Verification Report for

Rentech Nitrogen, LLC – Nitric Acid Plant 2
CAR1027

Sixth Reporting Period
October 30, 2018 to September 14, 2019

Nitric Acid Production
Project Protocol, Version 2.0

October 30, 2019

Report Prepared for

East Dubuque Nitrogen
Fertilizers, LLC,
16675 Highway 20 West,
East Dubuque, Illinois 61025
USA

Report Prepared by

NSF Certification, LLC
789 N. Dixboro Road
Ann Arbor, MI 48105
USA

Summary

East Dubuque Nitrogen Fertilizers, LLC ("EDNF") is the project developer for the "Rentech Nitrogen, LLC – Nitric Acid Plant 2 (Project) located in East Dubuque, IL. In this Sixth reporting period, EDNF reported on its nitrous oxide reduction results during its 6th nitric acid production campaign that commenced on October 30, 2018, and concluded on September 14, 2019. NSF Certification, LLC (NSF) was engaged to verify the nitrous oxide emission reductions achieved by destroying nitrous oxide (N_2O) via a secondary catalyst during the campaign in accordance with the requirements of the Climate Action Reserve Nitric Acid Production Project Protocol, Version 2.0. EDNF reduced emissions into the atmosphere by 135,195 metric tons of carbon dioxide-equivalent in this reporting period.

1. Introduction

1.1 Objective

The objective of this verification audit was to determine, with reasonable assurance, that EDNF had quantified, monitored, and fairly reported to the Climate Action Reserve its emission reductions from the abatement of nitrous oxide emissions during nitric acid production and to confirm the project's eligibility.

1.2 Scope

The scope of the engagement included verification of the quantification, monitoring and reporting of greenhouse gas emission reductions from the project. It also included verification of the project's eligibility and the calculation of project emissions of nitrous oxide measured in the nitric acid plant stack.

1.3 Criteria

NSF verified the reported project emission reductions against the following criteria:

- Climate Action Reserve Nitric Acid Production Project Protocol, Version 2.0 (September 28, 2011), (hereafter, the "Protocol")
- Nitric Acid Production Project Version 2.0 Protocol Errata and Clarifications (January 3, 2017).
- Climate Action Reserve's Program Manual (September 1, 2015).
- Climate Action Reserve's Policy Memo "Use Of Global Warming Potentials For All Project Protocols", Effective May 1, 2018

The verification methodology conformed to requirements in the Climate Action Reserve's Verification Program Manual (February 8, 2017), and ISO 14064:2006 Part 3, *Greenhouse gases – Specification with guidance for the validation and verification of greenhouse gas assertions.*

1.4 Materiality

In accordance with the Climate Action Reserve Verification Program Manual, the threshold for materiality of emission reduction assertions was based upon annualized rates of issuance of Climate Reserve Tonnes (CRTs). As the project claimed more than 100,000 metric tons of emission reductions on an annualized basis during the reporting period, the emission reduction assertion was considered fairly stated if it varied by no more than 1% from a complete statement of the Project's emission reductions. Thresholds of materiality defined by the Verification Program Manual allowed verifiers of emission reduction reports to consider as immaterial discrepancies of 1% or less.

1.5 Level of Assurance

This engagement was performed at the reasonable level of assurance.

2. Verification Approach

2.1 Team Appointment and COI Review

This verification was performed by Tina Sentner, Lead Verifier. The verification was internally reviewed by John Shideler, Lead Verifier. Conflict of Interest inquiries were completed for NSF, for the verification team, and for the independent reviewer, and a finding of low COI risk was confirmed by the Climate Action Reserve.

2.2 Document Review

The verification team conducted a document review to inform the planning process in advance of performing verification activities. Documents and records reviewed were provided by EDNF, and by ClimeCo Corporation, the project developer's consultant. Documents reviewed included previous project verification reports; project documentation submitted to the Climate Action Reserve; the project Monitoring Plan; spreadsheets providing logged hourly raw operating data and calculations of emission reductions; CEMS, gas flow meter, and methane analyzer calibration and verification records; regulatory compliance information from the US EPA Enforcement & Compliance History Online (ECHO) report and from company records; and manufacturer's information related to monitoring equipment.

2.3 Planning

NSF's verification approach is risk-based. It draws upon our understanding of risks to the fair statement of reported emissions and the operation of controls to reduce such risks. As a result of the document review and correspondence with EDNF and ClimeCo personnel, a verification plan and a sampling plan were developed for this engagement.

2.4 Verification Activities

For this Sixth reporting period, verification activities commenced on July 31, 2019, with a kick-off teleconference with ClimeCo and EDNF. NSF conducted a site visit to the nitric acid facility in East Dubuque, IL on August 7, 2019. Verification activities for this engagement included:

- Confirmation of the project start date and plant location.
- Verification of the ownership of the emission reduction credits earned by this project.
- Verification that the project monitored legal and regulatory changes and that the project continued to meet the legal requirement test for continuing eligibility under applicable laws and regulations.
- Verification that the project campaign was operated in material compliance with applicable environmental and safety laws.
- Demonstration by the project developer that none of the exclusions to eligibility applied to the nitric acid production campaign conducted during this reporting period.
- Review of Project compliance with monitoring requirements and that any identified variances have been approved by the Climate Action Reserve and appropriately applied.
- Verification that applicable sources, sinks and reservoirs were included in the project assessment boundary.
- Verification that the project developer correctly calculated permitted operating ranges for temperature and pressure in accordance with protocol requirements.
- Assessment of the adequacy of the control environment, information management systems, and monitoring plans of the Project.
- Inquiries concerning the records management system implemented for acquisition and retention of all Protocol required information.
- Verification of the project emission reduction calculations.

3. Verification Findings

3.1 Project Description

EDNF installed and operated a secondary abatement catalyst directly below the oxidation gauzes located within the ammonia oxidation reactor (AOR) at its Nitric Acid Plant 2 in East Dubuque, Illinois. The secondary catalyst decomposes N_2O and subsequently reduces the quantity of N_2O that would have otherwise been released to the atmosphere. Nitric Acid Plant 2 was relocated to its current location and restarted in 1998. NSF verified that the plant was out of operation and

restarted well before December 2, 2007, and thus it meets all aspects of the project definition stipulated in the Protocol. The facility also includes an ammonia plant, a urea plant, and Nitric Acid Plant 1. NSF confirmed via review of plant drawings and permits that the plant had not used nonselective secondary catalytic reduction (NSCR) technology at any point prior to or during the Project.

In this Sixth reporting period, the "Rentech Nitrogen, LLC – Nitric Acid Plant 2" abated 135,195 metric tons of carbon dioxide–equivalent greenhouse gas that would have been emitted into the atmosphere absent the application of secondary catalytic reduction technology. The campaign started on October 30, 2018, and concluded on September 14, 2019.

3.2 Eligibility

Location. EDNF planned its nitric acid production project to abate N_2O emissions at its existing plant in East Dubuque, IL. This facility met the protocol requirement for location in the United States.

Project Start Date. The start date of the Project is defined by the Protocol as the date on which production commences after the first installation of a secondary catalyst. NSF confirmed the commencement of nitric acid production for the first reporting period campaign on December 28, 2013. This start date was verified by reviewing documentation for secondary abatement catalyst installation and work plans for replacement of the primary catalyst, modification of the converter, along with records of N_2O production for the first campaign. Based on this review, NSF concluded the start date was December 28, 2013. In addition, the project must be submitted for listing on the Reserve website no more than six months after the project start date or anytime prior to the Project start date. NSF confirmed the project was submitted in January 2014 within six months of the Project start date and met this eligibility requirement.

Crediting Period. The crediting period for the Project is December 28, 2013 to December 27, 2023. This Sixth reporting period is within the crediting period for the Project.

3.3 Additionality

Legal Requirement Test. NSF confirmed the project monitoring plan included procedures to ascertain and demonstrate that the Project at all times passed the Legal Requirement Test. During the site visit, the verification team interviewed the site's manager concerning the methods for monitoring legal and regulatory developments. In accordance with their procedure, EDNF tracked changes to regulations affecting nitric acid production via regulatory newsletters, and through the regulatory team of East Dubuque Nitrogen Fertilizers, LLC. NSF also reviewed the Title V operating permit and New Source Review (NSR) permit and found no requirements for secondary abatement of nitrous oxide emissions. The facility did not have a Prevention of Significant Deterioration (PSD) permit nor was it subject to PSD requirements.

Lastly, NSF reviewed the Attestation of Voluntary Implementation signed on October 18, 2019, by an appropriate representative for EDNF for this reporting period. Based on this review, NSF has concluded that there were no legal requirements that mandated the abatement of N_2O at the

project site, that the Project met the Protocol's monitoring requirement for voluntary implementation, and that the Project continued to pass the legal requirement test.

Performance Standard Test. EDNF had installed a secondary N_2O abatement catalyst in the ammonia oxidation reactor of its nitric acid plant in East Dubuque, IL. During the site visit, NSF reviewed the documentation for secondary abatement catalyst equipment installation and work plans for replacement of the primary catalyst, along with records of N_2O production for the Project's first campaign. NSF has concluded that the Project has met the Performance Standard Test.

3.4 Regulatory Compliance

Regulatory Compliance. NSF verified EDNF's regulatory compliance by reviewing the US EPA ECHO report. NSF observed that the ECHO report noted the facility was out of compliance with the Clean Water Act during one quarter of the reporting period. NSF interviewed site personnel who explained that the issue noted in ECHO is a result of Discharge monitoring reports (DMR) that noted exceedance levels of ammonia from de-icing of the NPDES treatment units that is not associated with the nitric acid plants. NSF also reviewed the Illinois EPA Explorer database and conducted an interview with a compliance officer at Illinois EPA. Neither source recorded any violations or enforcement actions related to the reporting period. NSF reviewed the facility's Title V Annual Compliance Certification and found that the facility had reported several deviations that happened during the reporting period. The deviations were reviewed by the verification team and all were confirmed to be unrelated to the Project activity and not a result of the Project. Further details can be found in the list of findings.

NSF also reviewed the Attestation of Regulatory Compliance completed by EDNF for the Sixth reporting period dated October 18, 2019. From these verification activities, NSF concluded that the project was in material compliance with regulatory requirements during the project's Sixth reporting period.

3.5 Ownership

Project Developer and Ownership. The Project is owned by EDNF and has full rights to any emission reductions associated with the plant. NSF reviewed the Project Developer's construction permit for the N_2O abatement catalyst bed for the plant, issued by the Illinois EPA, naming the company as owning the plant. ClimeCo Corporation is a technical consultant to EDNF. NSF reviewed the "Designation of Authority" in which the Project Developer designated authority to ClimeCo as the Account Holder Agent on the Reserve website. NSF reviewed corporate documentation confirming the ownership status change. In addition, East Dubuque Nitrogen Fertilizers, LLC attested to its ownership of the greenhouse gas emission reduction credits through a signed Attestation of Title dated November 14, 2018. From this evidence NSF has concluded that East Dubuque Nitrogen Fertilizers, LLC was the legal owner of the greenhouse gas emission reduction credits during this reporting period.

3.6 Project Boundaries and Emission Sources

Sources, Sinks and Reservoirs. NSF has verified that for this reporting period, the relevant sources, sinks and reservoirs (SSRs) were identified. Sources included the nitric acid plant's AOR from the inlet of the ammonia burner to the waste gas stack, and the production of nitric acid. Nitrous oxide (N_2O) is a by-product of nitric acid production. Secondary catalytic abatement reduces N_2O immediately after it is formed in the ammonia oxidation step of nitric acid production. The project measured the amount of N_2O released to the environment through the AOR stack and subtracted that from the baseline condition of uncontrolled N_2O emissions.

3.7 Project Management System

Management System. NSF reviewed relevant aspects of the EDNF plant's management system during its on-site visit on August 7, 2019, and via document review and interviews during this reporting period. NSF found a mature management system and competent personnel. Safety training was required for access inside the plant and procedures were in place for plant operation and environmental management. NSF included the following management systems elements in its evaluation:

- Definition and maintenance of an appropriate control environment by EDNF
- Training and competence of project managers and operating/data management personnel
- Identification and management of legal requirements related to nitric acid production
- Identification and maintenance of records required by the project
- Selection, installation, maintenance, calibration and monitoring of the Continuous Emissions Monitoring System (CEMS), stack gas analyzer, and flow metering equipment
- Quantification methods and calculations of project emissions
- Checking and corrective action mechanisms; and
- All applicable project-related records were retained for a minimum of 7 years after the end of the reporting period.

From information gathered during the site visit through observations, interviews and records reviewed, NSF has concluded that EDNF's management system met the requirements described in the Climate Action Reserve's Verification Program Manual.

Project Documentation and Reserve Tracking System. NSF verified that the required documents for the Project had been completed and submitted to the Reserve. These included a Project Submittal form, uploaded at the beginning of the Project; signed attestations of title, of regulatory compliance, and of voluntary implementation for this reporting period; a project diagram, and an assertion of Climate Reserve Tonnes earned during the campaign.

3.8 Performance Against Project Protocol/Methodology

The Project was implemented in conformity with the Climate Action Reserve Nitric Acid Production Project Protocol Version 2.0.

Monitoring and Operations Plan. NSF reviewed the Monitoring Plan for the Nitrous Oxide Abatement Project and confirmed the plan addressed monitoring, operations and reporting of

relevant parameters included in Table 6.1 of the Protocol, including the frequency of data acquisition, the frequency of instrument field check and calibration activities, and the roles of individuals performing each specific monitoring activity. It also defined record keeping requirements according to the Protocol requirements and described the procedure EDNF used to determine that the project at all times met the Legal Requirement Test. NSF concluded from its review that the monitoring plan covered all aspects of monitoring and reporting contained in the Protocol.

Use of CEMS. An EcoChem Continuous Emissions Monitoring System was used to directly measure N_2O concentration and gas flow rate in the stack gas of the AOR. A Kurz thermal resistance mass flow meter (model 155B/KBAR-2000B) was used to measure gas flows and an EcoChem MC3 Analytics Infrared Gas analyzer was used to measure N_2O concentration. N_2O concentration and gas flow rate parameters were monitored continuously but logged in hourly increments along with stack temperature and pressure and the air-to-ammonia ratio and ammonia flow. The Project uses the CEMS DAHS coupled with a PLC that consolidates the data. The data are stored on the server with regular backup as well as on an external hard drive in the system. The record keeping and reporting of the data were processed by the EcoChem computer, which monitored CEMS status and to generate reports in the required formats and provided to plant management. The CEMS was maintained in accordance with a quality assurance/quality control program as defined in Appendix B to Part 75 of the Clean Air Act, Subpart H: NO_x Mass Emissions Provisions. NSF concluded that the CEMS operated normally during the project reporting period.

Initial Certification of the CEMS. The Project developer was required to follow the requirements for CEMS installation and initial certification as noted in 40 CFR Part 60 Section 60.13, 40 CFR Part 60 Performance and Specification 2 of Appendix B, and 40 CFR Part 75 section 6 of Appendix A.

EDNF installed its part of the NAP's CEMS several years prior to commencing the Project for NO_x compliance reasons. NSF verified that the Project met all CEMS installation and certification requirements of the Protocol:

- **7-day Calibration Error Test**
  The Project submitted the calibration drift summary for the flow meter and analyzer on March 1, 2011 –March 8, 2011. The tests were conducted prior to the Project initiation. NSF confirmed the percent calibration errors were within allowable tolerance and was in compliance with 40 CFR Part 75.
- **Linearity Check**
  The Project conducted a Linearity Check on March 17, 2011. The analyzer met the linearity check requirement of <5.0% error.
- **RATA and Bias Tests**
  The Project provided the results of the RATA that was conducted on March 22, 2011 for both the flow meter and the analyzer. The relative accuracy (RA) for both was within the allowable range and both passed the bias test. .
- **Cycle Time Test**
  NSF reviewed the results of the cycle time test on March 11, 2011 which ensures that the

monitoring system is capable of completing at least one cycle of sampling, analyzing, and data recording every 15 minutes and meets the requirements of 40 CFR Part 60.13(e)(2).

- **DAHS Verification**
  NSF reviewed documentation and examples from the data acquisition and handling system (DAHS) that demonstrated that all emission calculations were performed correctly and that missing data substitution methods were applied properly.

All CEMS components were installed by the manufacturers of the equipment or electrical contractors. From this evidence reviewed, NSF has concluded that the Project met the initial installation and certification requirements.

Ongoing CEMS QA/QC and Frequency of Testing. NSF verified that Quality Assurance/Quality Control procedures were implemented in accordance with Clean Air Act requirements of the U.S. Environmental Protection Agency, specifically those included in the Acid Rain Program regulations published at 40 CFR Part 75, Appendix B, as required by the Protocol. QA/QC procedures included daily, quarterly and annual assessments and scheduled preventive maintenance for the CEMS and its components.

- **CEMs Daily Testing.** NSF verified that EDNF had performed daily tests of the N_2O analyzer to ensure the accuracy of the CEMS recorded data. Minimum pressures of the certified calibration gases were monitored to ensure accurate daily test results. Data to the CEMS were deemed valid as long as the daily calibration tests resulted in variation of no greater than 5% from the N_2O analyzer span. Variations greater than 2.5% and less than 5% over a two-day period triggered automatic recalibration of the analyzer. Variations greater than 5% were considered calibration failures and were acted upon immediately by plant personnel. NSF viewed the raw data and results of each test, confirmed that the plant performs calibration adjustments if necessary, data validation daily, continuously monitors data and records data every minute, and performs QA checks. There was one instance during the reporting period where the results of the automatic calibration error test indicated “warning” or “out of control”. The EcoChem system automatically recalibrated the analyzer and performed another test until the result indicates “Cal OK”. Most of the “Warning” or “Out of Control” periods corresponded to periods when the plant performed linearity checks, maintenance periods, and/or periods with application of the missing data substitution procedure.

- **CEMS Quarterly Testing.** NSF verified that EDNF had performed the following QA/QC on a quarterly basis:

  - NSF confirmed EDNF conducted daily flow meter calibration error checks. Calibration records for the reporting period were reviewed. There were a few instances where the daily calibration error check on the Stack flow meter appeared to read a false fail. Data substitution was not implemented as an immediate recalibration was conducted and the data remained valid. All other daily calibration checks for the flow meter during the reporting period were within the ±3% threshold. As a result, NSF confirmed the quarterly calibration error check requirement was met.

- Linearity checks were performed in quarters for which there were no RATA for the EcoChem CEMS unit to determine the accuracy of the gas composition analyzer. A Linearity test was performed at low, mid and high levels of concentration as required by 40 CFR Part 75 Appendix B. NSF reviewed the linearity test record created for the CEMS on 11/21/2018, 02/07/2019, 05/09/2019 and 08/08/2019. NSF verified that the results of all checks met Protocol and Part 75 requirements. The results were either within the required range for high-level gas concentrations and low- and mid-level concentrations or if the errors were greater than 5 percent, the ranges met an alternative criteria defined by Part 75 which also accepts checks if the difference between the average of the monitor response values and the average of the reference values is less than 5 ppm. NSF confirmed that all differences were less than 5 ppm for any checks that had greater than 5 percent error.
- Leak Testing was not applicable as EDNF utilized a thermal mass flow meter for the Project.
- Flow-to-load ratio or gross heat rate evaluation was not performed because the nitric acid plant did not also produce electricity or steam.

CEMS Relative Accuracy Test Audit. NSF verified that CEMS data used during the Project had been validated through the performance of a Relative Accuracy Test Audit (RATA) which was conducted on the CEMS unit on November 6, 2018, by an independent third party in accordance with the requirements of 40 CFR Part 75 Appendix A, 7.4, and the test methods specified in 40 CFR Part 60, Appendix B, Performance Specifications 2 and 6. NSF confirmed that the laboratory was certified by the Stack Testing Accreditation Council and the American Association of Laboratory Certification. The relative accuracy of the nitrogen analyzer was found to be 0.8% when measured in parts per million by volume (PPMV) on a wet basis, and a bias adjustment factor (BAF) of 1.005 was applied. Relative accuracy of the flow meter (measuring in scfm) was found to be 4.4%, and a BAF of 1.078 was applied.

Flow RATAs were performed at a single load level consistent with the steady-state operation of the nitric acid plant. During the previous report period, a RATA conducted on December 12, 2017 showed that the flow meter exceeded 7.5% deviation and therefore a semi-annual RATA was conducted on April 11, 2018. The relative accuracy of the flow meter in April 2018 was found to be 1.65% with a passed bias test result of 1.0. Both BAF adjustments were confirmed accurately applied to the data for the relevant time frame during this reporting period as per the requirements of Part 75 Appendix A Section 7.6.5.

Data Management. NSF verified that the project had logged operational data on a continual basis and exported data on an hourly basis for monitoring purposes. Data logged included stack flow, temperature and pressure, and N_2O concentration. Data were recorded in Standard U.S. measurement units for operational monitoring and converted for reporting purposes to metric units. NSF reviewed the conversion algorithms and determined that data had been properly reported in metric units.

ClimeCo compiled campaign comparison data files, which established emissions estimates and provided quarterly reviews to EDNF. The comparison looked for outliers and if any were

detected, ClimeCo asked EDNF for explanations. NSF confirmed there were no outliers during this campaign. ClimeCo also produced records to review the reasonableness of the emission estimates. These data were part of the QA/QC records noted above. NSF found from review of these data that emission reductions during the 6th campaign were in line with previous campaigns.

Missing Data Substitution. EDNF applied missing data substitution methods for a total of 49 hours for N_2O concentration and 215 hours for stack flow during the Project campaign. The EcoChem system runs a report from the DAHS that calculated substitute values based on the guidance in the Protocol and Part 75 Section 75.33. The missing data calculations were found to be calculated correctly.

3.9 Calculation of GHG Emission Reductions

The emission reduction calculations assessment included a review of the historical, baseline, and Project assumptions, data inputs, data management and accuracy of calculations. NSF assessed the information generated from the historical, baseline, and 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. NSF reviewed data downloaded from the CEMS and performed check calculations in the spreadsheet on values such as mean concentration of stack gas and the mean stack gas volume flow. The Kurz flow meter and N_2O analyzer were used for other environmental compliance reasons and air emissions calculations. NSF verified that all data were normalized to 0°C and 101.325 kPa in the calculation spreadsheets.

Previous Historical Data Review.
The project was implemented at an existing NAP. Because of some changes at the plant from the historical campaigns to the baseline and project campaigns, the allowable operating condition (AOC) parameters were not representative. During the verification of the first reporting period, EDNF was granted a variance to rely on Section 5.1.2(c) of the Protocol rather than Section 5.1.2(b). Furthermore, the variance determination allowed the Project to "use plant operational documentation, in lieu of the more traditional 'operating manual'… pursuant to the following conditions:

- The project developer applies a 2.5% factor to the upper and lower ranges for the oxidation temperature and pressure derived from plant operational documentation (e.g. reducing the maximum and increasing the minimum by 2.5%), as well as applies a 2.5% factor to the maximum ammonia-to-air ratio derived from plant operational documentation (i.e. reducing the maximum).
- The verifier is reasonably assured that the project developer employed conservative measures when deriving the project's AOCs for oxidation temperature, pressure, and maximum ammonia-to-air ratio input from the available plant operational documentation (in lieu of the operating manual referenced in source option 5.1.2(c)).
- The verifier confirms that the 2.5% compensatory factor was correctly applied to all parameters."

NSF reviewed the sources for all AOCs and confirmed that the 2.5% compensatory factor was applied to all parameters. The sources were appropriate, consisted of the best available documentation, and were conservative.

There were sufficient data for the project to use five historical campaigns to calculate $HNO_{3,MAX}$. NSF reviewed the raw data and statistical adjustments from the historical campaigns that were used to calculate two variables: $HNO_{3,MAX}$ and Campaign Production Volume Cap (CPV_{cap}). NSF independently recalculated the $HNO_{3,MAX}$ value by determining an average HNO_3 production number in metric tons per day for each of the five historical campaigns and selecting the highest of the average values as the $HNO_{3,MAX}$.

The following values were verified:

- $HNO_{3,MAX}$ = 140.74 metric tons HNO_3/hr
- CPV_{cap} = 42,639 metric tons HNO_3.
- Oxidation temperature: min. = 665.10°C, max. = 822.24°C
- Oxidation pressure: min. = 2.12 bar, max. = 3.29 bar
- Ammonia-to-Air Ratio: max. = 11.70%

Baseline Campaign Review.
In accordance with the Protocol, the baseline emission rate had been established by measuring N_2O emissions during a complete production campaign prior to the installation of the secondary catalyst for the abatement project. EDNF provided data from the baseline campaign conducted from May 16, 2013 to November 30, 2013. NSF confirmed the baseline campaign did not exceed the CPV_{cap} .

NSF verified that the raw data from the baseline campaign were correctly adjusted in accordance with the Protocol including the exclusion of data points when the plant was not operating, elimination of data outside of the AOCs, and the elimination of outliers and appropriately used to determine the Baseline Emission Factor. NSF verified the assumptions and variables used for Equations 5.4 and 5.5 in the Protocol. Lastly, NSF confirmed the Baseline campaign operated inside the established AOCs greater than 50 percent of the campaign, meeting the requirement in the Protocol.

Project Campaign Review. NSF compared the hourly data from the EDNF CEMS data (for selected days) to the hourly gas flow volumes and N_2O concentrations recorded in the campaign calculation spreadsheets. No material errors in the raw data or data transfers to the calculation spreadsheet were identified. NSF confirmed that the reporting period included a maintenance downtime period from October 30, 2018, to November 1, 2018. NSF confirmed that no ammonia was consumed or nitric acid was produced for Nitric Acid Plant 2 during the period. NSF also confirmed the Project had performed the required statistical analysis steps specified in the Protocol to compare the average values of permitted operating conditions (stack gas flow, N_2O concentration, temperature, pressure and maximum ammonia to air ratio) with the average values obtained during the baseline sampling and campaign period. NSF confirmed when verifying items a-e in 5.1.3.1 (Step 3) and 5.1.4.1 in the Protocol that the Project included all flow and concentration data for hours when the NAP was operating and excluded the data generated during the maintenance or downtime periods. The NAP was considered operating when ammonia was flowing and HNO_3 was produced. NSF found that the results obtained for campaign 6 were within the AOCs. NSF also reviewed the variable $HNO_{3,RP,}$ and confirmed that

the lesser of $HNO_{3,MAX,scaled}$ and $HNO_{3,RP}$ was used. In this reporting period, $HNO_{3,RP}$ was the lesser.

NSF separately calculated project emission reductions from monitored information and confirmed that the Project's claimed emission reductions did not vary by a material amount from those calculated by NSF. NSF reviewed the inputs to Equation 5.7, which calculated project emissions as the product of stack gas flow volume multiplied by the N_2O concentration and the operating hours. The input numbers for this equation matched operating records. An emissions factor for the campaign was calculated in accordance with Equation 5.4 as a ratio of product emissions to nitric acid produced. Based on this review, NSF determined that the emission reduction calculations followed the Protocol and found no material misstatements in the final Project GHG reductions calculations and results.

3.10 Corrective Action Requests

NSF issued findings throughout the verification process. Details are provided to the project developer and to the Reserve in a List of Findings, a private document.

3.11 Approved Variances

No variances were requested for the reporting period.

4. Verification Results

4.1 Verification Team Recommendation

Based on the verification activities described above, the verification team has concluded that CAR1027 project, "Rentech Nitrogen, LLC – Nitric Acid Plant 2" Sixth reporting period, has achieved the following emission reductions:

Emission Reductions, Sixth Reporting Period	Metric tons CO_2-e
Secondary abatement emission reductions *ER, Campaign 6*	
Emission Reductions, Vintage 2018	25,637
Emission Reductions, Vintage 2019	109,558
Total	**135,195**

4.2 Verification Audit Summary

Project Developer and location	East Dubuque Nitrogen Fertilizers, LLC 16675 Highway 20 West, East Dubuque, Illinois 61025
Project Type	Nitric Acid N_2O – Secondary Catalyst
Project Period	October 30, 2018 – September 14, 2019
Protocol/Methodology	• Climate Action Reserve, Nitric Acid Production

	Project Protocol, v. 2.0, (September 28, 2011). • Climate Action Reserve, Nitric Acid Production Project Protocol Errata And Clarifications (January 3, 2017)
Emissions/Removals Verified	Vintage 2018: 25,637 metric tons CO_2-e Vintage 2019: 109,558 metric tons CO_2-e
Verification Conclusion	Based upon the verification activities described above, NSF has concluded that East Dubuque Nitrogen Fertilizers, LLC – reported emission reductions of 135,195 metric tons CO_2-e reported to the Climate Action Reserve for the period October 30, 2018 – September 14, 2019 are, in all material respects, fairly stated.
Lead Verifier	Tina Sentner, October 30, 2019
Independent Reviewer	John C. Shideler, November 7, 2019
This verification statement is valid when signed and dated by an NSF independent reviewer.	