



Verification Report

CAR1480 – Phlogiston Phase 1
Reporting Period: July 1, 2022 – September 30, 2022

Prepared for:
Ascend Performance Materials Operations LLC and ClimeCo

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1.0 Introduction

Ruby Canyon Environmental, Inc. (RCE) was contracted by ClimeCo LLC (ClimeCo) to perform the verification of Ascend Performance Materials Operations LLC's (Ascend) Phlogiston Phase I project (Project) for the reporting period July 1, 2022 through September 30, 2022 to the Climate Action Reserve (Reserve) Adipic Acid Production Project Protocol Version 1.0 (Protocol). The Project Developer is Ascend Performance Materials Operations LLC. The Project involves GHG emission reductions from the enhancement of an existing control technology at a single adipic acid plant (AAP) that destroys N₂O emissions above the baseline destruction rate that would otherwise have been vented to the atmosphere.

1.1 Project Background & Site Description

The Project activity consists of the installation and operation of a new absorption column at Ascend's adipic acid plant in Cantonment, FL. The column converts NO_x to nitric acid via a high-pressure water absorption process. This absorption column allows the plant's Thermal Reduction Unit (the control unit or TRU) to accept a higher percentage of the adipic off gas flow from the adipic acid plant rather than directing it to the non-N₂O emissions control unit (the NO_x-specific selective catalytic reduction unit or SCR). Longer TRU operating times result in more N₂O destroyed. The Project is considered an enhancement of the existing control technology per the Protocol's definition for eligible projects.

Ascend is responsible for ongoing operation and maintenance of the monitoring system and data acquisition and handling system. ClimeCo is the technical consultant to Ascend and is responsible for overall program management, development of monitoring reports, and oversight of the verification process.

This is the verification of the seventh reporting period for the Project.

1.2 Responsible Parties

Adipic Acid Plant Owner and Operator

Ascend Performance Materials Operations LLC
3000 Old Chemstrand Rd.
Cantonment, FL 32533

Technical Consultant

ClimeCo LLC
10 North Reading Avenue
Boyertown, PA 19512

1.3 Verification Team

The RCE verification team consisted of the following individuals who were selected based upon verification experience under the Reserve's program and knowledge of U.S. EPA regulations and the adipic acid plant sector.

Lead Verifier: Phillip Cunningham
Senior Internal Reviewer: Nina Pinette
Verifier: Issaí Medellín

1.4 Objectives

The goal of the verification activities was to ensure that the claimed GHG emission reductions are complete, consistent, accurate, transparent, and permanent and that the Project was in compliance with the Protocol's project additionality, monitoring, and reporting requirements. Furthermore, the verification activities ensure that the data provided to RCE is well documented and free of any material errors or omissions.

1.5 Scope

The scope of the verification consisted of the following independent and objective activities:

- Review the Project Monitoring Plan,
- Review Project boundaries,
- Review Project eligibility,
- Review Project data acquisition and quality control procedures,
- Review the Project's baseline emissions data,
- Review the Project's project emissions data,
- Review the Project's emission reduction calculations,
- Review Project documents and data against the Verification Criteria listed in Table 1,
- Issue requests for corrective actions, non-material findings, additional documentation, and clarifications, as necessary, and
- Issue a Verification Report, Verification Statement, and List of Findings to Ascend, ClimeCo and the Reserve.

1.6 Verification Criteria

Table 1 - Verification Criteria

Criteria	Details
Standard of Verification	• Adipic Acid Production Project Protocol Version 1.0 (September 30, 2020) (Protocol) • Errata and Clarifications to the Adipic Acid Production Project Protocol Version 1.0 (July 27, 2021) • Reserve Offset Program Manual (March 12, 2021) • Policy Memo: Use of Global Warming Potential Values for All Offset Protocols (July 13, 2022)
Verification Process	• The Reserve Verification Program Manual (February 3, 2021) • ISO 14064-3:2006 "Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions"
Level of Assurance	Reasonable assurance
Materiality	99% materiality threshold (<1% error) because total annual ERs are >100,000 tCO ₂ e.

2.0 Verification Activities Summary

RCE developed a verification plan to be followed throughout the verification. The verification plan

consisted of the following activities:

- RCE completed the Project NOVA/COI form to identify any potential conflicts of interest with the Project, Project Developer or Technical Consultant. The NOVA/COI form was submitted to the Reserve and the COI assessment revealed no conflicts of interest and was approved by the Reserve on October 19, 2022.
- RCE held a verification kickoff meeting with Ascend and ClimeCo on October 20, 2022. During the kickoff meeting RCE reviewed the verification objectives and process, the verification schedule, and requested the verification background documents.
- RCE performed a strategic review and risk assessment of the received data and support documents to understand the scope and areas of potential risk in the GHG emissions reductions.
- RCE developed a risk-based sampling plan based upon the strategic review and risk assessment. The verification plan and sampling plan were used throughout the verification and were revised as needed based upon additional risk assessments.
- RCE did not conduct a site visit for the verification of this reporting period. The Verification Program Manual requires that a verification body conduct a site visit at least once for every 12 months of data verified. RCE conducted a virtual site visit to the Project for the verification of a previous reporting period (April 1, 2022 – June 30, 2022) on August 1, 2022 using the real-time video web meeting and screen sharing platform Microsoft Teams.
- RCE conducted a detailed desktop review of submitted material including evidence of regulatory compliance, documentation of ongoing QA/QC procedures, source data, and emission reduction calculations.
- RCE submitted requests for corrective actions, non-material findings, additional documentation, and clarifications, as necessary to Ascend and ClimeCo throughout the verification
- RCE's Senior Internal Reviewer conducted a review of the verification sampling, Verification Report, and Verification Statement.
- RCE issued a final Verification Report, Verification Statement, and List of Findings.
- RCE held an exit meeting with Ascend and ClimeCo.

3.0 Verification Findings

3.1 *Assessment of the GHG Reduction Project Operations*

Per the Protocol project definition, the Project is considered the enhancement of an existing control technology (the TRU) at a single adipic acid plant. The Project abates N₂O emissions using an approved abatement technology, thermal destruction, which destroys N₂O using flame burners with pre-mixed CH₄ or natural gas.

The Project abates N₂O beyond historical voluntary abatement levels via an upgrade to the plant allowing more of the off gas stream to be directed to the TRU. Historically, Ascend directed plant off gas to both the TRU and the SCR de-NO_x unit in order to meet permit requirements for NO_x limits. The new absorption column converts NO_x to nitric acid via a high-pressure water absorption process and allows the TRU to accept more off gas flow from the adipic acid plant than it did in the baseline.

The N₂O concentration in the off gas and the TRU stack gas are monitored continuously using a continuous emissions monitoring system (CEMS). The plant data acquisition system (DAS) includes a programmable logic controller (PLC), local PC, and server-based system used for CEMS data monitoring, recordkeeping, and reporting. The system monitors the adipic off gas flow rate and N₂O concentration upstream of the TRU and SCR as well as the gas flow rate and N₂O concentration in the TRU stack on a continuous basis.

During the verification of the first reporting period, RCE reviewed the installation and certification, calibration, and accuracy testing of the Project monitoring equipment per manufacturer’s specifications, confirmed that the requirements of the Protocol were met, and verified the data management systems in place at the Project. RCE determined that the Project adhered to the methodology defined in the Monitoring Plan throughout the verification and the parameters monitored are in accordance with Table 6.2 of the Protocol.

3.2 GHG Project Boundary (sources, sinks and/or reservoirs)

According to the Protocol, CO₂, CH₄, and N₂O are GHGs included in the Baseline and Project activities. N₂O emissions from adipic acid production make up the majority of baseline and project emissions. There are emissions from increased external energy use during the Project including combustion fuel for the TRU and electricity to run the absorption column.

Table 2 lists the sources of GHG emissions reviewed during the verification of the Project.

Table 2 - Project GHG Sources, Sinks and Reservoirs

Activity	GHG Sources, Sinks & Reservoirs
Baseline	N₂O from adipic acid production process unit (burner inlet to stack)
Project	- N₂O from adipic acid production process unit (burner inlet to stack) - CO₂, CH₄, & N₂O emissions from increased external energy use

3.3 Project Eligibility Criteria

The Protocol specifies five eligibility rules that GHG Project developers must meet in order to register reductions with the Reserve. Below is a summary of the Protocol’s eligibility rules and the Project’s compliance to each requirement.

- Eligibility Rule I: Location**

The Project is located at an adipic acid plant in Cantonment, Florida, U.S. The Project therefore meets the location eligibility requirement.

- Eligibility Rule II: Project Start Date**

The Project start date for a project is defined as the date on which production first commences after installation or enhancement of a specific N₂O control technology. Although the absorption column was installed in September 2020 and production commenced after the installation, the CEMS installation and re-certification was not completed until January 20, 2021. Ascend selected the project start date as the date when system installation and certification requirements were complete.

RCE confirmed that prior to January 20, 2021 all RATAs and bias tests for the inlet and outlet CEMS were conducted and passed along with all absorber testing and process optimization activity related to the TRU enhancement project. RCE verified January 20, 2021 as the project start date. RCE reviewed evidence to support this date including all re-certifications of equipment in place prior to the project and certification of new project equipment, except as noted in the variance determination, dated October 5, 2021, for the first reporting period.

- **Eligibility Rule III: Project Crediting Period**

The crediting period for an adipic acid project is ten years. This reporting period is within the Project's first crediting period which began on the Project start date, January 20, 2021, and ends January 19, 2031.

- **Eligibility Rule IV: Additionality**

Performance Standard Test

RCE verified that the Project satisfies the Performance Standard Test by meeting a performance threshold defined by the Protocol: the enhancement of an N₂O control system at an adipic acid plant that improves the N₂O abatement efficiency better than business-as-usual levels. Adipic acid projects automatically pass the performance standard test by enhancing an existing N₂O control technology that requires an upfront cost of implementation. RCE reviewed an expense report for the cost of installing the absorption column and confirmed that this piece of equipment enhances the ability of the TRU to destroy N₂O and required an upfront cost.

Legal Requirement Test

RCE confirmed that there are currently no laws requiring the abatement of N₂O at the plant. In addition, the Project Developer monitors any change in regulations that may affect eligibility. RCE also verified that the project developer accurately completed the Attestation of Voluntary Implementation form and uploaded it to the Reserve website.

- **Eligibility Rule V: Regulatory Compliance**

RCE verified that the Project was in material compliance with all applicable laws throughout the reporting period. RCE reviewed the U.S. EPA's Enforcement and Compliance History Online (ECHO) database, Florida Department of Environmental Protection database, and the Occupational Safety and Health Administration (OSHA) database for any entries associated with the Ascend facility.

There were several documents related to a single non-compliance event listed in the Florida state database. RCE reviewed all correspondence from Florida DEP and confirmed that the violation and subsequent penalty was administrative in nature, not related to Project equipment or activities, and did not occur during the reporting period.

Finally, RCE verified that the Attestation of Regulatory Compliance was correctly completed and uploaded to the Reserve.

3.4 Ownership of GHG Reductions

The Project Developer, Ascend Performance Materials Operations LLC, owns full right to any emission reductions associated with the project. RCE reviewed the Title V permit which is issued to the project developer as well as the company website as evidence. RCE also verified that the Attestation of Title was correctly completed and uploaded to the Reserve website after the end of the reporting period.

3.5 Assessment of Information System Controls

RCE's review of the GHG management systems took place during the virtual site visit for the verification of the previous reporting period through observations of onsite procedures and interviews with Project key personnel. The reviews included confirming that the Project monitoring was done by direct measurements from the CEMS for both gas flow rates and N₂O concentrations. The Project uses two Rosemount 3051S flow meters to measure plant off gas flows to the TRU and SCR and a Kurz K-BAR 2000B flow meter to measure off gas exiting the TRU. Ascend uses an ABB 3502 multiwave analyzer to measure N₂O concentrations in the off gas prior to the TRU and SCR and a Thermo Fisher Scientific EM-46i-ALNP

to measure N₂O concentration in the off gas exiting the TRU stack. RCE confirmed the locations of the sample probes within the stack during a video tour of the Project during the virtual site visit.

The Project uses the CEMS DAS coupled with the PLC to electronically log the data. CEMS reports are stored in electronic records for 10 years from the date of generation or a minimum of 7 years from the date of the last verification. RCE verified that the data management systems met the data management requirements of Section 6.2.2 of the Protocol.

3.6 CEMS Installation and Certification

The Protocol requires that the project developers follow the CEMS installation and certification requirements from 40 CFR Appendix A to Part 75:

- 7-day calibration error test (Section 3.1 and 6.3)
- Linearity check (Section 3.2 and 6.2)
- Relative Accuracy Test Audit (Section 3.3 and 6.5)
- Bias Test (Section 3.4 and 6.5)
- Cycle time test (Section 3.5 and 6.4)
- Automated data acquisition and handling system (Section 4)

RCE verified that the Project met the initial CEMS installation and certification requirements during its verification of the first reporting period. Parts of the Project CEMS were installed prior to the Project; however, the Project conducted the tests to meet the Part 75 CEMS installation and certification requirements specifically for this Project. Some of the tests were conducted after the start of the reporting period, which does not meet Protocol requirements, but ClimeCo requested and was granted a variance, dated October 5, 2021 to meet the Protocol requirements for the first reporting period.

RCE verified that the following requirements were met for installation and certification of the CEMS:

7-day Calibration Error Test:

The 7-day calibration error test was conducted for each flow meter and analyzer in November 2020, January 2021, or February 2021. RCE reviewed the results of the 7-day calibration error tests performed for the TRU/SCR 1 inlet flow meter (2/16/2021 – 2/22/2021), SCR 2 inlet flow meter (2/16/2021 – 2/22/2021), TRU outlet stack flow meter (11/8/2020 – 11/14/2020), TRU/SCR inlet analyzer (1/15/2021 – 1/21/2021) and TRU outlet analyzer (11/8/2020 – 11/14/2020). The percent calibration errors were within the allowable range. The tests for the TRU/SCR 1 inlet flow meter and SCR 2 inlet flow meter occurred after the start of the reporting period. RCE verified that the Project met the variance conditions.

Linearity Check:

Linearity checks were performed for the inlet analyzer on 2/4/2021 and outlet analyzer on 11/24/2020. RCE verified that the error was either less than five percent or less than 5 ppm as specified in Part 75. The linearity check for the inlet analyzer occurred after the start of the reporting period. RCE verified that the Project met the variance conditions.

Cycle Time Test:

RCE reviewed the results of the cycle time tests conducted for the TRU/SCR inlet analyzer (2/4/2021) and the TRU outlet analyzer (2/2/2021) which ensure that the monitoring system is capable of completing at least one cycle of sampling, analyzing, and data recording every 15 minutes. Both analyzers passed the test. RCE verified that the Project met the variance conditions.

RATA and bias tests:

RCE reviewed the results of the RATAs conducted on December 5-6, 2020 and January 14, 2021 for the

three flow meters and both analyzers. Montrose Air Quality Services conducted all RATAs using test methods in accordance with 40 CFR, Part 75, Appendix A and U.S. EPA test method 320. The relative accuracy (RA) for all flow meters and analyzers were within the allowable range (below 10%) and below 7.5 percent. As a result all equipment meets the requirement for annual RATAs.

RCE verified that the Project met all Protocol requirements for CEMS installation and certification or that the Project was approved to apply methods outlined in the variance determination dated October 5, 2021.

3.7 Ongoing CEMS QA/QC Program

RCE reviewed evidence for the ongoing CEMS QA/QC requirements throughout the reporting period.

3.7.1 Daily Requirements

RCE reviewed evidence that the daily calibration error tests were performed for the N₂O analyzers and the TRU outlet flow meter. The analyzers and flow meter perform automatic daily calibration error tests, and the CEMS records the results of the checks. The limit for being out of control/failed is set to 5% for the analyzers and 6% for the TRU outlet stack flow meter. If the error is less than 2.5% for N₂O analyzers or 3% for the thermal mass flow meter no action is required. If the error is between 2.5% and 5% for the N₂O analyzers or 3% and 6% for the thermal mass flow meter for two consecutive days, a recalibration occurs. If the error is greater than 5% for the N₂O analyzers or 6% for the thermal mass flow meter a recalibration occurs immediately. If the recalibration fails, the system sends a maintenance alarm to operations and does not record concentration or flow until there is a successful calibration.

Ascend and ClimeCo requested and were granted a variance, dated May 19, 2021, for use of a method other than the daily calibration error test as described in the Protocol and Part 75 for the TRU/SCR 1 inlet flow meter and SCR 2 inlet flow meter. This variance applies for the Project's entire crediting period or until Ascend discontinues operation or use of the Smart Transmitter. Ascend uses Rosemount 3051S Smart Transmitters Loop Integrity, Process Intelligence, and Plugged Impulse Line Advanced Diagnostics features in lieu of daily calibration checks for these flow meters to satisfy ongoing meter monitoring and QA/QC requirements. The diagnostics flag deviations in normal operation and provide assurance that each meter is functioning correctly. The Reserve granted the variance on May 19, 2021.

RCE verified that the Project and Project Developer met all conditions defined in the variance determination. During the verification of a previous reporting period, RCE interviewed site personnel responsible for monitoring the diagnostics and reviewed examples of daily reports from the reporting period. Combined with information from the RATA showing that these meters were reading correctly, RCE confirmed that the diagnostics gathered by the Smart Transmitter sufficiently tracked if there were any calibration issues, that appropriate measures were taken if any issues occurred and that manufacturer-recommended maintenance and calibrations were performed.

RCE reviewed the raw data and results of daily calibrations and confirmed that the plant performs calibration adjustments as necessary, validates data daily, continuously monitors and records data every hour, and performs QA checks.

There were some instances during the reporting period where the results of the automatic calibration error test for the N₂O outlet and inlet analyzer "failed". Each time, the analyzers were checked again and passed the check or the instrument was considered out of control and data substitution was applied for the data parameter.

3.7.2 Quarterly Requirements

RCE verified that the following quarterly assessments were performed according to Protocol requirements:

Linearity Checks:

Linearity checks are required in quarters for which there is no RATA. There was a RATA for both analyzers during the first quarter of 2022. The plant performed linearity checks on the analyzers because there was no RATA in the third quarter 2022. RCE confirmed that both analyzers passed each linearity check the plant performed during the third quarter.

Leak Check:

The variance determination dated May 19, 2021, and described above for daily calibration error tests, also includes leak checks related to the TRU/SCR 1 inlet and SCR 2 inlet differential pressure flow meters. See Section 3.7.1 regarding requirements for these two flow meters. The TRU outlet flow meter is a thermal mass flow meter and does not require leak checks.

Flow-to-Load or Heat Rate Evaluations:

The Errata and Clarifications to the Protocol state that units not producing electrical output or thermal output are exempted from the flow-to-load ratio test requirements. The Project meets this exemption and is therefore not required to perform this quarterly assessment.

Data Validation

RCE confirmed that the results of all QA/QC checks were within the ranges required by the Protocol and 40 CFR Part 75 Appendix B requirements.

3.7.3 Annual and Semi-Annual Assessments

RCE reviewed the results of the most recent RATAs conducted on March 21, 2022 for the TRU/SCR 1 and TRU outlet stack flow meters and both analyzers and on May 5, 2022 for the SCR II inlet flow meter. Montrose Air Quality Services conducted all RATAs using test methods in accordance with 40 CFR, Part 75, Appendix A and U.S. EPA test method 320.

The results are shown in Table 3, below.

Table 3 – RATA Results

Equipment (Meter ID)	3/21/2022	5/5/2022
TRU/SCR 1 Inlet Flow Meter (331FI103-1)	4.96%	N/A
SCR 2 Inlet Flow Meter (463FC11)	N/A	1.31%
TRU Outlet Stack Flow Meter (331FI104)	6.11%	N/A
N ₂ O TRU/SCR Inlet Analyzer (463AI185B)	6.60%	N/A
N ₂ O TRU Outlet Analyzer (331AI1022)	3.66 ppmvd*	N/A

*Differences within 12 ppm are acceptable for low emitters (<250 ppm N₂O) according to Part 75 requirements

The results of the RATAs for all instruments showed the relative accuracy to be within the acceptable range (below 10%) and below 7.5 percent. As a result, all equipment meets the requirement for annual RATAs.

As a result of the bias tests, the TRU outlet flow meter was the only equipment that required a BAF during the reporting period. RCE verified the BAF and that it was applied correctly to the raw flow data.

Table 4 - Bias Adjustment Factors

Equipment (Meter ID)	07/1/2022 – 9/30/2022
TRU/SCR 1 Inlet Flow Meter (331FI103-1)	None
SCR 2 Inlet Flow Meter (463FC11)	None
TRU Outlet Stack Flow Meter (331FI104)	1.052
N ₂ O TRU/SCR Inlet Analyzer (463AI185B)	None
N ₂ O TRU Outlet Analyzer (331AI1022)	None

3.7.4 Missing Data Substitution

During the reporting period Ascend applied missing data substitution methods for a total of 0 hours for the TRU NOX FLOW, 0 hours for the SCR NOX FLOW, 0 hours for the TRU MASS FLOW, 3 hours for the ADIPIC OFFGAS N₂O, and 9 hours for the TRU N₂O outlet analyzer. The DAS is programmed to automatically calculate the substitute values based on the guidance in the Protocol and Part 75 Section 75.33. RCE confirmed that the values were appropriately substituted.

3.8 Assessment of GHG Emissions Reductions Calculations

The emission reduction calculations assessment included a review of the baseline and project assumptions, data inputs, data management, and the accuracy of calculations. RCE assessed the information generated from the baseline lookback period and Project reporting period in order to evaluate the completeness of the data and how it is transferred from Ascend's DAS to ClimeCo's GHG calculation database.

The Protocol requires a series of data analyses and calculation steps to quantify the GHG emission reductions. ClimeCo managed the data in Microsoft Access database files using various queries of the raw data and provided the data to RCE in a MS Excel spreadsheet. RCE reviewed the queries/formulas and data outputs for compliance with the Protocol.

RCE confirmed that all data was normalized to 0°C and 101.325 kPa in the calculation database/spreadsheets. ClimeCo also performed unit conversions for some monitoring parameters, and RCE confirmed that the conversions were performed correctly and that the raw data was converted to the units required by the Protocol for all parameters.

Baseline Emissions

Ascend and ClimeCo chose the Static Baseline Approach for calculating the average N₂O abatement efficiency. This approach requires historical N₂O destruction data for at least the five most recent calendar years of operation prior to the project start date. The project start date is in 2021 so Ascend used annual baseline data from 2015 – 2020 to quantify the abatement efficiency (according to section 5.1.1 of the Protocol).

Baseline abatement efficiency is calculated by dividing N₂O destroyed by N₂O released in the off gas. In order to control NO_x emissions, off gas is sent to the TRU (control unit), SCR (non-control unit), or in some instances both the TRU and SCR. The plant rarely has any downtime. Because of these unique properties, ClimeCo developed a method for eliminating outliers using the methods stipulated in Section 5.1.1. The Protocol defines operating hours as any time period where there is production of adipic acid and/or N₂O. There are almost no time periods during the baseline lookback period where neither of these conditions existed.

Because of the nature of the plant, ClimeCo instead applied the statistical valuation to seven data sets in order to accurately reflect the N₂O produced and destroyed:

1. Standalone off gas flow to the TRU
2. N₂O concentration for when off gas flow is only directed to the TRU
3. Standalone off gas flow to the SCR
4. N₂O concentration for when off gas flow is only directed to the SCR
5. Split off gas flow to the TRU
6. Split off gas flow to the SCR
7. N₂O concentration for when off gas flow is split between the TRU and SCR

The Reserve approved this method for calculating averages for each baseline calendar year.

ClimeCo multiplied the total measured N₂O emissions in the off gas prior to any abatement during the reporting period (using the same statistical method described above) by the fraction of off gas that was unabated during the baseline look-back period. The total was added to the N₂O emissions from HNO₃ production as calculated from Equation 5.6 and 5.2.

The Project facility is not part of a corporate group that controls more than one AAP facility. RCE confirmed this by reviewing all of Ascend's commercial locations. The facility in Cantonment, FL is the only facility that produces adipic acid. In this situation, the Protocol allows the Project Developer to either propose a method for determining that leakage is a low risk, follow the same test as if they did own multiple AAPs or to demonstrate that AA production did not exceed Title V production levels as of the Project start date. RCE confirmed that as of the project start date the plant had not exceeded the maximum permitted production volume for adipic acid.

Project Emissions

Project emissions include N₂O emissions in the off gas from the SCR and TRU stack and CO₂ emissions from increased external energy use including fossil fuel combustion and electricity use by project equipment.

The largest source of project emissions is N₂O in the off gas directed to the SCR when this occurs. None of the N₂O in the off gas to the SCR is abated, and this usually makes up the majority of project emissions. However, during the current reporting period, none of the off gas was directed to the SCR. RCE still reviewed this data in detail as it is considered a high risk category based on the fact that any off-gas directed to the SCR will result in high Project Emissions. Ascend and ClimeCo performed the same statistical analysis that was used in the baseline to calculate N₂O emissions from off gas directed to the SCR and the off gas exiting the TRU stack.

Other project emissions include additional energy use to operate the Project, the largest of which was use of additional fossil fuel to operate the TRU beyond what would have been used in the baseline. Per Equation 5.12 in the Protocol to calculate emissions from increased external energy use, the Project has project emissions from the net increase in CO₂ emissions from fossil fuel combustion and electricity use due to project activity. There are no project emissions from steam export. ClimeCo calculated baseline and project energy export from off gas utilization: more energy was exported during the reporting period for this source and therefore there were no project emissions associated with the net change in energy export from off gas utilization. ClimeCo performed detailed calculations averaging natural gas use in the TRU in the baseline lookback period. The average use in the baseline lookback period was compared to the natural gas usage during the reporting period and there was a small net increase of natural gas combustion due to Project activities.

There is also a small amount of electricity consumption for the high-pressure water absorption process that recycles NO_x to nitric acid. Ascend appropriately subtracted project emissions from the generation of the additional electricity required to operate the project equipment.

RCE determined that the emission reduction calculations followed the Protocol and found no material

misstatements in the final Project GHG reductions calculations and results.

4.0 Verification Results

Ascend and ClimeCo provided sufficient evidence and documentation of their emission reductions, data collection procedures, monitoring, and quality control procedures. The verification process focused on verifying the baseline and project emissions as well as source data used by Ascend and ClimeCo to quantify the emission reductions in accordance with the Protocol.

RCE did not issue any findings during the verification.

The Project reported emission reductions of 1,541,814 metric tons of CO₂ equivalents as per the information provided in the calculation summary spreadsheets. During the final review, RCE identified no material misstatements in the data or emission reduction calculations. Table 5 defines the emission reductions verified for this reporting period.

5.0 Conclusion

RCE conducted a risk-based analysis of the Phlogiston Phase I project assertion including a strategic review of the Project data and evidence. Based upon the processes and procedures and the evidence collected, RCE concludes that the Project emission reductions resulting from the destruction of N₂O during the reporting period July 1, 2022 through September 30, 2022 can be considered:

- In conformance with the Reserve's Adipic Acid Production Project Protocol Version 1.0 and the ISO 14064-3:2006 standard,
- Without material discrepancy, and
- Verified to a reasonable level of assurance.

The verified emission reductions are listed in Table 5 (note that while RCE confirmed the emission reduction calculations and the total emission reductions to be correct and within the materiality threshold, the values in the table below are summary data only with significant figures rounded for summary purposes in this report):

Table 5 - Emission Reductions Verified July 1, 2022 – September 30, 2022

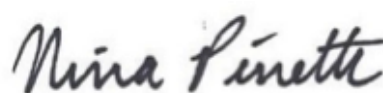
Vintage	Baseline Emissions CO ₂ e (metric tons)	Project Emissions CO ₂ e (metric tons)	Emission Reductions CO ₂ e (metric tons)
2022	1,545,093	3,279	1,541,814
Total	1,545,093	3,279	1,541,814

Lead Verifier Signature



Phillip Cunningham

Senior Internal Reviewer Signature



Nina Pinette