SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

MAR 15 2018

Jerry Lonsdale, Environmental Manager
Terra Nitrogen, LP
6606 E. 540 Road
Claremore, OK 74019

Re: Permit Application No. **2011-006-TVR2 (M-8)**
Verdigris Nitrogen Plant (DEQ FAC ID #1495)
Nitric Acid, Ammonia, and Urea Production Facility
Claremore, Rogers County

Dear Mr. Lonsdale:

Enclosed is the permit authorizing operation of the referenced facility. Please note that this permit is issued subject to certain standard and specific conditions that are attached. These conditions must be carefully followed since they define the limits of the permit and will be confirmed by periodic inspections.

Also note that you are required to annually submit an emission inventory for this facility. An emission inventory must be completed on approved AQD forms and submitted (hardcopy or electronically) by April 1st of every year. Any questions concerning the form or submittal process should be referred to the Emission Inventory Staff at 405-702-4100.

Thank you for your cooperation in this matter. If we may be of further service, please contact our office at (918) 293-1600.

Very truly yours,

Phillip Fielder
AIR QUALITY DIVISION

Enclosure

PART 70 PERMIT

AIR QUALITY DIVISION
STATE OF OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
707 N. ROBINSON, SUITE 4100
P.O. BOX 1677
OKLAHOMA CITY, OKLAHOMA 73101-1677

Permit No. 2011-006-TVR2 (M-8)

Terra Nitrogen, LP,

having complied with the requirements of the law, is hereby granted permission to operate all the sources within the boundaries of their Verdigris Nitrogen Plant located in Claremore, Rogers County,

subject to standard conditions dated June 21, 2016, and specific conditions, both attached.

This permit shall expire August 28, 2018, except as authorized under Section VIII of the Standard Conditions.

Permits and Engineering Section Manager — **Date** 3/13/2018

PERMIT TO OPERATE
AIR POLLUTION CONTROL FACILITY
SPECIFIC CONDITIONS

Terra Nitrogen, LP **Permit No. 2011-006-TVR2 (M-8)**
Verdigris Nitrogen Plant – Claremore Nitric Acid, Ammonia, and UAN Plants

The permittee is authorized to operate in conformity with the specifications submitted to Air Quality on July 7, 2015, and supplemental information received September 3, 2015, April 28, 2016, and January 31, 2018. The Evaluation Memorandum dated March 12, 2018, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain limitations or permit requirements. Continuing operations under this permit constitutes acceptance of, and consent to the conditions contained herein.

1. Point of emissions and applicable emission limitations. Particulate matter (PM) data refer to total PM, meaning filterable and condensable or front half and back half, unless otherwise indicated. [OAC 252:100-8-6(a)(1)]

EUG 1 Plant-wide
This EUG is established to address those rules or regulations that apply to the entire facility, including such rules as open burning or fugitive dust.

EUG 2 Package Boilers

Boiler name	EP #	Heat Input and Manufacturer	Construction Date
B	10277	157 MMBTUH Trane-Murray	1974
C	10278	177 MMBTUH Combustion Engineering	1975

Point ID	Emission Unit	$PM_{10}/PM_{2.5}$		SO_2		NO_X		VOC		CO	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
10277	Boiler B	1.49	3.53	0.12	0.28	31.4	74.4	1.07	2.56	13.2	31.2
10278	Boiler C	1.68		0.13		35.4		1.20		14.9	

A. Fuel usage of the boilers shall not exceed a total of 744 MMSCF per year natural gas.
B. These boilers are affected facilities under 40 CFR 63 Subpart DDDDD, and shall comply with the requirements of items 3 and 4 of Table 3 of DDDDD, performing annual tune-ups and an initial energy assessment.

EUG 3 NSPS Boiler

Boiler name	EP #	Heat Input and Manufacturer	Construction Date
D	102XX	212 MMBTUH Nebraska Boiler	1995

Point ID	PM10		SO2		NOx		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
102XX	0.64	1.53	0.13	0.31	21.2	51.1	0.78	1.89	10.6	25.5

A. Fuel usage of the boiler shall not exceed 1,021 MMSCF per year.
B. The boiler is subject to federal New Source Performance Standards, 40 CFR Part 60, Subpart Db, and shall comply with all applicable requirements, including, but not necessarily limited to those conditions shown in subparagraphs C, D, E, and F following. (NOTE: Permit limitations are more stringent than Db limitations and will result in compliance with Subpart Db.) [40 CFR 60.40b through 60.49b]
C. The permittee shall comply with NO_X emission limitations in 40 CFR 60.44b. The boiler shall not discharge into the atmosphere any gases that contain nitrogen oxides (expressed as nitrogen dioxide) in excess of 0.20 lbs/MMBTU. [40 CFR 60.44b(a)(1)(ii)]
D. The permittee shall comply with the emission monitoring standards of 40 CFR 60.48b.
E. The permittee shall comply with the reporting and recordkeeping requirements of 40 CFR 60.49b.
F. Performance testing of the D Boiler to demonstrate compliance with nitrogen dioxide emission limitations shall be done on the basis of the average emission rates for NO_X over each 30 successive boiler operating days, a 30-day rolling average. At the conclusion of a boiler operating day following the initial performance testing, data points from the leading day shall be deleted and data points for the new day added to develop new rolling average values for NO_X emission rates. During periods when performance testing is not occurring, these results shall be used to identify and calculate excess emissions. Exceedances for each 24-hour period shall be reported to Air Quality every calendar quarter. [40 CFR 60.46b(e)(4) and OAC 252:100-2]
G. This boiler is an affected facility under 40 CFR 63 Subpart DDDDD, and shall comply with the requirements of items 3 and 4 of Table 3, performing annual tune-ups and an initial energy assessment.

EUG 4 Gas Turbine

EP #	Heat Input and Manufacturer	Construction Date
10279	133 MMBTUH General Electric	1981

Point	PM_{10}		SO_2		NOx		VOC		CO	
ID	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10279	43.9	192	0.57	2.48	*	*	1.12	4.89	13.6	59.7

* Combined limit with Nitric Acid Plant #1, see EUG 6.

A. The gas turbine is subject to federal New Source Performance Standards, 40 CFR Part 60, Subpart GG, and shall comply with all applicable requirements. Note that NO_X standards are overridden by the alternative emissions reduction agreement. [40 CFR 60, OAC 252:100-11]
B. SO_2 emissions shall not exceed 150 ppm, dry-basis, corrected to 15% oxygen (NOTE: permit emission limitations are more stringent than this limitation). [40 CFR 60.333(a)]
C. Monitoring of fuel sulfur content is not required when a gaseous fuel is fired in the turbine and the owner or operator demonstrates that the gaseous fuel meets the definition of "natural gas" using one of the methods in §60.334(h)(3)(i) or (ii). Paragraph 60.331 defines natural gas as containing 20 grains or less of total sulfur per 100 standard cubic

feet and is either composed of at least 70 percent methane by volume or has a gross caloric value between 950 and 1100 BTU/scf. [40 CFR60.334(h)(3)]

D. The permittee shall monitor fuel flow to the Gas Turbine on a continuous basis and reduce the data to monthly average values. [OAC 252:100-43]

E. The gas turbine shall be operated with control technology sufficient to meet the NO_X limitations described above. Performance testing adequate to demonstrate that the NO_X limit can be achieved shall be performed for the control technology utilized. The performance test shall be performed for each renewal (every five years) of the Title V permit and the results shall be provided with each application for renewal.

F. Reference Method performance testing of particulate emissions shall be performed during the term of the Part 70 renewal permit, with results to be included in the next renewal application. [OAC 252:100-43]

EUG 5 Condensate Strippers

Location	Plant capacity	EP #	Manufacturer	Construction Date
Plant #1	1,725 TPD	10286	Kellogg	1974
Plant #2	1,850 TPD	10280	Kellogg	1975

Point ID	VOC	
	lbs/hr	TPY
10286	103	452
10280	116	506

The VOC shown in the immediately preceding table is principally methanol.

A. At least once per month, the permittee shall conduct testing of VOC (as Methanol) concentrations in liquid feed to the Process Condensate Stripper. At the option of the permittee, the concentrations in the discharges may also be monitored. [Permit No. 99-083-TV]

B. The volume of feed to the unit shall be monitored and recorded at least on a monthly basis. [Permit No. 99-083-TV]

C. Measurements of inlet VOC (as Methanol) concentrations and feed rates shall be used to determine VOC emissions each month. [Permit No. 99-083-TV]

EUG 6 Nitric Acid Plants

Location	EP #	Capacity (as 100% HNO_3)	Manufacturer	Construction Date
Plant #1	10290	1,180 TPD	Stamicarbon	1974
Plant #2	10281	1,175 TPD	Stamicarbon	1978

Point ID	NO_X	
	lbs/hr	TPY
10290	75.8*	224.2*
10281	49	129

*Combined limit with EUG 4, based on alternative emission reduction plan (AER)

A. Nitric Acid Plant No. 2 is subject to 40 CFR Part 60 NSPS Subpart G, including the following. [40 CFR 60 Subpart G and OAC 252:100-2]

i. Opacity of emissions from the Nitric Acid Plant No. 2 shall not exceed 10 percent. A correlation between concentrations of NO_X and opacity has shown that the opacity will not exceed 10% at concentrations up to and exceeding the ppm limits established under Subpart G. Thus, the existing monitoring of ppm NO_X concentrations through CEMs is sufficient to demonstrate compliance with the opacity standard of the subpart. [40 CFR 60.72(a)(2)]

ii. NO_X emissions shall not exceed 3.0 lbs/ton of 100% nitric acid produced, as a 3-hour average. [40.CFR 60.72(a)(1)]

iii. NO_X emissions from the Nitric Acid plants shall be monitored with a continuous emissions monitoring system (CEMS). [40.CFR 60.73(a)]

iv. Except as discussed in Subcondition D below, NO_X emission rates shall be calculated using the correlations developed from annual performance testing as required by the consent decree. To determine compliance with the 3.0 lbs/ton of acid produced limit, the CEMS data shall be reduced to 3-hour averages. [40 CFR 60.73(b)]

B. Beginning June 30, 2016, compliance with the AER NO_X emission limit of 75.77 lb/hr and 224.4 TPY for the combined emission from Nitric Acid Plant No. 1 of EUG 6 and gas turbine of EUG 4 shall be determined on the basis of 12-month rolling totals.

C. Nitric Acid Plant No. 1 is subject to 40 CFR Part 60 NSPS Subpart Ga, including the following. [40 CFR 60 Subpart Ga and OAC 252:100-2]

i. On and after the date on which the performance test required to be conducted by §60.73a(e) is completed, emissions of NO_X, expressed as NO_2, shall not exceed 0.50 pounds per ton of nitric acid produced, as a 30-day emission rate calculated based on 30 consecutive operating days. The emission standard applies at all times. [40 CFR 60.72a]

ii. NO_X emissions from the Nitric Acid Plants shall be monitored with a continuous emissions monitoring system (CEMS). [40 CFR 60.72a]

iii. A stack gas flow rate monitoring system shall be installed. [40 CFR 60.73a(a)]

iv. Acid production expressed as 100% nitric acid, and hours of operation shall be recorded. [40 CFR 60.73a(c)]

D. Provisions of Consent Decree No. 11-4038 (CD 11-4038) became effective on June 30, 2013 for short term emission limits and on June 30, 2014 for long term limits, all with respect to Nitric Acid Plant #2. Provisions of CD 11-4038 became effective on June 30, 2014 for short term emission limits and on June 30, 2015 for long term limits, all with respect to Nitric Acid Plant #1. Pursuant to CD 11-4038, emissions of NO_X shall not exceed the following limits.

i. Short-term NO_X limit of 1.0 lb/ton nitric acid produced (with the production being expressed as 100 percent nitric acid) based on a rolling 3-hour average (rolled hourly) excluding periods of start-up, shutdown, and malfunction.

ii. Long-term NO_X limit of 0.6 lb/ton nitric acid produced (with production being expressed as 100 percent nitric acid) based on a rolling 365-day average (rolled daily) including periods of startup, shutdown, and malfunction.
iii. Compliance with short-term and long-term NO_X limits shall be determined based on continuous emissions monitoring conducted in accordance with the CEMS Monitoring Plan for NO_X Emissions included as Attachment C of CD 11-4038.
iv. The NO_X shall not exceed 200 ppmvd during normal operation and shall not exceed 5,000 ppmvd as determined by CEMS during startups, shutdowns, and malfunctions.
v. The above NO_X emissions requirements applicable to each Covered Nitric Acid Plant were established pursuant to a negotiated Consent Decree with EPA and shall not be relaxed without the approval of EPA and ODEQ. [Consent Decree 11-4038]
vi. The CD established a CEMS Monitoring Plan that consists of sections titled: Principles; Definitions; Emissions Monitoring; Production Data; Conversion Factor; Emissions Calculations; Rounding of Numbers resulting from Calculations; Compliance with Consent Decree NO_X Limits; Retention of All CEMS Data, including Data during Startup, Shutdown, and Malfunction; Analyzer Specifications; and Compliance with NSPS 40 CFR60, Subpart G. Each of these sections is described in the following paragraphs.

Principles This CEMS Plan is the mechanism for determining compliance with the short-term and long-term NO_X limits applicable to each covered nitric acid plant and is used to evaluate the compliance status with the NSPS NO_X limits. The methodology described in this CEMS Plan will provide a continuous indication of compliance with these limits by accurately determining the emission rate in terms of pounds of NO_X emitted per ton of 100% nitric acid produced (lb/ton) as a rolling 3-hour average and as a rolling 365-day average. The CEMS will utilize equipment to measure stack NO_X concentration and the stack volumetric flow rate. From these data, real-time, accurate, and quality controlled measurements of the mass NO_X emission rate can be obtained.

Definitions Terms used in this CEMS Plan that are defined in the Clean Air Act (CAA) or in federal or state regulations promulgated pursuant to the CAA shall have the meaning assigned to them in the CAA or such regulations, unless otherwise defined in the CD. The terms used in this CEMS Plan that are defined in the CD shall have the meaning assigned to them therein. The following definitions specifically apply for purposes of this CEMS Plan.

- "CEMS" or "Continuous Emissions Monitoring System" shall mean the total equipment required under this CEMS Plan used to sample and condition (if applicable), to analyze, and to provide a permanent record of emissions or process parameters.
- "Day," "day," or "calendar day" shall mean a calendar day.
- "Long-Term NO_X Limit" shall mean a 365-day rolling average NO_X emission limit (rolled daily) expressed as pounds of NO_X emitted per ton of 100% nitric acid produced (lb/ton); compliance with the Long-Term NO_X Limit shall be calculated in accordance with this CEMS Plan. The Long-Term NO_X Limit applies at all times, including during periods of startup, shutdown, or malfunction (SSM).
- "Malfunction" shall mean, consistent with 40 CFR 60.2, any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner, but shall not include failures that are caused in whole or in part by poor maintenance or careless operation.

- "NSPS NO_X Limit" shall mean the NO_X emission limit expressed as 1.5 kg of NO_X per metric ton of 100% nitric acid produced (3 lb per ton) specified at 40 CFR 60.72(a)(1).
- "NO_X" shall mean the pollutant nitrogen oxides. For the purpose of calculating mass emission rates, NO_X has a molecular weight of 46.0055 lb/lb-mol.
- "NO_X stack analyzer" shall mean that portion of the CEMS that senses NO_X and generates an output proportional to the NO_X concentration.
- "100% nitric acid produced" shall mean the quantity of a nitric acid product manufactured by the nitric acid plant multiplied by the concentration of actual nitric acid in the product. For example, if the nitric acid plant produces 100 tons of a 54% nitric acid product, this equals 54 tons of 100% nitric acid produced.
- "One-hour period" and "1-hour period" shall mean any 60-minute period commencing on the hour.
- "One-minute measurement" shall mean any single measurement or the arithmetic average of multiple measurements of a parameter during a one-minute period on the clock.
- "Operating Periods" shall mean periods during which a covered nitric acid plant is producing nitric acid and NO_X is emitted, including periods of SSM.
- "Short-Term NO_X Limit" shall mean a 3-hour rolling average NO_X emission limit (rolled hourly) expressed in terms of pounds of NO_X emitted per ton of 100% nitric acid produced (lb/ton); compliance with the Short-Term NO_X Limit shall be calculated in accordance with this CEMS Plan. The Short-Term NO_X Limit does not apply during periods of SSM.
- "Shutdown" shall mean the cessation of nitric acid production operations of a covered nitric acid plant for any reason. Shutdown begins at the time the feed of ammonia to the covered nitric acid plant ceases and ends 3 hours later.
- "Stack flowmeter" shall mean that portion of the CEMS that senses the volumetric flow rate and generates an output proportional to that flow rate.
- "Startup" shall mean the process of initiating nitric acid production operations of a covered nitric acid plant. Startup begins one hour prior to the initiation of the feed of ammonia to the covered nitric acid plant and ends no more than five hours after such initiation of the feed of ammonia.
- "Ton" or "tons" shall mean short ton or short tons. One ton equals 2,000 pounds.

Emissions Monitoring Emissions monitoring under this CEMS Plan will be done using a NO_X stack analyzer and a stack flowmeter on each covered nitric acid plant. Except for periods of CEMS breakdowns, analyzer malfunctions, repairs, and required quality assurance or quality control activities (including calibration checks and required zero and span adjustments), operator will conduct continuous monitoring pursuant to this CEMS Plan at each covered nitric acid plant during all operating periods as follows.

- Once every minute, the NO_X stack analyzer will measure the stack NO_X concentration, in parts per million by volume, dry basis (ppmvd) and the stack flowmeter will measure the volumetric flow rate in dry standard cubic feet per minute (dscfm). For the purposes of the calculations under this CEMS Plan, as-is volumetric flow rate measurements will be assumed to be dry, unless the covered nitric acid plant is equipped with a continuous moisture analyzer, in which case the plant may adjust for moisture contained in the stack gas.

- For every 1-hour period, the CEMS will reduce the 60 one-minute measurements generated by each analyzer by taking the arithmetic average of the previous 60 measurements during the 1-hour period. This datum will be used to calculate the 3-hour average NO_X emission rate.

Backup Monitoring Procedure for Long-Term NO_X Limit In the event that the NO_X stack analyzer and/or stack flowmeter is/are not available or is/are out-of-control, the following backup monitoring procedure will be implemented.

- Other than as specified below for a CEMS outage or out-of-control period less than 24 consecutive hours, data gaps in the array will be filled by complying with the following requirements.
  - Exit stack gas will be sampled and analyzed for NO_X at least once every three (3) hours during all operating periods. Sampling will be conducted by making physical measurements of the NO_X concentration in the gas stream to the main stack using alternative/non-CEMS methods (e.g., through the use of a portable analyzer or non-certified NO_X stack analyzer). The reading obtained will be substituted for the 180 (or less) one-minute measurements that would otherwise be utilized if the CEMS were operating normally. Alternatively, the required sampling and analysis may be conducted using a redundant certified NO_X analyzer.
  - Stack volumetric flow rate will be estimated using engineering judgment.
- During required quality assurance or quality control activities (including calibration checks and required zero and span adjustments) of the CEMS and stack flowmeter, the previous calendar day average value may be utilized to fill in the data gaps.
- If either or both of the CEMS or stack flowmeter is/are not operating for a period of less than 24 consecutive hours due to breakdowns, malfunctions, repairs or out-of-control period of the same, the previous calendar day average value may be utilized to fill in the data gaps.

Production Data Following each calendar day at each covered nitric acid plant, the permittee shall record the quantity of nitric acid produced during that day and the average strength of the nitric acid produced during that day. This information will be used to calculate 100% nitric acid produced for that day, in units of tons per day.

Conversion Factor During each required performance test for each covered nitric acid plant required under Paragraph 24 of the CD, the permittee shall develop a conversion factor in units of lb/ton of 100% nitric acid produced per ppmvd, consistent with 40 CFR 60.73(b).

Emissions Calculations

Rolling 3-hour average Compliance with the Short-Term NO_X Limit shall be based on a rolling 3-hour average (rolled hourly). For purposes of calculating a rolling 3-hour average NO_X emission rate, the CEMS will maintain an array of the three most recent and contiguous 1-hour period average measurements of stack NO_X concentration. Every hour, it will add the most recent 1-hour period average measurement to the array and exclude the oldest 1-hour period average measurement. Data generated using the backup monitoring procedure specified above need not be included in this calculation.

The rolling 3-hour average lb/ton NO_X emission rate (E_{3hravg}) will then be calculated every hour using the following equation.

$$E_{3hravg} = K/3 \times \sum_{i=1}^{3} CNOxi \text{ , where:}$$

C_{NOxi} = arithmetic average of 60 one-minute measurements of stack NO_X concentration, ppmvd, in a 1-hour period;

K = conversion factor determined during most recent NO_X performance test (lb/ton of 100% nitric acid produced per ppm);

E_{3hravg} = 3-hour average lb NO_X per ton 100% nitric acid produced.

Rolling 365-day average Compliance with the Long-Term NO_X Limit shall be based on a rolling 365-day average (rolled daily). For purposes of calculating the 365-day average NO_X emission rate each calendar day at each covered nitric acid plant, the permittee shall maintain an array of mass emissions (lb/day) of NO_X calculated using the following equation and the 100% nitric acid produced for that day (tons/day) and for the preceding 364 days, shall be maintained. Each subsequent day, the data from that day shall be added to the array, and the data from the oldest day shall be excluded.

For purposes of calculating daily mass emission rate, the CEMS will maintain an array of each one-minute measurement of the NO_X concentration (ppmvd) at the exit stack and of each one-minute measurement of volumetric flow rate (dscfm) of the exit stack over each day. In the event that one or more of the CEMS and stack flowmeter is/are not available, the backup monitoring procedure discussed above will be used to fill in the gaps.

Following each calendar day, the daily NO_X mass emissions will be calculated using the following equation.

$$M_{NOxDay} = 1.193 \times 10^{-7} \times \sum_{i=1}^{n} QStackiCNOxi \text{ , where:}$$

C_{NOxi} = one-minute measurements of stack NO_X concentration, ppmvd, at interval "i";

Q_{Stacki} = one-minute measurements of stack volumetric flow rate, dscfm, at interval "i";

1.193×10^{-7} = conversion factor in units of pounds per standard cubic foot (lb/scf) of NO_X per ppm;

M_{NOxDay} = mass emissions of NO_X during a calendar day, pounds;

n = number of minutes of operating period in a calendar day.

Following each calendar day, the NO_X emission rate averaged over a rolling 365-day period as lb/ton, shall be calculated using the following equation.

$$E_{365\text{-}Dayavg} = \sum_{d=1}^{365} MNOxDayd \div \sum_{d=1}^{365} Pd, \text{ where:}$$

$M_{NOxDayd}$ = mass emissions of NO_X during calendar day "d", pounds;

P_d = 100% nitric acid produced during calendar day "d", tons;

$E_{365\text{-}Dayavg}$ – 365-day rolling average lb NO_X per ton of 100% nitric acid produced.

Rounding of Numbers Resulting from Calculations Upon completion of calculations, the final numbers for E_{3hravg} shall be rounded to the nearest tenth, and the final numbers for $E_{365Dayavg}$ shall be rounded to the nearest hundredth. The numbers 5 through nine shall be rounded up and the numbers 1 through 4 shall be rounded down.

Compliance with Consent Decree NO_X Limits

Short-Term NO_X Limits Short-term limits do not apply during periods of SSM. During all other operating periods, a covered nitric acid plant will be in compliance with the Short-Term NO_X Limit specified in the CD if E_{3hravg} does not exceed 1.0 lb of NO_X per ton of 100% nitric acid produced. If the permittee contends that any 3-hour rolling average emission rate is in excess of 1.0 lb/ton due to the inclusion of hours of SSM in the 3-hour period, E_{3hravg} shall be recalculated to exclude measurements recorded during the periods of the claimed SSM(s). Nothing in this CEMS Plan shall preclude the use, including the exclusive use, of any

credible evidence or information relevant to whether a covered nitric acid plant would have been in compliance with the short-term limit if the appropriate performance test or compliance procedure had been performed.

NSPS NO_X Limits The NO_X limit of NSPS Subpart G does not apply during periods of SSM. During all other operating periods, Plant No. 2 will be in compliance with the NO_X limit of NSPS Subpart G if E_{3hravg} does not exceed 3.0 lb of NO_X per ton of 100% nitric acid produced. If the permittee contends that any 3-hour rolling average rate is in excess of 3.0 lb/ton due to the inclusion of hours of SSM, E_{3hravg} shall be recalculated to exclude measurements recorded during the periods of the claimed SSM. Nothing in this CEMS Plan shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether Plant No. 2 would have been in compliance with the NO_X limit of NSPS Subpart G if the appropriate performance test or compliance procedure had been performed.

Long-Term NO_X Limits Long-term limits apply at all times, including during periods of SSM. A covered nitric acid plant will be in compliance with the Long-Term NO_X Limit specified in the CD if $E_{365\text{-}Dayavg}$ does not exceed 0.6 lb of NO_X per ton of 100% nitric acid produced.

Retention of All CEMS Data, including Data during SSM All data generated by the NO_X analyzer and stack flowmeter, including all data generated during SSM at each covered nitric acid plant shall be retained in accordance with Section XI of the CD.

Analyzer Specifications The NO_X stack analyzer and the stack flowmeter required under this CEMS Plan at each covered nitric acid plant shall meet the following specifications.

Analyzer	Parameter	Location	Range/Span Value
NO_X stack analyzer	NO_X, ppmvd	Stack	Dual, with normal 0 – 200 ppm NO_X, and SSM 0 -5,000 ppm NO_X
Stack flowmeter	Volumetric flow rate, scfm	Stack	0 - 125% of the maximum expected volumetric flow rate

The NO_X stack analyzer shall meet all applicable requirements of 40 CFR §§60.11 and 60.13, and Appendix B, Performance Specification 2, as well as the Quality Assurance and Quality Control Procedures of 40 CFR 60 Appendix F, Procedure 1. The daily drift test requirement at 40 CFR 60.13(d) and the requirements of Appendix F apply to only the normal range of the NO_X stack analyzer. The SSM range of the NO_X stack analyzer shall be evaluated once each calendar quarter to verify accuracy.

The stack flowmeter shall meet 40 CFR 60, Appendix B, Performance Specification 6, and shall be evaluated once each quarter and during the RATA of the NO_X stack analyzer to verify accuracy.

Compliance with NSPS 40 CFR 60, Subpart G In addition to the requirements in this CEMS Plan, Plant No. 2 shall comply with all of the requirements of Subpart G that apply to Plant No. 2, except that pursuant to 40 CFR 60.13(i), this CEMS Plan will supersede the following provisions of Subpart G.

- The requirement of 40 CFR 60.73(a) that the NO_X stack analyzer have a span value of 500 ppm. Span values listed in the Analyzer Specifications table of this CEMS Plan shall be used in lieu of Subpart G values.
- The requirement at 40 CFR 60.73(a) that pollutant gas mixtures under Performance Specification 2 and for calibration checks under 40 CFR 60.13(d) be nitrogen dioxide

(NO_2). Plant No. 2 shall use calibration gases containing NO and/or NO_2 as appropriate to assure accuracy of the NO_X stack analyzer except where verified reference cells are used in accordance with Performance Specification 2.

EUG 7 Urea-UAN Plants

Location	EP #	Manufacturer	Construction Date
Plant #1	10282	Stamicarbon	1974
Plant #2	10283	Stamicarbon	1978

Point ID	PM_{10}		CO	
	lbs/hr	TPY	lbs/hr	TPY
10282	7.73	33.9	4.97	21.8
10283	2.62	11.5	2.23	9.78

A. Ammonia neutralizer operations of each plant shall be maintained in the following ranges. [OAC 252:100-8-6(a)]

1. pH of 4.0 or lower
2. Maximum temperature of 215°F for discharges from the neutralizers' stack outlets.

B. Particulate emissions from the #1 UAN Plant shall be controlled by a condenser/evaporator system. At such times that the condenser/evaporator system is not operating and the bypass valve is open at Plant #1 and at all times at Plant #2, air exhausts from the UAN plants shall be processed by mist eliminators or equivalent systems with 80% or better efficiency for PM emissions control. The #1 and #2 UAN plant mist eliminators shall be operated at a pressure differential of at least 2 inches WC. The permittee shall monitor the operating parameters (pressure differential for mist eliminators or equivalent parameters for equivalent devices) at least once per day. If the operating parameters (pressure differential) are monitored more than once daily, a daily average of the operating parameters must be calculated for determining compliance.

C. The #1 UAN Plant by-pass valve position shall be monitored and recorded daily. [OAC 252:100-8-6(a)]

EUG 8 Ammonia Plant Primary Reformers

Location	EP #	Construction Date
Plant #1	10284	1974
Plant #2	10291	1975

EP #	$PM_{10}/PM_{2.5}$		SO_2		NO_X		VOC		CO	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10284	9.88	43.2	7.47	32.7	184	808	6.29	27.5	96.1	421
10291e	171	751	180	790	180	790	6.13	26.9	99.2	435
10291p	4.57	20.0	0.90	3.93	147	646	8.22	36.0	73.2	320

A. The permittee shall monitor and record natural gas flow to the auxiliary burner sections of the #1 Primary Reformer and the #2 Primary Reformer. Daily records of the natural gas usage rate shall be maintained for each of the auxiliary burner sections.

B. Plant #2 is subject to the emission limitations listed on the second line of the preceding table (10291e) until completion of the burner replacement project authorized by modified permit 2006-003-TVR (M-8). Upon completion of these projects, Plant #2 will be subject to the emission limitations listed in the third line of the table (10291p).

C. Reference Method performance testing of all pollutants with authorized emissions exceeding 250 TPY but not exceeding 500 TPY (CO) shall be performed no less frequently than every alternate year, such as every even-numbered or every odd-numbered year. Reference Method performance testing of all pollutants with authorized emissions exceeding 500 TPY (PM_{10}, $PM_{2.5}$, SO_2, and NO_X) shall be performed in each of the five 12-month periods following the issuance date (August 28, 2013) of Part 70 renewal permit 2011-006-TVR2, with results to DEQ within 60 days of each test. Reference method performance testing of pollutants with authorized emissions less than 250 TPY (PM_{10}, $PM_{2.5}$, and SO_2 for the Plant #1 Primary Reformer and VOC for both reformers) is not required.

EUG 9 Ammonia Plant Start-up and Shutdown Vents

Location	EP #	Vent #	Construction Date
Plant #1	10285	1	1974
Plant #1	10287	3	1974
Plant #2	10292	1	1975
Plant #2	10289	3	1975

		CO	
Point ID	Emission Unit	lbs/hr	TPY
10285	Plant 1 SU/SD Vent 1	45,381	2,178
10287	Plant 1 SU/SD Vent 3	45,381	2,178
10289	Plant 2 SU/SD Vent 1	56,704	2,722
10292	Plant 2 SU/SD Vent 3	56,704	2,722

Emissions of CO from these points shall be reported on the facility annual emission inventory.

EUG 10 Vents

Location	Name or Function	EP #	Construction Date
Ammonia Plant #1	Continuous CO_2 Regenerator	10288	1974
Ammonia Plant #2	Continuous CO_2 Regenerator	10293	1975

Point ID	VOC		CO	
	lbs/hr	TPY	lbs/hr	TPY
10288	18.5	81.0	4.38	19.2
10293	20.8	91.1	4.90	21.5

The VOC shown in the immediately preceding table is principally methanol.

EUG 11 Upset Flare

Location	EP #	Heat Input (MBTUH)	Construction Date
Cryogenic Ammonia Storage Tank	10297	43 (pilot), 130 (assist)	1974

	PM_{10}		NOx		VOC		CO	
Point ID	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10297	0.04	0.17	13.8	60.4	0.03	0.12	0.41	1.80

The flare is a control device and should be used infrequently. Opacity monitoring shall include recording the date, time, and duration of any use of this device. A device to monitor the presence of a flame at all times and to warn of its absence shall be maintained. A flowmeter recording each upset event shall also be present.

EUG 12 Ammonia Plant Startup Heaters

Location	EP #	Heat Input	Construction Date
Plant #1	10298	40 MMBTUH	1974
Plant #2	10299	40 MMBTUH	1975
Storage	10305	30 MMBTUH	2012

Point	$PM_{10}/PM_{2.5}$		SO_2		NO_x		VOC		CO	
ID	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10298	16.8	73.6	8.00	35.0	12.0	52.6	0.27	1.19	4.20	18.4
10299	16.8	73.6	8.00	35.0	12.0	52.6	0.27	1.19	4.20	18.4
10305	0.22	0.98	0.02	0.08	1.05	4.60	0.03	0.13	2.10	9.20

EUG 13 Facility Ammonia Emission Points

This EUG contains a collection of emission points for the purpose of establishing an enforceable limitation for anticipated or routine facility ammonia emissions, exclusive of unanticipated releases such as accidents, upsets, or malfunctions. The following tabulation lists all such points, regardless of whether they have been listed in earlier EUGs. Anticipated facility ammonia emission sources are limited to these points, as they exist. Emission increases above the Facility wide ammonia cap shall be reported to AQD immediately and the permittee shall obtain a permit modification, if necessary. Emissions due to accidents, upsets, or malfunctions, including those from pressure relief valves, shall be reported to appropriate agencies, as required by CERCLA or other requirements. Such emissions are not covered by the cap stated here and are not exceedances of the cap. [Permit No. 99-083-TV (M-1)]

Facility Wide Ammonia Cap	
lbs/hr	TPY
2,625	5,769

Emission Point
Nitric acid plant #1
Nitric acid plant #2
Upset flare

Emission Point
2 blue loading tanks
2 white loading tanks
2 UAN tanks

Emission Point
SU/SD vent 1-1
SU/SD vent 2-1
SU/SD vent 1-2

Emission Point
Condensate stripper
Condensate stripper
2 UANs
Cryo-ammonia flare
Purge gas flare #1
Purge gas flare #2
4 UAN tanks
UAN tank

Emission Point
1 UAN tank
1 UAN tank
Neutralizer tank
CO2 plant surge tank
1 UAN tank
2 UAN tanks
2 degasifiers
2 degasifiers

Emission Point
SU/SD vent 2-2
SU/SD vent 1-3
SU/SD vent 2-3
2 UAN tanks
Piping component fugitives
Miscellaneous fugitives
Ammonia storage flare
Ammonia loading flare
Ammonia process flare

The following conditions apply to the various sources of ammonia emissions.

A. At least once per month, the permittee shall conduct testing of ammonia concentrations in the inlets to each process condensate stripper. The facility shall use EPA Method 350.2 (Distillation-titration) or Method 350.3 (Selective ion electrode).
B. The volume of feed to each process condensate stripper shall be monitored and recorded on no less than a monthly basis.
C. Measurements of inlet ammonia concentrations and feed rates shall be used to determine ammonia emissions each month.
D. Emissions of ammonia from the UAN plants are controlled by the methods outlined in Specific Condition #1 EUG 7 A.
E. Compliance with the lbs/hr emission limitation shall be determined based on a 24-hour average, and compliance with the TPY emission limitation shall be determined on the basis of 12-calendar-month rolling totals.

EUG 14 Internal Combustion Engines Subject to 40 CFR 63, Subpart ZZZZ

Emission Point	Make/Model	HP	Construction Date
ISA-1	Caterpillar 3304 Emergency Generator	155	1992
ISA-2	Caterpillar 3306 Emergency Generator	230	1995
ISA-3	Detroit Diesel Fire Water Pump	161	1975
10306	Generac SD130 Emergency Generator	198	2012
10307	GM 5.7L Natural-gas fired water pump	115	2012

A. All engines are affected facilities under NESHAP Subpart ZZZZ and shall comply with all sections including, but not necessarily restricted to, the following. [40 CFR 63 Subpart ZZZZ]

a. §63.6580, 6585, 6590 Applicability.
b. §63.6595 When do I have to comply with this subpart?
c. §63.6600, 6601,6605 What emission limitations and operating limitations apply?
d. §63.6610, 6611, 6615, 6620 Performance tests and procedures.
e. §63.6625 What are my monitoring, installation, operation, and maintenance requirements?

f.	§63.6630, 6635, 6640	Demonstrating initial and continuous compliance with emission and operating limitations.
g.	§63.6645, 6650, 6655, 6660	Notifications, reporting, and recordkeeping
h.	§63.6665	What parts of the General Provisions apply to me?
i.	§63.6670	Who implements and enforces this subpart?
j.	§63.6675	What definitions apply to this subpart?

B. The 198-hp Generac SD130 engine is an affected facility under NSPS Subpart IIII and shall comply with all sections including, but not necessarily restricted to, the following.

[40 CFR 60 Subpart IIII]

a.	§60.4200	Applicability
b.	§60.4202, 03, 04, 05,& 06	Emission standards
c.	§60.4207	Fuel requirements
d.	§60.4208	What is the deadline for importing or installing stationary CI ICE produced in the previous model year?
e.	§60.4209	Monitoring requirements
f.	§60.4210 & 11	Compliance requirements
g.	§60.4212 & 13	Test methods and other procedures
h.	§60.4214	Notification, reporting, and recordkeeping requirements
i.	§60.4215 & 16	Engines used outside the continental USA
j.	§60.4217	Emission standards for engines using special fuels
k.	§60.4218	General Provisions
l.	§60.4219	Definitions
m.	Appendices	Eight tables for various purposes

D. The 115-hp water pump engine is an affected facility under NSPS Subpart JJJJ, and shall comply with all sections including, but not necessarily restricted to, the following.

[40 CFR 60, Subpart JJJJ]

a.	§60.4230	Am I subject?
b.	§60.4233	Emissions standards
c.	§60.4234	How long must I meet emission standards?
d.	§60.4243	Compliance requirements
e.	§60.4244	Test methods and procedures
f.	§60.4245	Notification, reporting and recordkeeping

EUG 15 Storage Tank

Emission Point	EU Name/Model	Construction date	VOC Emissions	
			lbs/hr	TPY
10296	2,200 Gallon Unleaded Gasoline Storage Tank	1987	1.14	5.0

A. The gasoline storage tank shall be operated with a permanent submerged fill pipe.

[OAC 252:100-37-15]

EUG 16 Purge Gas Flares

Location	EP #	Construction Date
Ammonia Plant #1	10300	2004
Ammonia Plant #2	10301	2004

	NOx		CO	
Point ID	lbs/hr	TPY	lbs/hr	TPY
10300	16.1	19.5	15.7	19.0
10301	16.1	19.5	15.7	19.0

EUG 17 Ammonia Flares

EP #	Source	Pilot (MMBTUH)	Assist (SCFH)	Construction
10302	Ammonia storage tank	0.051	630	2012
10303	Ammonia loading	0.051	630	2012
10304	Ammonia process	0.081	800	2012

A. The flares shall be operated in compliance with the conditions listed in 40 CFR 60.18. [OAC 252:100-43]

2. Fuel-burning equipment of EUGs 2, 3, 4, 8, 12, and any non-liquid-fueled items included in the Insignificant Activities category shall be fueled only with pipeline natural gas as defined in Part 72 having 0.5 grains/100 scf or less total sulfur. Compliance can be shown by a current gas company bill, lab analysis, stain-tube analysis, gas contract, tariff sheet, or other approved methods. Compliance shall be demonstrated at least once annually. [OAC 252:100-31]

3. The permittee shall be authorized to operate this facility continuously (24 hours per day, every day of the year). [OAC 252:100-8-6(a)]

4. The following hardcopy and/or electronic records shall be maintained on location for inspection by regulatory personnel. The required records shall be retained for a period of at least five (5) years following the dates of recording. [OAC 252:100-43]

A. Monitoring of NO_X concentrations in exhausts from the Nitric Acid Plants (continuous).
B. NO_X emissions on the basis of lbs per ton of 100% nitric acid from the No. 1 and No. 2 Nitric Acid Plants (daily).
C. Records to demonstrate compliance with the AER, as required by and described in SC #1 EUG 4 and Subcondition B of EUG 6, which is the combined total mass NO_X emissions calculated from the No. 1 Nitric Acid Plant and the Gas Turbine, both monthly and 12-calendar-month rolling.
D. NO_X emissions from each nitric acid plant, both monthly and 12-calendar-month rolling, as required by SC #1 EUG 6 Subcondition A for Nitric Acid Plant No. 2 and as required by SC #1 EUG 6 Subcondition C for Nitric Acid Plant No.1 except as superseded by (P) below.
E. Pressure differential (or equivalent) on PM emission control devices on the UAN plants (once daily or daily average), as required by Subcondition B of EUG 7 in SC #1.
F. Average pH of each neutralizer (daily average measured at least every two operating hours).

G. Average temperature of discharges to the atmosphere from each neutralizer (daily average measured at least every two operating hours).
H. Fuel usage for each boiler (monthly and 12-calendar-month rolling total).
I. Nitric acid production from each plant expressed as 100% nitric acid (daily).
J. Mass balance calculations for each Process Condensate Stripper (monthly).
K. Venting episodes from EUG 9, including methods and assumptions used in calculating emission rates during venting episodes (monthly).
L. Calculations of ammonia emissions from each process condensate stripper, each UAN plant, and fugitive leakage of ammonia, including process flow rates (monthly and 12-month rolling total).
M. The facility shall maintain records of the date, time, and duration of instances in which the EUG 11 flare is used.
N. Records as required by 40 CFR 60 NSPS Subparts Db, G, Ga, GG, IIII, and JJJJ.
O. Records as required by 40 CFR 63, NESHAP Subparts ZZZZ and DDDDD.
P. Records required to demonstrate compliance with the CD, as described at length in Specific Condition #1, EUG 6, Subcondition D.

5. To maintain consistency between the assumptions made in setting permit limitations and the reporting of emissions, the following emission factors or assumptions shall be made in reporting emission inventory information. For those points having emission factors identified as being a stack test result plus a safety factor, the emission inventory may report the actual stack test results. Results from stack testing performed under the provisions of OAC 252:100-43 may be substituted for any of the following factors as such results become available. Factors dependent upon AP-42 values or EPA-approved air dispersion models shall be updated to reflect the best available current information. The AP-42 citation used in this permit is listed for those pollutants for which AP-42 values were identified by the facility. SC # refers to the subchapter for those factors taken from regulatory limits set in OAC 252:100. Data for particulate matter (PM) refer to total PM, otherwise identified as filterable and condensable or front half and back half, unless otherwise indicated. Note that methanol is both a HAP and a VOC. Emissions of methanol should be reported as a distinct item on the annual emission inventory, and VOC totals should exclude methanol reported separately.

EUG	Equipment	Pollutant	Factor	AP-42 Citation
1	Facility-wide	None	N/A	
2	Boilers UB & UC	NO_X	SC 31	
		CO	AP-42	Sec. 1.4 (7/98)
		VOC, SO_2, PM_{10}	125% of AP-42	Sec. 1.4 (7/98)
3	Boiler UD	VOC, PM_{10}, CO, NO_X	Manufacturer guarantees	
		SO_2	AP-42	Sec. 1.4 (7/98)
4	Turbine	PM_{10}	SC 19	
		CO, SO_2	125% AP-42	Sec. 3.1 (4/00)
		VOC	400% AP-42	Sec. 3.1 (4/00)
		NO_X	0.22 lb/MMBTU [1]	
5	Condensate Strippers	VOC	125% AP-42	Sec. 8.1 (7/93)
		Methanol	AP-42 [2]	Sec. 8.1 (7/93)
6	Acid Plant #1	NO_X	CEMs Data [3]	
	Acid Plant #2	NO_X	CD 11-4038	
7	UAN Plant #1	CO	125% Stack test	

EUG	Equipment	Pollutant	Factor	AP-42 Citation
		PM_{10}	Stack test	
	UAN Plant #2	CO	0.0255 lb/ton of CO_2	
		PM_{10}	125% of 1988 stack test = 0.188 lb/T	
8	Primary Reformer #1	NOX	0.173 lb/MMBTU [7]	
		VOC, CO	110% AP-42	Sec. 1.4 (7/98)
		PM10	125% AP-42	Sec. 1.4 (7/98)
		SO2	125% stack test	
	Primary Reformer #2	PM_{10}, SO_2, NO_X	SC 19, SC 31, SC 33 (See footnote 5)	
		VOC, CO	125% AP-42 (See footnote 5)	Sec. 1.4 (7/98)
9	Start-up/Shutdown Vents	CO	Engineering judgment/calculations	
10	NH_3 Plants CO_2	VOC, CO	125% Stack test	
		Methanol	80% VOC [4]	
	CO_2 Plants	VOC, CO	125% Stack test	
		Methanol	80% VOC [4]	
11	Upset flare	Criteria	Manufacturer's suggested values	
12	Start-up heaters	PM_{10}, SO_2	SC 19, SC 31	
		NO_X	300% AP-42	Sec. 1.4 (7/98)
		VOC, CO	125% AP-42	Sec. 1.4 (7/98)
	Ammonia heater	CO, NO_X	125% of manufacturer's values	
		PM, SO_2, VOC	AP-42	Sec. 1.4 (7/98)
13	Ammonia emissions	Ammonia vents	Engineering judgment	
		Ammonia tanks	EPA Tanks model	
		UAN #1	July 1997 emission factor	
		UAN #2	July 2006 emission factor	
		EUG 11 flare	98% destruction efficiency	
		EUG 16 flare	99% destruction eff'y, design criteria	
14	ZZZZ Generators	Criteria	AP-42	Sec. 3.3 (10/96)
	IIII Generators	Criteria	AP-42	Sec. 3.3 (10/96)
	JJJJ Generators	Criteria	AP-42	Sec. 3.2 (8/00)
15	Storage tank	VOC	EPA Tanks model	
16	Purge gas flares	NO_X, CO	Manufacturer's recommended values	
17	Ammonia flares	NO_X, CO, VOC, NH_3	TCEQ Guidance	

(1) This datum does not override the alternative emission reduction limit described in Specific Condition #1, EUG 4 and EUG 6.
(2) This number represents the minimum methanol that may be reported. Methanol is the primary, if not the only, constituent of the VOC emissions.
(3) See Note 1 with respect to Plant #1. The Plant #2 datum does not override the previously accepted annual emission limit shown in Specific Condition #1, EUG 6.
(4) This datum represents the facility's best estimate of the portion of VOC that may be methanol.
(5) The values in the original permit were based on LHV of the fuel. Permit modification M-4 altered the method to recognize HHV. Actual factors stated in pounds per MMBTU (using HHV) are 0.0165 for PM_{10}, 0.173 for SO_2, 0.173 for NO_X, 0.0059 for VOC, and 0.095 for CO.
(6) Conservatively high value accepted for all burners, although new burners are guaranteed at much lower value.
(7) This number was back-calculated from the annual permit limit of 808 TPY, assuming continuous operation.

6. The equipment items listed below are considered insignificant. There are no emission limits authorized, but the facility must keep records demonstrating the continued insignificance of these items.

Emission Point	EU Name/Model	Construction Date
10296A	2,200 Gallon Diesel Storage Tank *	1987

* Actual capacity is 2,115 gallons; for the permit/memo it conservatively assumes 2,200 gallons

The following records shall be maintained on-site to verify Insignificant Activities. No recordkeeping is required for those operations that qualify as Trivial Activities.

[OAC 252:100-8-6 (a)(3)(B)]

A. Contents and throughput of EP 10296A.
B. Calculation of actual emissions for any activity with potential emissions greater than five TPY.

7. Records shall be maintained to demonstrate that project(s) as authorized by and incorporated from previous permit(s) do not exceed PSD thresholds and to demonstrate compliance with OAC 252:100-8-36.2. [OAC 252:100-8-36.2]

A. Records sufficient to demonstrate compliance with the requirements of OAC 252:100-8-36.2(c) shall be maintained to show that the capital projects and addition of emergency generator authorized by permit 2006-003-TVR (M-10) do not exceed PSD thresholds. Emission points to be recorded are Primary Reformer #2 (EU 10291), CO_2 Regenerator Vent #2 (EU 10293), and EUG 14 (emergency generators).
B. Per OAC 252:100-8-36.2(c), records shall be kept comparing actual emissions from associated units in the Primary Reformer #2 Low NO_X burner project with projected actual emissions showing that net emissions changes are less than PSD levels of significance. Recordkeeping shall commence upon completion of the burner replacement project.
C. Per OAC 252:100-8-36.2(c), records shall be kept comparing actual emissions from the #1 UAN Plant project with projected actual emissions showing that net emissions changes are less than PSD levels of significance. Recordkeeping shall commence April 2015, for the project completed as authorized in Permit No. 2011-006-C (M-2).
D. Per OAC 252:100-8-36.2(c), records shall be kept comparing actual emissions from associated units in the #1 Ammonia Plant modification project with projected actual emissions showing that net emissions changes are less than PSD levels of significance. Recordkeeping shall commence March 2015, for the project completed as authorized in Permit No. 2011-006-C (M-5).

8. This permit supersedes the NO_X provisions of OAC 252:100-33 for the gas turbine (EUG 4) combined with Nitric Acid Plant No.1 (EUG 6) in the AER. [OAC 252:100-11]

9. No later than 30 days after each anniversary date of the issuance of the initial TV permit (August 13, 2001), the permittee shall submit to Air Quality Division of DEQ, with a copy to the US EPA, Region 6, certification of compliance with the terms and conditions of this permit.

[OAC 252:100-8-6(c)(5)(A) & (D)]

10. The Permit Shield (Standard Conditions, Section VI) is extended to the following requirements that have been determined to be inapplicable to this facility.

[OAC 252:100-8-6(d)(2)]

OAC 252:100-7	Minor Sources	not in source category
OAC 252:100-17	Incinerators	not type of emission unit
OAC 252:100-23	Cotton Gins	not type of emission unit
OAC 252:100-24	Grain Elevators	not in source category
OAC 252:100-35	Carbon Monoxide	not in source category
OAC 252:100-39	Nonattainment Areas	not in area category
OAC 252:100-47	Landfills	not in source category
40 CFR 61	NESHAP	not in source category

11. This permit supersedes and replaces all previously issued Air Quality operating permits for this facility.

MAJOR SOURCE AIR QUALITY PERMIT
STANDARD CONDITIONS
(June 21, 2016)

SECTION I. DUTY TO COMPLY

A. This is a permit to operate / construct this specific facility in accordance with the federal Clean Air Act (42 U.S.C. 7401, et al.) and under the authority of the Oklahoma Clean Air Act and the rules promulgated there under. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

B. The issuing Authority for the permit is the Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (DEQ). The permit does not relieve the holder of the obligation to comply with other applicable federal, state, or local statutes, regulations, rules, or ordinances. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

C. The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Oklahoma Clean Air Act and shall be grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. All terms and conditions are enforceable by the DEQ, by the Environmental Protection Agency (EPA), and by citizens under section 304 of the Federal Clean Air Act (excluding state-only requirements). This permit is valid for operations only at the specific location listed.
[40 C.F.R. §70.6(b), OAC 252:100-8-1.3 and OAC 252:100-8-6(a)(7)(A) and (b)(1)]

D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [OAC 252:100-8-6(a)(7)(B)]

SECTION II. REPORTING OF DEVIATIONS FROM PERMIT TERMS

A. Any exceedance resulting from an emergency and/or posing an imminent and substantial danger to public health, safety, or the environment shall be reported in accordance with Section XIV (Emergencies). [OAC 252:100-8-6(a)(3)(C)(iii)(I) & (II)]

B. Deviations that result in emissions exceeding those allowed in this permit shall be reported consistent with the requirements of OAC 252:100-9, Excess Emission Reporting Requirements.
[OAC 252:100-8-6(a)(3)(C)(iv)]

C. Every written report submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.
[OAC 252:100-8-6(a)(3)(C)(iv)]

SECTION III. MONITORING, TESTING, RECORDKEEPING & REPORTING

A. The permittee shall keep records as specified in this permit. These records, including monitoring data and necessary support information, shall be retained on-site or at a nearby field office for a period of at least five years from the date of the monitoring sample, measurement, report, or application, and shall be made available for inspection by regulatory personnel upon request. Support information includes all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Where appropriate, the permit may specify that records may be maintained in computerized form.

[OAC 252:100-8-6 (a)(3)(B)(ii), OAC 252:100-8-6(c)(1), and OAC 252:100-8-6(c)(2)(B)]

B. Records of required monitoring shall include:

(1) the date, place and time of sampling or measurement;
(2) the date or dates analyses were performed;
(3) the company or entity which performed the analyses;
(4) the analytical techniques or methods used;
(5) the results of such analyses; and
(6) the operating conditions existing at the time of sampling or measurement.

[OAC 252:100-8-6(a)(3)(B)(i)]

C. No later than 30 days after each six (6) month period, after the date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to AQD a report of the results of any required monitoring. All instances of deviations from permit requirements since the previous report shall be clearly identified in the report. Submission of these periodic reports will satisfy any reporting requirement of Paragraph E below that is duplicative of the periodic reports, if so noted on the submitted report. [OAC 252:100-8-6(a)(3)(C)(i) and (ii)]

D. If any testing shows emissions in excess of limitations specified in this permit, the owner or operator shall comply with the provisions of Section II (Reporting Of Deviations From Permit Terms) of these standard conditions. [OAC 252:100-8-6(a)(3)(C)(iii)]

E. In addition to any monitoring, recordkeeping or reporting requirement specified in this permit, monitoring and reporting may be required under the provisions of OAC 252:100-43, Testing, Monitoring, and Recordkeeping, or as required by any provision of the Federal Clean Air Act or Oklahoma Clean Air Act. [OAC 252:100-43]

F. Any Annual Certification of Compliance, Semi Annual Monitoring and Deviation Report, Excess Emission Report, and Annual Emission Inventory submitted in accordance with this permit shall be certified by a responsible official. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

[OAC 252:100-8-5(f), OAC 252:100-8-6(a)(3)(C)(iv), OAC 252:100-8-6(c)(1), OAC 252:100-9-7(e), and OAC 252:100-5-2.1(f)]

G. Any owner or operator subject to the provisions of New Source Performance Standards ("NSPS") under 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants ("NESHAPs") under 40 CFR Parts 61 and 63 shall maintain a file of all measurements and other information required by the applicable general provisions and subpart(s). These records shall be maintained in a permanent file suitable for inspection, shall be retained for a period of at least five years as required by Paragraph A of this Section, and shall include records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility, any malfunction of the air pollution control equipment; and any periods during which a continuous monitoring system or monitoring device is inoperative.

[40 C.F.R. §§60.7 and 63.10, 40 CFR Parts 61, Subpart A, and OAC 252:100, Appendix Q]

H. The permittee of a facility that is operating subject to a schedule of compliance shall submit to the DEQ a progress report at least semi-annually. The progress reports shall contain dates for achieving the activities, milestones or compliance required in the schedule of compliance and the dates when such activities, milestones or compliance was achieved. The progress reports shall also contain an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. [OAC 252:100-8-6(c)(4)]

I. All testing must be conducted under the direction of qualified personnel by methods approved by the Division Director. All tests shall be made and the results calculated in accordance with standard test procedures. The use of alternative test procedures must be approved by EPA. When a portable analyzer is used to measure emissions it shall be setup, calibrated, and operated in accordance with the manufacturer's instructions and in accordance with a protocol meeting the requirements of the "AQD Portable Analyzer Guidance" document or an equivalent method approved by Air Quality.

[OAC 252:100-8-6(a)(3)(A)(iv), and OAC 252:100-43]

J. The reporting of total particulate matter emissions as required in Part 7 of OAC 252:100-8 (Permits for Part 70 Sources), OAC 252:100-19 (Control of Emission of Particulate Matter), and OAC 252:100-5 (Emission Inventory), shall be conducted in accordance with applicable testing or calculation procedures, modified to include back-half condensables, for the concentration of particulate matter less than 10 microns in diameter (PM_{10}). NSPS may allow reporting of only particulate matter emissions caught in the filter (obtained using Reference Method 5).

K. The permittee shall submit to the AQD a copy of all reports submitted to the EPA as required by 40 C.F.R. Part 60, 61, and 63, for all equipment constructed or operated under this permit subject to such standards. [OAC 252:100-8-6(c)(1) and OAC 252:100, Appendix Q]

SECTION IV. COMPLIANCE CERTIFICATIONS

A. No later than 30 days after each anniversary date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to the AQD, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of this permit and of any other applicable requirements which have become effective since the issuance of this permit.

[OAC 252:100-8-6(c)(5)(A), and (D)]

B. The compliance certification shall describe the operating permit term or condition that is the basis of the certification; the current compliance status; whether compliance was continuous or intermittent; the methods used for determining compliance, currently and over the reporting period. The compliance certification shall also include such other facts as the permitting authority may require to determine the compliance status of the source.
[OAC 252:100-8-6(c)(5)(C)(i)-(v)]

C. The compliance certification shall contain a certification by a responsible official as to the results of the required monitoring. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." [OAC 252:100-8-5(f) and OAC 252:100-8-6(c)(1)]

D. Any facility reporting noncompliance shall submit a schedule of compliance for emissions units or stationary sources that are not in compliance with all applicable requirements. This schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the emissions unit or stationary source is in noncompliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the emissions unit or stationary source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based, except that a compliance plan shall not be required for any noncompliance condition which is corrected within 24 hours of discovery.
[OAC 252:100-8-5(e)(8)(B) and OAC 252:100-8-6(c)(3)]

SECTION V. REQUIREMENTS THAT BECOME APPLICABLE DURING THE PERMIT TERM

The permittee shall comply with any additional requirements that become effective during the permit term and that are applicable to the facility. Compliance with all new requirements shall be certified in the next annual certification. [OAC 252:100-8-6(c)(6)]

SECTION VI. PERMIT SHIELD

A. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC 252:100-8) shall be deemed compliance with the applicable requirements identified and included in this permit. [OAC 252:100-8-6(d)(1)]

B. Those requirements that are applicable are listed in the Standard Conditions and the Specific Conditions of this permit. Those requirements that the applicant requested be determined as not applicable are summarized in the Specific Conditions of this permit. [OAC 252:100-8-6(d)(2)]

SECTION VII. ANNUAL EMISSIONS INVENTORY & FEE PAYMENT

The permittee shall file with the AQD an annual emission inventory and shall pay annual fees based on emissions inventories. The methods used to calculate emissions for inventory purposes shall be based on the best available information accepted by AQD.
[OAC 252:100-5-2.1, OAC 252:100-5-2.2, and OAC 252:100-8-6(a)(8)]

SECTION VIII. TERM OF PERMIT

A. Unless specified otherwise, the term of an operating permit shall be five years from the date of issuance. [OAC 252:100-8-6(a)(2)(A)]

B. A source's right to operate shall terminate upon the expiration of its permit unless a timely and complete renewal application has been submitted at least 180 days before the date of expiration. [OAC 252:100-8-7.1(d)(1)]

C. A duly issued construction permit or authorization to construct or modify will terminate and become null and void (unless extended as provided in OAC 252:100-8-1.4(b)) if the construction is not commenced within 18 months after the date the permit or authorization was issued, or if work is suspended for more than 18 months after it is commenced. [OAC 252:100-8-1.4(a)]

D. The recipient of a construction permit shall apply for a permit to operate (or modified operating permit) within 180 days following the first day of operation. [OAC 252:100-8-4(b)(5)]

SECTION IX. SEVERABILITY

The provisions of this permit are severable and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
[OAC 252:100-8-6 (a)(6)]

SECTION X. PROPERTY RIGHTS

A. This permit does not convey any property rights of any sort, or any exclusive privilege.
[OAC 252:100-8-6(a)(7)(D)]

B. This permit shall not be considered in any manner affecting the title of the premises upon which the equipment is located and does not release the permittee from any liability for damage to persons or property caused by or resulting from the maintenance or operation of the equipment for which the permit is issued. [OAC 252:100-8-6(c)(6)]

SECTION XI. DUTY TO PROVIDE INFORMATION

A. The permittee shall furnish to the DEQ, upon receipt of a written request and within sixty (60) days of the request unless the DEQ specifies another time period, any information that the DEQ may request to determine whether cause exists for modifying, reopening, revoking,

reissuing, terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit.
[OAC 252:100-8-6(a)(7)(E)]

B. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 27A O.S. § 2-5-105(18). Confidential information shall be clearly labeled as such and shall be separable from the main body of the document such as in an attachment.
[OAC 252:100-8-6(a)(7)(E)]

C. Notification to the AQD of the sale or transfer of ownership of this facility is required and shall be made in writing within thirty (30) days after such sale or transfer.
[Oklahoma Clean Air Act, 27A O.S. § 2-5-112(G)]

SECTION XII. REOPENING, MODIFICATION & REVOCATION

A. The permit may be modified, revoked, reopened and reissued, or terminated for cause. Except as provided for minor permit modifications, the filing of a request by the permittee for a permit modification, revocation and reissuance, termination, notification of planned changes, or anticipated noncompliance does not stay any permit condition.
[OAC 252:100-8-6(a)(7)(C) and OAC 252:100-8-7.2(b)]

B. The DEQ will reopen and revise or revoke this permit prior to the expiration date in the following circumstances: [OAC 252:100-8-7.3 and OAC 252:100-8-7.4(a)(2)]

(1) Additional requirements under the Clean Air Act become applicable to a major source category three or more years prior to the expiration date of this permit. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.
(2) The DEQ or the EPA determines that this permit contains a material mistake or that the permit must be revised or revoked to assure compliance with the applicable requirements.
(3) The DEQ or the EPA determines that inaccurate information was used in establishing the emission standards, limitations, or other conditions of this permit. The DEQ may revoke and not reissue this permit if it determines that the permittee has submitted false or misleading information to the DEQ.
(4) DEQ determines that the permit should be amended under the discretionary reopening provisions of OAC 252:100-8-7.3(b).

C. The permit may be reopened for cause by EPA, pursuant to the provisions of OAC 100-8-7.3(d). [OAC 100-8-7.3(d)]

D. The permittee shall notify AQD before making changes other than those described in Section XVIII (Operational Flexibility), those qualifying for administrative permit amendments, or those defined as an Insignificant Activity (Section XVI) or Trivial Activity (Section XVII). The notification should include any changes which may alter the status of a "grandfathered source," as defined under AQD rules. Such changes may require a permit modification.
[OAC 252:100-8-7.2(b) and OAC 252:100-5-1.1]

E. Activities that will result in air emissions that exceed the trivial/insignificant levels and that are not specifically approved by this permit are prohibited. [OAC 252:100-8-6(c)(6)]

SECTION XIII. INSPECTION & ENTRY

A. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized regulatory officials to perform the following (subject to the permittee's right to seek confidential treatment pursuant to 27A O.S. Supp. 1998, § 2-5-105(17) for confidential information submitted to or obtained by the DEQ under this section):

(1) enter upon the permittee's premises during reasonable/normal working hours where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
(2) have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
(3) inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
(4) as authorized by the Oklahoma Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit.

[OAC 252:100-8-6(c)(2)]

SECTION XIV. EMERGENCIES

A. Any exceedance resulting from an emergency shall be reported to AQD promptly but no later than 4:30 p.m. on the next working day after the permittee first becomes aware of the exceedance. This notice shall contain a description of the emergency, the probable cause of the exceedance, any steps taken to mitigate emissions, and corrective actions taken.

[OAC 252:100-8-6 (a)(3)(C)(iii)(I) and (IV)]

B. Any exceedance that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to AQD as soon as is practicable; but under no circumstance shall notification be more than 24 hours after the exceedance. [OAC 252:100-8-6(a)(3)(C)(iii)(II)]

C. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. [OAC 252:100-8-2]

D. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that: [OAC 252:100-8-6 (e)(2)]

(1) an emergency occurred and the permittee can identify the cause or causes of the emergency;
(2) the permitted facility was at the time being properly operated;
(3) during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.

E. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [OAC 252:100-8-6(e)(3)]

F. Every written report or document submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.
[OAC 252:100-8-6(a)(3)(C)(iv)]

SECTION XV. RISK MANAGEMENT PLAN

The permittee, if subject to the provision of Section 112(r) of the Clean Air Act, shall develop and register with the appropriate agency a risk management plan by June 20, 1999, or the applicable effective date. [OAC 252:100-8-6(a)(4)]

SECTION XVI. INSIGNIFICANT ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate individual emissions units that are either on the list in Appendix I to OAC Title 252, Chapter 100, or whose actual calendar year emissions do not exceed any of the limits below. Any activity to which a State or Federal applicable requirement applies is not insignificant even if it meets the criteria below or is included on the insignificant activities list.

(1)5 tons per year of any one criteria pollutant.
(2)2 tons per year for any one hazardous air pollutant (HAP) or 5 tons per year for an aggregate of two or more HAP's, or 20 percent of any threshold less than 10 tons per year for single HAP that the EPA may establish by rule.
[OAC 252:100-8-2 and OAC 252:100, Appendix I]

SECTION XVII. TRIVIAL ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate any individual or combination of air emissions units that are considered inconsequential and are on the list in Appendix J. Any activity to which a State or Federal applicable requirement applies is not trivial even if included on the trivial activities list.
[OAC 252:100-8-2 and OAC 252:100, Appendix J]

SECTION XVIII. OPERATIONAL FLEXIBILITY

A. A facility may implement any operating scenario allowed for in its Part 70 permit without the need for any permit revision or any notification to the DEQ (unless specified otherwise in the

permit). When an operating scenario is changed, the permittee shall record in a log at the facility the scenario under which it is operating. [OAC 252:100-8-6(a)(10) and (f)(1)]

B. The permittee may make changes within the facility that:

(1) result in no net emissions increases,
(2) are not modifications under any provision of Title I of the federal Clean Air Act, and
(3) do not cause any hourly or annual permitted emission rate of any existing emissions unit to be exceeded;

provided that the facility provides the EPA and the DEQ with written notification as required below in advance of the proposed changes, which shall be a minimum of seven (7) days, or twenty four (24) hours for emergencies as defined in OAC 252:100-8-6 (e). The permittee, the DEQ, and the EPA shall attach each such notice to their copy of the permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change. The permit shield provided by this permit does not apply to any change made pursuant to this paragraph. [OAC 252:100-8-6(f)(2)]

SECTION XIX. OTHER APPLICABLE & STATE-ONLY REQUIREMENTS

A. The following applicable requirements and state-only requirements apply to the facility unless elsewhere covered by a more restrictive requirement:

(1) Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in the Open Burning Subchapter. [OAC 252:100-13]

(2) No particulate emissions from any fuel-burning equipment with a rated heat input of 10 MMBTUH or less shall exceed 0.6 lb/MMBTU. [OAC 252:100-19]

(3) For all emissions units not subject to an opacity limit promulgated under 40 C.F.R., Part 60, NSPS, no discharge of greater than 20% opacity is allowed except for: [OAC 252:100-25]

(a) Short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity;
(b) Smoke resulting from fires covered by the exceptions outlined in OAC 252:100-13-7;
(c) An emission, where the presence of uncombined water is the only reason for failure to meet the requirements of OAC 252:100-25-3(a); or
(d) Smoke generated due to a malfunction in a facility, when the source of the fuel producing the smoke is not under the direct and immediate control of the facility and the immediate constriction of the fuel flow at the facility would produce a hazard to life and/or property.

(4) No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]

(5) No sulfur oxide emissions from new gas-fired fuel-burning equipment shall exceed 0.2 lb/MMBTU. No existing source shall exceed the listed ambient air standards for sulfur dioxide. [OAC 252:100-31]

(6) Volatile Organic Compound (VOC) storage tanks built after December 28, 1974, and with a capacity of 400 gallons or more storing a liquid with a vapor pressure of 1.5 psia or greater under actual conditions shall be equipped with a permanent submerged fill pipe or with a vapor-recovery system. [OAC 252:100-37-15(b)]

(7) All fuel-burning equipment shall at all times be properly operated and maintained in a manner that will minimize emissions of VOCs. [OAC 252:100-37-36]

SECTION XX. STRATOSPHERIC OZONE PROTECTION

A. The permittee shall comply with the following standards for production and consumption of ozone-depleting substances: [40 CFR 82, Subpart A]

(1) Persons producing, importing, or placing an order for production or importation of certain class I and class II substances, HCFC-22, or HCFC-141b shall be subject to the requirements of §82.4;
(2) Producers, importers, exporters, purchasers, and persons who transform or destroy certain class I and class II substances, HCFC-22, or HCFC-141b are subject to the recordkeeping requirements at §82.13; and
(3) Class I substances (listed at Appendix A to Subpart A) include certain CFCs, Halons, HBFCs, carbon tetrachloride, trichloroethane (methyl chloroform), and bromomethane (Methyl Bromide). Class II substances (listed at Appendix B to Subpart A) include HCFCs.

B. If the permittee performs a service on motor (fleet) vehicles when this service involves an ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all applicable requirements. Note: The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC-22 refrigerant. [40 CFR 82, Subpart B]

C. The permittee shall comply with the following standards for recycling and emissions reduction except as provided for MVACs in Subpart B: [40 CFR 82, Subpart F]

(1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to § 82.156;
(2) Equipment used during the maintenance, service, repair, or disposal of appliances must

comply with the standards for recycling and recovery equipment pursuant to § 82.158;
(3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to § 82.161;
(4) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record-keeping requirements pursuant to § 82.166;
(5) Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to § 82.158; and
(6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to § 82.166.

SECTION XXI. TITLE V APPROVAL LANGUAGE

A. DEQ wishes to reduce the time and work associated with permit review and, wherever it is not inconsistent with Federal requirements, to provide for incorporation of requirements established through construction permitting into the Source's Title V permit without causing redundant review. Requirements from construction permits may be incorporated into the Title V permit through the administrative amendment process set forth in OAC 252:100-8-7.2(a) only if the following procedures are followed:

(1) The construction permit goes out for a 30-day public notice and comment using the procedures set forth in 40 C.F.R. § 70.7(h)(1). This public notice shall include notice to the public that this permit is subject to EPA review, EPA objection, and petition to EPA, as provided by 40 C.F.R. § 70.8; that the requirements of the construction permit will be incorporated into the Title V permit through the administrative amendment process; that the public will not receive another opportunity to provide comments when the requirements are incorporated into the Title V permit; and that EPA review, EPA objection, and petitions to EPA will not be available to the public when requirements from the construction permit are incorporated into the Title V permit.
(2) A copy of the construction permit application is sent to EPA, as provided by 40 CFR § 70.8(a)(1).
(3) A copy of the draft construction permit is sent to any affected State, as provided by 40 C.F.R. § 70.8(b).
(4) A copy of the proposed construction permit is sent to EPA for a 45-day review period as provided by 40 C.F.R.§ 70.8(a) and (c).
(5) The DEQ complies with 40 C.F.R. § 70.8(c) upon the written receipt within the 45-day comment period of any EPA objection to the construction permit. The DEQ shall not issue the permit until EPA's objections are resolved to the satisfaction of EPA.
(6) The DEQ complies with 40 C.F.R. § 70.8(d).
(7) A copy of the final construction permit is sent to EPA as provided by 40 CFR § 70.8(a).
(8) The DEQ shall not issue the proposed construction permit until any affected State and EPA have had an opportunity to review the proposed permit, as provided by these permit conditions.
(9) Any requirements of the construction permit may be reopened for cause after incorporation into the Title V permit by the administrative amendment process, by

DEQ as provided in OAC 252:100-8-7.3(a), (b), and (c), and by EPA as provided in 40 C.F.R. § 70.7(f) and (g).

(10) The DEQ shall not issue the administrative permit amendment if performance tests fail to demonstrate that the source is operating in substantial compliance with all permit requirements.

B. To the extent that these conditions are not followed, the Title V permit must go through the Title V review process.

SECTION XXII. CREDIBLE EVIDENCE

For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any provision of the Oklahoma implementation plan, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[OAC 252:100-43-6]

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

MEMORANDUM **March 12, 2018**

TO: Phillip Fielder, P.E., Permits and Engineering Group Manager

THROUGH: Phil Martin, P.E., Existing Source Permits Section Manager

THROUGH: Amalia Talty, P.E., Existing Source Permits Section

FROM: Anthony Maxwell, DEQ Regional Office at Tulsa

SUBJECT: Evaluation of Permit Application No. **2011-006-TVR2 (M-8)**
Terra Nitrogen, LP
Verdigris Nitrogen Plant (DEQ FAC ID #1495)
6606 E. 540 Road, Claremore, OK
Sec. 9 – T20N – R15E, Rogers County (36.23497°N, 95.71718°W)
From I-44 and 193rd East Avenue (OK-167), north and east on SH 167 and SH 266 slightly more than eight miles, right (south) on Arko Road (S4100) one mile, west on E540 ½ mile to Facility.

SECTION I(a). INTRODUCTION

Terra Nitrogen, LP (Terra, applicant) operates a nitric acid, ammonia, and urea-ammonium nitrate (UAN) production facility (facility, SIC 2873) with its associated equipment in northeast Oklahoma. Construction of the plant began in 1973. The facility currently operates under Permit No. 2011-006-TVR2 (M-7), issued October 30, 2014. The facility is a major source.

Applicant requests an administrative amendment to incorporate conditions into their operating permit from previously issued construction permits which have been completed. Specific conditions are updated with this information. The following construction permits are incorporated into this operating permit.

Permit No. 2011-006-C (M-2), issued September 17, 2014, authorized replacement of the absorption tower and cooler condenser, CO_2 compressor, and plungers in the ammonia pump in Nitric Acid Plant No. 1. The authorized work was completed in April of 2015. As a result, Nitric Acid Plant No. 1 is subject to New Source Performance Standards (NSPS) Subpart Ga, which has a standard of NO_X, expressed as NO_2, of 0.50 pounds (lbs) per ton of nitric acid (HNO_3) produced (expressed as 100% HNO_3). Emissions for EUG 6 are updated.

Permit No. 2011-006-C (M-5), issued December 15, 2014, authorized equipment upgrades that increased the ammonia production capacity (1,725 tons/day) and improved the operating efficiency of Ammonia Plant No. 1. The modifications to Ammonia Plant No. 1 were completed in March 2015, and the plant resumed operations on March 20, 2015. Emissions are updated for EUG 8 Ammonia Plant No. 1 and for EUG 5 Plant No. 1 Condensate Stripper.

Permit No. 2011-006-C (M-8) was issued December 31, 2014, and it incorporated requirements of Consent Decree 11-4038 (CD) for Nitric Acid Plant No. 1. The CD requires compliance with a short term limit of 1.0-lb NO_X emitted per ton of 100% Nitric Acid Produced. The more stringent standard of NSPS Subpart Ga, as mentioned above, supersedes a long term limit that was established by the Consent Decree. Applicant requests expanded language in the specific conditions regarding EUG 6 permit limitations and the incorporated CD. This language includes a specific statement that is required by the CD, and a summary as requested by the applicant. The summary language has been designed for a simplified reading and overview of the CD, which has been incorporated into the permit already.

An alternative emission reduction plan (AER) is incorporated from the previous permit with a recalculated lower limit. The AER couples allowable NO_X emissions from the respective EUG 6 Nitric Acid Plant No. 1 and associated EUG 4 gas turbine to form a NO_X emission cap for the two combined units. The NO_X emission cap initially derived in Permit No. 99-147-O relied upon effective standards respectively applicable to those units at that time. Short-term emissions limits for the Nitric Acid Plant #1 were misquoted at a higher NO_X emission and inappropriately modified in the previous construction Permit No. 2011-006-C (M-2) and in previous operating Permit No. 2011-006-TVR2 (M-7). The limits established in those permits were inconsistent with existing terms settled upon in the above CD and were not necessitated by any further enforcement action or regulation. Therefore, the AER and specific conditions are appropriately revised to remain consistent with the CD, NSPS Ga and do not alter any previous PSD or PSD applicability.

Praxair, Inc. purchased the CO_2 Plants from Terra Nitrogen, LP in 2017. The CO2 Plants are now collocated, and discussion of EUG 10 emissions is updated.

SECTION I(b). COLLOCATED FACILITY

This facility is collocated with CO_2 Plant #1 and CO_2 Plant #2, which are owned and operated by Praxair, Inc., Liquid Carbonic of Oklahoma, Inc. (DEQ FAC #18486). The CO_2 Plants are associated with EUG 10 of this permit. Therefore, combined emissions from CO_2 Plants which are 99.7-TPY VOC and 23.3-TPY CO are aggregated with this facility and are discussed in the memorandum under EUG 10.

SECTION II. PROCESS DESCRIPTION

The facility operates process units that conduct the following operations, with each bullet followed by a brief description of the process. Plant operations are 24 hrs/day, 7 days/week, and 52 weeks/yr (8,760 hrs/yr).

- Natural gas desulfurization Raw materials for production are natural gas, water and air. Natural gas must first be "sweetened" using a zinc/cobalt/molybdenum catalyst ("hot zinc") to remove sulfur compounds that would poison other catalysts.
- Catalytic steam reforming Steam reforming is the process by which hydrogen gas is prepared. Steam (H_2O) is reacted with methane (CH_4) to form carbon dioxide (CO_2) and hydrogen (H_2). Hydrogen gas will be used later to react with nitrogen gas to produce

ammonia. Each reformer is equipped with a gas-fired heater, rated at 1,061 and 1,057 MMBTUH, respectively. Burners currently in use at Plant #2 are generally operated very close to capacity.

- Carbon monoxide "shift" Air is added to the stream in the secondary reformer for oxidation of some of the natural gas feed, a reaction that depletes oxygen from the air feed, leaving the large nitrogen component of air undiminished. Heat is recovered from the stream as it exits the reactor, cooling the stream prior to purification. The stream leaving the reforming reaction is referred to as "synthesis gas" since it contains the nitrogen and hydrogen needed for ammonia synthesis.
- Carbon dioxide removal/liquefaction Purification of the synthesis gas removes carbon monoxide, carbon dioxide, methanol, and steam. The high-temperature "shift" reactor converts the CO to CO_2, after which the synthesis gas stream is cooled to condense the excess steam. The process condensate formed by condensing excess steam absorbs methanol and some carbon dioxide, after which, unreacted steam is stripped in a knockout drum and refluxed to the process. The process gas stream proceeds to an absorption tower where methyl diethanolamine (MDEA) is used to remove carbon dioxide. The MDEA solution is then regenerated by heating and steam stripping. A portion of the CO_2 stripped from the MDEA solution is used to produce urea in the UAN plants, some is sent to the collocated No. 1 and No. 2 CO_2 Plants, and the remainder is vented to the atmosphere. The vented CO_2 contains CO and some VOC from the methanol in the ammonia plant process as well as the amine in the CO_2 removal solution.
- Methanation At this point, the process stream consists primarily of nitrogen and hydrogen with residual amounts of CO and CO_2. These compounds poison the ammonia catalyst; therefore, they must be eliminated before ammonia synthesis. Residual CO_2 in the synthesis gas is removed by catalytic methanation, which is conducted over a nickel catalyst at temperatures of 400 to 600°C and pressures up to 3,000 kPa. The methanation reactor reverses the steam reforming reaction, producing methane from CO, CO_2, and hydrogen.
- Ammonia synthesis ($3H_2 + N_2 \dashrightarrow 2NH_3$) Ammonia synthesis is conducted in a high-temperature, high-pressure reactor. This reaction is also never 100% complete. The outlet stream is compressed and cooled for ammonia removal. Non-condensable gases from the ammonia collection step are processed by a secondary reactor, and then refluxed to the primary reactor. Ammonia is stored in a cryogenic tank at atmospheric pressure until shipped. Storage vessels are vented to a flare, where upset releases of ammonia are burned. A purge gas flare is used within each of the two (2) ammonia plants to handle venting of hydrogen and ammonia.
- Nitric acid production Nitric acid is produced by catalytic oxidation of ammonia to nitric oxide. Nitric acid is produced in three steps; combustion of ammonia to nitric oxide (NO), oxidation of NO to nitrogen dioxide (NO_2) and its dimer, nitrogen tetroxide (N_2O_4), and absorption of these in water to form nitric acid. Nitric acid is stored in two atmospheric tanks, both of which vent to wet scrubbers. The ammonia to NO oxidation takes place at 1,680°F with a platinum catalyst. Waste heat recovery cools the reactor stream before contacting it with water. Any NO_2 present is absorbed into the water as nitric acid, HNO_3. The facility also incorporates a "bleach air" step that uses air to convert unreacted NO_2 dissolved in the acid. The term "bleach air" stems from removal of nitrogen compounds that discolor the nitric acid. Tail gas from the nitric acid plants is processed by selective

catalytic reduction (SCR) technology to reduce NO_x emissions, and then vented to the atmosphere.

* Ammonium nitrate production Some of the ammonia and nitric acid produced in previous steps is reacted in an ammonium nitrate neutralizer to produce an aqueous solution of ammonium nitrate, NH_4NO_3. The process is exothermic and produces a vapor containing droplets of ammonium nitrate. A high-efficiency filter removes the entrained droplets, and the filtered vapor stream is partially condensed, yielding a process condensate stream that is used in the nitric acid plant. The remainder of the stream is vented to the atmosphere. No solid products are processed at this facility.
* Urea synthesis Ammonia and carbon dioxide are reacted in a urea production unit to produce a urea solution.
* Urea-ammonium nitrate production Urea-ammonium nitrate (UAN) solution is produced by mixing urea solution and ammonium nitrate solution. Terra specifies its UAN as containing 32% nitrogen by weight, which applies to each reference to UAN in this memorandum.

Although most of the steam needed in the process is made from waste heat recovery, the facility includes three gas-fired boilers designated "B", "C", and "D".

SECTION III. EQUIPMENT

EUG 1 Plant-wide

This EUG is established to address those rules or regulations that apply to the entire facility, including such rules as open burning or fugitive dust.

EUG 2 Package Boilers

Boiler name	EP #	Heat Input and Manufacturer	Construction Date
B	10277	157 MMBTUH Trane-Murray	1974
C	10278	177 MMBTUH Combustion Engineering	1975

EUG 3 NSPS Boiler

Boiler name	EP #	Heat Input and Manufacturer	Construction Date
D	102XX	212 MMBTUH Nebraska Boiler	1995

EUG 4 Gas Turbine

EP #	Heat Input and Manufacturer	Construction Date
10279	133 MMBTUH General Electric	1981

EUG 5 Condensate Strippers

Location	Plant capacity*	EP #	Manufacturer	Construction Date
Plant #1	1,725 TPD	10286	Kellogg	1974, 2015**
Plant #2	1,850 TPD	10280	Kellogg	1975

* Ammonia plant production capacity

** Changes authorized in 2011-006-C (M-5) effectively increased production capacity

EUG 6 Nitric Acid Plants

Location	Point	Capacity (as 100% HNO_3)	Manufacturer	Construction Date
Plant #1	10290	1,180 TPD	Stamicarbon	1974, 2015*
Plant #2	10281	1,175 TPD	Stamicarbon	1978

* Reconstruction date April 2015, Plant #1 absorption tower replaced as authorized under 2011-006-C (M-2)

EUG 7 Urea-UAN Plants

Location	EP #	Capacity	Manufacturer	Construction Date
Plant #1	10282	3,260 TPD	Stamicarbon	1974
Plant #2	10283	3,350 TPD	Stamicarbon	1978

EUG 8 Ammonia Plant Primary Reformers

This EUG includes the two (2) ammonia plant primary reformers with associated auxiliary burners. Each reformer is divided into three heating sections. Burners that supply the principal heat necessary for the reforming reactions are located at the top of the first section and are identified as arch burners. Waste heat flows from the reforming area through channels called "tunnels" to a "convection section," where it is used for preheating other portions of the process stream. Tunnel burners are located in the tunnels to supplement the waste heat, because the waste heat is insufficient to cover all needs. Finally, auxiliary burners are used to generate 1,500-lb steam for use throughout the facility. These auxiliary burners are generally more than is necessary to provide the required steam, so they are occasionally used to supplement the heat needed in the convection section. Subsequent to an inspection in March 2005, the facility raised an objection to the identification of the auxiliary burners as affected units under NSPS Subpart D. Per an agreement outlined in a letter from DEQ to Terra Nitrogen, LP, dated January 19, 2006, the auxiliary burners are not considered subject to NSPS Subpart D unless the operation of either reformer indicates fuel consumption at or exceeding 250 MMBTUH applicability threshold. Thus, a specific condition requires the installation and operation of fuel flow meters to monitor the daily natural gas throughput to the auxiliary burner section of each primary reformer to demonstrate that the auxiliary burners do not operate at or above 250 MMBTUH.

Location	EP #	Seq #	Heat Input	Construction Date
Plant #1	10284	8	1,061 MMBTUH	1974
Plant #2	10291	15	1,057 MMBTUH	1975, 2011*

*Replacement of 18 arch burners resulting in 1,057-MMBTUH total heat input for Plant #2

EUG 9 Ammonia Plant Start-up and Shutdown Vents

Location	EP #	Vent #	Construction Date
Plant #1	10285	1	1974
Plant #1	10287	3	1974
Plant #2	10292	1	1975
Plant #2	10289	3	1975

EUG 10 Vents

The ammonia plants of EUG 10 are associated with collocated CO_2 plants.

Location	Name or Function	EP #	Construction Date
Ammonia Plant #1	Continuous CO_2 Regenerator	10288	1974
Ammonia Plant #2	Continuous CO_2 Regenerator	10293	1975
Collocated facility equipment listed below are owned and operated by DEQ FAC #18486			
CO_2 Plant #1	*Inert*	*102XX1A*	*1981*
CO_2 Plant #1	*Regenerator*	*102XX1B*	*1981*
CO_2 Plant #2	*Inert*	*102XX2A*	*1994*
CO_2 Plant #2	*Regenerator*	*102XX2B*	*1994*

EUG 11 Upset Flare

Emissions of ammonia during upsets are controlled by a flare that has natural gas assist. There is a thermocouple that monitors the presence of a flame at all times, and that sounds an alarm if the flame is not present. The system includes a flowmeter to establish amounts combusted for emission inventory purposes.

Location	EP #	Heat input	Construction Date
Cryogenic Ammonia Storage Tank	10297	173 MBTUH	1974

EUG 12 Ammonia Plant Heaters

There are two startup heaters and an ammonia heater to raise the cool storage ammonia to a temperature required by the Oklahoma Department of Transportation for shipping by railcar or truck.

Location	EP #	Seq #	Heat Input	Construction Date
Plant #1	10298	22	40 MMBTUH	1974
Plant #2	10299	23	40 MMBTUH	1975
Storage	10305	50	30 MMBTUH	2012

EUG 13 Facility Ammonia Emission Points

This EUG contains many emission points, most of which would be classified as Insignificant individual sources, but are aggregated here to assist in the establishment of a federally enforceable facility-wide ammonia emission limitation, as requested by Terra. Several of these points are listed in other EUGs, including the condensate strippers of EUG 5, the UAN plants of EUG 7, the cryogenic ammonia storage flare of EUG 11, the purge gas flares of EUG 16, the ammonia flares of EUG 17, and the start-up/shutdown ammonia plant vents of EUG 10. A complete listing of these ammonia emission sources is found in "Emission Calculations" Section V.

EUG 14 Internal Combustion Engines Subject to 40 CFR 63, Subpart ZZZZ

EP #	Seq #	Make/Model	HP	Serial Number	Const. Date
ISA-1	38	Caterpillar 3304 Emergency Generator	155	10971	1992
ISA-2	39	Caterpillar 3306 Emergency Generator	230	2AJ01153	1995
ISA-3	40	Detroit Diesel Fire Water Pump	161	517519	1975
10306	46	Generac SD130 Emergency Generator	198	2116736	2012 *

EP #	Seq #	Make/Model	HP	Serial Number	Const. Date
10307	TBD	GM 5.7L Natural Gas Water Pump	115	09422042512	2012 **

* Engine is also subject to NSPS Subpart IIII
** Engine is also subject to NSPS Subpart JJJJ

EUG 15 Storage Tank

EP #	Source	Capacity (gals)	Construction date
10296	Gasoline storage	2,200 *	1987

* Actual capacity is 2,115 gallons; for the permit/memo it conservatively assumes 2,200 gallons

EUG 16 Purge Gas Flares

The flares are John Zink EEF-AR-12 Airrestor with EEF-U-20 tips. Design criteria include a flow rate of 19,000 lb/hr, a molecular weight of 10.62, and a temperature range of 50-150 °F. Destruction efficiency is designed to be at least 99%.

EP #	Location	Construction date
10300	Ammonia plant #1	2004
10301	Ammonia plant #2	2004

EUG 17 Ammonia Flares

EP #	Source	Pilot (MMBTUH)	Assist (SCFH)	Construction
10302	Ammonia storage tank	0.051	630	2012
10303	Ammonia loading	0.051	630	2012
10304	Ammonia process	0.081	800	2012

There are 17 primary discharge points for air emissions at the facility tabulated following.

SIGNIFICANT DISCHARGE POINTS

Discharge Point	Height, Feet	Diameter, Inches	Flow Rate, ACFM	Temp., °F
Boiler B	60	54	28,000	340
Boiler C	75	58	28,000	300
Boiler D	50	60	41,096	302
Gas Turbine	48	82	27,500	380
No. 1 NH_3 Plant - Primary Reformer	120	156	377,418	385
No. 1 NH_3 Plant CO_2 Regenerator Vent	123	18	22,871	110
NH_3 Plant No. 1 Startup Heater	76	50	573	500
Ammonia Plant #1 Purge Gas Flare	104	12	5,760	150
No. 2 NH_3 Plant - Primary Reformer	120	156	327,878	330
No. 2 NH_3 Plant CO_2 Regenerator Vent	123	18	22,871	110
NH_3 Plant No. 2 Startup Heater	76	50	573	500
Ammonia Plant #2 Purge Gas Flare	110	12	5,760	150
Cryo NH_3 Storage Tank Upset Flare	127	8	100	200
Nitric Acid Plant No. 1	180	50	60,000	110
Nitric Acid Plant No. 2	180	50	60,000	110
Nitric Acid Storage Tank No. 304-FA	24	6	280	113

Discharge Point	Height, Feet	Diameter, Inches	Flow Rate, ACFM	Temp., °F
Nitric Acid Storage Tank No. 304-FB	24	6	280	113
UAN Plant No. 1	170	14	11,200	180
UAN Plant No. 2	170	14	12,000	185

SECTION IV. INSIGNIFICANT ACTIVITIES

The insignificant activities identified and justified in the application and listed in OAC 252:100-8, Appendix I, are listed below. Recordkeeping for activities indicated with "*" is listed in the Specific Conditions.

* Stationary reciprocating engines burning natural gas, gasoline, aircraft fuels, or diesel fuel that are either used exclusively for emergency power generation or for peaking power service not exceeding 500 hours per year. Two gas-fueled emergency generator engines rated at 155-hp and 230-hp and a diesel-fueled fire water pump engine rated at 161-hp are in this category. These "existing" engines have become subject to standards of NESHAP Subpart ZZZZ, and can no longer be "insignificant activities". They have been moved to EUG 14.

Space heaters, boilers, process heaters, and emergency flares less than or equal to 5 MMBTUH heat input (commercial natural gas). Various space heaters are in this category.

* Emissions from fuel storage/dispensing equipment operated solely for facility owned vehicles if fuel throughput is not more than 2,175 gallons/day, averaged over a 30-day period. The facility has equipment for dispensing gasoline and diesel. The facility dispensed 23,100 gallons of gasoline and 104,820 gallons of diesel during 2010. This equates to average daily use of 350 gallons. Unusually high annual consumption was due to a complete facility turnaround, during which diesel was used for backup equipment. The highest single 30-day average was 1,960 gpd.

Emission Point	EU Name/Model	Construction Date
10296A	2,200-Gallon Diesel Storage Tank *	1987

* Actual capacity is 2,115 gallons; for the permit/memo it conservatively assumes 2,200 gallons

Gasoline and aircraft fuel handling facilities, equipment, and storage tanks except those subject to New Source Performance Standards and standards in OAC 252:100-37-15, 39-30, 39-41, and 39-48. The equipment identified by the facility under this category is the same as that identified in the immediately previous category.

Cold degreasing operations utilizing solvents that are denser than air. These activities are conducted as a part of routine maintenance and are considered trivial activities, and recordkeeping will not be required in the Specific Conditions.

* Welding and soldering operations utilizing less than 100 pounds of solder and 53 tons per year of electrode. These activities are conducted as a part of routine maintenance and are considered trivial activities, and recordkeeping will not be required in the Specific Conditions.

Hazardous waste and hazardous materials drum staging areas. The facility includes a drum storage area for wastes.

Sanitary sewage collection and treatment facilities other than incinerators and Publicly Owned Treatment Works (POTW). Stacks or vents for sanitary sewer plumbing traps are also included (i.e., lift station).

Exhaust systems for chemical, paint, and/or solvent storage rooms or cabinets, including hazardous waste satellite (accumulation) areas. The facility includes a chemical storage area.

Hand wiping and spraying of solvents from containers with less than 1 liter capacity used for spot cleaning and/or degreasing in ozone attainment areas. These activities are conducted as a part of routine maintenance and are considered trivial activities, and recordkeeping will not be required in the Specific Conditions.

* Activities having the potential to emit no more than 5 TPY (actual) of any criteria pollutant. This last category includes the following equipment:

Amine solution tank
Laboratory fume hoods
Nitric acid tanks

SECTION V. POTENTIAL EMISSIONS

Emission factors for the various sources at this facility are taken from stack test results, AP-42, and from limits set in federal or state rules. Factors taken from stack tests or AP-42 are frequently increased by safety factors, but not to exceed limits set in the pertinent rules. Generally, AP-42 factors are used without correction for the assumed heating content of the gas volume (i.e., 84 lbs/MMCF = 0.084 lbs/MMBTU).

EUG 2 Package Boilers

Emission factors for boilers B and C include the Subchapter 33 limit of 0.2 lbs/MMBTU for NO_X, the AP-42 Section 1.4 (7/98) value for CO, and 125% of the AP-42 Section 1.4 (7/98) values for VOC, PM_{10}, and SO_2. AP-42 states that all PM is less than one micron in diameter; therefore, all PM is PM_{10} and $PM_{2.5}$. Limitations for Boilers B and C are based on a combined annual fuel usage of 744 MMSCF of natural gas, per initial Title V Permit No. 99-083-TV.

EUG 2 Emissions

Point ID	Emission Unit	PM_{10}		SO_2		NO_X		VOC		CO	
		lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10277	Boiler B	1.49	3.53	0.12	0.28	31.4	74.4	1.07	2.56	13.2	31.2
10278	Boiler C	1.68		0.13		35.4		1.20		14.9	
EUG 2 Totals		**3.17**	**3.53**	**0.25**	**0.28**	**66.8**	**74.4**	**2.27**	**2.56**	**28.1**	**31.2**

EUG 3 NSPS Boiler

Emission factors include the AP-42 Section 1.4 (7/98) value for SO_2, and manufacturer's ratings of 0.1 lb/MMBTU for NO_X, 0.05 lbs/MMBTU for CO, 0.0037 lbs/MMBTU for VOC, and 0.003 lbs/MMBTU for PM_{10}. Annual limitations are based on authorized fuel consumption of 1,021 MMSCF. Similar to the logic presented in EUG 2, all PM is PM_{10} and $PM_{2.5}$.

EUG 3 Emissions

Point ID	Emission Unit	PM_{10}		SO_2		NO_X		VOC		CO	
		lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
102XX	Boiler D	0.64	1.53	0.13	0.31	21.2	51.1	0.78	1.89	10.6	25.5

Greenhouse gas (GHG) emissions for EUGs 2 and 3 were calculated using methods described in 40 CFR 98.33. Emission factors are found in Tables C-1 and C-2 of 40 CFR 98, with global warming potentials and metric-to-English conversion factors found in Tables A-1 and A-2, respectively. In order to make conservatively high estimates of all GHG emissions, this memorandum uses combined heat ratings of all boilers, assuming continuous operation, to yield 4,782,960 MMBTU per year. Using stated emission factors yields 253,592 metric tons (m.t.) of CO_2, 4.78 m.t. of methane (CH_4), and 048 m.t. of nitrous oxide (N_2O). Applying the warming potentials and converting to English units yields 279,812 short tons of CO_2e per year.

EUG 4 Gas Turbine

Emissions from the gas combustion turbine are based on factors including the Subchapter 19 limit of 0.33 lbs/MMBTU for PM_{10}, 125% of the AP-42 Section 3.1 (4/00) values for CO and SO_2, and 400% of the AP-42 Section 3.1 (4/00) value for VOC. Similar to the logic presented in EUG 2, all PM is PM_{10} and $PM_{2.5}$. Note the gas turbine unit of EUG 4 is part of an "alternative emissions reduction plan" (AER) and is coupled with the No. 1 Nitric Acid Plant of EUG 6. Therefore, potential NO_X emissions that are shown below are memo-only values based on a factor of 0.22 lb/MMBTU, which is a worst case taken from historical stack testing of the gas turbine. Discussion of the AER may be read further down this memorandum.

EUG 4 Emissions

Point ID	Emission Unit	PM_{10}		SO_2		NO_X *		VOC		CO	
		lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10279	Gas Turbine	43.9	192	0.57	2.48	29.26	128.16	1.12	4.89	13.63	59.71

* Potential NO_X emissions shown are memo only

GHG emissions for EUG 4 were calculated using the same methods and references as were used for EUGs 2 and 3. In this instance, potential natural gas use of 1,165, 080 MMBTU/year results in emissions of 68,159 short tons of CO_2e per year.

EUG 5 Condensate Strippers

VOC from the condensate strippers conservatively assume a 1.5-lb/ton emission factor and ammonia production capacity. The VOC emissions factor is equivalent to 125% of the TOC factor of 1.2 lb/ton that is found in Table 8.1-1 of AP-42 (7/93), and a conservatively high assumption is made that TOC is all VOC. A footnote to the TOC emission factor in AP-42 suggests that most of the TOC is methanol, which is classified as a non-methane organic compound (NMOC) and a hazardous air pollutant (HAP).

EUG 5 Emissions (VOC)

Point ID	Emission Unit	VOC	
		lbs/hr	TPY
10286	#1 Process Condensate Stripper	108	472
10280	#2 Process Condensate Stripper	116	506
EUG 5 Total VOC		**224**	**978**

Methanol emissions are estimated by the AP-42 factor referenced in the preceding paragraph without 125% inflation.

EUG 5 Emissions (HAP)

Point ID	Methanol	
	lbs/hr	TPY
10286	86.3	378
10280	92.5	405
EUG 5 Total HAP	**179**	**783**

EUG 6 Nitric Acid Plants

Potential NO_X emissions from EUG 6 (Nitric Acid Plant No. 1 and Plant No. 2) are shown in the table below. NO_X emissions are based on nitric acid (HNO_3) production capacity (TPH, expressed as 100% HNO_3) and applicable limits. "Short-Term NO_X Limit" and "Long-Term NO_X Limit" are accepted limits previously incorporated from the CD. NO_X emissions for both nitric acid plants are discussed below in detail, because hourly and annual NO_X emissions from each plant are based on various applicable limits. Annual NO_X emission assumes continuous operation (8,760 hours per year). If a nitric acid plant is subject to more than one enforceable NO_X emission limit, then the most stringent of the applicable limits is used for that plant.

Nitric Acid Plant No. 1 Emissions

Note that Nitric Acid Plant No. 1 of EUG 6 is part of an "alternative emissions reduction plan" (AER) and is coupled with the gas turbine of EUG 4. Discussion of AER is further down this memorandum. Therefore, hourly and annual NO_X emissions shown for Nitric Acid Plant No. 1 in the table below are memo-only values. Hourly NO_X is based on 1-lb NO_X/ton of nitric acid produced, and annual NO_X is based on 0.5-lb/ton. The "Short-Term NO_X Limit" of one pound of NO_X per ton of 100% nitric acid produced was previously incorporated from the CD for Nitric Acid Plant No. 1 effective June 30, 2014, and this is a 3-hour rolling average that does not apply during periods of startup, shutdown, or malfunction. The "Long-Term NO_X Limit" of 0.6 pound of NO_X per ton of 100% nitric acid produced was previously incorporated from the CD for Nitric Acid Plant No. 1 effective June 30, 2015, and this is a 365-day rolling average that applies at all times, including during periods of startup, shutdown, or malfunction. Upon completion of work authorized by Permit 2011-006-C (M-2), Nitric Acid Plant No. 1 became subject to NSPS Subpart Ga and a limit of 0.5 pound of NO_X (expressed as NO_2) per ton of 100% nitric acid produced effective April of 2015, and this is a 30-day emission rate calculated based on 30 consecutive operating days (30-day rolling average) that applies at all times (during all operating periods including unit startup and shutdown, and malfunction). Both CD and NSPS limits are applicable. Annual emissions are based on the more stringent limit. Comparing above limits, the NSPS Subpart Ga limit appears more stringent having a lower threshold with shorter averaging frequency than the "Long-term NO_X Limit" of the CD. Therefore as shown in the table below for Nitric Acid Plant No. 1, annual NO_X emission is based on the 0.5-lb/ton limit of

NSPS Subpart Ga. The "Short-Term NO_X Limit" of the CD remains the basis for hourly emissions.

Nitric Acid Plant No. 2 Emissions
Hourly NO_X emission is based on 1-lb NO_X/ton of nitric acid produced, and annual NO_X is based on 0.6-lb/ton. A short-term NO_X limit of one pound of NO_X per ton of 100% nitric acid produced was previously incorporated from the CD for Nitric Acid Plant No. 2 effective June 30, 2013, and this is a 3-hour rolling average that does not apply during periods of startup, shutdown, or malfunction. A long-term NO_X limit of 0.6 pound of NO_X per ton of 100% nitric acid produced was previously incorporated from the CD for Nitric Acid Plant No. 2 effective June 30, 2014, and this is a 365-day rolling average that applies at all times, including during periods of startup, shutdown, or malfunction.

EUG 6 Emissions

Point ID	Emission Unit	Capacity of 100% HNO_3	NO_X	
			lbs/hr	TPY
10290	No. 1 Nitric Acid Plant	49.17 TPH	49.2 *	107.7 *
10281	No. 2 Nitric Acid Plant	48.96 TPH	49.0	129
EUG 6 Total NO_X			**98.2**	**236.7**

* Potential NO_X emissions shown are memo only

GHG emissions for EUG 6 depend on stack tests that established emission factors for N_2O for each plant. Each factor is multiplied by 115% to assure conservatively high results. A factor of 21.05 lbs of N_2O per ton of 100% HNO_3 combined with warming potential factor from Table A-1 of 40 CFR 98 yields 2,696,000 short tons of CO_2e per year.

Alternative Emissions Reduction Plan (AER)
The facility has an AER that couples allowable NO_X emissions from the gas turbine of EUG 4 and the No.1 Nitric Acid Plant of EUG 6. Allowable NO_X emissions are respectively based on limits currently applicable to each unit. Despite being shown above in separate EUGs, the two units have a combined NO_X emission cap which is reflected in the permit Specific Conditions. The sum of allowable NO_X emissions suggests a cap of 75.77 lb/hr (PPH) and 224 TPY.

The NO_X emissions limitation of the AER is demonstrated in the below tables for the combined units. For the gas turbine of EUG 4, allowable emissions of 116.5-TPY and 26.6-PPH NO_X are based on 133-MMBTUH heat input and 0.2 lb/MMBtu taken from OAC 252:100-33(a)(1). This suggest potential offsets of 2.66-PPH and 11.7-TPY NO_X when compared to potential emissions of 29.26-PPH and 128.2-TPY NO_X which is discussed above already as a worst case taken from historical testing of the gas turbine. For the Nitric Acid Plant No. 1 of EUG 6, allowable long-term emission of 107.7-TPY NO_X is based on 0.5 lb/ton of 100% nitric acid produced taken from NSPS Subpart Ga, and allowable short-term emission of 49.17-PPH NO_X is based on 1.0 lb/ton taken from consent decree.

NO_X Emissions for Combined Units of AER

Description	Allowable Short-Term	Allowable Long-Term
EUG 4 Gas Turbine	26.6-PPH	116.5-TPY
EUG 6 Nitric Acid Plant No. 1	49.2-PPH	107.7-TPY
AER Emission Cap (Total)	**75.77-PPH**	**224.2-TPY**

Potential NO_X Offsets

Description	Lb/MMBtu	PPH	TPY
EUG 4 Gas Turbine	0.2	26.6	116.5
EUG 4 Gas Turbine	0.22	29.3	128.2
Potential NO_X Offset		**-2.66**	**-11.7**

EUG 7 Urea-UAN Plants

Each plant has a mist eliminator to control particulate emissions, but Plant #1 also has a condenser/evaporator system that increases the removal efficiency. The condenser/evaporator system is occasionally bypassed, in which situation the mist eliminator is used. Thus, pressure drop across the #2 eliminator is significant at all times, but is relevant at Plant #1 only under bypass conditions. Stack testing for PM_{10} was performed in 1998, resulting in 0.01505 lbs of PM_{10} per ton of ammonium nitrate for Plant #2. A safety factor of 25% is added, resulting in 0.0188 lb/ton UAN. A conservatively high assumption states that all PM_{10} is $PM_{2.5}$. Several assumptions are made in calculating CO emissions. First, UAN contains an average of 34.3% urea. Second, stoichiometric conversion of CO_2 to urea has recently been empirically observed to be 80% efficient (0.9163 tons of CO_2/one ton urea). Third, stack testing has shown a CO concentration of 20 ppm in the CO_2 feed. Stringing these assumptions together yields emissions of 2.23 lb/hr of CO from Plant #2. Stack testing factors used for Plant #1 are unchanged from those used in previous permit memoranda. A tank at each unit has been evaluated for ammonia emissions using Tanks 2.0 (See EUG 13).

EUG 7 Potential Emissions

Point ID	Emission Unit	PM_{10}		CO	
		lbs/hr	TPY	lbs/hr	TPY
10282	No. 1 UAN Plant	7.73	33.9	4.97	21.8
10283	No. 2 UAN Plant	2.62	11.5	2.23	9.78
EUG 7 Totals		**10.35**	**45.4**	**7.2**	**31.58**

EUG 8 Ammonia Plant Primary Reformer Heaters

Potential emissions from each ammonia plant primary reformer heater are incorporated from previously issued permits and are as shown below in the following tables. Potential emissions are based on heat input and factors assumed. The heating value of natural gas fuel is assumed to be 1,020 BTU/SCF. Annual emissions assume continuous operation (8,760 hours per year).

Ammonia Plant #1 primary reformer heater potential emissions are calculated using the following factors. CO and VOC are safety factors that are based on 110% of factors taken from Section 1.4 AP-42 (7/98). $PM_{10}/PM_{2.5}$ is a safety factor that is based on 125% of a factor taken from Section 1.4 AP-42 (7/98). SO_2 is a safety factor that is 125% of stack test data from 2015. NO_X is 0.173 lb/MMBTU which is calculated for the burners based on 808-TPY and assuming continuous operation.

Ammonia Plant #2 primary reformer heater emissions are calculated based on a heat input of 1,057-MMBTUH and the following factors. $PM_{10}/PM_{2.5}$ (representing total filterable front half plus condensable back half) and SO_2 are factors based on historical performance of the reformers. VOC is based on a factor taken from Table 1.4-2 of AP-42 (7/98) and is increased by 25%. NO_X assumes a factor of 0.173 lb/MMBtu and CO assumes 0.095 lb/MMBtu which are carried from the previous permit. Note that not all eighteen (18) arch burners were replaced in Ammonia Plant #2 primary reformer heater as proposed and authorized in Permit No. 2006-003-TVR (M-4), issued in September 2009. Permit No. 2006-003-TVR (M-5) agreed to use a conservatively high CO factor of 0.060 lb/MMBTU for all burners combined (arch+tunnel+aux) when replacement of the 18 arch burners is completed, because the manufacturer of the 18 replacement arch burners states that there will be no CO but guarantees 0.006 lb/MMBTU, and because auxiliary burners would not be replaced. NO_X factor and emission from combined burners (arch+tunnel+aux) of Ammonia Plant #2 primary reformer heater should be reviewed when replacement is completed, because the manufacturer states 0.101 lb NO_X/MMBTU for the 18 replacement low-NO_X arch burners.

EUG 8 Factors (lb/MMBTU)

Unit	Capacity (MMBTUH)	$PM_{10}/PM_{2.5}$*	SO_2	NO_X	VOC	CO
Plant 1	1,061	0.009	0.008	0.173	0.0059	0.090
Plant 2	1,057	0.165	0.173	0.173**	0.0059	0.095

* PM is considered to be total PM, meaning filterable and condensable, or "front-half" and "back-half"

**Except 18 replacement burners at 0.101 lb NO_X per MMBTU; all burners still assume a 0.173-lb/MMBtu NO_X factor until replacement project is completed

EUG 8 Emissions

EP #	Emission Unit	$PM_{10}/PM_{2.5}$		SO_2		NO_X		VOC		CO	
		lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10284	Plant 1	9.88	43.2	8.49	37.2	184	808	6.29	27.5	96.1	421
10291	Plant 2	171	751	180	790	177	774	6.13	26.9	99.2	435
EUG 8 Totals		**181**	**794**	**188**	**827**	**361**	**1,582**	**12.4**	**54.4**	**195**	**856**

GHG emissions for EUG 8 were calculated using the same methods and references as were used for EUGs 2 and 3. In this instance, potential natural gas use of 18,387,240 MMBTU/year results in emissions of 1,075,687 short tons of CO_2e per year.

EUG 9 Ammonia Plant Start-up and Shutdown Vents

Emissions are based on manufacturer's calculation of process rates and process gas analysis, and assuming no more than 96 hours of episodes per vent per year.

EUG 9 Emissions

Point ID	Emission Unit	CO	
		lbs/hr	TPY
10285	Plant 1 SU/SD Vent 1	45,381	2,178
10287	Plant 1 SU/SD Vent 3	45,381	2,178
10289	Plant 2 SU/SD Vent 1	56,704	2,722
10292	Plant 2 SU/SD Vent 3	56,704	2,722
EUG 9 Total CO		**204,170**	**9,800**

EUG 10 Vents

Emission factors for the ammonia plant vents are 125% of stack test results and factors for the CO_2 plant vents are 300% of stack test results.

EUG 10 Emissions

Point ID	Emission Unit	VOC		CO	
		lbs/hr	TPY	lbs/hr	TPY
10288	NH_3 Plt #1 Cont. CO_2 Regenerator	18.5	81.0	4.38	19.2
10293	NH_3 Plt #2 Cont. CO_2 Regenerator	20.8	91.1	4.90	21.5
EUG 10 Totals		**39.3**	**172.1**	**9.28**	**40.7**
Collocated facility emissions, DEQ FAC #18486					
102XX1A	*CO_2 Plant #1 Inert*	*12.8*	*55.9*	*3.00*	*13.1*
102XX1B	*CO_2 Plant #1 Regenerator*				
102XX2A	*CO_2 Plant #2 Inert*	*10.0*	*43.8*	*2.32*	*10.2*
102XX2B	*CO_2 Plant #2 Regenerator*				
Aggregated/Collocated Totals		***62.1***	***271.8***	***14.6***	***64.0***

The applicant assumes methanol is present in the VOC emissions from the ammonia plants, much as referenced in the calculations for EUG 5 above, and takes methanol to be 80% of VOC, analogous to the earlier calculation method. While some methanol is probably present in the collocated CO_2 plant emissions, the amount to be considered is not clear, so the facility accepts a value used in previous permits. The following table represents a minimum assessment of methanol present, and is not intended to suggest that these numbers are in addition to the VOC numbers above.

EUG 10 GHG Emissions

Point ID	Emission Unit	Methanol	
		lbs/hr	TPY
10288	NH_3 Plt #1 Cont. CO_2 Regenerator	14.8	64.8
10293	NH_3 Plt #2 Cont. CO_2 Regenerator	16.6	72.9
EUG 10 Total Methanol		**31.4**	**137.7**
Collocated facility emissions, DEQ FAC #18486			
102XX1A	*CO_2 Plant #1 Inert*	*0.75*	*3.29*
102XX1B	*CO_2 Plant #1 Regenerator*		
102XX2A	*CO_2 Plant #2 Inert*	*0.75*	*3.29*
102XX2B	*CO_2 Plant #2 Regenerator*		
Aggregated/Collocated Total		*32.9*	*144.3*

GHG emissions for EUG 10 use Equation G-1 from 40 CFR 98 Subpart G. Necessary inputs include fuel throughput of 26,052 MMSCF/year, feedstock carbon content of 74%, and feedstock

molecular weight of 16.70. Conversion from metric units yields 1,532,000 short tons of CO_2e per year total for the aggregated/collocated facility.

EUG 11 Upset Flare

Emission factors are taken from the manufacturer's suggested values. The pilot consumes 43,000 BTUH and the gas assist requires 130,000 BTUH at maximum design capacity of 2,000 lbs/hr of ammonia. Design criteria assure 98% destruction efficiency (See EUG 13).

		PM_{10}		NO_x		VOC		CO	
Point ID	Emission Unit	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10297	Cryo-Ammonia	0.04	0.17	13.8	60.4	0.03	0.12	0.41	1.80

EUG 12 Ammonia Plant Startup Heaters

Startup heater emission factors for PM_{10} and SO_2 are the respective Subchapter 19 and 31 limits, NO_X is 300% of the Section 1.4 AP-42 (7/98) factor, and VOC and CO are 125% of the Section 1.4 AP-42 (7/98) factors. Emission factors for the storage heater are taken from Table 1.4-2 of AP-42 (7/98), except that CO, NO_X, and VOC factors are taken from manufacturer's data. Similar to the logic presented in EUG 2, all PM is assumed to be PM_{10} and $PM_{2.5}$.

Point	Emission	PM_{10}		SO_2		NO_x		VOC		CO	
ID	Unit	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
10298	Plant #1	16.8	73.6	8.00	35.0	12.0	52.6	0.27	1.19	4.20	18.4
10299	Plant #2	16.8	73.6	8.00	35.0	12.0	52.6	0.27	1.19	4.20	18.4
10305	Storage	0.22	0.98	0.02	0.08	1.05	4.60	0.03	0.13	2.10	9.20
EUG 12 Totals		**33.8**	**148**	**16.0**	**70.1**	**25.0**	**110**	**0.57**	**2.51**	**10.5**	**46.0**

GHG emissions for EUG 12 were calculated using the same methods and references as were used for EUGs 2 and 3. In this instance, potential natural gas use of 700,800 MMBTU/year for the startup heaters results in emissions of 40,998 short tons of CO_2e per year. Maximum use of the storage heater is 131,400 MMBTU/year, resulting in an additional 8,395 tons of CO_2e/yr.

EUG 13 Facility Ammonia Emission Points

The following calculations are based on worst-case analysis for vents and EPA-approved Tanks2 analysis for tanks, as performed for the original Part 70 permit. Most of the tanks are used as process or storage for UAN, as a finished product, as an intermediate product, or as an off-spec product. There are four sealed oil tanks that serve the ammonia compressors. These tanks have de-gasifiers with associated emissions of ammonia. The #2 SU/SD vents are used very infrequently, since they concern emergencies of a nature that require switching from one plant to another. Such circumstances cause 15 minutes of venting at these high rates, never exceeding one hour in any 24-hour period, with an annual total for each of the six SU/SD vents estimated at 96 hours as a further worst-case assumption. Although SU/SD vents 1-2 and 2-2 should be controlled by the purge gas flares of EUG 16, their estimated emissions continue to be carried in this list as a conservatively high estimation of ammonia emissions. A description of the analysis to determine ammonia emissions for these flares is found in the discussion for EUG 16, below. A fugitive calculation has been performed, using the standard method of counting pumps, connectors, open-ended lines, etc., and using factors from the 1995 Protocol for Equipment Leak Emission Estimates with slight modifications to account for the difference between this facility and the standard VOC facility for which the models were designed. Emissions described for

UAN #1 are based on a factor of 1.14 lbs/ton derived from a July 2006 performance test, while the numbers for UAN #2 are based on a factor of 1.57 lbs/ton derived from a July 1997 performance test. Plant operators have curves showing emissions of ammonia as a function of several variables monitored at the neutralizer operation, including pH, temperature at the outlet, and production rate. Threshold values for each of these are shown in Specific Condition #1, EUG 7 A.

Emission Point	Ammonia Emission Rate	
	lbs/hr	Total TPY
Nitric acid plant #1	1.63	7.14
Nitric acid plant #2	1.63	7.14
Upset flare	40	175
Condensate stripper	189	828
Condensate stripper	212	928
UAN #1	213.3	934
UAN #2	158.8	696
Cryo-ammonia flare	40	175
Purge gas flare #1	8.36	10.14
Purge gas flare #2	8.36	10.14
4 UAN tanks	0.083 each	2.3
1 UAN tank	0.06	0.26
2 blue loading tanks	0.012 each	0.11
2 white loading tanks	0.0096 each	0.08
2 UAN tanks	0.022 each	0.19
2 UAN tank	0.0012 each	0.011
Neutralizer tank	0.03	0.13
CO2 plant surge tank	0.000035	<.01
1 UAN tank	0.24	1.05
2 UAN tanks	0.12 each	1.05
2 degasifiers	0.18 each	1.58
2 degasifiers	0.64 each	5.61
SU/SD vent 1-1	131	573.78
SU/SD vent 2-1	153	670.14
SU/SD vent 1-2	518	94.54
SU/SD vent 2-2	685	125.01
SU/SD vent 1-3	3.25	14.24
SU/SD vent 2-3	76	332.88
2 UAN tanks	1.63 each	14
Storage flare	33.3	4.8
Loading flare	33.3	1.44
Process flare	80	11.5
Piping Fugitives	27.63	121
Misc. Fugitives	5.53	24.22
Totals*	**2,625**	**5,769**

*Note that these totals are the conservatively high sums of maximum emissions for each of the activities considered. As noted in the discussion of the purge gas flares, this implies some double-counting.

EUG 14 Internal Combustion Engines Subject to 40 CFR 63, Subpart ZZZZ

Estimates of emissions from the engines are based on 500 hours of operations per year, with emission factors from Table 3.3-1 of AP-42 (10/96) for the existing engines, from Subpart IIII and Table 3.3-1 for the 198-hp emergency generator engine and from Subpart JJJJ and Table 3.2-3 of AP-42 for the 115-hp water pump engine. All engines are assumed to operate no more than 500 hours per year, except for the water pump, that may operate as much as 2,496 hours per year. Similar to the logic presented in EUG 2, all PM is assumed to be PM_{10} and $PM_{2.5}$.

Point ID	Emission Unit	PM_{10}/ $PM_{2.5}$		SO_2		NO_x		VOC		CO	
		lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
ISA-1	155 HP emerg. gen.	0.34	0.09	0.32	0.08	4.81	1.20	0.38	0.10	1.04	0.26
ISA-2	230 HP emerg. gen.	0.51	0.13	0.47	0.12	7.13	1.78	0.57	0.14	1.54	0.38
ISA-3	161 HP fire pump	0.35	0.09	0.33	0.08	4.99	1.25	0.40	0.10	1.08	0.27
10306	198 HP emerg. gen.	0.44	0.11	0.41	0.10	6.14	1.54	0.50	0.12	1.32	0.33
10307	115 HP water pump	0.02	0.02	<.01	<.01	0.25	0.32	0.18	0.22	0.51	0.63
EUG 14 Totals		**1.64**	**0.41**	**1.51**	**0.38**	**23.2**	**6.09**	**2.03**	**0.68**	**5.44**	**1.86**

GHG emissions for EUG 14 were calculated using methods and references similar to those used for EUGs 2 and 3. In this instance, potential diesel use of 2,613 MMBTU/year was determined by using manufacturers' rated horsepower and the MMBTU conversion factors found in Table 3.3-1 of AP-42. Emissions of 193.3 metric tons (m.t.) of CO_2, 0.0078 m.t. of methane (CH_4), and 0.0015 m.t. of nitrous oxide (N_2O) may be converted by applying the warming potentials and metric-to-English units, yielding 213 short tons of CO_2e per year. Natural gas use of 2,435 MMBTU/yr yields 129.1 m.t. of CO_2, 2.4×10^{-3} m.t. of methane (CH_4), and 2.4×10^{-4} m.t. of nitrous oxide (N_2O). These convert to 142.5 short tons of CO_2e per year.

EUG 15 Storage Tank

VOC emissions from this gasoline storage tank were calculated for a previous operating permit using Tanks 3.1.

EP #	Source	VOC emissions	
		lbs/hr	TPY
10296	Gasoline storage	1.14	5.0

EUG 16 Purge Gas Flares

The flares are designed to handle 19,000 lbs per hour of purge gas, with a molecular weight of 10.62, and a temperature range of 50-150 °F. Constituents of the gas, by mol%, are 9.8% methane, 19.58% nitrogen, 58.82% hydrogen, 2.49% ammonia, 4.95% helium, and 4.39% argon. Based on these data, heating value is estimated to be 175 MMBTUH. Emission factors were supplied in the manufacturer's analysis as follow. Very little NO_X is formed from the combustion of ammonia. A conversion rate of 0.5% is taken to maximize this possibility. Thermal NO_X from the combustion of methane and hydrogen is estimated at 0.07 lbs/MMBTU. The carbon monoxide emission factor from the combustion of methane is taken to be 0.275 lbs/MMBTU. Assuming the maximum design vent gas flow of 19,000 lbs/hr, 2,425 hours maximum annual use, and using the composition indicated above yields the following emission rates for each flare.

EUG 16 Emissions

Pollutant	Source	Lbs/hr	TPY
NO_X	Ammonia	3.79	4.60
NO_X	Thermal	12.29	14.90
CO	Methane	15.67	19.0

Assuming 4% of the 19,000 lb/hr stream for each flare is ammonia, using the 99% design destruction efficiency, and adding a 10% safety factor yields

$$19{,}000 \text{ lb/hr} \times 4\% \times (1 - 99\%) \times (110\%) = 8.36 \text{ lb/hr (ammonia)},$$

and further assuming a maximum of 2,425 hours per year of operation yields

$$8.36 \text{ lb/hr} \times 2{,}425 \text{ hr/yr} \div 2{,}000 \text{ lb/ton} = 10.14 \text{ TPY (ammonia)}.$$

EUG 17 Ammonia Flares

Because the flares consume natural gas and ammonia in fairly low amounts, emissions of particulate matter and sulfur dioxide are assumed to be negligible. Other emission factors are taken from the Texas Commission on Environmental Quality Technical Guidance for Flares and Vapor Oxidizers. Factors include 0.0641 lb of NO_X per MMBTU, 0.37 lb of CO per MMBTU, and 0.047 lb of VOC per MMBTU for the pilot and assist gas streams. A factor of 11.1 lbs of NO_X per ton of ammonia applies to the process stream only. The flare manufacturer assigns maximum capacity of 1,667 lb/hr to each of the storage and loading flares, and 4,000 lb/hr to the process flare, while applicant assigns annual capacities of 240 tons to the storage flare, 72 tons to the loading flare, and 576 tons to the process flare. Destruction efficiency is assured to be 98%. Summarizing all calculations yields aggregate emissions of 0.84 lb/hr and 0.54 TPY of CO, 40.8 lb/hr and 4.99 TPY of NO_X, 0.11 lb/hr and 0.07 TPY of VOC, and 147 lb/hr and 17.8 TPY of ammonia.

Insignificant Activities

Tanks 3.1 was used to calculate emissions of 0.1 TPY from the diesel fuel storage tank (EP 10296A) for an earlier permit. Calculations of particulate emissions for the cooling towers were also performed, using the equation

PM = TLD% × circulating rate × fluid density × TDS, where
TLD = total liquid drift factor (%, manufacturers' data),
Circulating rate = gallons per minute for each tower,
Fluid density = 8.34 pounds per gallon, and
TDS = total dissolved solids in water (ppm).

In all cases, TLD is 0.001% and TDS is 1,155 ppm. Circulation rates are 90,000 gpm for tower #1, 60,000 gpm for tower #2, and 43,000 gpm for tower #3. Calculations show PM emissions of 2.28 TPY for #1, 1.52 TPY for #2, and 1.09 TPY for #3. The facility makes the conservatively high assumption that all PM is $PM_{2.5}$, and therefore, all is PM_{10}.

FACILITY-WIDE CRITERIA POLLUTANT EMISSIONS SUMMARY

Emission Units	PM_{10}		SO_2		NO_X		VOC		CO	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
EUG-2	3.17	3.53	0.25	0.28	66.8	74.4	2.27	2.56	28.1	31.2
EUG-3	0.64	1.53	0.13	0.31	21.2	51.1	0.78	1.89	10.6	25.5
EUG-4*	43.9	192	0.57	2.48	29.3	128	1.12	4.89	13.6	59.7
EUG-5	--	--	--	--	--	--	224	978	--	--
EUG-6*	--	--	--	--	98.2	236.7	--	--	--	--
EUG-7	10.4	45.4	--	--	--	--	--	--	7.20	31.6
EUG-8	181	794	188	827	361	1,582	12.4	54.4	195	856
EUG-9	--	--	--	--	--	--	--	--	204,170	9,800
EUG-10	--	--	--	--	--	--	39.3	172.2	9.3	40.7
EUG-11	0.04	0.17	--	--	13.8	60.4	0.03	0.12	0.41	1.80
EUG-12	33.8	148	16.0	70.1	25.0	110	0.57	2.51	10.5	46.0
EUG-14	1.64	0.41	1.51	0.38	23.2	6.09	2.03	0.68	5.44	1.86
EUG-15	--	--	--	--	--	--	1.14	5.00	--	--
EUG-16	--	--	--	--	32.2	39.0	--	--	31.3	38.0
EUG-17	--	--	--	--	40.8	4.99	0.11	0.07	0.84	0.54
Insignificant	1.12	4.89	--	--	--	--	0.01	0.1	--	--
TOTALS	**276**	**1,190**	**207**	**901**	**712**	**2,293**	**284**	**1,222**	**204,482**	**10,933**

* NO_X values shown for these EUGs in this table are memo-only for reasons stated in previous discussions.

OTHER POLLUTANT EMISSIONS BY POINT

Emission Units	Ammonia		Methanol		GHGs
	lbs/hr	TPY	lbs/hr	TPY	TPY
EUG-2&3	--	--	--	--	279,812
EUG-4	--	--	--	--	68,159
EUG-5	--	--	179	783	--
EUG-6	--	--	--	--	2,696,006
EUG-8	--	--	--	--	1,075,687
EUG-10	--	--	31.4	137.7	1,531,736
EUG-12	--	--	--	--	49,393
EUG-13	2,625	5,769	--	--	--
EUG-14	--	--	--	--	355
EUG-17*	--	--	--	--	--
TOTALS	**2,625**	**5,769**	**211**	**921**	**5,701,148**

* Included in EUG 13

SECTION VI. PSD ANALYSES / PSD APPLICABILITY REVIEW

Analyses of emissions were performed in Permit Nos. 2011-006-C (M-2) and 2011-006-C (M-5) to show that projects proposed in those permits were not significant. Details of each analysis may be reviewed in the memorandums respectively associated with each permit.

SECTION VII. OKLAHOMA AIR POLLUTION CONTROL RULES

OAC 252:100-1 (General Provisions) [Applicable]
Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]
This subchapter incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations listed in OAC 252:100, Appendix Q. These requirements are addressed in the "Federal Regulations" section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]
Subchapter 3 enumerates the primary and secondary ambient air quality standards and the significant deterioration increments. At this time, all of Oklahoma is in attainment of these standards.

OAC 252:100-5 (Registration, Emissions Inventory and Annual Operating Fees) [Applicable]
Subchapter 5 requires sources of air contaminants to register with Air Quality, file emission inventories annually, and pay annual operating fees based upon total annual emissions of regulated pollutants. Emission inventories were submitted and fees paid for previous years as required.

OAC 252:100-8 (Permits for Part 70 Sources) [Applicable]
Part 5 includes the general administrative requirements for Part 70 permits. Any planned changes in the operation of the facility that result in emissions not authorized in the permit and that exceed the "Insignificant Activities" or "Trivial Activities" thresholds require prior notification to AQD and may require a permit modification. Insignificant activities refer to those individual emission units either listed in Appendix I (OAC 252:100) or whose actual calendar year emissions do not exceed the following limits.

- 5 TPY of any one criteria pollutant
- 2 TPY of any one hazardous air pollutant (HAP) or 5 TPY of multiple HAPs or 20% of any threshold less than 10 TPY for a HAP that the EPA may establish by rule

Emissions limitations have been established based on previous Title V permits and information contained in the permit application.

OAC 252:100-9 (Excess Emission Reporting Requirements) [Applicable]
Except as provided in OAC 252:100-9-7(a)(1), the owner or operator of a source of excess emissions shall notify the Director as soon as possible but no later than 4:30 p.m. the following working day of the first occurrence of excess emissions in each excess emission event. No later

than thirty (30) calendar days after the start of any excess emission event, the owner or operator of an air contaminant source from which excess emissions have occurred shall submit a report for each excess emission event describing the extent of the event and the actions taken by the owner or operator of the facility in response to this event. Request for mitigation, as described in OAC 252:100-9-8, shall be included in the excess emission event report. Additional reporting may be required in the case of ongoing emission events and in the case of excess emissions reporting required by 40 CFR Parts 60, 61, or 63.

OAC 252:100-11 (Alternative Emissions Reduction Plans and Authorizations) [Applicable]
Subchapter 11 provides the mechanism by which a facility may be allowed to comply with an alternate standard in exchange for an overall reduction in emissions to the atmosphere. Public notice, revisions to the EPA-approved State Implementation Plan, and hearing before the Air Quality Council, were conducted as required in issuance of Permit No. 99-147-O. That permit authorized NO_X emissions limitations for the Gas Turbine (EUG 4) and No. 1 Nitric Acid Plant (EUG 6). Conditions from that permit were included in the initial Title V operating permit and are continued in this Title V renewal permit modification.

The NO_X emissions cap is the sum of allowable emissions for units combined under the AER (EUG 4 Gas Turbine and EUG 6 No.1 Nitric Acid Plant). Allowable emissions are calculated for each unit based on current limitations applicable to each respectively. For the gas turbine of EUG 4, allowable emissions (PPH and TPY) are based on OAC 252:100-33(a)(1). For the No. 1 Nitric Acid Plant of EUG 6, allowable long-term emission (TPY) is based on §60.72a (NSPS Subpart Ga), and allowable short-term emission (PPH) is based on Terra's consent decree. The NO_X emissions cap shown in the below table for two units, despite being shown above in separate EUGs, is reflected in the permit Specific Conditions.

NO_X Emissions Cap for Combined Units of AER

Description	Allowable Short-Term	Allowable Long-Term
EUG 4 Gas Turbine	26.6-PPH	116.5-TPY
EUG 6 Nitric Acid Plant No. 1	49.2-PPH	107.7-TPY
AER Emission Cap (Total)	**75.77-PPH**	**224.2-TPY**

OAC 252:100-13 (Open Burning) [Applicable]
Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in this subchapter.

OAC 252:100-19 (Particulate Matter (PM)) [Applicable]
Section 19-4 regulates emissions of total PM (filterable and condensable or front half and back half) from new and existing fuel-burning equipment, with emission limits based on maximum design heat input rating. Fuel-burning equipment is defined in OAC 252:100-19 as any internal combustion engine or gas turbine, or other combustion device used to convert the combustion of fuel into usable energy. This subchapter is applicable to the boilers and process heaters, including the heaters in the reformers, but not to the reforming operation itself, nor to ammonia flares. The flares do not provide any usable heat or power and, therefore, do not meet the definition of fuel-burning equipment. The reformers use methane as a chemical process reactant, reacting with steam rather than oxygen (combustion). Appendix C specifies a PM emission

limitation of 0.60 lbs/MMBTU for all equipment at this facility with a heat input rating of 10 MMBTUH or less. The following tables list applicable standards by unit and anticipated PM emissions, based on calculations in Section VI above. This permit requires the use of natural gas for all fuel-burning equipment, excepting the diesel-fired emergency generators and fire pump, to ensure compliance with Subchapter 19.

Unit	Heat Input Capacity, MMBTUH	PM Emission Limit per Appendix C, lbs/MMBTU	Anticipated PM Emission Rate, lbs/MMBTU
Boiler B	157	0.312	0.0095
Boiler C	177	0.303	0.0095
Gas Turbine	133	0.325	0.325
Ammonia Plant #1 Primary Reformer	1,061	0.196	0.009
Ammonia Plant #2 Primary Reformer	1,057	0.197	0.165
Ammonia Plant #1 Start-up Heater	40	0.433	0.433
Ammonia Plant #2 Start-up Heater	40	0.433	0.433
Boiler D	212	0.291	0.003
155-hp Emergency Generator	< 10	0.60	0.10
161-hp Fire Pump	< 10	0.60	0.10
230-hp Emergency Generator	< 10	0.60	0.10
198-hp Emergency Generator	<10	0.60	0.31
115-hp water pump engine	<10	0.60	0.02

Section 19-12 limits particulate emissions from new and existing emission points in an industrial process to lb/hr values determined by process weight (see Appendix G). The following table compares values calculated in Section V above to the applicable weight-rate limitations.

Unit	Process Weight Rate, TPH	PM Emission Limit per Appendix G, lbs/hr	Anticipated PM Emission Rate, lbs/hr
Urea-Ammonium Nitrate Plant No. 1	136	54.4	7.72
Urea-Ammonium Nitrate Plant No. 2	139	54.7	2.62

OAC 252:100-25 (Visible Emissions and Particulates) [Applicable]
No discharge of greater than 20% opacity is allowed except for short-term occurrences that consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity. When burning natural gas there is very little possibility of exceeding these standards.

OAC 252:100-29 (Fugitive Dust) [Applicable]
No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originated in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. Under normal operating conditions, this facility has negligible potential to violate this requirement; therefore it is not necessary to require specific precautions to be taken.

OAC 252:100-31 (Sulfur Compounds) [Applicable]
Part 5 limits sulfur dioxide emissions from new equipment (constructed after July 1, 1972). For gaseous fuels the limit is 0.2 lbs/MMBTU heat input averaged over 3 hours. For fuel gas having a gross calorific value of approximately 1,020 Btu/scf, this limit corresponds to fuel sulfur content of approximately 1,227 ppmv. The permit requires the use of pipeline natural gas as defined in Part 72 having 0.5 grains TRS/100 scf to ensure compliance with Subchapter 31.

OAC 252:100-33 (Nitrogen Oxides) [Applicable]
This subchapter limits new gas-fired fuel-burning equipment with rated heat input greater than or equal to 50 MMBTUH to emissions of 0.2 lbs of NO_x per MMBTU, three-hour average. The following table compares NO_x emissions from the facility fuel-burning equipment, as calculated in Section V above, to the limitations of Subchapter 33.

Unit	Heat Input Capacity, MMBTUH	NO_x Emission Limitation, lbs/MMBTU	Anticipated NO_x Emission Rate, lbs/MMBTU
Boiler B	157	0.2	0.2
Boiler C	177	0.2	0.2
Gas Turbine	133	*	0.22*
No. 1 Ammonia Plant Primary Reformer	1,061	0.2	0.173
No. 2 Ammonia. Plant Primary. Reformer	1,057	0.2	0.173**
Boiler D	212	0.2	0.10

*Limit granted under 252:100-11
**Replacement arch burners at 0.101 lb/MMBTU

OAC 252:100-35 (Carbon Monoxide) [Not Applicable]
This subchapter affects gray iron cupolas, blast furnaces, basic oxygen furnaces, petroleum catalytic cracking units, and petroleum catalytic reforming units. There are no affected sources.

OAC 252:100-37 (Volatile Organic Compounds) [Applicable]
Part 3 requires storage tanks constructed after December 28, 1974, with a capacity of 400 gallons or more and storing a VOC with a vapor pressure greater than 1.5 psia to be equipped with a permanent submerged fill pipe or with an organic vapor recovery system. This applies to the gasoline tank of EUG 15, which is equipped with a permanent submerged fill pipe. The vapor pressure of diesel is less than 1.5 psia, so Part 3 does not apply to the diesel tank.
Part 3 requires loading facilities with a throughput equal to or less than 40,000 gallons per day to be equipped with a system for submerged filling of tank trucks or trailers if the capacity of the vehicle is greater than 200 gallons. This facility fills only vehicle gasoline tanks with capacities less than 200 gallons. Therefore, this requirement is not applicable.
Part 5 limits the VOC content of coatings used in coating lines or operations. This facility will not normally conduct coating or painting operations except for routine maintenance of the facility and equipment, which is not an affected operation.
Part 7 requires effluent water separators that receive water containing more than 200 gallons per day of any VOC to be equipped with vapor control devices. There is no effluent water separator at this location.
Part 7 also requires fuel-burning and refuse-burning equipment to be operated to minimize emissions of VOC. The equipment at this location is subject to this requirement.

OAC 252:100-42 (Toxic Air Contaminants (TAC)) [Applicable]
This subchapter regulates toxic air contaminants (TAC) that are emitted into the ambient air in areas of concern (AOC). Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained, unless a modification is approved by the Director. Since no AOC has been designated there are no specific requirements for this facility at this time.

OAC 252:100-43 (Testing, Monitoring, and Recordkeeping) [Applicable]
This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests. Emissions and other data required to demonstrate compliance with any federal or state emission limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement. Data from any required testing or monitoring not conducted in accordance with the provisions of this subchapter shall be considered invalid. Nothing shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

The following Oklahoma Air Pollution Control Rules are not applicable to this facility.

OAC 252:100-7	Minor Sources	not in source category
OAC 252:100-17	Incinerators	not type of emission unit
OAC 252:100-23	Cotton Gins	not type of emission unit
OAC 252:100-24	Grain Elevators	not in source category
OAC 252:100-39	Nonattainment Areas	not in area category
OAC 252:100-47	MSW Landfills	not in source category

SECTION VIII. FEDERAL REGULATIONS

PSD, 40 CFR Part 52 [Not Applicable]
This facility is a major stationary source, so emissions increases must be evaluated for PSD if they exceed a significance level (100 TPY CO, 40 TPY NO_X, 40 TPY SO_2, 40 TPY VOC, 25 TPY PM, 15 TPY PM_{10}, 10 TPY $PM_{2.5}$, 0.6 TPY lead).

NSPS, 40 CFR Part 60 [Subparts Db, G, Ga, GG, IIII, and JJJJ Applicable]
Subparts D and Da (Steam Generating Units) affect boilers with a rated heat input above 250 MMBTUH. Boilers "B" and "C" are rated at 157 and 177 MMBTUH, respectively, smaller than the 250 MMBTUH threshold for these subparts.
Subpart Db (Steam Generating Units) affects boilers with a rated heat input between 100 and 250 MMBTUH that commenced construction, reconstruction, or modification after June 19, 1984.

Boiler "D" is subject to the limitations of this subpart: NO_X emissions limited to 0.20 lbs/MMBTU and installation of CEMS measuring NO_X emissions (standards of Subpart Db for SO_2 and PM do not apply to gas-fueled boilers). The other two boilers were both constructed prior to the effective date of this subpart.

Subpart G (Nitric Acid Plants) affects facilities that commenced construction, reconstruction, or modification after August 17, 1971, and on or before October 14, 2011.

Although originally constructed in 1974, Nitric Acid Plant No. 1 became subject to NSPS Subpart Ga upon completion of the project authorized under 2011-006-C (M-2). Thus meets the definition of modification/reconstruction after October 14, 2011. Therefore, Nitric Acid Plant No. 1 is not subject to this subpart.

Nitric Acid Plant No. 2 was constructed in 1978, and it is subject to this subpart. The NO_X standard in this subpart, expressed as NO_2, of 3.0 lbs per ton of nitric acid produced (1.5 kg/ton), expressed as 100% HNO_3 and averaged over 3 consecutive hours. Subpart G requires maintenance of a continuous monitoring system for measuring NO_X and reporting excess emissions. The permit specific conditions ensure compliance with this subpart.

Opacity of gaseous emissions shall be less than 10%. The EPA, in Nitric Acid Plant Inspection Guide (EPA-340/1-84-013, August 1984) stated that a "visible threshold" could be determined as a function of NO_2 content in ppm. To establish such a connection, the facility performed RM 9 testing at each plant during periods in which the plants operated at ppm concentrations at or above those authorized in the permit. No visible emissions were reported during any of the 15-second intervals of either test. Thus, monitoring of NO_X concentrations is sufficient to demonstrate compliance with the opacity standards of this subpart. Details of the tests were included in the memorandum for 2006-003-TVR.

Subpart Ga (Nitric Acid Plants) affects facilities that commenced construction, reconstruction, or modification after October 14, 2011. Affected facilities are limited to not more than 0.50 pound of NO_X (expressed as NO_2) per ton of nitric acid produced (production being expressed as 100% nitric acid) and calculated as a 30-day emission rate (based on 30 consecutive operating days). The emission standard applies at all times, and continuous monitoring is required. Nitric Acid Plant No. 1 meets the definition of modification/reconstruction after October 14, 2011, and it is subject to this subpart for the project completed as authorized under 2011-006-C (M-2). Compliance with the NO_X limit this subpart is expected to demonstrate compliance with the "long-term NO_X limit" of the Consent Decree, because this subpart is more stringent.

Subpart Kb (Volatile Organic Liquids Storage Vessels) affects volatile organic materials storage tanks with a capacity above 75 m^3 that commenced construction, reconstruction, or modification after July 23, 1984. The gasoline and diesel storage tanks are smaller than the 75 m^3 *de minimis* level and the ammonia and nitric acid tanks do not contain organic liquids.

Subpart GG (Stationary Gas Turbines) affects stationary gas turbines with a heat input greater than or equal to 10 MMBTUH that commenced construction, reconstruction, or modification after October 3, 1977. The 133-MMBTUH General Electric gas turbine (EUG 4) was constructed in 1981, which meets the conditions of §60.332(j) and is exempt from the NO_X standards of this subpart. Sulfur dioxide standards specified in Subpart GG are that no fuel shall be used that exceeds 0.8% by weight sulfur nor shall exhaust gas contain in excess of 150 ppm SO_2 at 15% O_2. Monitoring of fuel sulfur content is not required when a gaseous fuel is fired in the turbine and the owner or operator demonstrates that the gaseous fuel meets the definition of "natural gas" using one of the methods in §60.334(h)(3)(i) or (ii). §60.331 defines natural gas as containing 20 grains or less of total sulfur per 100 standard cubic feet and is either composed of at least 70 percent methane by volume or has a gross caloric value between 950 and 1100

BTU/scf. The 103JAT turbine discussed in the memorandum associated with Permit No. 2006-003-TVR (M-8) is a steam driven turbine, which is not affected under GG.

Subpart VV (Synthetic Organic Chemical Manufacturing) is not applicable. Subpart VV affects synthetic organic chemical manufacturing operations that commenced construction, reconstruction, or modification after January 5, 1981. Ammonia and nitric acid are inorganic chemicals, and the UAN units were constructed in 1974 and 1978, respectively, prior to the promulgation date of Subpart VV.

Subpart IIII (Stationary Compression Ignition Internal Combustion Engines (CI-ICE)) affects manufacturers, owners, and operators of CI-ICE. The emergency generators and fire pump engines are all compression ignition. According to 40 CFR 60.4200(a)(2), affected sources include "Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or
(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006."

The Detroit Diesel fire pump and the Caterpillar 3304 and 3306 emergency engines were installed well before 2005 and are not affected facilities. The 198-hp Generac emergency generator engine was installed in 2012 and is an affected facility. It has a Certificate of Compliance, so no initial testing is required, but it must maintain records of all maintenance performed.

Subpart JJJJ (Stationary Spark Ignition Internal Combustion Engines (SI-ICE)) affects manufacturers, owners, and operators of SI-ICE. The water pump engine installed under 2006-003-TVR (M-10) is a SI engine. The engine has Certificate of Conformity No. KEM-LSI-11-04 and shall maintain operating and maintenance records.

NESHAP, 40 CFR Part 61 [Not Applicable]

There are no emissions of any of the regulated pollutants: arsenic, asbestos, benzene, beryllium, coke oven emissions, mercury, radionuclides, or vinyl chloride.

NESHAP, 40 CFR Part 63 [Subparts YYYY, ZZZZ and DDDDD Applicable]

Subpart MMM (Agricultural Chemicals) provides standards for pesticide active ingredient manufacturing rather than for fertilizer.

Subpart FFFF (Miscellaneous Organic Chemical Manufacturing [MON]) affects miscellaneous organic chemical process manufacturing units (MCPU) that are major or are located at major sources, as major is defined in 40 CFR 63.2 and that satisfy each of three criteria. First, the MCPU must manufacture certain organic chemicals as identified by a number of sub-criteria. This facility manufactures urea, satisfying the first criterion. Second, the MCPU must process, use, or produce, any organic HAP on the CAA Section 112(b) list. Third, the MCPU may not be subject to any other MACT, except §63.100(j)(4) of Subpart I. Production of urea requires ammonia, and as shown in the Process Description (Section II of this Memorandum), ammonia production involves the emission of large amounts of methanol, a 112(b)-listed organic HAP. However, on-site production of ammonia is not necessary to the manufacture of urea, so the ammonia production equipment is not properly considered a portion of the urea MCPU. Thus, urea production is not subject to MON.

Subpart YYYY (Combustion Turbines) affects existing, reconstructed, and new combustion turbines located at major sources of HAP. The 133 MMBTUH turbine in EUG-4 was constructed in 1981, and is an existing unit per §63.6090(a)(1). According to §63.6090(b)(4),

existing units in all subcategories do not have to meet any of the requirements of this MACT or of Subpart A, including notification. The unit is simply named as an affected facility, with no conditions imposed. The 103JAT turbine discussed in the memorandum associated with Permit No. 2006-003-TVR (M-8) is a steam driven turbine, which is not affected under YYYY.

Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE) affects new and existing RICE located at major and area sources of HAP emissions. The three diesel engines rated at 155, 230, and 161 hp, were all constructed before 2006, and are existing sources, per 40 CFR 63.6590(a)(1)(iii). According to §63.6603(a), published in the Federal Register on March 9, 2011, these engines must comply with the operating limits of Table 2d of this Subpart. Note that Tables 1a and 1b, referenced in §6603(a), apply only at major sources of HAP. A summary of these requirements for the diesel fired emergency engines located at this facility are shown below.

Engine Category	Normal Operation @ 15% O_2
Existing Emergency CI & Black Start CI	-Change oil and filter every 500 hours of operation or annually, whichever one comes first; -Inspect air cleaner every 1,000 hours of operation or annually, whichever one comes first; and -Inspect all hoses and belts every 500 hours of operation or annually, whichever one comes first and replace as necessary.

Sources have the option to utilize an oil analysis program in order to extend the specified oil change requirements of this subpart. Initial compliance demonstrations must be conducted within 180 days after the compliance date. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again. The owner/operator must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop their own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. Existing emergency stationary RICE located at a major source of HAP emissions must install a non-resettable hour meter if one is not already installed. The permit requires the facility to comply with all applicable requirements.

The 198-hp generator engine (Point ID #10306) is a new source and demonstrates compliance with ZZZZ by complying with the requirements of NSPS Subpart IIII.

The 115-hp water pump engine (Point ID #10307) is a new source, and demonstrates compliance with ZZZZ by complying with the requirements of NSPS Subpart JJJJ.

Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers and Process Heaters at major sources of HAP. Boilers B, C, and D are existing boilers belonging to the group of "Units designed to burn gas 1 gases," per 40 CFR 63.7499. These affected sources must comply with the standards by January 31, 2016. According to §63.7500(a)(1), Boilers B, C, and D must comply with Tables 1-3 and 11-13. Operating limits are specified in Table 4, per §7500(a)(2), and §7500(a)(3)provides that the affected source, any control equipment, and any monitoring equipment be operated in a manner consistent with safety and good air pollution control practices for minimizing emissions at all times. However §7500(a) also provides exemptions from these three conditions in §7500(e),

requirements of §7530 and §7540. Items specific to Boilers B, C, and D found in items 3 and 4 of the table require annual tune-ups and an initial energy assessment.
Subpart CCCCCC (Gasoline Dispensing Facilities) affects both the tank and the loading of the tank at any area source that dispenses gasoline into the fuel tank of a motor vehicle, etc. This facility is a major source and is not subject to this subpart.

Compliance Assurance Monitoring, 40 CFR Part 64 [Not Applicable]
This part applies to any pollutant-specific emission unit at a major source that is required to obtain an operating permit, for any application for renewal of an operating permit, if it meets all of the following criteria.

- It is subject to an emission limit or standard for an applicable regulated air pollutant.
- It uses a control device to achieve compliance with the applicable emission limit or standard.
- It has potential emissions, prior to the control device, of the applicable regulated air pollutant of 100 TPY.

Monitoring of NO_X emissions from the nitric acid plants per the standards of NSPS Subpart G is considered presumptively acceptable monitoring for NO_X in accordance with 40 CFR 64.4(b)(4). The required explanation of the applicability is in the applicability discussion for NSPS Subpart G.

The only other stacks using active controls are in the UAN plants (EUG 7). Based on information presented in the memorandum associated with initial Part 70 operating permit No. 99-083-TV, potential pre-controlled emissions from these units are 52.6 TPY of PM for UAN Plant No. 1 and 15.3 TPY of PM for UAN Plant No. 2. These emissions levels are below the threshold of 100 TPY.

Chemical Accident Prevention Provisions, 40 CFR Part 68 [Applicable]
Nitric acid at this facility is of concentration 56% and is not a listed substance. Ammonia, a toxic chemical subject to this regulation, is present at the facility in quantities greater than the threshold quantities; therefore, Part 68 is applicable. A Risk Management Plan was last submitted on June 21, 2004, and determined to be complete by EPA. More information on this federal program is available on the web page: *www.epa.gov/rmp*.

Stratospheric Ozone Protection, 40 CFR Part 82 [Subpart A and F Applicable]
These standards require phase out of Class I & II substances, reductions of emissions of Class I & II substances to the lowest achievable level in all use sectors, and banning use of nonessential products containing ozone-depleting substances (Subparts A & C); control servicing of motor vehicle air conditioners (Subpart B); require Federal agencies to adopt procurement regulations which meet phase out requirements and which maximize the substitution of safe alternatives to Class I and Class II substances (Subpart D); require warning labels on products made with or containing Class I or II substances (Subpart E); maximize the use of recycling and recovery upon disposal (Subpart F); require producers to identify substitutes for ozone-depleting compounds under the Significant New Alternatives Program (Subpart G); and reduce the emissions of halons (Subpart H).

Subpart A identifies ozone-depleting substances and divides them into two classes. Class I controlled substances are divided into seven groups; the chemicals typically used by the manufacturing industry include carbon tetrachloride (Class I, Group IV) and methyl chloroform (Class I, Group V). A complete phase-out of production of Class I substances is required by January 1, 2000 (January 1, 2002, for methyl chloroform). Class II chemicals, which are hydrochlorofluorocarbons (HCFCs), are generally seen as interim substitutes for Class I CFCs. Class II substances consist of 33 HCFCs. A complete phase-out of Class II substances, scheduled in phases starting by 2002, is required by January 1, 2030.
Subpart F requires that any persons servicing, maintaining, or repairing appliances except for motor vehicle air conditioners; persons disposing of appliances, including motor vehicle air conditioners; refrigerant reclaimers, appliance owners, and manufacturers of appliances and recycling and recovery equipment comply with the standards for recycling and emissions reduction.

To the extent that the facility has air-conditioning units that apply, the permit requires compliance with Part 82.

SECTION IX. COMPLIANCE

Tier Classification and Public Review
This application has been determined to be a **Tier I** based on the request for an administrative amendment to an existing major source operating permit. The applicant has submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The affidavit certifies that the applicant owns the property. Information on all permit actions is available for review by the public in the Air Quality section of the DEQ Web page: *http://www.deq.state.ok.us/*.

Fee Paid
No fee is required for an administrative amendment.

SECTION X. SUMMARY

There are no active Air Quality compliance or enforcement issues that would affect the issuance of this permit. Issuance of the permit is recommended.