



**Verification Report for CAR768 – Terra Yazoo City # 9, Nitrous
Oxide Abatement Project**

Reporting Period 17 May 11, 2022 – March 14, 2023

Reporting Period 18 March 15, 2023 – August 9, 2023

Prepared for:
CF Industries Nitrogen, LLC

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1.0 Introduction

TÜV SÜD America Inc. (TÜV SÜD) was contracted by CF Industries Nitrogen, LLC (CFIN) to perform the verification of the Terra Yazoo City # 9, Nitrous Oxide Abatement Project (Project) for reporting period 17: May 11, 2022 through March 14, 2023 and reporting period 18: March 15, 2023 through August 9, 2023 to the Climate Action Reserve (Reserve) Nitric Acid Production Project Protocol Version 2.2 (Protocol). This Verification Report covers the verifications of both reporting periods. The Project reduces GHG emissions by destroying nitrous oxide (N₂O).

1.1 Project Background & Site Description

The Project activity consists of the installation and operation of a secondary abatement catalyst at a nitric acid plant in Yazoo City, MS. The secondary catalyst was installed below the ammonia oxidation gauze to decompose byproduct N₂O and reduce the amount of N₂O that would have otherwise been released to the atmosphere. The Project is at Nitric Acid Plant #9 at CF Industries Nitrogen, LLC (CFIN) facility. CFIN is the project owner and is responsible for ongoing operation and maintenance of the monitoring system and data acquisition and handling system. Additionally, CFIN is responsible for overall program management, development of monitoring reports, and oversight of the verification process.

This report covers the verifications of the Project's seventeenth (RP17) and eighteenth (RP18) reporting periods.

- RP17 includes two full campaigns:
 - Campaign 33 from May 11, 2022 at 9:00pm to October 12, 2022 at 4:30am
 - Campaign 34 from October 16, 2022 at 12:45am to March 14, 2023 at 3:15am
- RP18 includes one full campaign:
 - Campaign 35 from March 15, 2023 at 2:45am to August 9, 2023 at 3:00am

The actual campaign start and end dates and times are reflected above, but maintenance periods between campaigns are included in the reporting periods to ensure contiguous reporting. The catalyst was replaced after Campaign 33.

1.2 Responsible Party

Project Developer

CF Industries Nitrogen, LLC
4608 Highway 49 East
Yazoo City, MS 39194

CFIN is 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 Members: Issaí Medellín, Ashley Emery

Senior Internal Reviewer: Zach Eyler

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 complied with the Protocol's project 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 reporting period's Project Monitoring Plan,
- Conduct a site visit to the Project,
- Review Project boundaries,
- Review Project eligibility,
- 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 campaign 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, additional documentation, and clarifications, as necessary, and
- Issue a Verification Report, List of Findings, and Verification Opinion to CFIN and the Reserve.

1.6 Verification Criteria

Table 1 shows the criteria to which the verification was conducted.

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, Version 9.2 (April 2024)
Verification Process	• 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.

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, and the risk for conflict of interest between TÜV SÜD and the project developer has been sufficiently

mitigated. The COI form was approved by the Reserve on January 22, 2024 and then updated and approved by the Reserve again on April 12, 2024. A revised NOVA/COI form was submitted on April 17, 2025.

- TÜV SÜD held a verification kickoff meeting with CFIN on February 14, 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 in order 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 28, 2024. During the site visit TÜV SÜD observed 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 action, non-material findings, additional documentation, and clarifications, as necessary to CFIN during the verification.
- TÜV SÜD's Senior Internal Reviewer conducted a review of the verification evidence-gathering plan and 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 CFIN.

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 secondary abatement catalyst below the oxidation gauze located within the ammonia oxidation reactor (AOR). The N₂O emissions per unit of nitric acid production were measured during the baseline campaign in absence of secondary abatement catalyst within the ammonia oxidation process. The monitoring procedure has been carried out during all project campaigns since the secondary abatement catalyst was installed in April 2009.

Direct measurements of the N₂O concentration in the stack gas are taken continuously using a CEMS. The data acquisition and handling system (DAHS) along with the Distributed Control System (DCS) and server are used for CEMS data monitoring, recordkeeping and reporting. The system monitors gas flow rate, N₂O concentration, ammonia oxidation process temperature, pressure, and ammonia-to-air ratio on a continuous basis and records the data every minute, meeting Protocol requirements.

TÜV SÜD 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. TÜV SÜD confirmed the installation of a secondary abatement catalyst through a virtual site inspection, company records, and previous verification reports. TÜV SÜD also reviewed company records of NAP operation, maintenance, and downtime and verified that the CEMS monitoring data that CFIN provided were used as the raw data for the GHG statement. TÜV SÜD determined that the Project adhered to the methodology defined in the

Monitoring Plan Version 4.2 throughout the verification and the parameters monitored are in accordance with Table 6.1 of the Protocol.

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

According to the Protocol, N₂O is the only GHG included from the Baseline and Project activities for secondary abatement projects.

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 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 a nitric acid plant in Yazoo City, MS, U.S. The Project therefore meets the location eligibility requirement.
- **Eligibility Rule II: Project Start Date**
TÜV SÜD verified April 16, 2009 as the project start date. TÜV SÜD reviewed evidence to support this date including project CEMS data which compared monitored parameters before and after the installation of the catalyst: the N₂O concentration in the stack gas was lower after the catalyst was installed. This project start date is also consistent with the start date defined in verification reports for previous reporting periods.
- **Eligibility Rule III: Project Crediting Period**
The Project's first crediting period ended on August 11, 2019. This reporting period is in the Project's second crediting period which is August 12, 2019 through approximately August 11, 2029. The Project previously reported under the Nitric Acid Production Project Protocol Version 1.0 but is now reporting under the most current version of the Protocol, version 2.2.
- **Eligibility Rule IV: Additionality**
Legal Requirement Test
During the site visit, TÜV SÜD interviewed CFIN about the procedures to ensure that the Project meets environmental compliance requirements and the Legal Requirement Test. TÜV SÜD confirmed that there are currently no laws requiring the abatement of N₂O at the plant. In addition, CFIN's EH&S Corporate Director monitors any change in regulations that may affect eligibility. TÜV SÜD reviewed CFIN's Title V Permit which was issued June 16, 2020 and expires May 31, 2025. 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 secondary N₂O abatement catalyst. TÜV SÜD reviewed plant data indicating the installation of the catalyst in April 2009.

- **Eligibility Rule V: Regulatory Compliance**

TÜV SÜD verified that the Project was in material compliance with all applicable laws throughout the reporting period. As part of this assessment, TÜV SÜD reviewed the U.S. EPA's Enforcement and Compliance History Online (ECHO) database for any entries associated with the CFIN facility. The ECHO database indicates "Violation Identified" under the Clean Water Act (CWA) for the period April 1 to June 30, 2022 and identifies a "Base Program – Letter of Violation/ Warning Letter" dated January 4, 2023. TÜV SÜD reviewed the Compliance Advisory Letter dated January 4, 2023 noting permit effluent violations. There was one exceedance of total organic nitrogen limits during these reporting periods which occurred on June 30, 2022, during RP17. The facility exceeded the daily maximum discharge limit according to its permit. This violation is not related to project activities. No additional violations were identified during the reporting period.

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

3.4 Environmental and Social Safeguards

TÜV SÜD verified that CFIN completed and uploaded the Environmental and Social Safeguards Assessment Form and the Sustainable Development Goals (SDG) Reporting Tool to the Reserve software. The Project demonstrates that it will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice, and social issues such as human rights and free and prior informed consent. The Project identified contributions to SDGs including: Industry, Innovation and Infrastructure, Responsible Consumption and Production, and Climate Action.

3.5 Ownership of GHG reductions

CFIN owns the NAP and thus owns full right to any emission reductions associated with the Project. TÜV SÜD also verified that the Attestation of Title was correctly completed and uploaded to the Reserve software after the end of the reporting periods.

3.6 Assessment of Information System Controls

The majority of the GHG management systems review 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 the CEMS for both gas flow rates and N₂O concentration. The Project uses a Rosemount 3051 SFA flow meter to measure gas flows in the stack and an ABB Uras 26 AO2000 Series analyzer to measure N₂O concentration. TÜV SÜD 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 DAHS coupled with the DCS to electronically log the data. The data is transferred to a long-term historian database on an Allen-Bradley PI software platform. TÜV SÜD verified that the data management systems met the requirements of Section 6.2.2 of the Protocol.

3.7 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 Project CEMS were installed prior to the Project. During its first verification for the Project, TÜV SÜD conducted a cursory check that the Project met the initial CEMS installation certification requirements. At the time the CEMS was installed, it was installed to meet the requirements of European Norm EN 14181. The Project requested a variance for the installation and certification, which was granted on September 14, 2010, to meet Protocol requirements for the first reporting period. From TÜV SÜD's review, the Project met the initial CEMS installation and certification requirements as verified for the first Project reporting period. TÜV SÜD verified that the Project met CEMS installation and certification requirements.

3.8 Ongoing CEMS QA/QC Program

TÜV SÜD confirmed that the ongoing CEMS QA/QC requirements were met throughout the reporting period (project campaigns), except for the flow meter Quarterly Calibration Error Test and Quarterly Leak Check as noted in section 3.8.2.

3.8.1 Daily Requirements

TÜV SÜD reviewed evidence of the daily calibration error tests for the N₂O analyzer. The analyzer performs an automatic daily calibration error test. There are two checks conducted, an optical filter test daily at 5:15am and a test with calibration gas daily at 6:19am. If the analyzer fails both checks, a maintenance alarm is sent to operations; there were no instances where the analyzer failed both checks during the reporting period. The CEMS automatically records the results of daily calibration checks. If the error is less than 2.5% no action is taken. If the error is 2.5% or higher and less than 5.0% for two consecutive days, a recalibration occurs. If the error is greater than or equal to 5.0% recalibration occurs immediately. If the recalibration fails, the system sends a maintenance alarm to operations and does not record concentration until there is a successful calibration. TÜV SÜD viewed the raw data and results of each test. 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.

There were instances during the reporting period where the results of the automatic calibration error test were "failed" but the plant was either not operating during these checks or missing data substitution was applied for the N₂O concentration values.

3.8.2 Quarterly Requirements

TÜV SÜD verified that the required quarterly assessments were completed in accordance with the Protocol, with the exception of the third quarter of 2022, which is addressed by an approved variance.

Calibration Error Test:

TÜV SÜD reviewed documentation confirming that quarterly calibration error tests were conducted for the flow meter on the following dates: May 4, 2022; October 12, 2022; March 22, 2023; June 6, 2023; and August 29, 2023. The required test for Q3 2022 was not performed. However, TÜV SÜD verified that the results of all completed tests fell within the +/-3% threshold as required by the Protocol. Additionally, TÜV SÜD confirmed that calibration adjustments are performed as needed, data is validated, data is continuously monitored and recorded every minute, and QA checks are conducted as required.

Section 2, Appendix B 40 CFR Part 75 requires quarterly calibration error tests and leak checks. To address the missed Q3 2022 calibration error test, CFIN submitted a variance request. The Reserve granted the variance and issued a Variance Determination on March 20, 2025, pursuant to the following conditions:

- The calibration error test performed on 10/12/2022 revealed accuracy within the +/-3% threshold.
- The Q4 leak check met the requirements outlined in CFR Part 60 Appendix A.
- The monitoring plan was updated ensuring that all QA/QC will be met in the future.

The Variance Determination also accepted a late Q3 2022 flow meter leak check, as described below. TÜV SÜD verified that the Project complied with all conditions outlined in the Variance Determination.

Leak Check:

TÜV SÜD reviewed evidence that quarterly leak checks for the flow meter were conducted alongside the calibration error tests. As with the Q3 2022 calibration error test, the Q3 leak check was not performed during the required period. CFIN included this missed check in the variance request described above.

TÜV SÜD verified that the results of all completed quarterly leak checks indicated that the meter passed each test.

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 analyzer. Linearity checks were conducted in each quarter during the project campaigns that did not include a RATA for the analyzer: May 5, 2022; August 25, 2022; November 17, 2022; and February 20, 2023 (although there was also a RATA January 26, 2023); and May 1, 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 high-level gas concentrations and low- and mid-level concentrations. RATAs were performed during the first quarters of 2022 and 2023.

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.

3.8.3 Annual and Semi-Annual Assessments

TÜV SÜD reviewed the results of the January 25 and January 26, 2022 RATAs and the January 26, 2023 RATA, all conducted by EML, LLC using test methods described in 40 CFE 60 Appendix B. The results are shown in Table 3, below.

Table 3 – RATA Results

Equipment	1/25/2022	1/26/2022	1/26/2023
N ₂ O Analyzer	4.06%	N/A	4.93%
Flow Meter	11.83%	3.71%	4.43%

The N₂O analyzer passed the January 25, 2022 RATA—relative accuracy of the instrument was within the acceptable range and below 7.5 percent—which met the requirement for annual RATAs thereafter. The flow meter failed the January 25, 2022 RATA and CFIN had EML, LLC retest the flow meter on the following

day and the meter passed this RATA demonstrating 3.71% relative accuracy. This occurred prior to RP17 and thus no data substitution or adjustments were necessary for RP17 data.

The N₂O analyzer and the flow meter passed the RATAs on January 26, 2023—relative accuracy of the instruments was within the acceptable range and below 7.5 percent—both instruments met the requirement for annual RATAs thereafter.

The N₂O analyzer and the flow meter failed the bias tests during the January 25-26, 2022 and the January 26, 2023 RATAs. The bias adjustment factors (BAFs) were applied to the recorded N₂O concentrations and flows throughout the reporting period as shown in Table 4 below per the requirements of Part 75 Appendix A Section 7.6.5. TÜV SÜD verified the BAFs and that they were applied correctly to the raw data.

Table 4 - Bias Adjustment Factors

Equipment	1/26/2022 – 1/25/2023	1/26/2023 – 8/9/2023
N ₂ O Analyzer	1.040	1.030
Flow Meter	1.032	1.027

3.8.4 Missing Data Substitution

Missing data substitution methods were applied for a total of 4 hours of flow data and 146 hours of N₂O concentration data during the Project campaigns. The DAHS automatically calculates the substitute values in accordance with the Protocol and Part 75 Section 75.33. TÜV SÜD confirmed that the values were appropriately substituted.

CFIN submitted a variance request specific to RP18 and Campaign 35 to allow substitution of N₂O concentration data. An engineering review determined that the recorded concentrations during two periods—April 1 to April 11, 2023 and July 12 to July 24, 2023—were below normal operating levels, resulting in an unconservative emission reductions calculation. To address this, CFIN requested to substitute the data in accordance with 40 CFR § 75.33(c)(1)(ii)(A). The Reserve granted the variance on March 20, 2025 pursuant to the following conditions:

- The verifier confirms that the project developer correctly applies the data substitution procedures in 40 CFR 75.33(c)(1)(ii)(A);
- The verifier confirms that the data substitution procedures in 40 CFR 75.33(c)(1)(ii)(A) results in more conservative emission reductions quantification compared to the metered data; and
- The verifier confirms that the project met all other QA/QC requirements

TÜV SÜD verified that the project met all conditions outlined in the Variance Determination, confirming that:

- The project developer correctly applied the data substitution procedures under 40 CFR § 75.33(c)(1)(ii)(A).
- The substituted values resulted in a more conservative emission reductions quantification compared to the metered data.
- All QA/QC requirements for RP18 were met.

3.9 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 accuracy of calculations. TÜV SÜD assessed the information generated from the historical, baseline, and project campaigns and evaluated the completeness of the data and how it is transferred from CFIN's DAHS to the GHG calculation database.

The Protocol requires a variety of statistical assessments of the data as part of the quantification of GHG

emission reductions. CFIN's conducted the data management in a Microsoft Excel spreadsheet file and provided it to TÜV SÜD. TÜV SÜD reviewed the formulas and data outputs for compliance with the Protocol.

TÜV SÜD confirmed that all data was normalized to 0°C and 101.325 kPa in the calculation spreadsheets. CFIN 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. There was sufficient data for the Project to use five historical years to calculate HNO_3max . TÜV SÜD previously reviewed historical data for five campaigns between March 11, 2006 and June 9, 2008. TÜV SÜD assessed the raw data and calculations used to determine HNO_3max and the allowable operating conditions (AOCs) for temperature, pressure, and ammonia-to-air ratio. However, the Project revised the ranges for the AOCs during the verification of the reporting period number 15. The Project requested a variance from the Reserve during that verification to accept the revised AOCs based on the facility's Safe Operating Control Limits (SOCLs) which are part of the current operating procedures for the facility's #9 nitric acid plant. The Reserve granted the variance on September 15, 2022. During that verification, TÜV SÜD verified that the Project met all conditions listed in the Variance Determination.

TÜV SÜD also confirmed that HNO_3max (25.00 t HNO_3 /hour) was calculated and measured according to the methods outlined in the Protocol.

TÜV SÜD confirmed that values for each historical parameter were used in the calculations for these project campaigns.

Baseline Emissions

CFIN provided data from the Baseline campaign which occurred prior to the installation of the secondary catalyst. The baseline campaign lasted from December 3, 2008 to April 14, 2009. The plant was shut down for the installation of the secondary catalyst and the first project campaign began on April 16, 2009. The baseline exceeded CL_{cap} (79,529.14 t HNO_3) on April 12, 2009 and thus N_2O values and HNO_3 production measured beyond CL_{cap} were eliminated from the calculation of the baseline emission factor. ClimeCo, the previous consultant, calculated CPV_{cap} using the same five campaigns that were used to calculate the AOCs.

TÜV SÜD verified that the raw data from the Baseline campaign was 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. TÜV SÜD verified the assumptions and variables used in Equations 5.4 and 5.5 in the Protocol.

TÜV SÜD verified that the Baseline campaign operated inside the original AOCs greater than 50% of the campaign, meeting the requirement in the Protocol, and also would have operated inside the revised AOCs greater than 50% of the time, as detailed above. TÜV SÜD confirmed that the operating conditions during the baseline sampling period 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.

Project Emissions

CFIN provided project data for both reporting periods, which included two full campaigns for RP17 and one full campaign for RP18.

TÜV SÜD verified that the Project campaigns operated inside the established AOCs greater than 50 percent of the campaigns, meeting the Protocol requirement. 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.

$\text{HNO}_{3,\text{RP}}$ was less than $\text{HNO}_{3\text{max,scaled}}$ for campaigns 33 and 35 and $\text{HNO}_{3,\text{RP}}$ exceeded $\text{HNO}_{3\text{max,scaled}}$ for campaign 34. TÜV SÜD verified that CFIN appropriately scaled the emission reductions according to equation 5.10 for Campaign 34. TÜV SÜD also verified the total operating hours and application in the calculations.

TÜV SÜD concluded that the emission reduction calculations were performed in accordance with the Protocol requirements and found no material misstatements in the final reported GHG emission reductions and results.

4.0 Verification Results

CFIN provided sufficient evidence and documentation of their emission reduction estimates, 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 to quantify the emission reductions in accordance with the Protocol.

During the verification process, TÜV SÜD made requests for additional documentation and clarifications to complete the verification. The details of TÜV SÜD's findings are documented in the List of Findings provided to the Reserve and CFIN.

During the final review, TÜV SÜD identified no material misstatements in the data or emission reduction calculations. Tables 5, 6, and 7 define the emission reductions verified for this reporting period.

5.0 Verification Opinion

TÜV SÜD America Inc. conducted risk-based verifications of the CAR 768 Terra Yazoo City # 9, Nitrous Oxide Abatement Project (Project) GHG statements for the reporting periods May 11, 2022 to March 14, 2023 (reporting period 17) and March 15, 2023 to August 9, 2023 (reporting period 18). The project activity is the destruction of nitrous oxide (N_2O) at CF Industries Nitrogen, LLC's Nitric Acid Plant #9. The data and information supporting the GHG statements were historical in nature.

The verification was conducted to a reasonable level of assurance according to the requirements of ISO 14064-3:2019. The objective was to ensure that the GHG statements are materially correct and conform to all relevant criteria, including:

- The Reserve's U.S Nitric Acid Production Project Protocol, v2.2, April 18, 2019
- The Reserve Offset Program Manual, Version 9.2, April 2024
- The 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

The Project did not meet all requirements of the U.S Nitric Acid Production Project Protocol, v2.2, and thus two variances were granted for the Project:

- A variance specific to RP17 to address a missed calibration error test and leak check for Q3 2022.
- A variance specific to RP18 and Campaign 35, allowing substitution of N₂O concentration data. An engineering review determined that recorded concentrations during two periods were below normal operating levels, resulting in an unconservative emission reductions calculation. To address this, CFIN requested to substitute the data in accordance with 40 CFR § 75.33(c)(1)(ii)(A).

TÜV SÜD concludes, to a reasonable level of assurance, that there is sufficient and appropriate evidence to support the Project's GHG statements for the reporting periods May 11, 2022 to March 14, 2023 (reporting period 17) and March 15, 2023 to August 9, 2023 (reporting period 18) and is issuing a Modified Opinion as a result of the two variances for this verification period.

The GHG statements are summarized in the tables below. While TÜV SÜD confirmed the emission reduction calculations and the total emission reductions to be correct and within the materiality threshold, the values in the tables below 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 are included in the reporting period to ensure contiguous reporting.

Table 5 - Emission Reductions Verified for RP17: May 11, 2022 through March 14, 2023 by Campaign

Campaign	Baseline Emissions CO ₂ e (metric tons)	Project Emissions CO ₂ e (metric tons)	Emission Reductions CO ₂ e (metric tons)
Campaign 33 5/11/2022 – 10/12/2022	131,569	60,821	70,748
Campaign 34 10/16/2022 – 3/14/2023	154,741	33,580	121,161
Total	286,310	94,401	191,909

Table 6 - Emission Reductions Verified for RP18: March 15, 2023 through August 9, 2023 by Campaign

Campaign	Baseline Emissions CO ₂ e (metric tons)	Project Emissions CO ₂ e (metric tons)	Emission Reductions CO ₂ e (metric tons)
Campaign 35 3/15/2023 – 8/9/2023	148,938	39,132	109,806

Table 7 - Emission Reductions Verified for May 11, 2022 through August 9, 2023 by Vintage

Vintage	Reporting Period	Baseline Emissions CO ₂ e (metric tons)	Project Emissions CO ₂ e (metric tons)	Emission Reductions CO ₂ e (metric tons)
2022	RP 17	241,195	78,371	162,825
2023	RP 17	45,115	16,031	29,084
2023	RP 18	148,938	39,132	109,806
2023 Total	--	194,053	55,163	138,890

Lead Verifier

A handwritten signature in black ink that reads "Nina Pinette". The script is cursive and fluid.

Nina Pinette

Senior Internal Reviewer

A handwritten signature in black ink that reads "Zach Eyler". The script is cursive and fluid.

Zach Eyler