



Verification Report

CAR811 – Rentech Energy Midwest Corporation – Nitric Acid Plant 1
Reporting Period: September 23, 2022 – July 12, 2023

Prepared for:
East Dubuque Nitrogen Fertilizers, LLC

June 14, 2024

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1.0 Introduction

TÜV SÜD America Inc. (TÜV SÜD) was contracted by ClimeCo LLC (ClimeCo) to verify the Rentech Energy Midwest Corporation Nitric Acid Plant 1 (NAP) project (Project) owned and operated by East Dubuque Nitrogen Fertilizers, LLC (EDNF) for the reporting period September 23, 2022 through July 12, 2023 to the Climate Action Reserve (Reserve) Nitric Acid Production Project Protocol Version 2.2 (Protocol). The Project involves GHG emission reductions from the destruction of nitrous oxide (N₂O).

1.1 Project Background & Site Description

The Project involves the installation of a new catalyst in the tail gas leaving the secondary absorption tower, catalytically decomposing the nitrous oxide that would have otherwise been vented to the atmosphere. The Project is at the single pressure Nitric Acid Plant 1 at EDNF's facility in East Dubuque, Illinois. Nitric Acid Plant 1 has been in operation since 1978. The facility also includes a plant for ammonia production, a plant for urea production, and a second plant producing nitric acid. EDNF is the project owner and is responsible for ongoing operation and maintenance of the monitoring system and data acquisition and handling system. ClimeCo is the technical consultant to EDNF and is responsible for overall program management, development of monitoring reports, and oversight of the verification process.

This is the verification of the seventeenth reporting period for the Project. The start date of this reporting period is the same as the end date of the previous reporting period; however, TÜV SÜD confirmed that emission reductions were claimed until 2:00 pm on September 23, 2022 during the previous reporting period and after 3:00 pm on September 23, 2022 during this reporting period. The reporting period includes two full campaigns:

- Campaign 33 from September 23, 2022 at 3:00pm to March 8, 2023 at 2:00am
- Campaign 34 from March 8, 2023 at 10:00pm to July 11, 2023 at 10:00pm

The actual campaign start and end dates and times are reflected, but maintenance periods between campaigns are included in the reporting period to ensure contiguous reporting. All hours on July 12, 2023 are included in the reporting period but the plant did not operate during any hours on this day.

1.2 Responsible Parties

Project Developer

East Dubuque Nitrogen Fertilizers, LLC
16675 U.S. Highway 20 W
East Dubuque, IL 61025

Technical Consultant

ClimeCo LLC
1 East Philadelphia Avenue
Boyertown, PA 19512

EDNF and ClimeCo are responsible for the preparation and fair presentation of the GHG statement in accordance with the criteria listed below in Table 1.

1.3 Verification Team

TÜV SÜD is responsible for expressing an opinion on the GHG statement based on the verification. The TÜV SÜD 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 nitric acid plant sector.

Lead Verifier: Nina Pinette

Team Member: Garrett Heidrick

Senior Internal Reviewer: Phillip Cunningham

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 additionality, monitoring, and reporting requirements. Furthermore, the verification activities ensure that the data provided to TÜV SÜD 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,
- Conduct a site visit to the Project,
- Review Project data acquisition and quality control procedures,
- Review Project’s historical campaign data and calculation of permitted operating conditions and HNO_3max ,
- Review the Project’s baseline 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, List of Findings, and Verification Opinion to EDNF and the Reserve.

1.6 Verification Criteria

The verification criteria are shown in Table 1.

Table 1. Verification Criteria

Criteria	Details
Standard of Verification	• Nitric Acid Production Project Protocol Version 2.2 (April 18, 2019) (Protocol) • Reserve Offset Program Manual v9.2 (April 2024) • Policy Memo: Use of Global Warming Potential Values for All Offset Protocols (July 13, 2022)
Verification Process	• Reserve Verification Program Manual (February 3, 2021) • ISO 14064-3:2019 “Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas statements”
Level of Assurance	Reasonable assurance

Materiality	99% materiality threshold (<1% error) because total annual ERs are >100,000 tCO ₂ e.
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2.0 Verification Activities Summary

TÜV SÜD developed a verification plan to be followed throughout the verification. The verification plan consisted of the following activities:

- TÜV SÜD completed the Project NOVA/COI form to identify any potential conflicts of interest with the Project or Project developer. The NOVA/COI form was submitted to the Reserve's online registry, and the COI assessment revealed no conflicts of interest and was approved by the Reserve on February 21, 2024.
- TÜV SÜD held a verification kickoff meeting with ClimeCo on March 6, 2024. During the kickoff meeting TÜV SÜD reviewed the verification objectives and process, the verification schedule, and requested the verification background documents.
- TÜV SÜD 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.
- TÜV SÜD developed a risk-based evidence-gathering plan based upon the strategic review and risk assessment. The verification plan and evidence-gathering plan were used throughout the verification and were revised as needed based upon additional risk assessments.
- TÜV SÜD conducted a site visit to the Project on March 12, 2024. During the site visit TÜV SÜD viewed the continuous emission monitoring system (CEMS) equipment; observed the onsite GHG management systems and data gathering, monitoring and handling practices; and interviewed key personnel.
- TÜV SÜD 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.
- TÜV SÜD submitted requests for corrective actions, non-material findings, additional documentation, and clarifications, as necessary to ClimeCo and EDNF throughout the verification.
- TÜV SÜD's Senior Internal Reviewer conducted a review of the verification evidence-gathering activities, Verification Report, and Verification Opinion.
- TÜV SÜD issued a final Verification Report, Verification Opinion, and List of Findings.
- TÜV SÜD held an exit meeting with ClimeCo and EDNF.

3.0 Verification Findings

3.1 Assessment of the GHG Reduction Project Operations

The Project destroys N₂O from a nitric acid plant (NAP) via a tertiary abatement catalyst in the tail gas stream located between the re-heater and expander. TÜV SÜD confirmed that a non-selective catalytic reduction (NSCR) unit was not operating at the plant at any time since December 2, 2007.

A CEMS directly measures the N₂O concentration in the stack gas and the tail gas. The data acquisition and handling system (DAHS) along with the programmable logic controller (PLC) and server performs CEMS data monitoring, recordkeeping, and reporting. The system monitors gas flow rate, N₂O

concentration, process temperature, pressure, and ammonia-to-air ratio on a continuous basis and records the data every minute, meeting Protocol requirements.

During the verification of the first reporting period, TÜV SÜD confirmed that the plant completed installation and initial certification of the CEMS according to manufacturer's specifications and the requirements of the Protocol. TÜV SÜD verified the installation of the tertiary abatement catalyst and campaign dates through review of plant gauze records. TÜV SÜD confirmed that this reporting period included two full campaigns. Finally, TÜV SÜD determined that EDNF adhered to the methodology defined in the Monitoring Plan Version 3.7 throughout the verification and monitored all applicable parameters 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 included from the Baseline and Project activities for tertiary abatement projects. Since the Project has no ammonia input to the N₂O destruction facility, uses no hydrocarbons as reducing agents or for reheating the tail gas, and has no external energy input to reheat the tail gas, N₂O is the only GHG included from the Baseline and Project activities for this Project.

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 vented to the atmosphere.
Project	• N₂O vented to the atmosphere

3.3 Project Eligibility Criteria

The Protocol specifies five eligibility rules that GHG Project developers must meet 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 a nitric acid plant in East Dubuque, Illinois, U.S. The Project therefore meets the location eligibility requirement.
- **Eligibility Rule II: Project Start Date**
During the first verification cycle, TÜV SÜD reviewed evidence including Excel files that recorded plant monitoring data and showed that plant operations were shut down on June 27-28, 2011 for installation of the catalyst. The Project start date for a tertiary catalyst project is defined as the date on which nitric acid production first commences after installation of the tertiary N₂O abatement technology. The plant was restarted and production of nitric acid commenced on June 29, 2011, which is the Project start date and was the start date of the first reporting period.
- **Eligibility Rule III: Project Crediting Period**
The crediting period for a nitric acid project is approximately ten years in length and aligns with the end of the last full campaign that begins in the tenth year of reporting. This reporting period is within

the Project's second crediting period which began on August 12, 2021. The Project's first crediting period was from the Project start date on June 29, 2011, to August 11, 2021.

- **Eligibility Rule IV: Additionality**

Legal Requirement Test

TÜV SÜD confirmed that there are currently no laws requiring the abatement of N₂O at the plant. In addition, EDNF's Environmental, Health, Safety, and Security Manager checks periodicals, websites, newsletters, and other materials provided by trade associations and legal advocacy groups such as the Chemical Industry Council of Illinois and the Fertilizer Institute. TÜV SÜD reviewed EDNF's Title V Permit, but the permit does not address N₂O. EDNF's nitric acid plant 1 has not triggered the PSD Tailoring Rule for GHGs; the plant does not exceed the emission threshold and is therefore not subject to this rule. The facility's Title V Permit expired on July 11, 2022; TÜV SÜD verified that EDNF submitted the appropriate paperwork including the Clean Air Permit Program Application to the Illinois EPA to continue to operate under the existing permit.

TÜV SÜD also verified that the project developer accurately completed the Attestation of Voluntary Implementation form and uploaded it to the Reserve software.

Performance Standard Test

TÜV SÜD verified that the Project satisfies the Performance Standard by installing a new tertiary N₂O abatement catalyst. TÜV SÜD reviewed plant records indicating the installation of the catalyst on June 27-28, 2011.

- **Eligibility Rule V: Regulatory Compliance**

The Project was in material compliance with all applicable laws throughout the reporting period. TÜV SÜD reviewed the U.S. EPA's Enforcement and Compliance History Online (ECHO) database and any entries associated with the EDNF facility. There were violations during this reporting period; however, they were not caused by the Project and would have occurred in the absence of the Project:

- A Clean Air Act (CAA) violation notice was issued for EDNF's NAP1 and NAP2 on July 25, 2023. The violations included exceedances of permitted levels for NO_x on multiple occasions at NAP1 and NAP2. ClimeCo explained that "A secondary catalyst by design only affects the N₂O component of the stream. The N₂O is broken down into oxygen and nitrogen. It neither reduces nor generates any measurable amount of NO_x in the stream. Therefore, without the secondary catalyst [the plants'] NO_x values would have been the same and the alleged exceedance would have still occurred. The same principle applies to the tertiary catalyst used in NAP 1." Other violations, also unrelated to the Project, included exceedances of permitted levels of CO for Boiler S-6B, failures to revise quality control procedures for NO_x and NO₂ monitors, and a violation at the urea plant—all of which are unrelated to the Project at NAP1.
- Safe Drinking Water Act (SDWA) enforcement actions were taken in January and February of 2023; however, these were for violations that occurred prior to this reporting period and that were not caused by or related to the Project.
- A Clean Water Act (CWA) violation occurred in Q1 of 2023 when the Total Residual Chlorine (TRC) in a sample exceeded the NPDES permit limit. This violation was not caused by or related to the Project.

TÜV SÜD searched the Illinois Environmental Protection Agency (IEPA) Document Explorer and submitted a Freedom of Information Act (FOIA) request to the Illinois Environmental Protection Agency and found only evidence of the violations listed above for this reporting period, none of which are caused by the Project.

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

3.4 Ownership of GHG Reductions

EDNF owns the nitric acid plant and thus owns full right to any emission reductions associated with the plant. ClimeCo serves only as a technical consultant to EDNF. TÜV SÜD reviewed the “Designation of Authority” in which Rentech Nitrogen, LLC (now EDNF) designated authority to ClimeCo as the Account Holder Agent on the Reserve website. TÜV SÜD also verified that the Attestation of Title was correctly completed and uploaded to the Reserve software after the end of the reporting period.

3.5 Assessment of Information System Controls

TÜV SÜD’s review of the GHG management systems took place during the site visit through observations of onsite procedures and interviews with Project key personnel. The review included confirming that the Project monitoring was done by direct measurements from a CEMS for gas flow rates and N₂O concentrations. The Project uses a Kurz thermal mass flow meter to measure gas flows in the stack. These flow measurements are used in both baseline and project emission calculations. The Project uses two N₂O analyzers, one upstream of the tertiary abatement system (inlet) and one downstream of the system (outlet). Both are EcoChem infrared gas analyzers. TÜV SÜD confirmed the locations of the sample probes within the stack through review of plant diagrams and visual inspection at the site visit.

The Project uses the CEMS DAHS coupled with a PLC that consolidates the data. The data is stored locally and on a server with regular backup. TÜV SÜD verified that the data management systems met the requirements of Section 6.2.2 of the Protocol.

3.6 CEMS Installation and Certification

The Protocol states that the project developers follow the CEMS installation and certification requirements:

- 40 CFR Part 60, Sec. 60.13
- 40 CFR Part 60, Appendix B, Performance Specification 2
- 40 CFR Part 75, Appendix A, Sec. 6

As is the case with most NAPs located in the U.S., parts of the EDNF CEMS were installed prior to the Project. All CEMS components were installed by the manufacturers of the equipment or electrical contractors. TÜV SÜD verified that the Project met all CEMS installation and certification requirements during the first verification cycle.

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

7-day Calibration Error Test:

TÜV SÜD reviewed the results of the 7-day calibration error tests performed for the flow meter (7/14/2010 – 7/20/2010), the inlet analyzer (6/22/2011 – 6/28/2011), and the outlet analyzer (7/14/2010

– 7/20/2010). All tests were completed prior to the project start date and the percent calibration errors were within the allowable range.

Linearity Check:

TÜV SÜD reviewed the results of the linearity checks performed for the inlet analyzer (6/21/2011) and the outlet analyzer (6/20/2011). Both checks took place prior to the project start date and both met the requirement of less than 5.0 percent error.

RATA and bias tests:

TÜV SÜD reviewed the results of the RATA that was conducted on June 22, 2011 for the flow meter, inlet analyzer, and outlet analyzer. The relative accuracy (RA) for all three was within the allowable range and all three pieces of equipment passed the bias test.

Cycle Time Test:

TÜV SÜD reviewed the results of the cycle time test on August 16, 2010 which ensures that the monitoring system is capable of completing at least one cycle of sampling, analyzing, and data recording every 15 minutes.

3.7 Ongoing CEMS QA/QC Program

TÜV SÜD confirmed that the Project met the ongoing CEMS QA/QC requirements throughout the reporting period.

3.7.1 Daily Requirements

TÜV SÜD reviewed evidence that the daily calibration error test is performed for both N₂O analyzers with a span gas and a zero gas. The analyzers perform an automatic daily calibration error test; the analyzers are very stable as demonstrated by minimal variation in the calibration results. TÜV SÜD reviewed the raw data and results of each test. There were no instances during the reporting period when the analyzers were out of calibration when NAP1 was operating. TÜV SÜD also confirmed that calibration adjustments are performed, if necessary, data is validated daily, data is continuously monitored and recorded every minute, and QA checks are performed.

3.7.2 Quarterly Requirements

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

Calibration Error Test:

TÜV SÜD reviewed evidence that the quarterly calibration error test requirement was met for the flow meter. The meter performs an automatic daily calibration error test with a flow zero and a flow span; the flow meter is very stable as demonstrated by minimal variation in the daily calibration results. TÜV SÜD viewed the raw data and results of each test and verified that all results were within the +/-3 percent threshold as required by the Protocol.

TÜV SÜD also confirmed that calibration adjustments are performed, if necessary, data is validated, data is continuously monitored and recorded every minute, and QA checks are performed. There were no instances during the reporting period when the flow meter was out of calibration.

Leak Check:

The Protocol states that leak checks are required for differential pressure flow meters only. Because the Project utilizes a thermal mass flow meter, this quarterly assessment is not required.

Flow-to-Load or Heat Rate Evaluations:

The Protocol states 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.

Linearity Checks

TÜV SÜD confirmed that the quarterly linearity checks were performed for the N₂O analyzers. Linearity checks were conducted for the inlet and outlet analyzers in each quarter during the project campaigns that did not include RATAs for the analyzers, as required by the Protocol.

Table 3. Linearity Check Dates

Equipment	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023
N ₂ O Inlet Analyzer	8/2/2022	RATA	1/31/2023	5/2/2023	8/1/2023
N ₂ O Outlet Analyzer	8/3/2022	RATA	1/30/2023	5/1/2023	7/31/2023

TÜV SÜD verified that the results of all checks met Protocol and Part 75 requirements. The results were within the required range (<5%) for low-level, mid-level, and high-level gas concentrations. Both the inlet and outlet analyzers had RATAs in the fourth quarter of 2022.

Data Validation

TÜV SÜD 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

TÜV SÜD reviewed the results of the RATAs conducted on November 3, 2021 for both analyzers and the flow meter during the verification of the previous reporting period. The third party conducting the RATAs, Alliance Source Testing, conforms to the requirements of ASTM D7036-04.

The results are shown in Table 4, below.

Table 4. RATA Results

Equipment	11/3/2021	11/15/2022
N ₂ O Inlet Analyzer	0.89%	4.84%
N ₂ O Outlet Analyzer	3.16%	5.49%
Flow Meter	6.05%	2.2%

The results of the RATAs for all three instruments showed the relative accuracy to be within the acceptable range (below 10%) and below 7.5% and thus both analyzers and the flow meter will require annual RATAs.

As a result of the bias tests from the RATAs in November 2021, the outlet analyzer required a BAF for N₂O concentration. As a result of the bias tests from the RATAs in November 2022, none of instruments required a BAF. TÜV SÜD verified that the BAF for the outlet analyzer was applied from the start of the reporting period through November 3, 2022. The BAF should have been applied from the start of the reporting period through November 14, 2022; however, this results in a non-material difference in reported emission reductions. The inlet analyzer and flow meter did not require BAFs during this reporting period.

Table 5 - Bias Adjustment Factors

Equipment	9/23/2022 – 11/14/2022	11/15/2022 – 7/12/2023
N ₂ O Inlet Analyzer	None	None
N ₂ O Outlet Analyzer	1.025	None
Flow Meter	None	None

3.7.4 Missing Data Substitution

During the Project campaigns, missing data substitution methods were applied for a total of 10 hours for inlet N₂O concentration and 20 hours for N₂O outlet concentration. There was no missing data substitution required for flow. The DAHS is programmed to automatically calculate the substitute values based on the guidance in the Protocol and Part 75 Section 75.33. TÜV SÜD 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 historical, baseline, and project assumptions, data inputs, data management, and the accuracy of calculations. During its first verification for the Project, TÜV SÜD assessed the information generated from the historical campaigns. For this reporting period, TÜV SÜD assessed the data generated from the project campaign and evaluated the completeness of the data and how it is transferred from EDNF's DAHS 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 a Microsoft Access database file using various queries of the raw data and provided the data to TÜV SÜD in a MS Excel spreadsheet. TÜV SÜD reviewed the queries/formulas and data outputs for compliance with the Protocol.

The flow meter and analyzers record at 68°F and 1 atmosphere; TÜV SÜD 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 TÜV SÜD confirmed that the conversions were performed correctly and that the raw data was converted to the units required by the protocol for all parameters.

Historical Campaigns

The project was implemented at an existing NAP. TÜV SÜD confirmed that five years of historical data were not available because there was not reliable data with enough of the needed parameters prior to May 20, 2008; therefore ClimeCo used historical data from the eight previous consecutive campaigns dating from May 20, 2008 to March 20, 2011. The last historical campaign ended immediately prior to the start of the first campaign included in the first reporting period of the Project (accounting for the first 28 days of the reporting period). TÜV SÜD assessed the raw data and calculations used to determine HNO_{3,MAX} and the allowable operating conditions (AOCs) for temperature, pressure, and ammonia-to-air ratio. TÜV SÜD confirmed that all parameters were calculated and measured according to the methods outlined in the Protocol.

- HNO_{3,MAX} = 204.45 tHNO₃/day
- Oxidation temperature: min. = 843.89°C, max. = 911.11°C
- Oxidation pressure: min. = 6.76 bar, max. = 8.62 bar
- Ammonia-to-Air Ratio: max. = 10.75%

TÜV SÜD confirmed that the values for each AOC were used in the calculations for these Project campaigns.

Baseline Emissions

Tertiary abatement projects must sample the tail gas prior to entering the tertiary abatement catalyst. The inlet analyzer continuously measures the N_2O concentration in the gas. ClimeCo calculated baseline emissions following section 5.2.2 of the Protocol for any time periods when actual average daily operating conditions for pressure, temperature, and ammonia-to-air ratio were outside of the AOCs. ClimeCo used the lower of the two options provided for each hour outside of the AOCs.

Project Emissions

ClimeCo provided Project data for the entire reporting period which included two full campaigns, Campaign 33 and 34.

TÜV SÜD verified that the Project campaigns operated inside the established AOCs greater than 50 percent of the campaign, meeting the requirement in the Protocol. TÜV SÜD also confirmed that the operating conditions during the Project campaigns are representative of AOCs by verifying that the mean values for oxidation temperature, oxidation pressure, and ammonia-to-air ratio are within the corresponding ranges defined for the AOCs for Campaigns 33 and 34.

During Campaign 34, a thermocouple measuring the oxidation temperature within the ammonia reactor malfunctioned, from approximately March 10, 2023 to July 13, 2023. EDNF believes the malfunction was due to a bad junction weld at the tip of the sensor. There is a secondary thermocouple located within the same thermowell which was used to measure the temperature values used in the emission reduction calculations for Campaign 34. Section 6.3 of the Protocol is silent on data substitution for the monitored temperature parameter. ClimeCo received approval from the Reserve to use reasonable data substitution methods for parameters for which there is no method prescribed by the Protocol, such as using a campaign average value or average of hours before and hour after the missing data period, whichever is most conservative. Per the professional judgement of the verification team and consistent with the guidance provided by the Reserve, the use of a redundant instrument—i.e. a second thermocouple—to measure values used in the calculation of emission reductions for this reporting period is reasonable. A comparison of temperatures measured by the two thermocouples after the malfunctioning thermocouple was replaced on July 12, 2023 shows consistent values.

TÜV SÜD confirmed that $\text{HNO}_{3,\text{RP}}$ exceeded $\text{HNO}_{3,\text{MAX,scaled}}$ for Campaign 33, and $\text{HNO}_{3,\text{RP}}$ was less than $\text{HNO}_{3,\text{MAX,scaled}}$ for Campaign 34. TÜV SÜD verified that ClimeCo appropriately scaled the emission reductions according to equation 5.10 for Campaign 33. TÜV SÜD also verified the operating hours for each campaign.

TÜV SÜD 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

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

During the verification process, TÜV SÜD issued one corrective action request, three non-material corrective action requests, four additional documentation requests, and two clarification requests to

complete the verification. The details of TÜV SÜD's requests are documented in the List of Findings provided to the Reserve, EDNF, and ClimeCo.

During the final review, TÜV SÜD identified no material misstatements in the data or emission reduction calculations. Table 6 defines the emission reductions verified for this reporting period.

5.0 Verification Opinion

TÜV SÜD America, Inc. conducted the verification of CAR811 Rentech Energy Midwest Corporation Nitric Acid Plant 1 project (Project) GHG statement according to the requirements of ISO 14064-3:2019, 14065:2020, and 17029:2019. The objective of this verification was to ensure that the GHG statement is materially correct and conforms to all relevant criteria. The GHG statement is the responsibility of East Dubuque Nitrogen Fertilizers, LLC. A summary of the GHG statement is as follows:

- GHG-related activity: N₂O destruction at East Dubuque Nitrogen Fertilizers' Nitric Acid Plant 1
- Reporting period 17: September 23, 2022 – July 12, 2023
- Criteria:
 - U.S Nitric Acid Production Project Protocol, V2.2, April 18, 2019
 - Reserve Offset Program Manual, V9.0, November 2023
 - Reserve Verification Program Manual, February 2021

The data and information supporting the GHG statement were historical in nature.

TÜV SÜD has ensured EDNF's effective use of controls related to the GHG statement. TÜV SÜD concludes that there is sufficient and appropriate evidence to support EDNF's GHG statement and is issuing an Unmodified Opinion.

TÜV SÜD confirms that the GHG statement has been prepared:

- Without material discrepancy,
- In accordance with all applicable criteria, and
- Verified to a reasonable level of assurance.

In compliance with the requirements of ISO 14065:2020, the client may reproduce and distribute TÜV SÜD's verification opinion without TÜV SÜD's prior authorization, as long as the verification opinion is reproduced in its entirety, including the date.

The verified GHG statement is summarized in Table 6 and Table 7 below. TÜV SÜD confirmed the emission reduction calculations and the total emission reductions to be correct within the materiality threshold, the values in Table 6 and Table 7 are summary data only with significant figures rounded for summary purposes in this report. Additionally, the actual campaign start and end dates are reflected but maintenance periods between campaigns and after campaign 34 are included in the reporting period to ensure contiguous reporting.

Table 6. Emission Reductions Verified for September 23, 2022 to July 12, 2023 by Campaign

Campaign	Baseline Emissions CO₂e (metric tons)	Project Emissions CO₂e (metric tons)	Emission Reductions CO₂e (metric tons)
Campaign 33 09/23/2022 – 03/08/2023	98,511	24,561	73,949
Campaign 34 03/08/2023 – 07/11/2023	72,653	16,854	55,800
Total	171,164	41,415	129,748

Table 7. Emission Reductions Verified for September 23, 2022 to July 12, 2023 by Vintage

Vintage	Emission Reductions CO₂e (metric tons)
2022	42,152
2023	87,596
Total	129,748

Lead Verifier



Nina Pinette

Senior Internal Reviewer



Phillip Cunningham