correct applicable VVB information for the project.
- Updated to latest Monitoring Report template V5.1 for which no significant issues identified.

## 16.7 Follow up on Issues from Previous Validation/Verification

As this is GHD's first validation/verification of the Tradewater OOG 1 project, follow-up from previous validations/verifications is not applicable.

## 16.8 GHG Data and Information

The data and information obtained during the validation and verification is listed in Appendix C.

# 17. Validation and Verification Opinion

GHD has prepared this Validation and Verification Report for Client and Program. Client was responsible for the preparation and fair presentation of the GHG Project Plan dated January 6, 2025, and Monitoring Report dated January 6, 2025, for the Tradewater OOG 1 project in accordance with the Program criteria and

engaging with a qualified third-party validator/verifier to validate and verify the GHG Project Plan and Monitoring Report. Project GHG-related activity is detailed in Sections 7 and 8.

GHD's objective and responsibility was to provide an opinion regarding whether the GHG Project Plan and Monitoring Report for the Project was free of material misstatement and that the information reported is a fair and accurate representation of the operations for the crediting period and reporting period, and accurate and consistent with the requirements of the Program.

The criteria used by GHD for the validation of the GHG Project Plan and verification of the Monitoring Report is detailed in Section 5. GHD completed the validation of the GHG Project Plan and verification of the Monitoring Report in accordance with ISO 14064-3:2019. GHD completed the verification to a reasonable level of assurance.

## 17.1 Validation Conclusion

Based on the validation procedures undertaken, it is GHD's opinion that the GHG Project Plan is materially correct and is a fair and accurate representation of the Project, that the GHG Project Plan was prepared in accordance with the Program and that the Project meets the Program requirements.

## 17.2 Verification Conclusion

Client reported **457,725 tonnes $CO_2e$** as the total emissions reductions for the crediting period for the Project. This includes the GHG emissions reductions resulting from **August 9, 2023 – September 12, 2044**. The quantitative aggregated magnitude of errors, omissions, and misstatements is discussed in Section 16.

Based on the verification procedures undertaken to a reasonable level of assurance, it is GHD's opinion that the GHG Project Plan and Monitoring Report are materially correct and is a fair and accurate representation of the Project's total attributable emissions reductions for the crediting period; and that the GHG Project Plan and Monitoring Report was prepared, and emissions reductions were quantified in accordance with the Program.

This Opinion is effective as of the date of this Validation and Verification Report.

The Validation and Verification Opinion is provided as Appendix D.

# 18. Limitation of Liability

Because of the inherent limitations in any internal control structure, it is possible that fraud, error, or non-compliance with laws and regulations may occur and not be detected. Further, the validation and verification were not designed to detect all weakness or errors in internal controls so far as they relate to the requirements set out above as the validation and verification has not been performed continuously throughout the period and the procedures performed on the relevant internal controls were on a test basis. Any projection of the evaluation of control procedures to future periods is subject to the risk that the procedures may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

This validation and verification were based on a risk-based approach that follows rigorous methodology with the expectation that it will capture the majority of errors with the potential for a material misstatement. However, GHD does not warrant or guarantee that all errors or omissions, including material issues, made by Client in its Report and/or assertion were identified by GHD.

The validation and verification opinion expressed in this report has been formed on the above basis.

GHD's review of the GHG Project Plan and Monitoring Report included only the information discussed above. While the review included observation of the systems used for determination of the GHG Project Plan and Monitoring Report, GHD did not conduct any direct field measurements and has relied on the primary measurement data and records provided by Client as being reliable and accurate. No other information was

provided to GHD or incorporated into this review. GHD assumes no responsibility or liability for the information with which it has been provided by others.

The information and opinions rendered in this report are exclusively for use by Client. GHD will not distribute or publish this report without Client's consent except as required by law or court order. The information and opinions expressed in this report are given in response to a limited assignment and should only be evaluated and implemented in connection with that assignment. GHD accepts responsibility for the competent performance of its duties in executing the assignment and preparing this report in accordance with the normal standards of the profession but disclaims any responsibility for consequential damages.

Should you have any questions on the above, please do not hesitate to contact us.

Regards

**Gordon Reusing**
Lead Validator/Verifier

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Encl.

Copy to: Angela Kuttemperoor, Validator/Verifier
Elnaz Senobari Vayghan, Validator/Verifier

# Appendices

# Appendix A

## Verification Plan

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**www.ghd.com**

**Our ref:** 12636696-LTR-1-Rev2

**09 January 2025**

**Ms. Gina Sabatini**
**Manager of Verification and Logistics**
**Tradewater, LLC**
**1550 W. Carroll, Suite 213**
**Chicago, Illinois**
**60607**

**Validation and Verification Plan**
**Tradewater OOG 1 (ACR894), Tradewater, LLC, Indiana, United States, under ACR**

Dear Ms. Sabatini

# 1. Introduction

Tradewater, LLC (Client) retained GHD Services Inc (GHD) to undertake a validation and verification of the Tradewater OOG 1 (Project) for the August 9, 2023 – September 12, 2044, crediting period and August 9, 2023 – September 13, 2024 reporting period. GHD understands that the Project involves two (2) wells located in Dubois County and one (1) well located in Boone County of Indiana, United States and follows the requirements of ACR (Program). The Project is listed under the Program ID: ACR894.

The Program requires the validation of the Greenhouse Gas Project Plan (GHG Project Plan) for each crediting period and verification of the Monitoring Report (Monitoring Report) for each reporting period by an independent third-party accredited under *ISO 14065 Greenhouse Gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition* (ISO 14065). GHD Limited is accredited by the ANSI National Accreditation Board (ANAB) under ISO 14065 as a greenhouse gas validation and verification body (VVB).

GHD has prepared this Validation and Verification Plan in accordance with ISO Standard *ISO 14064 Greenhouse gases - Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions* (ISO 14064-3:2019) and with the Program requirements.

# 2. Validation and Verification Objective

The objective of the validation is to provide Client and the Program with an opinion on whether the GHG Project Plan for the crediting period is free of material misstatement and that the information reported is accurate and consistent with the requirements of the Program.

The objective of the verification is to provide Client and Program with an opinion on whether the Monitoring Report for the reporting period is free of material misstatement and that the information reported is accurate and consistent with the requirements of the Program.

# 3. Level of Assurance

The ACR Validation and Verification Standard does not specify a level of assurance for validation.

The verification will be conducted to a reasonable level of assurance.

Reasonable assurance is a high but not absolute level of assurance. Reasonable assurance provides a high level of confidence to intended users of verification opinions that the stated information is accurate and complete. If a verification opinion can be provided, it will be worded in a manner similar to "Based on our verification, the GHG emissions assertion is, in all material aspects, in accordance with the approved quantification methodologies."

The validation and verification opinions will be provided in the ACR Validation and Verification Opinion standard form, Version 1.1, dated October 20, 2023. As per ACR requirements, if a validation or verification opinion can be provided, the opinion type will be specified as either positive or negative.

# 4. Validation and Verification Standards

For the validation and verification, GHD will apply ISO 14064-3:2019 and the Program validation and verification standards.

# 5. Validation and Verification Criteria

GHD will apply the following validation and verification criteria:

– ISO 14064 Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements, ISO, April 2019 (ISO 14064-2)
– ISO 14064 Greenhouse gases – Part 3: Specification with guidance for the verification and validation of greenhouse gas statements, ISO, April 2019 (ISO 14064-3)
– IAF Mandatory Document for the Use of Information and Communication Technology (ICT) for Auditing/Assessment Purposes: Issue 2, Version 4, International Accreditation Forum, Inc., June 2023 (IAF MD 4: 2023) *
– The ACR Standard: Requirements and Specifications for the Quantification, Monitoring, Reporting, Verification, and Registration of Project-Based GHG Emissions Reductions and Removals, ACR, Version 8.0, dated July 2023 (ACR Standard)
– ACR Validation and Verification Standard Version 1.1, ACR, dated May 2018 (ACR VV Standard)
– ACR 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, ACR, Version 1.0, dated May 2023 (Methodology)

– Errata and Clarifications: ACR 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, ACR, dated 2024-09-13 (E&C) *

Note:

* - Denotes change from Proposal

# 6. Validation and Verification Team & Independent Reviewer

## 6.1 Roles, Responsibilities & Qualifications

| Lead Validator/Verifier/Technical Expert | |
|---|---|
| Name | Gordon Reusing, P. Eng., M.Sc. |
| Role | The lead validator/verifier will lead the validation/verification and is responsible for development of the validation/verification plan. The lead validator/verifier will review the risk assessment and evidence gathering plan, recalculation of raw data, data management and draft findings. The lead validator/verifier will prepare and sign the validation/verification statement and validation/verification report. The lead validator/verifier will conduct an in-person site visit of the Project site. |
| Qualifications | Mr. Reusing is a greenhouse gas (GHG) Lead Verifier, Lead Validator, and Peer Reviewer with extensive experience including GHG programmes in Alberta, British Columbia, Saskatchewan, Ontario, Quebec, Nova Scotia, California, and programmes operated by the United Nations Framework Convention on Climate Change (UNFCCC) Clean Development Mechanism (CDM), The Gold Standard, The Climate Registry (TCR), the Carbon Disclosure Project (CDP), and Verra: Verified Carbon Standard (VCS). He has completed numerous GHG quantification studies for the oil and gas sector, including upstream, midstream and downstream facilities. Mr. Reusing has conducted GHG verifications as a Lead Verifier, Technical Expert and Peer Reviewer in many jurisdictions, including, but not limited to, British Columbia, Alberta, Ontario, Quebec, and Nova Scotia. |

| Validator/Verifier | |
|---|---|
| Name | Angela Kuttemperoor, E.I.T. |
| Role | The validator/verifier will develop and revise the validation/verification plan and evidence gathering plan, develop a risk assessment, recalculate raw data, review management of data, and prepare draft findings and the draft validation/verification report. |
| Qualifications | Ms. Kuttemperoor is an Air Engineer-In-Training with GHD's Greenhouse Gas Assurances Services Team and has 3 years of experience in greenhouse gas verification work. Ms. Kuttemperoor has a Bachelor of Environmental Engineering from the University of Guelph. Ms. Kuttemperoor has experience as a verifier under the Ontario Emissions Performance Standards program and federal Output-based Performance Standards program. Ms. Kuttemperoor has expertise in voluntary offset project validations and verifications conducted under the Climate Action Reserve, American Carbon Registry and Verified Carbon Standard for landfill gas destruction and ozone-depleting substances destruction projects.<br>Ms. Kuttemperoor has experience with compliance offset verifications for ozone-depleting substances conducted under the California Air Resources Board. Ms. Kuttemperoor has experience in verifications conducted under the Carbon Offsetting and Reduction Scheme for International Aviation. |

| Validator/Verifier | |
|---|---|
| Name | Elnaz Senobari Vayghan, E.I.T., M.Sc. |
| Role | The validator/verifier will develop and revise the validation/verification plan and evidence gathering plan, develop a risk assessment, recalculate raw data, review management of data, and prepare draft findings and the draft validation/verification report. |
| Qualifications | Ms. Senobari is an Air and Climate professional with GHD based in Vancouver office and is a member of the air and greenhouse gas department. She graduated with a Masters degree in Chemical and Petroleum Engineer with specialization in Energy and Environmental Systems from the University of Calgary. She has extensive knowledge and experience in GHG quantification and verification in various sectors, including the oil and gas, mining and material production, and upgrading and refining sectors. She has experience being involved in carbon offsets projects and emission reduction projects in oil and gas and land use sector. She has been involved with reporting under the Greenhouse Gas Industrial Reporting and Control Act in British Columbia, The Management and Reduction of Greenhouse Gases in Saskatchewan and the Environmental Protection and Enhancement Act (APEA) as well as the Technology Innovation and Emissions Reduction (TIER) regulation in Alberta. She also has been involved with federal reports with NPRI, MSAPR, and SGRR. |

| Independent Reviewer/Technical Expert | |
|---|---|
| Name | Sean Williams, P. Eng. |
| Role | The independent reviewer will conduct an independent review of the risk assessment, evidence gathering plan, working papers, verification plan, verification report, and findings. The independent reviewer will approve the issuance of the opinion. |
| Qualifications | Mr. Williams is a Project Manager, GHG Lead Verifier and Technical Expert and with over 10 years of experience in environmental consulting and is a licensed Professional Engineer in the provinces of Alberta, Saskatchewan and Ontario. Mr. Williams has experience in completing greenhouse gas verifications, permit applications, air and noise compliance assessments, completion of annual inventory reports under various voluntary, provincial and federal regulations across Canada. Mr. Williams is an accredited lead verifier under the California Air Resources Board and Oregon Department of Environmental Quality. Mr. Williams has significant air and GHG expertise in a variety of industrial sectors, including oil sands extraction and upgrading, refineries, chemical plants, mining and mineral production, power generation facilities, waste management and metals production. Mr. Williams serves as the Greenhouse Gas Assurances Services (GGAS) Manager for GHD's ANAB accreditation. |

# 7. Project Description

The Project involves plugging of the following orphan oil and gas wells located in Indiana, United States:

– Two (2) commercial gas wells (permit # 49918 and 52561) located in Dubois County, plugged during 2023:
  - Listed on April 2023 Indiana DNR Orphan Well list with status 'Revoked'
– One (1) non-commercial gas well (permit # 12860) located in Boone County, plugged during 2024:
  - Listed on April 2023 Indiana DNR Orphan Well list with status 'Orphaned'

Per the ACR Orphan Well Plugging Methodology, the baseline scenario involved methane emissions released into the atmosphere in the absence of the requirement by any party to plug the well and prevent the release of emissions. The Project condition involved emissions released from the combustion of fossil fuels from mobile equipment during plugging operations. Indiana Department of Natural Resources (DNR) confirmed that all wells associated with project TW OOG1 listed above were orphaned, having no solvent or designated operator and that the Indiana DNR maintains oversight of the wells, however, do not have mandate to plug the wells. Tradewater Well Services, LLC was granted approval from the State to plug the well in accordance with Indiana well plugging requirements and documented in the Indiana well Plugging Plans and Report.

Baseline pre-plugging measurements were taken using a direct flow measurement method which requires a direct connection to the wellhead to take flow, methane and pressure readings. The measurement method was approved by ACR as documented in the approved Methane Measurement Method Approval Form (MMMAF). A deviation regarding the timing of submission of the MMMAF was approved. Baseline emissions were quantified using the chosen 2-hour stability period for each well. Fossil fuel usage for project emission quantification were determined using fuel invoices for plugging operations in 2023 and 2024. Post-plugging confirmation sampling of the wells confirmed that methane concentrations were no more than 2ppm above ambient methane levels post-plugging. In accordance with the Methodology, emissions reductions were claimed over the 20-year crediting period per well. Tradewater Well Services, LLC transferred ownership of all credits to Tradewater, LLC through a Transfer of Rights agreement.

## 7.1 Client Contact

Ms. Gina Sabatini (Manager of Verification and Logistics) is GHD's Client contact for this validation and verification.

# 8. Validation and Verification Scope

The following sections describe the scope of the validation and verification.

## 8.1 Project Boundary

The Project is broken down into the following greenhouse gas Sources, Sinks and Reservoirs (SSRs) to be included, as defined in the Program's Protocol:

***Table 8.1 Methodology Requirements***

| SSR | | Source Description | GHG | Baseline (B) Project (P) | Included (I) or Excluded ( E) |
|---|---|---|---|---|---|
| 1. | Orphan O&G wells that emit methane | Emissions from orphan wells | $CH_4$ | B | I |
| 2. | Plugging Operations (Equipment) | Emissions from mobile mechanical equipment for plugging | $CO_2$<br>$CH_4$<br>$N_2O$ | P | I |

## 8.2 Geographical and Operational Boundaries

The validation and verification will include the SSRs from the Project which may include up to eight (8) of the wells listed below and located at the following addresses in Indiana, United States.

| Well ID | County | Geographic Coordinates |
|---|---|---|
| 49918 | Dubois | 38.27487, -86.893 |
| 52561 * | Dubois | 38.234, -87.027 |
| 12860 * | Boone | 40.083, -86.307 |

Note:

* - Denotes change from Proposal

## 8.3 Reporting and Crediting Period

The start date for the Project is August 9, 2023. The crediting period for this validation for the Project is from August 9, 2023 – September 12, 2044.

The reporting period for this verification for the Project is from August 9, 2023 – September 13, 2024.

## 8.4 Use of this Report

The validation and verification report will be prepared for the use of Client and the Program.

References from GHD's Validation and Verification Report must use the language in which the opinion was issued, and reference the date of issuance of GHD's Validation and Verification Report, the applicable validation and verification period and the associated program for which the validation and verification was conducted. The GHG assertion provided by GHD can be freely used by Client for marketing or other purposes other than in a manner misleading to the reader. The GHD mark shall not be used by Client in any way that might mislead the reader about the validation and verification status of the organization. The GHD mark can only be used with the expressed consent of GHD and then, only in relation to the specific time period validated and verified by GHD.

## 8.5 Use of Information and Communication Technology

As part of the validation and verification process, GHD may utilize information and communication technology (ICT) in accordance with IAF Mandatory Document for the use of Information and Communication Technology for Auditing/Assessment Purposes (IAF MD 4:2023) for various aspects of the validation and verification, including conducting video/tele-conferencing with various personnel up to full virtual site visits.

The decision to use ICT is permissible if GHD and Client agree on using ICT. The agreed ICT method will be MS Teams, Skype, Zoom, Google Meet, or Webex. By accepting GHD’s proposal, Client agreed to the use of the afore mentioned ICT methods and their associated information security, data protection and confidentiality measures. Any other ICT method(s) will be agreed to in writing (email) between GHD and Client prior to use. The parties will not agree to the use of an ICT method which either party does not have the necessary infrastructure to support. Throughout the entire validation and verification process, including use of ICT, GHD will abide by the confidentiality procedures.

# 9. Site Visits

## 9.1 Site Visit Requirements

As all OOG Project validation/verifications require a site visit as per the Program and as this is the first validation and verification conducted by GHD for the Project, GHD must conduct an in-person site visit to the Project Site. GHD will visit plugged well 49918 and witness post-plugging monitoring procedures and un-plugged well 12860 during baseline measurement 2.

## 9.2 Site Visit Agenda

The site visit, if applicable, will generally adhere to the following agenda. Deviations from the proposed agenda may be necessary to respond to data gaps and or issues identified during the validation and verification process:

– Opening Meeting - Introduction and sign in, safety review, and overview of validation and verification process and expectations (key personnel need to be present).

– Overview of emissions processes at the Project site, including description of key emission sources and a facility walkthrough.
– Assessment of eligibility and additionality criteria against the Project and Project boundary.
– Review of monitoring practices, quality control and quality assurance procedures, GHG data and emission calculations, and any activities that have a potential to impact materiality.
– Review of meter calibration certificates and accuracy specifications for key meters.
– Interviews with key personnel and review of data acquisition process from meter through distributed control system or transcription and data entry, as applicable.
– Walkthrough to view Project boundaries, physical infrastructure, and equipment and measuring devices.
– Closing Meeting – Review issues identified and next steps.

# 10. Validation and Verification Schedule

The following presents a draft validation and verification schedule. The overall validation and verification process is expected to take approximately 8 months.

– Submit Validation and Verification Plan to Client – March 28, 2024
– Validation of GHG Project Plan – April - November 2024
– Data checks and recalculations of Monitoring Report – April - November 2024
– Site Visit – Well 49918 on April 25, 2024, and well 12860 on May 31, 2024
– Review of data management, document retention and record keeping program – April - November 2024
– Submit issues log to Client and opportunity for Client to address issues and, if required, resubmit GHG Project Plan/Monitoring Report – April - November 2024
– Independent review by Independent Reviewer – November 2024
– Issue Draft Validation and Verification Report and Opinion – November 2024
– Issue Final Validation and Verification Report and Opinion – January 2025

# 11. Strategic Analysis

To understand the activities and complexity of the Project, and to determine the nature and extent of the validation and verification activities, GHD has completed a strategic analysis. The strategic analysis involves consideration of the details of the Project Site and its operations, the GHG Project Plan and Monitoring Report and its preparation, and the validation and verification requirements per the Program. The information considered in the strategic analysis is documented in GHD's working papers and was used to inform the assessment of risks and the development of an evidence gathering plan.

# 12. Assessment of Risk and Magnitude of Potential Errors, Omissions or Misrepresentations

GHD conducted an assessment of the risk and magnitude of potential errors, omissions or misrepresentations associated with the GHG Project Plan assertion and Monitoring Report statement. GHD then identified areas where qualitative or quantitative errors could occur and assigned risks to the areas. The inherent and control

risks were evaluated, and detection risks were established. The risks were identified as high, medium and low. The risk assessment was a key input to developing an effective evidence gathering plan.

# 13. Evidence-Gathering Plan

GHD has developed an Evidence Gathering Plan (EGP) for internal use based on review of the objectives, criteria, scope, and level of assurance detailed above, along with consideration of the strategic analysis and assessment of risks. The EGP is designed to lower the validation and verification risk to an acceptable level and specifies the evidence (data and information) that will be reviewed as part of the validation and verification in the evidence gathering activities. The EGP was reviewed and approved by the Lead Validator and Verifier prior to issuing this validation and verification plan. The EGP is dynamic and will be revised, as required, throughout the course of the validation and verification. Any modifications to the EGP will be reviewed and approved by the Lead Validator and Verifier, with the final EGP to be completed prior to issuing the final validation and verification report and opinion.

# 14. Quantitative Testing

Quantitative data or raw data will be made available to GHD.

Where possible, GHD will use the data to check conformance of the Project with the Program's Protocol requirements. Where data is not available, GHD will conduct a qualitative assessment and assess that the methodologies used in the development of the GHG Project Plan conform to the Program's applicable Protocol.

GHD will use the data to recalculate and check the GHG emissions reductions calculations and assess the methodologies that were used in the development of the Monitoring Report.

# 15. Materiality Level

The quantitative materiality for this verification is set at 5 percent of the reported emissions reductions, as per the requirements of the Program. In addition, a series of discrete errors, omissions, or misrepresentations of individual or a series of qualitative factors, when aggregated, may be considered material. Individual and aggregation of errors or omissions greater than ±1% but less than ±5% will be qualified in the Verification Opinion but do not require restating.

Materiality will be assessed on a qualitative level, including conformance with the applicable Program and Protocol requirements. Non-conformance with Program requirements may be considered a material error unless the Program provides a deviation.

# 16. Validation and Verification Methodology

The following provides a general overview of the validation and verification methodology that will be conducted.

**Conflict of Interest (COI) and Independence**

GHD has undergone a thorough evaluation for conflict of interest (COI) and independence for this validation and verification work. This included a review of other potential work conducted by GHD for Client and Project

listed in the scope of work. We have confirmed that this validation and verification work can be successfully completed without undue risk of impartiality and conflict of interest. We have assessed the following key aspects:

– Validation evaluation
– Verification evaluation
– Team evaluation

GHD has rigorous COI and validator and verifier competency evaluation procedures that are followed for every validation and verification project. Our documented procedures ensure that all COI and independence criteria are properly evaluated. GHD's COI program ensures that both the company and the Project Team have no potential COIs.

GHD has also evaluated and approved our Validation and Verification Team's competencies. GHD sets competency requirements in terms of education, validation and verification experience, and experience in the sector. GHD can attest that we have highly qualified staff with the appropriate technical expertise for the validation/verification work.

**Kick-Off Call**

Upon award of the contract, GHD will conduct a kick-off call between Client and the GHD project team to review the validation and verification process and objectives, Project operations, project schedule, site visit schedule and information requests.

**Risk-Based Approach**

The GHD Project Team will use a risk-based assurance approach to focus and to determine the detailed scope of the validation and verification.

The key risks associated with the GHG Project Plan and GHG emission estimates are the elements that are critical for ensuring that the GHG Project Plan/an inventory is free of material misstatements:

– Based on the information provided in the GHG Project Plan and Monitoring Report, the GHD Project Team will identify the key risks associated with the assumptions and claims made, and the data sources used.
– The completeness, conservativeness, and accuracy of the underlying evidence for the assumptions/claims made, and data sources used, will be reviewed. Assumptions/claims and data sources that are well identified and discussed in the report, that are substantiated with information from reliable references, and which are sufficiently controlled through the QA/QC plan should thus be given less emphasis because of a lower level of risk.
– The results of this investigation shall then, together with the results of the review of other areas, give the necessary input for the validation and verification opinion.

Risks can be classified in risk categories (e.g., High, Moderate, and Low). A risk may be high, moderate or low depending on the issue's potential to cause a misstatement of the emissions. In addition, a non-compliance with Regulation can form a high-risk situation.

GHD has extensive experience in risk assessments. The classification of risk as high, moderate or low is largely subjective and will require the GHD Project Team's expert judgement. The designated GHD Lead Validator/Verifier has a thorough understanding of the risks and uncertainties applicable to the assignment.

If an issue is classified as high risk, appropriate Project staff shall clarify the situation, explain how the risk is reduced, and provide more information.

**Documentation Review and Emissions Reductions Recalculations**

GHD will review the information provided for the GHG Project Plan and will assess the validation. GHD will assess validation requirements determine whether there are any material issues.

GHD will review the information provided for the Project and will conduct recalculations of the baseline, project emissions and emissions reductions. GHD will assess the quantitative discrepancy based on the recalculations and determine whether there are any material issues.

The components of the document review and follow-up interviews are detailed below.

– Document Reviews:
  - Review of data and information to confirm the correctness and completeness of presented information.
  - Cross-checks between information provided in the GHG Project Plan and Monitoring Report and information from independent background investigations.
  - Determine sensitivity and magnitude analysis for parameters that may be the largest sources of error.
  - Comparison of reported emissions and emissions reductions with previous reporting period(s).
  - Assess compliance with all Program validation requirements.
– Follow-up Interviews:
  - On-Site
  - Head office visit
  - Via telephone
  - Via email

The document review shall establish to what degree the presented GHG Project Plan and Monitoring Report documentation meets the validation and verification standards and criteria.

The GHD Project Team will interview Project staff in order to:

– Crosscheck information provided
– Review data management and recording procedures
– Test the correctness of critical formulae and calculations

GHD will complete data checks from the data source(s) (meter, scale, etc.) through the plant data management system to the Monitoring Report. A sample of raw data will be collected for recalculation. Should errors or anomalies be identified that could lead to a material misstatement, GHD will request further raw data samples to assess the pervasiveness of the errors or anomalies. GHD will identify the source and magnitude of data or methodology errors or anomalies but, as a VVB, GHD cannot provide solutions to issues identified.

**Issues Communications**

During the course of the document review and interviews, questions and clarifications may be identified by the Project Team; these will be communicated with Client either verbally, by email, or in an Issues Log. Client and/or Project staff will have an opportunity to respond to identified issues prior to the completion of GHD's draft and final validation and verification reports. Material issues identified by GHD must be corrected by Client. It is expected that Client and/or Project Owner will respond promptly to issues raised by GHD. Extensive correspondence to address issues that require additional effort from GHD may result in extra costs to the validation and verification and will be discussed with Client.

**Independent Review**

GHD will conduct an independent review of the validation and verification, which will include a review of findings, emission calculations and opinion developed by the validation and verification team.

**Documentation and Deliverables**

GHD will prepare the following deliverables to document the validation and verification services provided:

– ACR-specific COI form
– Statement of Qualification (included in this proposal)
– Validation and Verification Plan (prior to site visit and after receiving relevant information)
– Draft Validation and Verification Report
– Final Validation and Verification Report
– Validation and Verification Opinion (included in Validation and Verification Report and using ACR Validation and Verification Opinion Template)

**Support of Validation and Verification Report Findings**

GHD will support and uphold the findings of the validation and verification if the report is subject to an audit by the Program. If the Program requires follow-up information that is determined to be significant in nature or outside of the original scope of work, GHD may require additional budget to cover the response(s).

## 16.1 Validation Activities

The following outlines the validation activities that may be conducted as part of in GHD's validation process, in alignment with the Program-specific validation requirements.

***Information/Records to be Reviewed***

Information/records to be reviewed by GHD include the following:

– GHG Project Plan
– Operational and control procedures and records for ensuring GHG data quality
– Documentation of GHG Sources, Sinks and Reservoirs
– Documentation of quantification methodology
– Documentation of monitoring and measurement systems

**Validating Project Boundaries**

GHD will validate the Project boundaries outlined in the GHG Project Plan which will include the following:

– Physical or geographic boundaries
– GHG assessment boundary
– Temporal boundary

**Validating Project Baselines**

GHD will confirm that the baseline applied by the project proponent in the GHG Project Plan is appropriate per the applicable Program methodology. GHD will ensure there is verifiable data for the baseline scenario, including selection rationale and justification, that the required guidance was followed for baseline and project emissions estimation, and that there is consistency across post-baseline year project emissions calculations.

**Validating Additionality**

GHD will evaluate the components of the appliable Program additionality demonstration, which may include, for example:

– Regulatory Surplus Test
– Performance Standard Test
– Legal Compliance Test
– Financial Test

**Validating Quantification Methods**

GHD will validate the following:

– The required Program quantification method for each data parameter is clearly defined, and supporting documentation provided is adequate to support the level of assurance required.
– The methods are appropriate for accurately quantifying each data parameter based on the required level of assurance.
– The methods are applied consistently to develop estimates of emission reductions and removal enhancements.
– The principle of conservativeness is applied.

**Validating Other Project Criteria**

In addition to the above, GHD will review the following components within the GHG Project Plan:

– Start date
– Crediting period
– Minimum project term
– Offset title
– Impermanence and risk mitigation
– Leakage
– Environmental and community impacts
– Double issuance, double selling, and double use of offsets
– Project participating in other offset programs

## 16.2 Verification Activities

The following sections outline the activities that may be included in GHD's verification process.

***Information/Records to be Reviewed***

Information/records to be reviewed by GHD include the following:

– Monitoring Report
– GHG Assertion
– Operational and control procedures and records for ensuring GHG data quality
– Documentation of GHG Sources, Sinks and Reservoirs
– Documentation of quantification methodology
– Documentation of monitoring and measurement systems

***Data Assessment and Management Systems***

GHD will review data assessment and management system documentation that describes the process of data collection, entry, calculation and management. GHD will review the following:

– Selection and management of GHG data and information
– Processes for collecting, processing, aggregating, and reporting
– Systems and processes to ensure accuracy
– Design and maintenance of the GHG data management system, including systems and processes that support it

GHD will assess the effectiveness of the data assessment and management system and determine areas of risk.

***Collection of Evidence***

GHD will collect physical, documentary, and testimonial evidence to verify the Project.

***Error Checking/Testing***

GHD will independently calculate the final emission reductions using Client's raw data to ensure that the correct methodology and raw data was used.

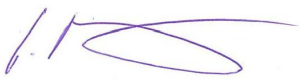
During the verification process, GHD will consider both quantitative and qualitative information on emission reductions. Quantitative data is comprised of the Monitoring Report and supporting data. Qualitative data is comprised of information on internal management controls, calculation and transfer procedures, frequency of emissions reports, and review and internal audit of calculations/data transfers.

# 17. Closure

The Validation and Verification Plan is considered to be a dynamic document that may require modification and adaptation to project conditions as encountered during the completion of the validation and verification process.

All of Which is Respectfully Submitted,

GHD



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Encl.

Copy to: Sean Williams, Independent Reviewer, GHD

# Appendix B

## Issues Log

# Issues Log

***Exported Copy***

**Revision** 8 - closed
**Date** November 12, 2024

| | |
|---|---|
| **Project Number** | 12636696 |
| **Program-Specific Project ID** | ACR894 |
| **Client** | Tradewater, LLC |
| **Facility Name** | Tradewater OOG 1 |
| **Regulation / Program** | ACR |
| **Reporting Year** | 2023-08-09 to 2024-09-13 |

| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| 1 | Note that Evidence for Eligibility description in Table 1 for Well Classification requirement does not indicate well status for each well per IDNR Orphan Well List eg. 'Revoked' or 'Orphaned' and does not describe how Tradewater determined that these statuses are associated with a no solvent/designated operator.<br><br>Please provide a communication from the State that confirms that well 49918 and 52561 listed as Revoked, is Orphaned and has no solvent operator (similar to what was provided for OOG2).<br><br>In addition, it would be beneficial to include additional evidence that the wells 49918 and 52561 do not have a solvent operator based on company records (i.e. company is insolvent/bankrupt etc.). | An attestation from IN DNR under file name "Attestation IN DNR OOG 1_Signed" has been added to the folder and corroborates the fact that none of the wells included in the Project have a solvent operator. | Closed |
| 2 | Transfer of Rights Agreement between Tradewater Well Services, LLC and Tradewater, LLC provided, is for OOG 2. A new Transfer of Rights Agreement is required for the OOG 1 wells. | The agreement is general and applicable to both projects, but the appendix has been removed to avoid confusion. The specific land access agreements can be found in the same folder as the agreement between Tradewater Well Services, LLC and Tradewater LLC. | Closed |
| 3 | The crediting period for the Project per E&C requirement #4, is the maximum duration of the crediting period considering all wells in the project and is from the reporting period start date until the (reporting period end date + 20 years) which is 8/9/2023 - 9/12/2044. This should be updated throughout the GHG Project Plan and Monitoring Report.<br><br>Please note however that the Methodology only allows 20 years of credits for each well. | The crediting period has been updated across all relevant documents. | Closed |
| 4 | Please provide the signed Well Plugging Reports for well 52561 and 12860 as it is not found on the IDNR Well Records Viewer. | These have been added to their respective folders. | Closed |
| 5 | Please provide documentation of ACR's approval of the deviation relating to submitting the MMMAF out-of-sequence. | ACR approved the deviation on 11/11/2024 and a copy of the approved version was added to the "Deviation" folder. | Closed |
| 6 | **The following typographical issues/clarifications were identified in the GHG Project Plan:** | | |
| a | Note that throughout document the following text referring to regulatory body is not capitalized: 'state'. | This has been corrected. | Closed |
| b | Note that throughout document the methane measurement approval form is not referenced using its actual title: 'Methane Measurement Method Approval Form' and associated abbreviation 'MMMAF'. | This has been updated. | Closed |

# Issues Log

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| | |
|---|---|
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| **Reporting Year** | 2023-08-09 to 2024-09-13 |

| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| *Section A5* | | | |
| c | Text states: "... and V1.0 Errata and Clarifications (2024-09-13) are included below."<br><br>Note that the text incorrectly associates 'V1.0' with the E&C version, where the 'V1.0' as included in the E&C refers to the Methodology version number, as clarified by ACR. | V1.0 has been removed. | Closed |
| d | Note that Evidence for Eligibility description in Table 1 for Emission Status requirement refers to pre-plugging measurements rather than leakage measurements for evidence of leakage. | This has been corrected. | Closed |
| e | Note that Evidence for Eligibility description in Table 1 for Well Classification requirement has typo "The were registered" instead of "they". | This has been corrected. | Closed |
| f | Note that Requirement description in Table 1 for Reporting Period requirement does not indicate that references to 'Section 4.7' are from the Methodology. | This has been updated. | Closed |
| g | Note that Evidence for Eligibility description in Table 1 for Reporting Period requirement does not describe how reporting period for the Project conforms with methodology/E&C reporting period description. | This has been updated. | Closed |
| h | Note that Evidence for Eligibility description in Table 1 for Start Date requirement, does not indicate that start date aligns with the first occurance of post-plugging montioring for a well in the project (which happens to align with the first well plugged in the project). | This has been updated. | Closed |
| i | Note that plugging date confirmation as included in Evidence for Eligibility description in Table 1 for Start Date requirement, is not as relevant for start date and may be better located in the Permanence section of Table 1 or Regulatory Compliance section of Table 2, with reference to the plugging date being confirmed by the INDR through the Well Plugging Report. | This has been updated. | Closed |
| j | Note that Regulatory Compliance requirement of Table 2 does not indicate that well-plugging follows State-approved Plugging Plan and was witnessed by DNR. As applicable to the wells, further information may be included. | This has been adjusted and further elaborated. | Closed |
| k | Some instances of text: "...provided in the included Monitoring Report".<br><br>As Monitoring Report is not included within GHG Plan, may clarify this text. | One instance has been removed, however the other in section A9 was kept in to address the specific Aggregration requirements outlined in the ACR Standard V8.0. | Closed |
| l | Note that Requirement description in Table 1 for Crediting Period requirement does not align with E&C description for the maximum allowable duration of the crediting period for the Project. | This has been clarified. | Closed |
| m | Note that Evidence for Eligibility description in Table 1 for Crediting Period requirement does not indicate the crediting period is also found in the GHG Project Plan, as included for Reporting Period description. | The text has been changed to clarify the exact crediting period. | Closed |

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| | |
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| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| n | Note that Table 1 Requirement ' Regulatory Surplus Test (E&C 2b)' is the only requirement from the table that includes a separate reference to the E&C, however other Requirements modified by the E&C do not include reference to E&C. May consider combining Requirements 'Regulatory Surplus Test (Section 3.2.1)' and ' Regulatory Surplus Test (E&C 2b)' into one Requirement. | These two sections have been consolidated. | Closed |
| o | Please note that Evidence for Eligibility description in Table 1 for Independently validated and Independently verified requirements are not completely consistent. May update to be consistent with each other. | The two sections are now consistent. | Closed |
| p | Please attach all Appendices to the final submitted GHG Plan upon validation/verification conclusion, as appendices are referenced within the document. | Appendices have been attached. | Closed |
| *Section A6* | | | |
| q | Note that caption for Table 3 "Project well" is not plural to indicate more than one well. | This has been corrected. | Closed |
| r | Note that signficant digits for geographic coordinates of well location are not consistent for all wells. | This has been made consistent. | Closed |
| s | Box outline found at the bottom of page 8. | Tradewater does not see this outline but removed and replaced the image in an effort to correct any issues. | Closed |
| *Section A7* | | | |
| t | Text "DNR" may not be previously defined as the abbreviation for Deparement of Natural Resources. All abbreviations in the GHG Project Plan should be previously defined. | Definition has been added. | Closed |
| u | Text states: "The Indiana Department of Natural resources is responsible."<br><br>'resources' is not captialized. | Corrected. | Closed |
| v | GHG Project Plan Section B3 - space missing before reporting period date list. | Corrected. | Closed |
| w | GHG Project Plan Section B7 does not indicate that calculated emissions reductions are projected over the 20-year creditng period for each well. | This has been updated. | Closed |
| x | GHG Project Plan Section F3 text "held)" contains bracket after the word. | Corrected. | Closed |
| y | Note that page 18, 34 and 40 of the GHG Project Plan are blank. | This has been corrected. | Closed |
| z | Please provide the final signed GHG Plan upon verification/validation conclusion. | The signed version has been uploaded to the folder and the ACR Portal. | Closed |
| 7 | **The following issues were identified in the Environmental and Social Impact Assessment:** | | |
| a | Section I, 3: May clarify that 2 wells were plugged in Dubois and 1 well plugged in Boone County, to avoid implication that 3 wells were plugged in each location. | Corrected. | Closed |
| b | Section I, 5: May include further general or specific information regarding the types of landowners associated with the project. | Language added. | Closed |
| c | Section II, 1C: No boxes are checked. | The "positive" box is checked. | Closed |

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| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| 8 | **The following issues were identified in the Multi-Site Design Document:** | | |
| a | Section IV, 6: Box is not to be checked as it under the PDA requirements section. | Corrected. | Closed |
| b | Section V, Site information Table: indicates that landowner contact info should include phone and email. Email not listed. | Email addresses were added for landowners that use email. Note that Paul Schue did not provide an email address to Tradewater. | Closed |
| c | Section V, Site information Table, Description of Implementation Date and Supporting Documentation: may modify wording for clarity. | The language has been clarified. | Closed |
| d | Section V, Site information Table, Landowner details for Paul Schue does not fully match with Landowner Access Agreement eg. Landowner Name, Landowner Signature and phone number. Any updates required must also be made on GHG Plan. | The landowner is a trust with multiple individuals as representatives. Paul Schue is the third signature on the Access Agreement. The phone number has been updated to reflect the number on the Access Agreement. | Closed |
| e | Landowner Access Agreement for Shelly Brown's phone number: may show (507) instead of (502). Reconfirm. | The correct area code is 507 and has been updated across all documents. | Closed |
| f | Appendix D indicates that initial monitoring for leakage occurs after establishing Landowner Access Agreements, however agreements are dated after the dates of the leakage assesssements as found in the raw data files. Please clarify. | The landowners informally permit access to their wells at initial inspection and leak assessment, but the formal Landowner Access Agreements occur later for the purposes of the project requirements. The appendix has been clarified. | Closed |
| g | Note that all pages of the MSDD must be attached as Appendix D in the final signed GHG Plan submitted upon verification/validation conclusion, as referenced in the GHG Plan. | The full Appendix D hs been attached to the final signed GHG Plan, also uploaded to the folder and the ACR portal. | Closed |
| 9 | Please confirm for all wells, the units of methane concentration and flow as found in the raw data files. | Gas flow raw data files are in MCF/day for wells 49918 and 52561 and in Liters/minute for well 12860. Methane concentration is in ppm for all wells included in the project. | Closed |
| 10 | Please confirm why calculation involving conversion of methane concentrations from ppm to %vol use Landtec raw data from 'gasValueRel' column instead of 'gasValueAbs' data. | gasValueRel is the more accurate value as it does not subtract out ambient methane (2.5ppm). Our readings are not affected by ambient methane readings because the instrument is isolated from the ambient atmosphere in our direct connect method. | Closed |
| 11 | Note that in M2 methane concentration file '20240530_52561_SEM_RawData_Verification_v2', tab 'SEM5000_RAW_WELL#_MEASUREMENT#', volume % is being calculated for incorrect timstamps, as it is not referencing the correct cell in column H 'gasValueRel'. | This issue has been corrected and the latest versions uploaded to the folder. | Closed |

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| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| 12 | For Well 52561, please confirm the reason for including 13 instead of 12 10-minute intervals for M1 stability and annual emissions calculations, as stability appears to be met using the original 2 hours of data.<br><br>**GHD Response:** Based on GHD's re-calculations, using only 12 intervals of data instead of 13 results in a 0.05% discrepancy of 216 tCO2e of emissions reductions more than what is currently being claimed, using 13 intervals of data for the stability period. Note that using both 12 or 13 intervals is however accepted per the Methodology. | The methodology does not prevent us from using 130 minute windows instead of 120 minutes. Additionally, this is a residual of trying to comply with the past EC requirements (now outdated).<br><br>Calculations updated to use 12 intervals for the M1 measurement. | Closed |
| 13 | Please clarify what the 'synced' data within the various Green tables within the methane, flow and pressure data files (as found in the Measurement Windows folder) represent, and whether the data is used for stability or emissions calculations. | As the three instruments measuring concentration, flow, and pressure are different instruments and are manually started for sampling we created the "Synced Time" variable to keep track of the seconds that have passed once each piece of equipment started on the measurement day. This ensures the measurements of each instrument overlap temporally. These are in a number format that is easier to use in Excel than the Date and Time formats. This helps to demonstrate the simultaneous readings requirement. We also use this variable for our internal calculations which help us find the stability window that complies with all methodology requirements. Therefore it is primarily used for stability analysis. Each synced time data value is linked to a timestamp to furth demonstrate simultaneity. | Closed |
| 14 | The single 'time start' value indicated in the measurement windows files is noted to be different than in the 'Elapsed Start Time' for the data. For eg. file '20240530_52561_SilverSmith_RawData_Verification_v2.xlsx', tab 'SS_RAW_WELL#_MEASUREMENT#', cells AJ8 vs AQ1. Please clarify. | The Value in AQ1 is the closest elapsed value data point that was measured before the actual Stability window starts. In the formula of AJ8 you will notice that we added +92 seconds, that's why the cells are different and also is the reason we are able to report the simultaneus measurements of the 3 instruments in 10 minute intervals. In some cases both cells match but in others we need to adjust in order to comply with simultaneous measurements. | Closed |

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| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| 15 | For well 49918, GHD notes that the 2-hour stability period chosen for the flow data is 1 hour later than the stability period chosen for methane and pressure data. Time Notes in the raw data file indicate that it is due to the clock time of the flow meter being 1 hour ahead of the methane analyzer and pressure sensor. This suggests that the flow meter clock time at 10/19/2022 1:36:41 PM represented 12:36:41 PM in real time (ET) to align with the start of the stability period chosen for the other equipment. However field notes indicate that flow measurement for M1 started at 12:57 PM ET. Please clarify.<br><br>**GHD Response:** Please provide diagram to clarify as suggested. | The time in the field notes represents time observed on the phone. Given the location of the well, the time on the phone is in Eastern Time Zone and this is noted in the field notes with "ET" notations. SilverSmith flowmeter connects to the server SilverSmith Meter Central Data Server and records the data on the server. The time data for SilverSmith was recorded in Eastern Time Zone. This can be verified by coorelating the field notes and the raw data file. In the field notes, it is noted that "12:57 pm ET start SEM5000, so all devices on" and on the raw data for SilverSmith, you can note continous flow measurement (without any '0' values) starting from 2022-10-19 12:56:20. Tradewater has chosen to report the time period starting from 13:36:41 (time stamp from rawdata, which would mean 1:36:41 PM ET) to showcase stability. As GHD has noted, the rest of the instruments, the methane analyzer and pressure instrument, are one-hour behind starting at 12:36:41. | Closed |
| 16 | For well 49918, please clarify why a relatively higher pressure is observed over the stability period for the M1 measurement at 21 PSI. | Flowing pressure is dictated by the well and not the project developer, but may be affected by equipment location. Different setups were used at the wellhead between M1 and M2 due to equipment we had on hand at the site and wellhead condition. The Vaetrix was located slightly farther downstream (while still at the wellhead and ahead of other equipment) during M2, and this likely caused a small pressure drop, as evidenced by the slightly lower flowing pressure for M2 vs. M1. A slight variation in set up such as this does not affect the stability assessment. | Closed |
| 17 | For well 49918, M2 field notes indicate that Nevada Nano was added to diffusion box. Please clarify. | Data from NevadaNano is not being used in any of the measurements for any of the wells in this project. | Closed |
| 18 | For well 12860, please provide the serial number of the methane analyzer used for M1 and 2 measurements. | Please refer to Field calibration documents to verfify serial number. Below are the serial numbers by measurement:<br>Measurement 1 - 41286<br>Measurement 2 - 41286 | Closed |

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| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| 19 | For well 12860, please clarify why a relatively lower pressure is observed for measurements, being at around 1 PSI, in comparison to the other wells in the project. | Flowing pressure is dictated by the well and not the project developer, and thus flowing (or wellhead) pressures are expected to be different at every well. In the case of well 12860, it comes from a different basin, different formation, and a different total depth in comparison with the other two wells. | Closed |
| 20 | **The following issues were identified in the Monitoring Report:** | | |
| a | Note that Section III 1, 'state' is not capitalized. | This has been corrected. | Closed |
| b | Section III 1, may clarify which wells were plugged in each county. | This has been added. | Closed |
| c | Section III 3, please update the deviation approval date once received. | This has been added. | Closed |
| d | Section V monitoring table for parameter Conc measured i, please note that the measurement frequency shown in the raw data files indicate readings per second. Applies to monitoring table in GHG Plan as well.<br><br>**GHD Response:** Noted however, the time periods chosen for stabilization analyses seem to be using data that is recorded per second for all wells in the project, based on the Measurement Windows files. | While the SEM5000 has the ability to record every second, we used a setting that captured data at a frequency of every 10 seconds.<br><br>Monitoring Report subsequently updated by Tradewater. | Closed |
| e | Section V 2, may clarify who are the Emissions Measurement Specialists who conducted measurement activities, for the project. | This has been added. | Closed |
| e | Section V 2, Brian Royer role description - 'regulatory contact' mentioned twice. | Duplicate removed. | Closed |
| f | Section VI 3, may remove emissions reductions value, as its listed in Section VI 4. | Would prefer to leave as-is despite redundancy. | Closed |
| g | Note that Section VI 8, Reversals, first question requires yes or no response, as reversals are still relevant for orphan well projects. | Corrected. | Closed |
| h | Section VIII 1, it is more appropriate to mention the site visits that occurred for OOG3 instead of OOG2 (ACR915), since 2 of the 3 wells as part of the current OOG1 project were from the now offline OOG3 project.<br><br>**GHD Response:** For Section VIII 1E, per clarification from ACR we understand that this section requires all orphan well projects that a VVB has reviewed for a PP. Therefore counting both OOG1 and 2, it should be listed in section 1E that 2 validation/verifications were completed by GHD (including current project OOG1).<br><br>For Section VIII 1a, wording slightly unclear to imply a full verification with a site visit was completed on 5/31/2024. May clarify that the project is currently undergoing a full verification which includes the two completed site visits for the two wells. | This has been clarified.<br><br>Section VIII 1.A and 1.E have both been edited to align with the information provided. | Closed |

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| | |
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| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| i | Please provide the final signed Monitoring Report upon verification/validation conclusion. | The final signed MR has been provided and uploaded to the ACR portal. | Closed |
| 21 | **Please note the following issues with Section E1 of the GHG Plan** | | |
| a | Parameter 'w' description indicates 1 instead of 3 wells to be plugged in the project. | This has been corrected. | Closed |
| b | Parameter 'p' description does not indicate correct density and associated temperature value, as applied in annual emissions calculations. | This has been corrected. | Closed |
| c | 32F listed instead of 60F on subsequent pages | This has been corrected. | Closed |
| d | For text 'The well gas flow rate (Qmeasured,I ) was corrected for standard temperature and pressure, as the gas flow measurement equipment does not internally correct flow rate to standard conditions.' May clarify whether this applies to all wells in the project. | This applies to all wells in the project and is clarified in the document. | Closed |
| e | For text 'Deductions for ambient methane concentrations are done to reduce the impact of ambient methane concentration levels on the well gas flow rate calculations. Therefore, Equation B from the Errata & Clarifications is applied.' May clarify that Equation B does not apply for the project due to direct flow set up. | This has been clarified. | Closed |
| 22 | Note that per E&C, ' Onsite environmental conditions must be reported in the final GHG Project Plan to confirm that the measurement equipment used is within its operational range. It is acceptable to use third party information (weather reports or apps) to collect this information. Information to be reported includes precipitation, temperature, humidity, wind speed, and barometric pressure.' | A table has been added to section A6 of the GHG Project Plan. | Closed |
| 23 | Please provide the calibration certificate for Pressure sensor serial # 1662566265, as used for well 49918's M2 measurement. | This has been added to the Manufacturer Calibration folder. | Closed |
| 24 | For wells 49918 and 52561, the serial numbers of the flow meters used for measurements could not be found, as not listed on raw data. Please provide pictures or other evidence to indicate which flow meters were used, which can then be traced to the calibration documents provided. | 49918 M1, 49918 M2, 52561 M1, and 52561 M2 used the Silversmith. There is only one Silversmith and it is owned by Kevin Lock, emissions specialist. The serial number can be identified on the calibration records: 2564-34183. The calibration record also shows the unit name: NGS test skid 1, and the raw data shows NGS skid 1 at the top. | Closed |
| 25 | For wells 52561 and 12860, the serial numbers of the methane analyzers used for baseline and post-plugging measurements could not be found, as not listed on raw data. Please provide pictures or other evidence to indicate which analyzers were used, which can then be traced to the calibration documents provided. | The serial number of the methane analyzer used for wells 52561 and 12860 are reflected in the calibration record, which corresponds to the date of the post-plugging raw data. | Closed |

# Issues Log

***Exported Copy***

**Revision** 8 - closed
**Date** November 12, 2024

| | |
|---|---|
| **Project Number** | 12636696 |
| **Program-Specific Project ID** | ACR894 |
| **Client** | Tradewater, LLC |
| **Facility Name** | Tradewater OOG 1 |
| **Regulation / Program** | ACR |
| **Reporting Year** | 2023-08-09 to 2024-09-13 |

| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| 26 | Please confirm that the 7/23/2023 dates listed in file '49918_FuelConsumptionInvoice_v1.0' indicate usage for plugging activities that occurred on 7/13/2023 for well 49918. | They do -- the 7/23/2023 date reflects when the bill was added to the ledger, not when the actual use of the fuel occurred. We are charged for all services related to multiple wells if multiple wells are visited in one day. It may also take several days to plug a well, incurring multiple charges. The fuel invoices included encompass the three wells in the Project plus others. As it is more conservative to include the fuel use for all wells instead of a fraction to apply to the specific Project wells, we chose to deduct the full amount indicated by the invoices. | Closed |
| 27 | Please note that in file 'Fuel Usage - Plugging - Cohort 3 - Tradewater Well Service' GHD does not observe dates that align with the plugging operations of Well-52561for which plugging occurred on 7/29/2024. Please clarify the location of project fossil fuel usage for the well. | The dates reflect when the bill was added to the ledger, not when the actual use of the fuel occurred. We are charged for all services related to multiple wells if multiple wells are visited in one day. It may also take several days to plug a well, incurring multiple charges. The fuel invoices included encompass the three wells in the Project plus others. As it is more conservative to include the fuel use for all wells instead of a fraction to apply to the specific Project wells, we chose to deduct the full amount indicated by the invoices. | Closed |
| 28 | Please direct us to the photos that indicate that water is separated from the gas flow before measurements, to utilize the 1 value for the moisture correction factor for all wells.<br><br>**GHD Response:** Please clarify whether liquid is separated (or applicable) for well 12860, as approved MMMAF flow diagram for well 12860 indicates that the set-up has a gas filter instead of a gas-liquid separator. | A photograph has been added to the Requested Documentation folder. In this photograph, the big tan cylinder with the two red valves is a separator. You can see the sample line out of the top going directly to the diffusion box. The top is gas.<br><br>The liquid separator is not applicable for well 12860 per the diagram in the MMMAF. | Closed |
| 29 | Please confirm whether the project wells meet the following requirement of the Methodology: ' The sampling method shall encompass the emitting well and at least 10 cm of immediately adjacent soils to also capture any methane emissions that may be migrating up the well annulus.' | The approved MMMAF indicates a direct connection measurement method, which does not involve encompassing soil. | Closed |

# Issues Log

***Exported Copy***

**Revision** 8 - closed
**Date** November 12, 2024

| | |
|---|---|
| **Project Number** | 12636696 |
| **Program-Specific Project ID** | ACR894 |
| **Client** | Tradewater, LLC |
| **Facility Name** | Tradewater OOG 1 |
| **Regulation / Program** | ACR |
| **Reporting Year** | 2023-08-09 to 2024-09-13 |

| Issue No. | Issues / Questions | Explanation/Response | Status |
|---|---|---|---|
| 30 | Please confirm whether the project wells meet the following requirement of the Methodology: 'Immediately preceding or concurrent with each pre-plugging sampling event (if required) and the post-plugging measurements, background levels of methane must be recorded from a distance of 10-15 feet upwind of the well to be plugged. For the purposes of this requirement, 'upwind' means in the direction that the wind is blowing from at the time of measurement. This measurement may be taken with the same sampling device as the well measurements.' | This is not required for direct connection measurement methods for pre-plugging sampling. Post-plugging monitoring background levels were recorded. | Closed |
| 31 | As date of approved MMMAF is 11/8/2024, may update GHG Plan to be dated after this date (title page, signature page). | This has been updated. | Closed |

# Appendix C

## Reviewed List

**APPENDIX C - DOCUMENT REVIEW REFERENCE LIST**
**Tradewater, LLC**
**Tradewater OOG 1 Project Validation and Verification**

| No. | Document Title | Description |
|---|---|---|
| 1 | ACR894_GHGPlan_v10 - signed.pdf and Appendices (Final Versions) | GHG Project Plan |
| Appendix A | ACR894_Social Impact Form_V4.pdf | Social Impact Form |
| Appendix B | ACR894_SDGContributionsReport_v4.pdf | SDG Contributions Report |
| Appendix C | ACR894_Calculations | Ex-Ante Estimates |
| Appendix D | ACR894_MSDD_V2.0.pdf | Multi-site Design Document |
| 2 | ACR894_MonitoringReport_V8 - signed.pdf and Appendices (Final Versions) | Monitoring Report |
| Appendix | ACR894_Calculations | Ex-Ante Estimates |
| 3 | ACR894_LeakingWellAttestation_V2 - signed.pdf | Leakage Evidence |
| | 20240208_Montgomery Leak Assessment.xlsx | |
| | 20240208_Montgomery Leak_RAW.csv | |
| | 20240207_Boone County_Assessment.xlsx | |
| | 20240207_Boone County_RAW.csv | |
| | Leakage Photos | |
| 4 | IndianaDNR_OrphanList_2023-04-11.pdf | Eligibility |
| | IndianaDNR_WellClassifications_Email_2021-10-19.pdf | |
| | og-abandoned_oil_wells_program.pdf | |
| 5 | 12860_PluggingReport_Signed.pdf | Regulatory Compliance |
| | 52561_PluggingReport_Signed.pdf | |
| | Attestation IN DNR OOG 1_Signed.pdf | |
| | Plugging plans, reports and documents obtained by GHD via the Indiana Well Records Viewer online databse | |
| 6 | Video Demonstrations | Operating Procedures |
| | 2023 June 9 Tradewater Measurement Technique Memo.pdf | |
| | 20230609 Measurement Technique Email.pdf | |
| | 20230621 Measurement Technique Approval Email.pdf | |
| | ACR1043_Measurement Method_V4_Approved.pdf | |
| | ACR894_MMMAF_V6.pdf | |
| 7 | 20240418_Alicat Calibration_500SLPM.pdf | Calibration Procedures |
| | CalibrationCert_Alicat_SN392124_2022-05-12.pdf | |
| | CalibrationCert_Alicat_SN392124_2023-05-13.pdf | |
| | Oct 2022 Vaetrix Calibration Document.pdf | |
| | Vaetrix Calibration.pdf | |
| | Calibration Documentation u107119x_41056.pdf | |
| | CalibrationCert_Landtec_SN19338_2022-08-26.pdf | |
| | CalibrationCert_Landtec_SN19338_2022-10-10.pdf | |
| | CalibrationCert_Landtec_SN41506_2022-10-11.pdf | |
| | SEM5000 Calibration Documentation Unit 18919.pdf | |
| | SEM5000 Certification of Calibration 19338 8-31-2022.pdf | |
| | SEM5000 Factory Calibration_41286 11-14-23.pdf | |
| | SEM5000 Factory Calibration_41728 10-30-2023.pdf | |
| | Cal NGS Skid 1 02202024.pdf | |
| | Cal NGS Skid 1 05172023.pdf | |
| | CalibrationCert_Silversmith_SN2564-34183_2023-02-27.pdf | |
| | CalibrationCert_Silversmith_SN2564-34183_2023-05-17.pdf | |
| | Silversmith Calibration Letter (signed).pdf | |
| | 20230516_Vaetrix Calibration Sheet 1.jpg | |
| | 20230516_Vaetrix Calibration Sheet 2.jpg | |

**APPENDIX C - DOCUMENT REVIEW REFERENCE LIST**
**Tradewater, LLC**
**Tradewater OOG 1 Project Validation and Verification**

| No. | Document Title | Description |
|---|---|---|
| 8 | Boone County_2024-02-07_19338_calibration.pdf | Landtec Field Checks |
| | Boone County_2024-04-30_41286_calibration.pdf | |
| | Boone County_2024-05-31_41286_calibration.pdf | |
| | Boone County_2024-09-13_41728_calibration.pdf | |
| | Bretzville Field_20221019_000000_calibration.pdf | |
| | Bretzville Field_20230523_000000_calibration.pdf | |
| | FieldCheck_Landtec_SN18919_2022-08-23.pdf | |
| | FieldCheck_Landtec_SN19338_2022-10-18.pdf | |
| | FieldCheck_Landtec_SN19338_2022-10-19.pdf | |
| | FieldCheck_Landtec_SN19338_2022-10-20.pdf | |
| | FieldCheck_Landtec_SN19338_2023-05-22.pdf | |
| | FieldCheck_Landtec_SN19338_2023-05-23.pdf | |
| | FieldCheck_Landtec_SN19338_2023-05-24.pdf | |
| | FieldCheck_Landtec_SN41056_2023-07-11.pdf | |
| | Gehlhausen_20230809_000000_calibration.pdf | |
| | Holland IN_2024-02-08_19338_calibration.pdf | |
| | Holland IN_2024-04-18_41286_calibration.pdf | |
| | Holland IN_2024-05-30_41286_calibration.pdf | |
| | Holland IN_2024-09-13_41728_calibration.pdf | |
| 9 | Analyzer_Landtec_SEM5000L_iss01.pdf | Equipment manuals |
| | 2398-sem5000-new-template | |
| | DOC-SPECS-M-HIGH.pdf | |
| | FlowMeter_AliCat_MBseries_rev3.pdf | |
| | Landtec SEM5000 Data Sheet.pdf | |
| | R3 US - HIP6000.pdf | |
| | Vaetrix HTG Series Brochure_8-11-22.pdf | |
| 10 | Baseline Emissions-Related Files (Originals, updated during the verification as needed). | |
| a | 12860_M1 weather 1.png | Baseline Measurement Well 12860 M1 |
| | 12860_M1 weather 2.png | |
| | Precipitation Table.pdf | |
| | 20240430_Field Notes.jpg | |
| | 20240927_12860_Alicat_Verification_V2.xlsx | |
| | 20240927_12860_SEM5000_Verification_V2.xlsx | |
| | 20240927_12860_Vaetrix_Verification_V2.xlsx | |
| | Alicat raw flow data files (20240430_12860_2024_04_30_XX_XX_XX.csv) | |
| | 20240430_12860_SEM_RawData.xlsx | |
| | 20240430_12860_Vaetrix.xlsx | |
| b | 20240430_12860_Vaetrix_RAW.pdf | |
| | 12860_weather 1.png | Baseline Measurement Well 12860 M2 |
| | 12860_weather 2.png | |
| | Precipitation Table.pdf | |
| | 12860_IMG_6642.JPEG | |
| | 20240531_12860_Alicat Consolidated_Verification_V2.xlsx | |
| | 20240531_12860_SEM_RawData_Verification_v2.xlsx | |
| | 20240531_12860_Vaetrix_Verfication_V2.xlsx | |
| | Alicat raw flow data files (20240430_12860_2024_05_31_XX_XX_XX.csv) | |
| | 20240531_12860_SEM.xlsx | |
| | 20240531_12860_Vaetrix.xlsx | |
| | 20240531_12860_Vaetrix_RAW.pdf | |
| | Duplicate SEM RAW Data.csv | |
| c | 20221019 Photo 1 weather.png | Baseline Measurement Well 49918 M1 |
| | 20221019 Photo 2 weather.png | |
| | 20221019 49918 Measurement Checklist.jpg | |
| | 20221019_49918_SEM5000_RawData_Verification_V2 | |
| | 20221019_49918_SilverSmith_RawData_Verification_V2 | |
| | 20221019_49918_Vaetrix_RawData_Verification_V2 | |
| | 20221018_Session8_Report.xlsx | |
| | 20221019_DAY_49918.xlsx | |
| | Silversmith Data_SingleWellSnapshot_2022_10_26_11_48_45.xlsx | |

**APPENDIX C - DOCUMENT REVIEW REFERENCE LIST**
**Tradewater, LLC**
**Tradewater OOG 1 Project Validation and Verification**

| No. | Document Title | Description |
|---|---|---|
| d | 20230523 Photo 1 weather.png | Baseline Measurement Well 49918 M2 |
| | 20230523 Photo 2 weather.png | |
| | 49918 measurement 2 field notes.jpg | |
| | 20230523_49918_SEM5000_RawData_Verification_V2.xlsx | |
| | 20230523_49918_SilverSmith_RawData_Verification_v2.xlsx | |
| | 20230523_49918_Vaetrix_RawData_Verification_V2.xlsx | |
| | 20230523_DAY_Bretzville.csv | |
| | 20230523_Session5_Report.xlsx | |
| | SingleWellSnapshot_2023_05_25_16_30_15.xlsx | |
| e | 20240418_Photo 1_weather.png | Baseline Measurement Well 52561 M1 |
| | 20240418_Photo 2_weather.png | |
| | Precipitation table.pdf | |
| | 20240418_52561_Field Notes.jpg | |
| | 20240418_52561_SEM5000_Verification_V4.xlsx | |
| | 20240418_52561_SilverSmith_Verification_V4.xlsx | |
| | 20240418_52561_Vaetrix_Verification_V4.xlsx | |
| | 20240418_52561_SEM5000 Data.xlsx | |
| | 20240418_52561_Vaetrix Data.pdf | |
| | 20240418_52561_Vaetrix Data.xlsx | |
| | SingleWellSnapshot_2024_04_19_17_43_32.xlsx | |
| f | 20240418_Photo 1_weather.png | Baseline Measurement Well 52561 M2 |
| | 20240418_Photo 2_weather.png | |
| | Precipitation table.pdf | |
| | 20240418_52561_Field Notes.jpg | |
| | 20240418_52561_SEM5000_Verification_V4.xlsx | |
| | 20240418_52561_SilverSmith_Verification_V4.xlsx | |
| | 20240418_52561_Vaetrix_Verification_V4.xlsx | |
| | 20240418_52561_SEM5000 Data.xlsx | |
| | 20240418_52561_Vaetrix Data.pdf | |
| | 20240418_52561_Vaetrix Data.xlsx | |
| | SingleWellSnapshot_2024_04_19_17_43_32.xlsx | |
| g | Photos taken during baseline measurements for all wells | Photos |
| 11 | 12860_ Stability and CH4 Emission Rate - V6.xlsx | Stability analyses |
| | OOG1_49918_ Stability and CH4 Emission Rate - V5.xlsx | |
| | 52561_ Stability and CH4 Emission Rate - V7.xlsx | |
| 12 | [EXT]Fuel Usage - Plugging - Well Group. No. 1 - Tradewater Well Service.pdf | Project Emissions |
| | Fuel Usage - Plugging - Well Group. No. 1 - Tradewater Well Service.pdf | |
| | 49918_FuelConsumptionInvoice_v1.0.pdf | |
| | Fuel Usage - Plugging - Cohort 3 - Tradewater Well Service.pdf | |
| 13 | ACR894_49918_Post-Plug_CH4AmbientAnalysis_v1.0.xlsx | Post-plugging confirmation sampling |
| | 20240913_12860 ppm_analysis.xlsx | |
| | 20240913_52561 ppm_analysis.xlsx | |
| | 20230809_DAY_49918_PPMonitoring_Raw Data.csv | |
| | 20240913_52561 ppm_analysis.xlsx | |
| | 20240913_12860 ppm.csv | |
| 14 | Well Status Plugged 49918.png | Permanence |
| | 52561 IN DNR plugged status.png | |
| | 12860 IN DNR plugged status.png | |
| 15 | OOG1_ ERs_V8.xlsx | Emissions Reductions Quantification File |
| 16 | 49918 Access.pdf | Ownership and Title |
| | Shelly Brown 12860 Access.pdf | |
| | TJ Montgomery52561 Access.pdf | |
| | Transfer of Rights Agreement.pdf | |
| | Transfer of Rights Agreement V2.pdf | |
| 17 | ACR1043_Deviation_Approved.pdf | Deviation |
| | ACR894 Project Deviation Request-MMMAF Sequence V3_Approved.pdf | |
| 18 | 20240418_Photo 10_setup.jpg | Gas separator photo |

# Appendix D

## Verification and Validation Opinion

# ACR Validation and Verification Opinion

**INSTRUCTIONS** ACR requires that a Validation Opinion be provided by the validation body at each ACR GHG Project validation and that a Verification Opinion be provided by the verification body at each ACR GHG Project verification. To facilitate this requirement, use of this Validation and Verification Opinion template is required. Follow all instructions found within each section and provide all requested information. If a field is not applicable, respond with "N/A." The Opinion must be signed by the duly authorized Lead Validation/Verifier and Independent Reviewer and saved as a PDF prior to uploading to the ACR Registry. Terminology as defined in the *ACR Standard* applies to this document.

THIS VERSION 1.2 OF THE VALIDATION AND VERIFICATION OPINION TEMPLATE IS REQUIRED IF FIRST SUBMISSION IS UPLOADED AFTER OCTOBER 31, 2024.

| SECTION I: VALIDATION/VERIFICATION BODY DETAILS | | |
|---|---|---|
| 1 | Document date | January 9, 2025 |
| 2 | Validation/Verification Body (VVB) | GHD Limited |
| 3 | VVB physical address<br>Street name and number, city, state, zip | 100A – 455 Phillip Street , Waterloo, Ontario N2L 3X2, Canada |
| 4 | VVB mailing address (if different) | Same as above |
| 5 | VVB email address | Gord.Reusing@ghd.com |
| 6 | VVB phone number | 5193404231 |
| **SECTION II: PROJECT DETAILS** | | |
| 1 | Project title | Tradewater OOG 1 |
| 2 | ACR project ID (ACRXXXX) | ACR894 |
| 3 | Project Proponent | Tradewater, LLC |

| | | |
|---|---|---|
| 4 | Validation and/or verification kickoff call/meeting date | March 7, 2024 |

| SECTION III: CRITERIA USED TO FORM THE OPINION | | |
|---|---|---|
| 1 | ISO 14064–3 version year (YYYY) | 2019 |
| 2 | ISO 14065 version year (YYYY) | 2020 |
| 3 | ACR Standard version applied at validation | 8.0 |
| 4 | ACR Standard version applied at verification, if applicable | 8.0 |
| 5 | ACR Validation and Verification Standard version applied | 1.1 |
| 6 | ACR-approved Methodology title and version applied | 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 |
| 7 | Other criteria applied (e.g., dated Errata & Clarifications) | Errata and Clarifications: ACR 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, dated 2024-09-13 |

| SECTION IV: VALIDATION OPINION DETAILS (IF APPLICABLE) | |
|---|---|
| 1 | Is a validation opinion being provided?[1]<br>☒ Yes ☐ No<br>*If Yes, complete remaining question in this section.* |

[1] If both validation and verification services were conducted at the same time by the same VVB, complete Section IV as well as Sections V and VI.

| | |
|---|---|
| **2** | Crediting Period dates<br>Start date: August 9, 2023<br>End date: September 12, 2044 |
| **3** | Validated GHG Project Plan (provide exact filename, *including any attachments, appendices, or addendums*)<br>ACR894_GHGPlan_v10 - signed.pdf |
| **4** | Validated GHG Project Plan document date<br>January 6, 2025 |
| **5** | Responsibility (provide the Project Proponent name)<br>The GHG Project Plan and its contents are the responsibility of:<br>Tradewater, LLC |
| **6** | Does the VVB attest that the GHG Project Plan has been validated in accordance with the criteria identified in Section III?<br>☒ Yes ☐ No |
| **7** | As a result of validation, what type of opinion is the VVB providing?<br>☒ Positive ☐ Negative |
| **8** | If Negative, describe the reasons the VVB is providing this validation opinion. |

The actual GHG emission reductions and removals achieved may differ from the validated forecast of future GHG emission reductions and removals, as the forecast is based on assumptions that may change in the future.

## SECTION V: VERIFICATION OPINION DETAILS (IF APPLICABLE)

| | |
|---|---|
| **1** | Is a verification opinion being provided?<br>☒ Yes ☐ No<br>*If Yes, complete remaining question in this section.* |
| **2** | Is a verification opinion being provided based on a full verification including a site visit?<br>☒ Yes ☐ No |

| | |
|---|---|
| **3** | Reporting Period dates<br>Start date: August 9, 2023<br>End date: September 13, 2024 |
| **4** | Level of assurance<br>Reasonable |
| **5** | Verified Monitoring Report (provide exact filename, *including any attachments, appendices, or addendums*)<br>ACR894_MonitoringReport_V8 - signed.pdf |
| **6** | Verified Monitoring Report document date<br>January 6, 2025 |
| **7** | Responsibility (provide the Project Proponent name)<br>The Monitoring Report and its contents are the responsibility of:<br>Tradewater, LLC |
| **8** | Does the VVB attest that the Monitoring Report has been verified to the specified Level of Assurance in accordance with the criteria identified in Section III?<br>☒ Yes ☐ No |
| **9** | Does the VVB attest that the GHG statement, as detailed by the Monitoring Report and provided in Section VI below, is without material misstatement (as defined by the ACR Standard)?<br>☒ Yes ☐ No |
| **10** | As a result of verification, what type of opinion is the VVB providing?<br>☒ Positive ☐ Negative |
| **11** | If Negative, describe the reasons the VVB is providing this verification opinion. |

**SECTION VI: GHG STATEMENT (APPLICABLE FOR VERIFICATION OPINIONS)**

*Omit or provide additional rows for Vintages as needed*

| ALL GHG PROJECTS | | AFOLU & GEOLOGIC SEQUESTRATION PROJECTS ONLY | | | |
|---|---|---|---|---|---|
| Vintage | Total ERRs | Removals Subset of Total ERRs (if applicable) | Emission Reductions Subset of Total ERRs (if applicable) | Buffer Pool / Reserve Account Contribution (if applicable) | Net ERRs (if applicable) |
| 2023 | 271,190 | | | | |
| 2024 | 186,535 | | | | |
| **TOTALS*** | **457,725** | | | | |

*Totals may not sum due to rounding

*Proceed to attestation on next page.*

## SECTION VII: ATTESTATIONS

### INSTRUCTIONS

- The Validation/Verification Opinion must be signed by the duly authorized Lead Validation/Verifier and Independent Reviewer.
- The signatures may not be inserted by typing or affixing an image file.
- The signatures may be executed:
  - via encrypted digital signature (i.e. DocuSign), or
  - by printing the signature page, using a wet signature, scanning the signature page, and inserting it into the final PDF.
- The signature dates should be on or after:
  - the document date at the top of this report,
  - the document date of the GHG Project Plan being validated, if applicable,
  - the document date of the Monitoring Report being verified, if applicable, and
  - the document date of the accompanying Validation/Verification Report being submitted.

| | |
|---|---|
| **Lead Validator/Verifier Signature** |  |
| **Lead Validator/Verifier Name** | Gordon Reusing |
| **Lead Validator/Verifier Title** | GGAS Principal |
| **Lead Validator/Verifier Organization** | GHD Limited |
| **Lead Validator/Verifier Signature Date** | January 9, 2025 |

| | |
|---|---|
| **Independent Reviewer Signature** |  |
| **Independent Reviewer Name** | Sean Williams |
| **Independent Reviewer Title** | GGAS Manager |
| **Independent Reviewer Organization** | GHD Limited |
| **Independent Reviewer Signature Date** | January 9, 2025 |

**Signature:** Gordon Reusing
**Email:** Gordon.Reusing@ghd.com

**Signature:**
**Email:** Sean.Williams@ghd.com

# 12636696-LTR-2-APP D-Tradewater OOG1-Validation-Verification Opinion-Rev2

Final Audit Report 2025-01-09

| | |
|---|---|
| Created: | 2025-01-09 |
| By: | Angela Kuttemperoor (Angela.Kuttemperoor@ghd.com) |
| Status: | Signed |
| Transaction ID: | CBJCHBCAABAAZK_B4jSY58H3aiVpfd1Ezx2Yn-d8ZQla |

## "12636696-LTR-2-APP D-Tradewater OOG1-Validation-Verification Opinion-Rev2" History

Document created by Angela Kuttemperoor (Angela.Kuttemperoor@ghd.com)
2025-01-09 - 17:59:34 GMT- IP address: 165.225.208.97

Document emailed to Gordon Reusing (Gordon.Reusing@ghd.com) for signature
2025-01-09 - 18:00:10 GMT

Email viewed by Gordon Reusing (Gordon.Reusing@ghd.com)
2025-01-09 - 18:31:27 GMT- IP address: 165.225.208.113

Document e-signed by Gordon Reusing (Gordon.Reusing@ghd.com)
Signature Date: 2025-01-09 - 18:32:27 GMT - Time Source: server- IP address: 165.225.208.113

Document emailed to Sean Williams (Sean.Williams@ghd.com) for signature
2025-01-09 - 18:32:29 GMT

Email viewed by Sean Williams (Sean.Williams@ghd.com)
2025-01-09 - 18:35:34 GMT- IP address: 165.225.210.76

Document e-signed by Sean Williams (Sean.Williams@ghd.com)
Signature Date: 2025-01-09 - 18:36:10 GMT - Time Source: server- IP address: 165.225.210.76

Agreement completed.
2025-01-09 - 18:36:10 GMT