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NUTRIEN US LLC

STATEMENT OF BASIS FOR AIR OPERATING PERMIT RENEWAL 3

Final January 10, 2022
Administrative Amendment April 3, 2023

TABLE OF FIGURES

TABLE OF TABLES and FIGURES

ABBREVIATIONS AND ACRONYMS

AN.......................... Ammonium Nitrate
AOP .... Air Operating Permit
BCAA....................... Benton Clean Air Authority
BFWWCAPCA .... Benton Franklin Walla Walla Counties Air Pollution Control Authority (reformed as the BCAA in 1995)
CAA......................... Clean Air Act
CAN-17 .... Calcium Ammonium Nitrate
CEM........................ Continuous Emission Monitor
CFC .... Chlorofluorocarbons
CFR .... Code of Federal Regulations
CO........................... Carbon Monoxide
CO_2 .... Carbon Dioxide
CPMS...................... Continuous Parametric Monitoring System
DCS......................... Distributive Control System
Ecology................... Washington State Department of Ecology
EPA......................... Environmental Protection Agency
F.............................. Federally Enforceable
FCAA....................... Federal Clean Air Act
GAN........................ Granulated Ammonium Nitrate
GHG........................ Greenhouse Gas
HAP......................... Hazardous Air Pollutant
IEU.......................... Insignificant Emission Unit
gr/dscf.................... Grains per dry standard cubic foot (68°F, 29.92 inches Hg); unit
MACT...................... Maximum Achievable Control Technology
MCC........................ Mississippi Chemical Company
MMBTU.................. Million British Thermal Unit (10^6 BTU = 1,055 Joules)
MVAC..................... Motor Vehicle Air Conditioner
NH_3 .... Ammonia
NO_2......................... Nitrogen Dioxide
NOC........................ Notice of Construction
NO_x......................... Nitrogen Oxides
NSPS....................... New Source Performance Standard
O&M....................... Operations and Maintenance Requirements
OA.......................... Order of Approval
PM.......................... Particulate Matter
PM_{10} .... Particulate Matter, less than 10 microns diameter
$PM_{2.5}$....................... Particulate Matter, less than 2.5 microns diameter
ppm........................ Parts per million; unit
RACT....................... Reasonably Available Control Technology
RCW........................ Revised Code of Washington
S.............................. State Only Enforceable
SCR......................... Selective Catalytic Reduction
SIP........................... State Implementation Plan
SO_2......................... Sulfur Dioxide
TPY......................... Tons per Year; unit
TSP.......................... Total Suspended Solids
UAN-32................... Urea Ammonium Nitrate

VOC .... Volatile Organic Compound
WAC .... Washington Administrative Code

STATEMENT OF BASIS FOR AIR OPERATING PERMIT FOR NUTRIEN US LLC

1. INTRODUCTION

This document sets forth the legal and factual basis for the permit conditions in a draft air operating permit issued by the Benton Clean Air Agency for a nitrogenous fertilizer manufacturing operation located in Kennewick, Washington. This document is called a "statement of basis" and is required by Washington Administrative Code (WAC) 173-401-700(8). A statement of basis does not contain enforceable permit conditions. These conditions are contained only in the air operating permit itself.

2. FACILITY IDENTIFYING INFORMATION

2.1. Company Name .... **Nutrien US LLC**

2.2. Facility Name .... **Nutrien Kennewick Fertilizer Operations (KFO)**

2.3. Facility Address .... **227515 Bowles Road, Kennewick, WA 99337**

2.4. Responsible Official .... **Zack Shaff, General Manager**

2.5. Mailing Address .... **227515 Bowles Road, Kennewick, WA 99337**

2.6. Facility Contact .... **John Hanson, Technical Services Manager**

2.7. Facility Contact Phone Number .... **(509) 586-5488**

3. BASIS FOR TITLE V APPLICABILITY

Nutrien US LLC, Kennewick Fertilizer Operations, is subject to Title V, Air Operating Permit Regulations, due to the potential emissions of NO_X (expressed as NO_2) and particulate matter (PM) in excess of 100 tons per year. WAC 173-401-200(17)(b) identifies any source that directly emits or has the potential to emit one hundred tpy rom or of any air pollutant as a major source. Major sources are required to obtain Title V permits under 173-401-300(1)(a)(i).

4. ATTAINMENT CLASSIFICATION

The facility is located in an area that is classified as attainment for PM and unclassifiable for all other criteria pollutants as of May 2005.

5. TITLE V TIMELINE

On 08-Jun-1995, the BCAA received an air operating permit application from the contemporaneous facility owner/operator, Union Oil Company of California, d.b.a. Unocal. The BCAA subsequently received additional written material regarding the air operating permit application from Unocal on 10-Jul-1997, 12-Feb-1998, 16-Jul-1999 and 07-Jun-2000. In a letter dated 14-Oct-1999, Unocal notified the Benton Clean Air Authority of a facility ownership change from Unocal to Nutrien US LLC, herein after called Nutrien. In a letter dated 07-Jun-2000, Nutrien provided the final revised "Appendix A" emission calculation spreadsheet and revised "Form B-2" process descriptions to replace these sections in the Title V application. In correspondence during May 2002, Nutrien provided final revised plot drawings with bubble arrows to identify the process locations. The original application and amending submittals from facility owner/operators are the source of most of the factual information presented in this statement of basis.

Initial AOP: AOP 05-0002 was issued on 14-Jan 2003 to Nutrien Kennewick Fertilizer Operations.

PSD 04-01 Initial Issue: On August 27, 2004, Ecology issued a Prevention of Significant Deterioration Permit PSD-04-01. The Kennewick Fertilizer operation (KFO) manufactures nitric acid in Plant s 7 and 9. The nitric acid is used in part to manufacture nitrate based liquid and granular fertilizer in Plants 8 and 10.

Modification 1 to AOP 05-0002 was issued on August 2nd, 2006. On June 8, 2005, BCAA advised Nutrien US LLC that they would modify the AOP issued on January 14, 2003, to incorporate the following applicable requirements:

- Requirements specified in BCAA Order of Approval 2002-0014
- Alternate calibration procedures under 40 CFR 60.73
- Additional requirements under the January 10, 2005, revision to WAC 173-400.
- Requirements from PSD 04-01 issued August 27, 2004.

First Renewal: The application for the 2008 renewal permit was submitted on June 21, 2007; the permit was issued on June 11, 2008.

In 2010 an administrative amendment was done to incorporate two NOCs issued by BCAA:

- Allow for two different expanders; Regulatory Order 2010-0003 Issued May 7, 2010
- Allow for additional EPA approved method for testing Plant 9 Tailgas Regulatory Order 2010-0003 Issued May 7, 2010

Second Renewal: This renewal application was submitted on June 12, 2012. This renewal will include requirements from state (WAC 173-441) and federal (40 CFR 98) greenhouse gas rules promulgated since the last revision.

The issuance of a draft air operating permit requires a public comment period of at least 30 days and notification to the United States Environmental Protection Agency and affected states, a category that includes the states and federally recognized Tribal Nations.

The final permit was issued on July 28, 2014.

Third Renewal: This renewal application was submitted on January 3, 2019. This renewal will include

- Requirements from PSD 04-01 Amendment 2 and BCAA OA 2020-0003 for the Selective Catalytic Converter added to Plant 9.
- Requirements from BCAA Order of Approval 2020-0003 for the Selective Catalytic Converter added to Plant 9.

Administrative Amendment: On December 9, 2022 BCAA received a request to change the name Agrium US to Nutrien US LLC. This administrative amendment was issued on March 17, 2023.

FACILITY POTENTIAL TO EMIT

Table 1: Potential to Emit

Process Number	Process Name	Emission Point Description	PM tpy	PM_{10} tpy	VOC tpy	SO_x tpy	NO_x tpy	CO tpy	NH_3 tpy
2	Plant 9	Tailgas stack normal operation; SCR, Extended absorption and H_2O_2 addition; SCR					47		
2A	Plant 9	Tailgas stack Shutdown					see above		
2B	Plant 9	Tailgas stack Start-up					see above		0.5
2C	Plant 9	Industrial Hygiene Venting					0.9		
3	Plant 7	Tailgas stack Catalytic afterburner Selective Catalytic Afterburner					27		
5	Plant 3 AN Solution Granulation	Joy scrubber	71.3	14.3					307
5B	Plant 3 GAN	Rotary Drum Cooler Joy Scrubber	12.8	0.3					
6	Ammonium nitrate solution production (Plant 8 MCC neutralizer)	MCC Exhaust stack	2.7	1.4					137
7	Ammonium nitrate solution production (Plant 10 MCC neutralizer)	MCC exhaust stack	4.7	2.4					77
8	Ammonium nitrate granulation process (Plant 10)	Joy scrubber stack	99.7	19.9					412
8A	GAN fluid bed cooler (Plant 10)	Product cooler stack	16.3	0.3					0.8
11	Solid urea storage and handling	Baghouse	0.4	0.4					
12	Urea loading	Baghouse	0.3	0.3					
13	Boiler F-521 (CB-3)	Exhaust stack	2.9	2.9	3.5	0.2	29.1	43.7	0
15	Boiler F-513 (CB-2)	Exhaust stack	0.41	0.41	0.3	0	5.4	4.5	0
16	Boiler F-502 (Ames)	Exhaust stack	0.46	0.46	0.6	0	6	5	0
17	Nitric acid concentrator process	Scrubber stack					1.3		

19	UAN-32 solution production (Plant 8)	Mixer stack	1.8	1.8					15.1
19A	UAN-32 Urea transfer	Baghouse stack	0.16	0.16					
20	UAN-32 solution production (Plant 11)	Mixer stack	0.22	0.22					1.9
21	CAN-17 solution production (Plant 8)	Mixer stack					90.8		3.3
22	CAN-17 calcium carbonate transfer (Plant 8)	Baghouse stack	0.5	0.5					
23	Anhydrous ammonia storage and transfer	Fugitive							
24	Emergency Flare	Emergency Flare Stack				0.1	0.7	0.1	

Potential to Emit- Process and Emission Point Information for Finley Area

Process Number	Process Name	Emission Point Description	PM	PM10	VOC	SO_x	NO_x	CO	NH3
34	Boiler F-600-C	Exhaust stack	1.3	1.3			16.9	14.2	
42	Utility flare (control of ammonia from storage)	Flare stack					4.9		0
48	Anhydrous ammonia storage and transfer	Fugitive							0.6
49	Aqua ammonia production	Fugitive							0.4

Potential to Emit- Process and Emission Point Information for Hedges Area

Process Number	Process Name	Emission Point Description	PM	PM10	VOC	Sox	NO_x	CO	NH_3
60	Ammonia heater 2 (E-400)	Heater stack					9.1		
61	Ammonia heater 1 (E-204)	Heater stack					8.3		
62	Utility flare 1 (control of ammonia from storage)	Flare stack					2.9		0
63	Purge flare 2 (control of ammonia from storage)	Flare stack					0.7		
65	Anhydrous ammonia storage and transfer	Fugitive					0.2		

Facility Totals		201	48	7.0	0.5	255	84	957

6. DESCRIPTION OF SOURCE

Referred to in this document as the "Kennewick Plant", the following is a description of the facility and its three operating areas, which are located southeast of Kennewick, Washington in rural Benton County. Because of the integrated and interactive nature of these three areas and their common management, they are considered a single source for the purposes of the Title V air operating permit. Raw material and product pipelines link the three areas.

6.1. Historical Overview

The three operating areas of the Kennewick plant are identified as:

- Kennewick area, located at the east end of Bowles Road.
- Finley area, located at the east end of Game Farm Road
- Hedge's area, located at the east end of Perkins Road.

The following is a brief history of each operating area.

6.1.1. Kennewick Plant, Kennewick Area

The facilities at the Kennewick area, built in 1959, were originally owned and operated by a company then known as California Spray Chemical Company. As a subsidiary of the Chevron Corporation, California Spray Chemical was renamed Chevron Chemical Company. The demand for agricultural chemicals in the newly developed irrigated area of the Columbia Basin region and a supply of ammonia from the nearby Phillip's Pacific Chemical Company facility attracted Chevron's business to this area. The original 1959 facility produced nitric acid (Plant 2), prilled ammonium nitrate (Plant 3), various grades of granular Unipel® fertilizer (Plant 1), and ammonium nitrate solution (AN20). The source had an annual production of 80,000 tons. --

Two major expansions in 1968 and 1975 of the Kennewick area facilities brought it to a production capacity of 550,000 tons annually. Two nitric acid production units (Plants 7 and 9) were added in this period. Catalytic fume abatement to meet opacity air quality standards was installed with Plant 7 and added to Plant 2. Plant 9, built after 1971, was designed to meet nitric acid new source performance standards (NSPS) for air quality. Extended absorption was the control technology installed in Plant 9. Plant 10 was added, and Plant 3 was converted from prilled ammonium nitrate to granulated ammonium nitrate (GAN). A new Unipel unit (Plant 8) was added. The original Unipel unit (Plant 1) was converted to Plant 11 to produce urea-ammonium nitrate solution (UAN-32). Increased raw material and product storage accompanied the increase in production capacity. By 1980, two additional natural gas fired boilers were added bringing the total to four. In 2020 SCR was added to the pollution controls for Plant 9.

Unocal purchased the Kennewick area facilities in 1992. Chevron had suspended production of multi-grade Unipel fertilizer in 1990. Unocal modified Plant 8 to produce calcium ammonium nitrate solution (CAN-17) and UAN-32.

In 1994 Unocal restarted nitric acid Plant 2, which Chevron, the former owner, had temporarily shut down two years prior. In 1996, Unocal replaced the existing catalyst in the fume abator of Plant 2 with a catalyst capable of selectively reducing NO_x to gaseous N_2 in the presence of ammonia (SCR). Similar control technology (SCR and NSCR) became operational in nitric acid Plant 7 in 2000.

Nutrien purchased Kennewick, Finley, and Hedges areas from Unocal/Prodica in September 2005.

6.1.2. Kennewick Plant, Finley Area

Constructed during 1955 and 1956 by Phillips Pacific Chemical Company, the Finley area facilities produced both anhydrous and aqua ammonia. Later additions to the facility included two small capacity plants that produced nitric acid used to make ammonium nitrate, a component in UAN-32 manufacture. Urea for UAN-32 is produced by reacting anhydrous ammonia and carbon dioxide, a by-product of anhydrous ammonia production. These plants were shut down and removed from the site in 1986 or 1987.

In 1986, Chevron purchased the Finley area plant from CEPEX, who owned it from March to December in 1986. Chevron operated it principally as an anhydrous ammonia plant from 1987 to 1992 when ammonia plant operations were suspended. Unocal acquired the facility from Chevron in 1992. During 1995 Unocal modernized the anhydrous ammonia units and restarted them in December 1995. Nutrien acquired the facility from Unocal in October 2000 and suspended operation of the ammonia units in November 2000.

6.1.3. Kennewick Plant, Hedges Area

Collier Chemical Company, a subsidiary of Unocal, built terminal facilities at the Hedges area in 1968. The primary function of this facility was to provide storage and distribution of both anhydrous ammonia and granulated urea produced at other locations, and primarily at the Unocal fertilizer complex in Kenai, Alaska. Anhydrous ammonia was transported from Kenai and other supply points to the Unocal Rivergate terminal, located on the Willamette River at the mouth of the Columbia in Portland, Oregon, by ship. Two river barges transported anhydrous ammonia from that location up the Columbia River to the Hedges area. Granulated urea from Kenai was transported to the Rivergate terminal by ocean barge and then shipped to Kennewick by railcar. Following acquisition by Nutrien, the Rivergate terminal and the Urea warehouse at Hedges were sold to Simplot, another fertilizer company. As of May 2002, the majority of ammonia imported to the Finley facility by railcar from various sources. Since 2002 the Hedges site has been idle with no Nutrien industrial activity on-going, other than occasional storage of railcars on the track siding. The Hedges facility has two 25,000-ton atmospheric storage tanks for anhydrous ammonia, and 400 tons of storage capacity for aqua ammonia. Aqua ammonia was produced at the Hedges facility by a unit that sparges anhydrous ammonia into demineralized water. The aqua unit has been removed from the site.

6.2. Manufacturing Processes

6.2.1. Facility-wide

"Facility-wide" refers to all emission units at the Kennewick Plant and its three operating areas inclusively.

Table 2: Facility-wide Manufacturing Processes

Process Number	Process Name	Emission Point Description	Process Description
1	Facility-wide	All emission units	"Process 1" is all emission units at the source.

6.2.2. Manufacturing Processes at the Kennewick Plant, Kennewick Area

The Kennewick Area manufactures nitric acid, liquid nitrogen fertilizer solutions, and has the capacity to manufacture granular ammonium nitrate (GAN). GAN production (dry product ammonium nitrate) has been suspended since 2005. Nitric acid is manufactured from ammonia for use as an intermediate feedstock to produce ammonium nitrate solutions. Nitric acid is also sold as a final product as either 57% or 67% concentration. Eighty three percent ammonium nitrate solution (83% AN) is made from nitric acid and ammonia. The 83% AN is concentrated is sold as a product and is diluted with water to make a solution of ammonium nitrate (AN20) containing 20% nitrogen. The 83% AN is also mixed with urea and water to make urea ammonium nitrate (UAN-32) containing 32% nitrogen. Calcium ammonium nitrate (CAN-17), containing 17% nitrogen, is made by dissolving limestone (Calcium carbonate) with nitric acid to make a calcium nitrate solution, which is then mixed with 83% AN and water. Figure 1 is a schematic layout of this manufacturing unit. Circled numbers designate processes, which are specifically addressed later, with air emissions subsequently addressed herein or in the permit. Table 2 contains process and emission point descriptions for the Kennewick Area.

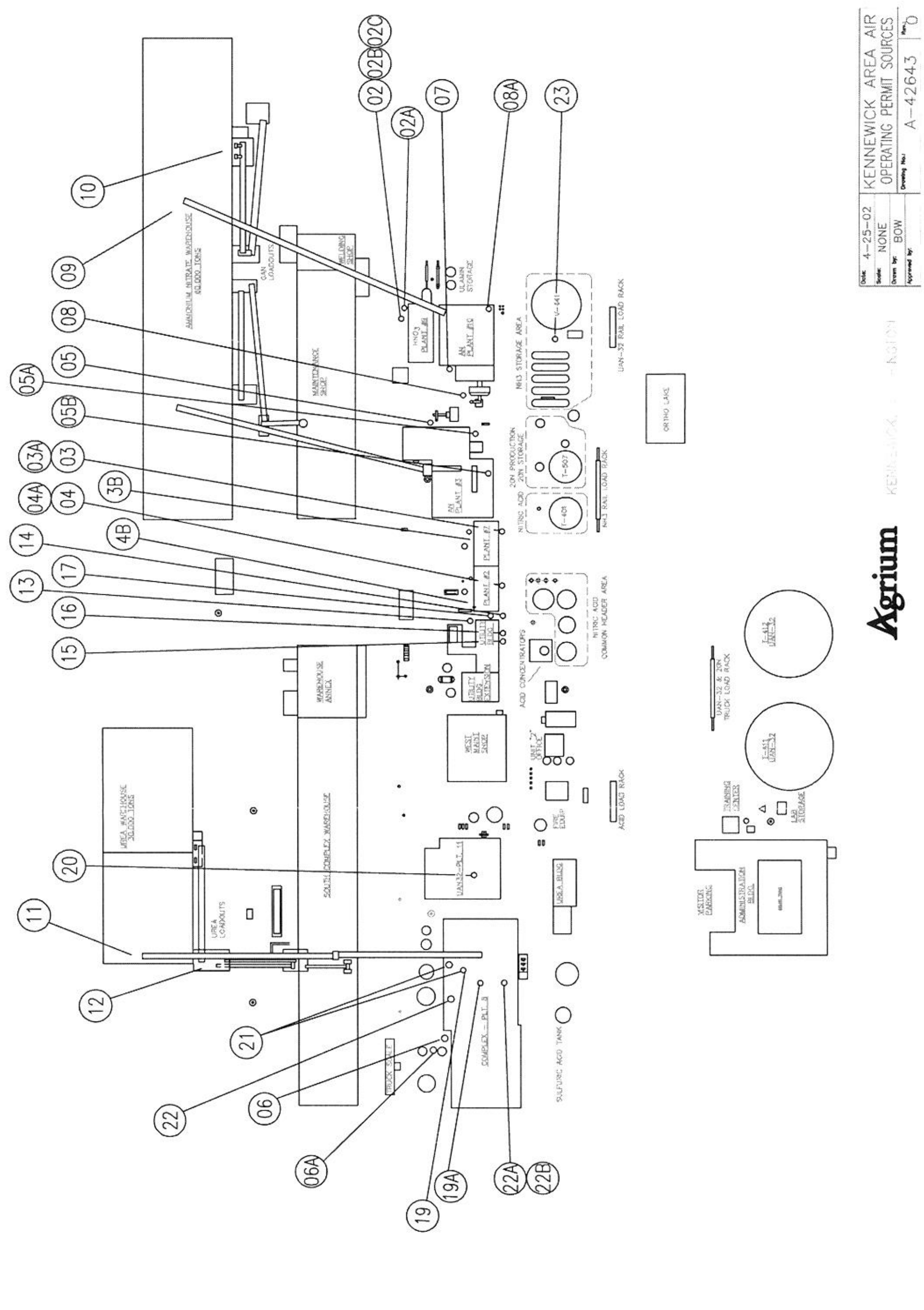

Figure 1: Schematic Layout of the Kennewick Area

Table 3: Process and Emission Point Information for Kennewick Area

Process Number	Process Name	Emission Point Description	Process Description
2	Plant 9	Tailgas stack normal operation SCR Extended absorption and H_2O_2 addition Selective Catalytic Reduction	Nitric acid manufacture - Compressed air and vaporized ammonia are fed into a converter with a catalyst and oxidized to form nitrous oxide gases (NO_x). The gases are then routed to a tower where nitrogen dioxide (NO_2) is absorbed into water to form nitric acid. Emissions of NO_x (expressed as NO_2) from the tailgas stack has the potential to exceed 100 tons per year (TPY). The unit is subject to new source performance standards (NSPS), which were promulgated in 1971.
2A	Plant 9	Tailgas stack Shutdown	During scheduled shutdowns of the plant or during unscheduled "trip" shutdowns, gases in the process train, which are at approximately 100 pounds per square inch, are reduced to atmospheric pressure when released through this stack. This process lasts up to 120 minutes and may occur 10 times per year. This emission contains NO_x.
2B	Plant 9	Tailgas stack Start-up	During start-up of the plant, tailgas is routed through the main stack as the unit is brought up to pressure and temperature. This process lasts up to 120 minutes and may occur 10 times per year. These emissions contain NO_x.
2C	Plant 9	Industrial Hygiene Venting	Minor leaks of NO_x from flanges on process equipment are enclosed and vented to prevent occupational exposure to NO_2.
3	Plant 7	Tailgas stack Catalytic afterburner Selective Catalytic Afterburner	Nitric acid manufacture - Compressed air and vaporized ammonia are fed into a converter with a catalyst and oxidized to form nitrous oxide gases (NO_x). The gases are then routed to a tower where NO_2 is absorbed into water to form nitric acid. Stack emissions of NO_x (expressed as NO_2) from process tailgas exceed 100 TPY. This unit, which was built in 1969, is not subject to federal NSPS regulations but is subject to BCAA Regulatory Order 199901 (RACT Order)

Process Number	Process Name	Emission Point Description	Process Description
5	Plant 3 AN Solution Granulation	Joy scrubber	In a tank type reactor vessel, which is called an ammonium nitrate (AN) neutralizer, 57% nitric acid is reacted with vaporized ammonia to produce a solution of 83% AN. This 83% AN is then routed to a steam heated evaporator where the water content is reduced to produce 99% AN. The molten 99% AN at 350°F is sprayed onto a bed of AN granules that are rotating in a drum granulator. Granulation occurs as the molten 99% AN cools to 310°F in the rotating drum. The 83% AN may alternatively be pumped into secondary storage tanks and subsequently used to make various nitrogen solutions. All emissions from the 83% AN tank, evaporator, 99% AN tank, as well as the granulator are routed to a Joy Scrubber, a high efficiency wet scrubber. Stack emissions from the scrubber are ammonia and ammonium nitrate particulate.
5B	Plant 3 GAN	Joy Scrubber	Following granulation, the granulated AN is separated by screening into fine, product, and oversized fractions. The product fraction is routed through a rotating drum cooler. Air from the drum cooler containing AN particulate enters the Rotocone scrubber before discharge. The cooled product is coated with a liquid anticaking agent, just prior to transfer by covered conveyor to bulk storage.
6	Ammonium nitrate solution production (Plant 8 MCC neutralizer)	MCC Exhaust stack	In a reactor vessel called a MCC neutralizer (manufactured by Mississippi Chemical Company) nitric acid (57%) is reacted with vaporized ammonia to produce a solution of 83% AN. The stack gas emission contains no air but consists almost totally of steam. Under normal operating conditions, stack emissions also contain ammonia and ammonium nitrate particulate. Normal operating conditions imply a near stoichiometric feed of the reactants, nitric acid and ammonia.

Process Number	Process Name	Emission Point Description	Process Description
7	Ammonium nitrate solution production (Plant 10 MCC neutralizer)	MCC exhaust stack	In a reactor vessel called a MCC neutralizer (manufactured by Mississippi Chemical Company) nitric acid (57%) is reacted with vaporized ammonia to produce a solution of 83% AN. The stack gas emission contains no air but consists almost totally of steam. Under normal operating conditions, stack emissions also contain ammonia and ammonium nitrate particulate. Normal operating conditions imply a near stoichiometric feed of the reactants, nitric acid and ammonia.
8	Ammonium nitrate granulation process (Plant 10)	Joy scrubber stack	The 83% AN is routed to a steam heated evaporator where the water content is reduced to produce 99% AN. Molten 99% AN at 350°F is sprayed onto a bed of AN granules that are rotating in a drum granulator. Granulation occurs as the molten 99% AN cools to 310°F in the rotating drum. The 83% AN may alternatively be pumped into secondary storage tanks and subsequently used to make various nitrogen solutions. All emissions from the 83% AN tank, evaporator, 99% AN tank, as well as the granulator are routed to a Joy Scrubber, a high efficiency wet scrubber. Stack emissions from the scrubber are ammonia and ammonium nitrate particulate.
8A	GAN fluid bed cooler (Plant 10)	Product cooler stack	Following granulation, the granulated AN is separated by screening into fine, product, and oversized fractions. The product fraction is routed through a fluid bed cooler. The cooled product is coated with a liquid anticaking agent, just prior to transfer by covered conveyor to bulk storage. Emission from the fluid bed cooler, which contains AN particulate, is discharged directly into the ambient air.
11	Solid urea storage and handling	Baghouse	Solid urea is offloaded from railcars either directly to UAN-32 plant #11 or is transferred by conveyor to the urea warehouse. The urea warehouse is capable of storing 25,000 tons of urea. Air emissions of product dust from drop points on the enclosed urea conveyor system are collected by draft and routed through a baghouse. The baghouse is vented to atmosphere.

Process Number	Process Name	Emission Point Description	Process Description
12	Urea loading	Baghouse	Product urea (solid) is loaded into trucks and railcars by one of two load-out systems. Product inside the warehouse is dropped into a grate-covered chute by a front-end loader where it transfers to a conveyor. From the conveyor it discharges to a screen that separates product size material for loading into either a truck or railcar, depending on the position of the diverter. Air emission of product dust from drop points on the enclosed urea conveyor system are collected by draft and routed through a baghouse. The baghouse is vented to atmosphere.
13	Boiler F-521 (CB-3)	Exhaust stack	Cleaver-Brooks water tube boiler rated at 66.5 MMBTU/hr, built in June 1980. Natural gas fired boiler used to produce 200-psi steam to be used for evaporation, vaporization and process heating. This boiler is not normally operated. Waste heat boilers on the nitric acid plant supply all plant steam needs except when one or more acid plants are down. Air emissions consist of boiler stack combustion gases.
15	Boiler F-513 (CB-2)	Exhaust stack	Cleaver-Brooks fire tube boiler rated at 12.5 MMBTU/hr, built in May 1969. Natural gas fired boiler used to produce 200-psi steam to be used for evaporation, vaporization and process heating. This boiler is not normally operated. Waste heat boilers on the nitric acid plant supply all plant steam needs except when one or more acid plants are down. Air emissions consist of boiler stack combustion gases.
16	Boiler F-502 (Ames)	Exhaust stack	Ames fire tube boiler rated at approximately 14 MMBTU/hr, built in 1962. Natural gas fired boiler used to produce 200-psi steam to be used for evaporation, vaporization and process heating. This boiler is not normally operated. Waste heat boilers on the nitric acid plant supply all plant steam needs except when one or more acid plants are down. Air emissions consist of boiler stack combustion gases.

Process Number	Process Name	Emission Point Description	Process Description
17	Nitric acid concentrator process	Scrubber stack	The concentrators heat 57% nitric acid using steam to vaporize and remove water to produce 68% nitric acid (42° Baume). 57% acid is introduced to the tube side of the concentrator tower and steam is introduced to the shell side. Acid concentrated to 68% is passed through a product cooler and sent to storage. Air emissions consisting of nitric acid fumes are collected by ductwork and routed to a high efficiency wet scrubber. This scrubber and header piping is designed to collected headspace vapors from the storage tanks and scrub out the NO_x so that it will not be vented as the tanks fill and empty.
19	UAN-32 solution production (Plant 8)	Mixer stack	83% AN solution is blended with solid urea prills and water in a mixer to form UAN-32 solution fertilizer. Corrosion inhibitor is added during mixing.
19A	UAN-32 Urea transfer	Baghouse stack	Urea is pneumatically conveyed to a temporary storage bin. From the bin, the material is fed to the UAN-32 mixer. Dust emissions from the transfer operation are controlled by baghouse. The baghouse is vented to atmosphere.
20	UAN-32 solution production (Plant 11)	Mixer stack	83% AN solution is blended with solid urea prills and water in a mixer to form UAN-32 solution fertilizer. Corrosion inhibitor is added during mixing.
21	CAN-17 solution production (Plant 8)	Mixer stack	Calcium carbonate is dissolved with nitric acid in a mixer, followed by pH and nitrogen content adjustment using ammonia and 83% AN slurry. Air emissions consist of NO_x and particulate and are routed through a medium efficiency wet scrubber.
22	CAN-17 calcium carbonate transfer (Plant 8)	Baghouse stack	Calcium carbonate solids handling. Calcium carbonate granules are pneumatically conveyed to the mixer. A baghouse controls dust from this transfer.

Process Number	Process Name	Emission Point Description	Process Description
23	Anhydrous ammonia storage and transfer	Fugitive	Anhydrous ammonia received into the Kennewick Area is stored in a large storage sphere and five smaller storage tanks referred to as either sausages or bullets. Air emissions consist of fugitive emissions of ammonia from valves and flanges.
24	Emergency Flare	Emergency Flare Stack	A chemical release safety measure in which a piping header system collects ammonia releases from pressure relief valves and other equipment and the flare combusts the ammonia for the control of ammonia emissions. The unit is a natural gas pilot fired flare.

6.2.3. Manufacturing Processes at the Kennewick Plant, Finley Area

The Finley Area operates as a product terminal and receives anhydrous ammonia from various suppliers and store the ammonia in an atmospheric pressure tank at -27 ^oF. The ammonia is heated to about 42^oF and transferred to customer trucks and/or is shipped via pipeline to the Nutrien Kennewick Area where it is processed into nitric acid. The Finley Area also receives solution fertilizers via pipeline from the Kennewick Area and stores them in large storage tanks for transfer to customer trucks. Aqua ammonia is produced in the Finley Area from scrubber water by "spiking" with anhydrous ammonia to increase the concentration to product strength.

Figure 2 is a schematic layout of this manufacturing unit. Circled numbers designate processes, which are specifically addressed later, with air emissions subsequently addressed herein or in the permit. Table 3 contains process and emission point description for the Finley Area.

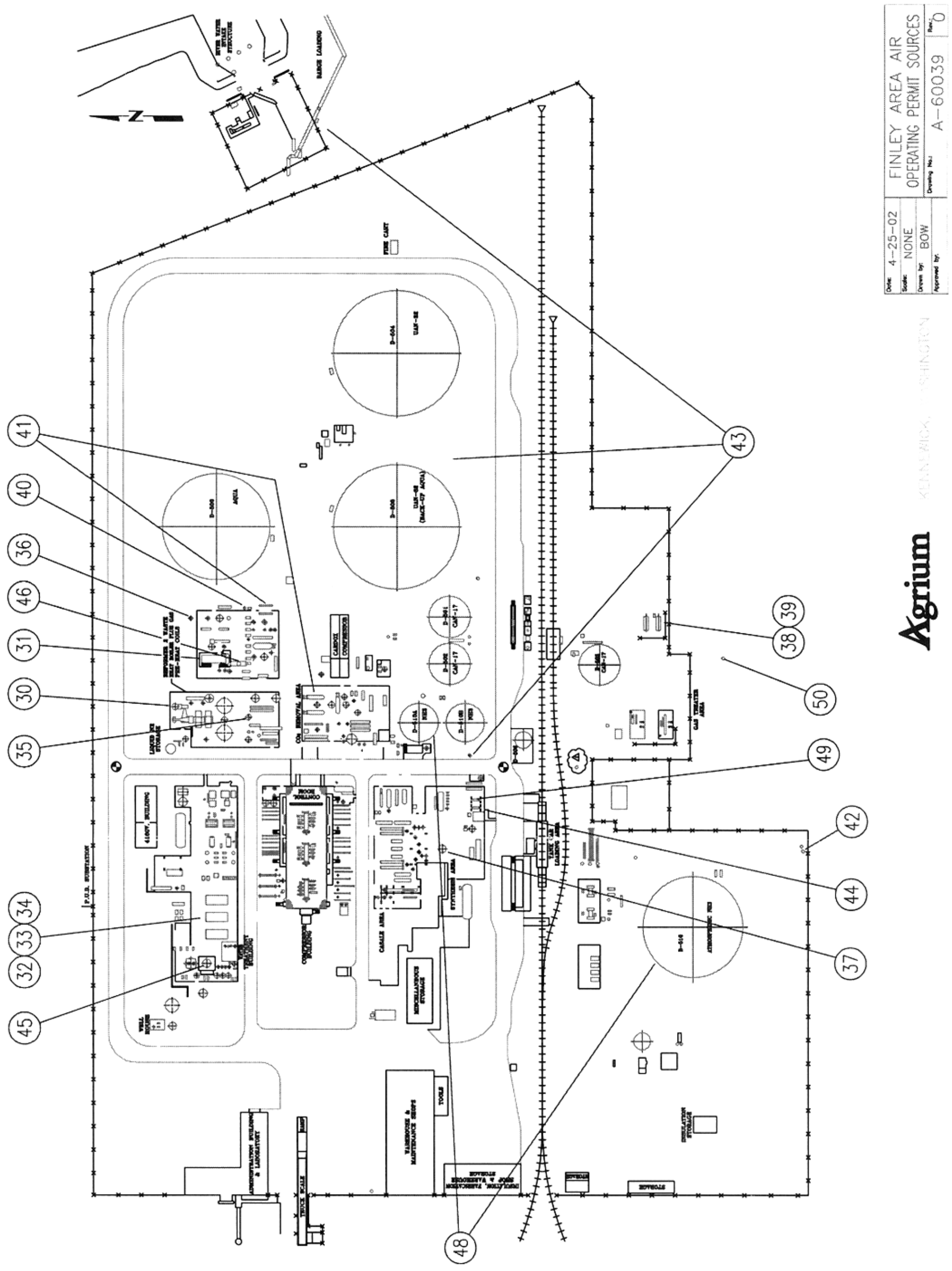

Figure 2: Schematic Layout of the Finley Area

Table 4: Process and Emission Point Information for Finley Area

Process Number	Process Name	Emission Point Description	Process Description
34	Boiler F-600-C	Exhaust stack	Henry Vogt fire tube boiler rated at 25,000 lbs. steam per hour, built in Feb 1956. Natural gas fired boiler used to produce steam to be used for process heating. Air emissions consist of natural gas combustion gases.
42	Utility flare	Flare stack	Natural gas pilot fired flare for control of ammonia emissions from ammonia storage, vents, and processes. Air emissions consist of natural gas combustion gases. This flare is continuously fired.
48	Anhydrous ammonia storage and transfer	Fugitive	Anhydrous ammonia manufactured in the Finley Area is stored in a large refrigerated atmospheric pressure storage tank and in two 1000-ton spheres. Air emissions consist of fugitive emissions of ammonia from valves and flanges.
49	Aqua ammonia production	Fugitive	Sparging anhydrous ammonia into water produces aqua ammonia. Air emissions consist of process emissions of ammonia.

6.2.4. Manufacturing Processes at the Kennewick Plant, Hedges Area

The Hedges Area is an ammonia terminal with the major capability being receiving, storage, transfer, and shipping of anhydrous ammonia. As secondary activity on the terminal site, aqua ammonia was produced by sparging ammonia vapor into water. This unit has been permanently removed from the site.

Previously produced at the site was a urea – sulfuric acid solution marketed as N-pHuric or Enquik®, which was used as a soil amendment and/or as an "environmentally safe" herbicide. A portable skid-mounted mixing unit was used for mixing dry urea with sulfuric acid and water to produce this urea-sulfuric acid solution. This unit has been permanently removed from the site.

Since 2002 the Hedges site has been idle with no Nutrien industrial activity on-going, other than occasional storage of railcars on the track siding.

Figure 3 is a schematic layout of this manufacturing unit. Circled numbers designate processes, which are specifically addressed later, with air emissions subsequently addressed herein or in the permit. Table 4 contains process and emission point description for the Hedges Area.

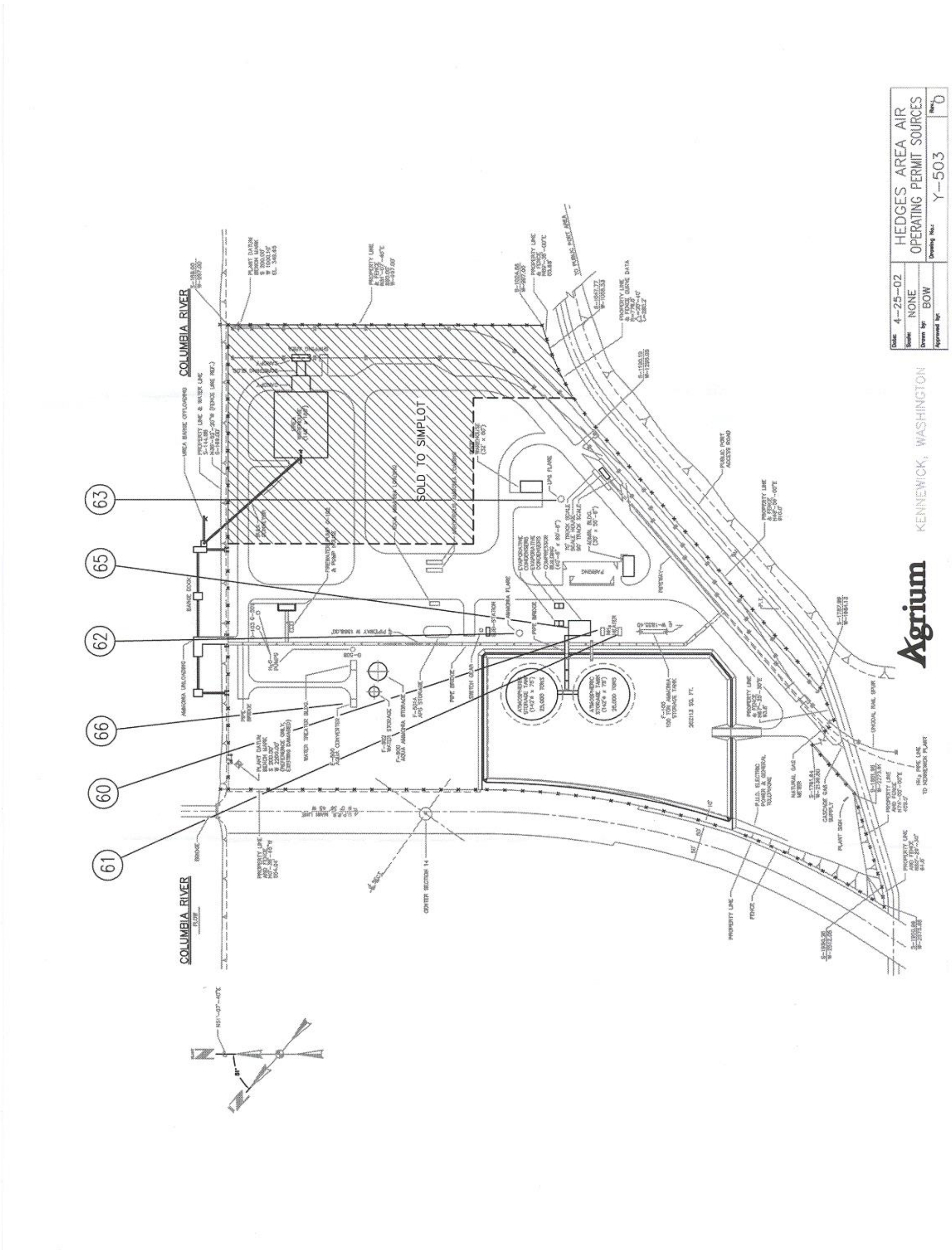

Figure 3: Schematic Layout of the Hedges Area

Table 5: Process and Emission Point Information for Hedges Area

Process Number	Process Name	Emission Point Description	Process Description
60	Ammonia heater 2 (E-400)	Heater stack	Heatran Inc., Uniflux heater, 21.2 MMBTU/hr, built in 1976. This unit is used intermittently to heat ammonia from atmospheric pressure storage at -28ºF to 37ºF for pipeline transfer to the Kennewick Area and loading into pressurized railcars and tank trucks.
61	Ammonia heater 1 (E-204)	Heater stack	Black, Sivalls, & Bryson Inc., Uniflux Heater, 19.3 MMBTU/hr, built in 1968. This unit is used intermittently to heat ammonia from atmospheric pressure storage at –28°F to 37°F for pipeline transfer to the Kennewick Area and loading into pressurized railcars and tank trucks.
62	Utility flare 1	Flare stack	Utility flare, built in 1990. Natural gas pilot fired flare for control of ammonia emissions from storage tank relief vents. Air emissions consist of natural gas combustion gases. This vent is continuously fired.
63	Purge flare 2	Flare stack	National Airoil Burner Co, Inc. flare. When ammonia railcars are taken out of ammonia service for repair or for alternate cargo service, the ammonia vapor must be purged. This purged ammonia is routed to a flare. This flare is not continuously pilot fired and is only used a few times each year.
65	Anhydrous ammonia storage and transfer	Fugitive	Anhydrous ammonia received into the Hedges Area is stored in two large refrigerated atmospheric pressure storage tanks. Ammonia heated for loading into pressurized railcars and tank trucks is stored in a smaller storage tank referred to as either a sausage or a bullet. Air emissions consist of fugitive emissions of ammonia from valves and flanges.

7. REGULATORY REVIEW

All conditions from prior regulatory orders relating to Nutrien's Kennewick Plant facilities in all three areas, are required to be included in Nutrien's Title V air operating permit. The purpose of this section is to document any and all existing regulatory conditions. To accomplish this requirement, approval orders concerning the building and modification of emission units at the Kennewick Plant have been researched to document conditions of approval to construct.

7.1. Permitting and Construction History

Included below in Table 5 is a summary of the construction activities and Orders of Approval (OA) by Ecology or the air authority. These actions are further described and documented in subsequent text sections.

Table 6: Notice of Construction Applications and Orders of Approval

ACTION	RESULT
NOC Application submitted 15-Jan-1973 received by P. Cooke concerning installation of fume abator on Plant 2	
Compliance schedule approved by BCAA	Approved in 31-Jul-1974 letter from Proctor, Board Chairman (BFWWCAPCA) to D. Shaner (Chevron Chemical Co)
Fume abator installed on Plant 2 approximately 01-Jun-1973	
NOC application submitted 28-May-1974 to install desulfurizer to Plant 1	Approved in 29-May-1974 letter from Cooke, Control Officer (BFWWCAPCA) to Hopkins, Manager (Chevron)
NOC application submitted 05-Apr-1976 to establish Plant 9	Ecology OA DE 76-282 approved 31-Aug-1976
NOC application submitted 02-Jun-1983 to install boiler	No BFWWCAPCA Order issued, approved as submitted
NOC application submitted 21-Aug-1990 to install ammonia flare at Hedges area	No BFWWCAPCA Order issued, approved as submitted
NOC Finley plant upgrade and restart	BCAA OA 950315, approved 11-Apr-1995
NOC application submitted 06-Jul-1995 for startup of Plant 8 and production of CAN-17	BCAA OA 950717, approved 17-Jul-1995
NOC application to install CEM on Plant 9	BCAA OA 960628, approved 28-Jun-1996
NOC application to install flare at Finley ammonia plant	BCAA OA 960815, approved 15-Aug-1996
NOC application to retrofit Plant 2 with SCR	BCAA OA 960426, approved 16-Sep-1996
NOC application to install CEM to Plant 9	BCAA OA 960928
NOC application to add Joy compressor and enhance heat transfer capability of the Finley ammonia plant	BCAA OA 970710, approved 21-Jul-1997
NOC application to install SCR to plant 7 and require monitoring for Plant 2 and 7	BCAA OA 19990019, approved 26-Aug-1999
Amendment to Ecology OA DE 76-282 to include CEMS	Ecology OA DE 76-282 Rev 01, approved 09-Mar-2001
Amendment to BCAA OA 19990019 to synchronize the Order and the AOP	BCAA OA 19990019 Rev 01, approved 10-Apr-2002
NOC Application to replace the existing spray piping in the Celatom tank (unit) with a 36-inch water spray bar to enhance dust suppression	BCAA OA 2002-0014, approved June 5, 2002.
PSD Permit 04-01	Ecology approved June 25, 2004.

AOP 05-0002 Modification 1 to include PSD requirements	BCAA AOP 05-0002 Modification 1 approved August 2, 2006.
Renewal Application submittal	Submitted by Nutrien on June 21, 2007
Permit Renewal Issued by BCAA (First Renewal)	Issued June 11, 2008
Applications submitted by Nutrien to Ecology amend Permit No. PSD-04-01.	PSD 04-01 Amendment 1 Issued July 11, 2008
NOC application to allow for two different expanders to allow expander substitution	Regulatory Order 2010-0003 Issued May 7, 2010
NOC application to allow for additional EPA approved method (EPA Method 320) for testing Plant 9 Tailgas.	Regulatory Order 2010-0003 Issued May 7, 2010
	Administrative Amendment issued July 28, 2010
RO for Greenhouse Gas (N_2O) monitoring technology and GHG abatement gauze provision (RO 2011-0007)	Issued January 26, 2012
Renewal Application Submitted	Submitted by Nutrien on June 12, 2012
Renewal Application Declared complete by BCAA	August 11, 2012
Order of Approval for the addition of an Emergency Flare (OA 2013-0004)	Order of Approval issued October 29, 2013.
Order of Approval for replacing Plant 8 Scrubber Motor with variable speed motor. (OA 2013-0005)	Order of Approval issued November 13, 2013
Renewal Permit Issued (Second Renewal)	Issued July 28, 2014
Renewal Application Submitted	January 3, 2019
Renewal Application Declared complete by BCAA	March 4, 2019
PSD Permit Amendment Request to WA Ecology to add SCR to Plant 9	December 13, 2019
PSD 04-01 Amendment 2 issued by Ecology	May 20, 2020
NOC Application for ammonia for SCR for Plant 9	Order of Approval 2020-0003 issued May 5, 2020
Draft Renewal published for comment	September 2021
Renewal Permit Issued (Third Renewal)	January 10, 2022
Administrative Amendment (Name Change)	April 3, 2023

In early 1973 through 1974, there were a series of letters and reports relative to approval of a fume abator for nitric acid Plant 2 between the BFWWCAPCA and Chevron. A compliance schedule was developed to establish the fume abator, which was installed sometime around July 1973. Some discussion centered around the catalyst performance in the abator, which tended to be poisoned by the sulfur content of the natural gas. In May 1974, Chevron installed a desulfurizing unit to remove the sulfur from the natural gas.

In April 1976, Chevron began construction of the new nitric acid plant, Plant 9. Plant 9 was approved to operate by Ecology OA DE 76-282, which was signed on 31-Aug-1976, and included New Source Performance Standards (NSPS) provisions. Special permit conditions included once per day monitoring of NO_x by a wet chemistry method. In 1995, the wet chemical monitoring method was replaced with a continuous emission monitor (CEM) by a certification test documented in an exchange of letters. The BCAA issued OA 960628 in 1996 to approve the CEM, making the documentation letters enforceable as per EPA's suggestion at an EPA, BCAA, Ecology, and Unocal meeting on 30-May-1996.

In 1995, Unocal was issued OA 950315 to startup the ammonia plant at the east end of Game Farm Road with minor changes but no overall increases in emissions. The only special conditions of approval were that Unocal could not operate the ammonia plant until its operation had been included in Unocal's submittal of a Title V Air Operating Permit (AOP) application. In 1997, Unocal was issued OA 970710 to expand the ammonia plant. These changes included adding a compressor and enhancing the heat transfer surfaces with an estimated maximum increase in emission of 37 tons NO_x per year. This emission increase was below the significant level of 40 tons per year as defined in WAC 173-400-030(67). Therefore, it was not a major modification as defined in WAC 173-400-030(39). Order 970710 had a requirement to tune the gas burners annually.

Also in 1995, Unocal was issued OA 950717 to startup Plant 8 to make calcium ammonium nitrate (CAN-17) with no conditions of approval other than amending the 1995 AOP application.

OA 19990019, Section 4.6.2, contained language requiring Method 9 opacity readings on an annual basis. The final Title V permit requires that weekly qualitative opacity observations be made with a series of explicitly defined actions for the facility to perform if opacity is not within permit conditions and requires semi-annual reporting of opacity observations. The BCAA and Nutrien believe that such requirements are reasonable for demonstrating compliance with the opacity requirement in the Title V permit.

AOP 05-0002 was issued on January 14, 2003.

7.2. AOP 05-0002 Modification 1, August 2nd, 2006

On June 8, 2005, BCAA advised Nutrien US LLC that they would modify the AOP issued on January 14, 2003, to incorporate the following applicable requirements:

- Requirements specified in BCAA Order of Approval 2002-0014
- Alternate calibration procedures under 40 CFR 60.73
- Additional requirements under the January 10, 2005, revision to WAC 173-400.
- Requirements specified in PSD-04-01 permit:

On August 27, 2004, Ecology issued a Prevention of Significant Deterioration permit (PSD-04-01). The Kennewick Fertilizer Operations manufactures nitric acid in Plants 7 and 9. The nitric acid is used, in part to manufacture nitrate-based liquid and granular fertilizer in Plants 8 and 10. Nutrien proposed to install emission controls in KFO as a result of voluntary disclosers to EPA by Nutrien and the Union Oil Company of California (February 1, 2001).

The PSD permit satisfies the company’s obligations as expressed in a United States Environmental Protection Agency (EPA) compliance order (EPA Docket No. CAA-10-2003-0108, September 24, 2003). The voluntary disclosures acknowledged modifications at KFO between the years 1894 and 2000 that may have required but were not subjected to major new source review. The PSD-04-01 permit consolidated allowable emissions levels resulting from those projects.

Modification 1 installed all of the requirements of PSD-04-01 in AOP conditions:

- 6.1.4 NOx Plant 9 PSDD-04-01 Limit
- 6.4.3 Process 4: PSD Permit requirements for Plant 7, Tailgas stack
- 6.5.2 PSD-04-01 Plant 10 PM limit
- 6.15.2 PSD -04-01 requirements for Plant 8
- 7.1 Gas Reformers No. 1 and 2 deleted per PSD Permit.
- 7.2 Permit for Boilers F-600A and B deleted per PSD Permit.

The PSD-04-01 requires that the continuous emission monitors system for NO_x satisfy both CFR 10 Part 60 Appendix B Specification 2 and CFR 10 Part 60 Appendix F. Therefore, the quality assurance conditions of Appendix F for monitoring emissions from Plant 7 and Plant 9 must be fulfilled. Appendix F of 40 CFOR Part 60 became an applicable requirement when the PSD-04-01 permit was issued. Therefore, 40 CFR Part 60 became an applicable requirement when the PSD-04-01 permit was issued. Therefore 40 CFR Part 60 Appendix F has been eliminated as an inapplicable requirement in AOP's Table 2 for Plants 7 and 9. Likewise, since Plant 2 was shut down, the inapplicable requirements, items in permit condition 5.1.1, and items contained in Table 1: Facility–wide and Process Specific Applicable Requirements Summary that were related to Plant 2 have been deleted. References to Gas Reformers number 1 and 2 have been deleted from Table 2 of Draft APO since Plant 2 was shut down. References to Boilers 600 A and B have been deleted from Table 2 of the Draft AOP since they are shut down.

The alternate calibration procedures and request to use Method 7E for performance testing were sent to the Environmental Protection agency at Research Triangle Park for their approval since the changes in span of the calibration gases dealt with the compliance issues. EPA approved the use of Method 7E including the RATA testing. The Industrial Section of the Solid Waste and Financial Program approved the change of alternate calibration. The alternate calibration dealt with a change of the upper Span value. The PSD 04-01 limit for NO_x is given in pound per ton nitric acid. The mass limit is equivalent to t approximately 20 ppm. The upper Span value was set by federal regulations at 500 ppm. Setting the upper limit at 2.0X the equivalent concentration limit of the PSD permit mass limit allows for better accuracy near the PSD equivalent concentration limit for plants 7 and 9. The change of Span was placed in the Title 5 permit for plants 7 and 9. The Permitted may use gas audit standards containing both NO and NO_2 as approved by the EPA letter dated May 20, 2005 in the span check and in the calibration of the CEMs. The use of NO and NO_2 mixture calibration gases was added as footnote 3 of the Title 5 permit for plant 7 and 9.

There were no new requirements in the January 10, 2001, revision to WAC 173-400 concerning this AOP.

There were no new requirements in the September 16, 2002, revision to WAC 173-401 concerning this AOP.

BCAA and EPA determined that there were no new MACT standards that applied to this source.

7.3. Determination of BACT Implemented with Modification 1

7.3.1. BACT analysis determined that the following technologies are capable of consistently controlling emissions from Nutrien's proposed project below the limits required in this permit:

7.3.1.1 For NO_x emissions:

Plant 7: Selective Catalytic Reduction (SCR) can control NO_x emission to less than 0.524 lb NO_x/T_{acid} averaged over all operating hours in any continuous twelve-month period. This is exclusive of uncontrolled startup and shutdown periods.

Plant 8: Limiting the source of HNO_3 to Plant 9, proper operation of the existing Venturi scrubber, and injection of urea during CAN-17 production can control NO_x emission to less than 1.1 pounds NO_x per ton CAN-17 (lb NO_x/T_{CAN-17}).

Plant 9: SCR can control NO_x emissions to less than 0.3 LB NO_x/T_{acid} averaged over all operating hours in any continuous twelve-month period. This is exclusive of uncontrolled startup and shutdown periods.

7.3.1.2 BACT for NO_x emissions on Plant 9:

BACT determination for PSD-04-01 was an emission level of 20 ppmvd achievable using SCR. Nutrien proposed they alternative control process under the provisions of 40 CFR 52.21(b)(19) Innovative technology to add H_2O_2 to the HNO_3 absorption column. Ecology approved. The final BACT determination by Ecology in PSD 04-01 First Amendment was extended absorption with H_2O_2 addition sufficient to meet the final BACT limits of 0.6 lb/ton, 400 lb/day, and 47 tpy.

7.3.2. Plant 10 PM emissions: Proper operation of the exiting granulator scrubber and integral mist eliminator can control PM emission from the ammonium nitrate granulator to less than 0.01q grains per dry standard cubic foot. There was no modification to the fluid bed cooler, and it is not subject to BACT determination in this permit action. Nonetheless, Nutrien proposes using hardening agent in the ammonium nitrate to minimize fines carryover in the fluid bed cooler to less than 0.085 grains per dry standard cubic foot. Nutrien demonstrated capability to operate under these emission limits prior to submittal of the application for this PSD permit. Consequently, no initial performance demonstration is required in this permit.

7.4. New Source Performance Standards

The NSPS for nitric acid plants were established on 14-Jun-1974 and revised on 06-Oct 1975, 25-Jul-1977, 22-Apr-1985, and 14-Feb-1989. The standards are applicable to nitric acid plants that were constructed or modified prior to 17-Aug-1971. Only Plant 9 is currently subject to the NSPS. Ecology OA DE 76-282 incorporated the requirements of the NSPS for Plant 9.

7.5. Title V Air Operating Permit

On 01-Jun-1995, Unocal submitted a Title V Air Operating Permit (AOP) application as required by the FCAA. The application included a limit on the combined annual hours of operation of nitric acid Plants 2 and 7. These two older plants emit more NO_x per ton of acid produced than the newer nitric acid Plant 9. In the period spanning the years 1992 through 1994, before the AOP application, Unocal was in discussions with the BFWWCAPCA to restart nitric acid Plant 2. As a condition of the Plant 2 restart the BFWWCAPCA and Unocal mutually agreed to a demonstration of compliance with the NO_2 national ambient air quality standard (NAAQS). Dispersion modeling showed that when all three nitric acid plants were run at rated capacity continuously all year, the NO_2 NAAQS was exceeded outside the plant boundaries. The exceedance point was shown to occur some distance from the nitric acid facilities within the channel of the Columbia River. Unocal operates Plants 2 and 7 principally to supplement nitric acid production from the newer acid Plant 9. In a letter dated 13-Apr-1995, Unocal voluntarily agreed to an operating limit for acid Plants 2 and 7, which capped the combined plants total annual operating hours. This condition of operation assured compliance with the annual NO_2 NAAQS. The BCAA issued Unocal OA 960426 to replace the existing NO_x fume abator catalyst in nitric acid Plant 2 with a different catalyst capable of selective catalytic reduction (SCR). Approval of this NOC, which occurred after Unocal filed their AOP application in June 1995, had no special conditions except to test for the SCR's performance. Subsequently, the BCAA performed a Reasonably Available Control Technology (RACT) determination using WAC 173-400-040, which requires RACT at existing sources, and issued a RACT Order as Regulatory Order (RO) 199901.

7.6. Prevention of Significant Deterioration (PSD)

Since the facility's initial start-up, EPA has had no record of any federal permitting activity at this facility. During the course of the facility's history, emissions for some emission units may have increased to levels that require federal permitting under the Prevention of Significant Deterioration (PSD) program. EPA and Ecology will work with the facility to better characterize these changes at the facility in order to determine if PSD applies. If any of these changes subject the facility to the PSD program, then EPA and Ecology will issue a PSD permit, which will include emission limits and possible control device requirements. This Title V permit will then be reopened to incorporate those new substantive requirements. No permit shield is implied or explicit for past new source review, PSD, or for any applicable requirement not specifically identified in the permit.

In February 2001, Nutrien made voluntary disclosures which acknowledged modifications at KFO between the years 1994 and 2000 that may have required but were not subjected to major new source review.

On August 27, 2004, Ecology issued a Prevention of Significant Deterioration permit (PSD-04-01). The Kennewick Fertilizer Operations manufactures nitric acid in Plants 7 and 9. The nitric acid is used, in part to manufacture nitrate-based liquid and granular fertilizer in Plants 8 and

10. Nutrien proposed to install emission controls in KFO as a result of voluntary disclosers to EPA by Nutrien and the Union Oil Company of California (February 1, 2001).

The PSD permit satisfies the company's obligations as expressed in a United States Environmental Protection Agency (EPA) compliance order (EPA Docket No. CAA-10-2003-0108, September 24, 2003). The PSD-04-01 permit consolidated allowable emissions levels resulting from those projects.

PSD 04/01 Amendment 1: On July 30, 2007, Nutrien submitted an application to amend Permit No. PSD-04-01. The amendment requested raising the NO_x emission limits from 0.3 pounds NO_x per ton nitric acid (lb NO_x/T_{acid}) to 0.6 lb NO_x/T_{acid}. The basis for this amendment was a request for redetermination of the BACT. Nutrien agreed to retain the federally enforceable emission limit of 47 tons NO_x per year. On September 27, 2007, Ecology determined Nutrien's permit amendment application to be incomplete because the BACT analysis was insufficient. On March 6, 2008, Nutrien submitted and enhanced BACT analysis, repeating the above0indication notification so the PSD permit conditions. On March 25, 2008, Ecology notified Nutrien that certain elements of the BACT analysis needed clarification and on May 14, 2008, Ecology considered the permit application complete. The request to raise the NO_x emission limit was granted with the issue of the first amendment of PSD-04-01 on July 11, 2008.

PSD 04/01 Amendment 2: Nutrien proposed to replace the nitrogen oxides (NO_X) emission control for Plant 9 Nitric Acid Plant. Nutrien proposed to control NO_X with SCR instead of absorption method using hydrogen peroxide (H_2O_2) injection installed under original PSD permit No. 04-01. Absorption control will still be used to control NO_X emission during start-up operation.
Ecology revised PSD permit No. 04-01, Amendment 1 to include SCR for Plant 9 - Nitric acid plant. The new controls allow the plant to produce more nitric acid than in the past (additional downstream production) while maintaining the current emission limits. The proposed changes were not a major modification, but required the permit be modified to allow for the SCR for NO_X control.
The applicability analysis determined that NO_X and PM emissions from this change would not result in a significant net emissions increase.
On January 6, 2020, Ecology received the original application to modify PSD No. 04-01, Amendment 1. Nutrien supplemented the application on February 10 and 24, 2020. On March 17, 2020, Ecology deemed the application complete. The second amendment to PSD 04-01 was issued on May 20, 2020.

7.7. Reasonable Available Control Technology

RO 199901, issued in 1999, contained the following RACT provisions, which superseded provisions for Plant 2 in OA 960426. The RACT determination established emission limits on Plants 2 and 7 that accommodated seasonal operational differences, which affect the emission control efficiency. Other requirements of the RACT order addressed opacity, monitoring, recordkeeping, and reporting.

Elements of RO 199901 have been directly incorporated into the Title V permit. Because the Order was written during a period when the conditions of the Title V permit were still being negotiated, several conditions of the Order were written to anticipate requirements in the final Title V permit. During these negotiations, the final Title V permit requirement differed from the original requirement in RO199901. The BCAA and Nutrien believe that the following changes are reasonable and sufficient for demonstrating compliance:

- Section 4.6.2 required annual Method 9 opacity observations for Plants 2 and 7 and Section 5.8.5 required that Method 9 opacity reports be submitted to BCAA quarterly. The final Title V permit requires that weekly qualitative opacity observations be made with a series of explicitly defined actions for the facility to perform if opacity is not within permit conditions and requires semi-annual reporting of opacity observations.

- Section 5.6.1 required quarterly reporting of CEMS performance. This requirement was inconsistent with the requirements in 40 CFR 60 and was changed to semi-annual reporting.

- Section 5.8.3 required that Nutrien submit a data assessment report similar to 40 CFR 60 Appendix F. During discussions between BCAA and Nutrien, some elements of Appendix F were determined to be inapplicable, however, the essence of Appendix F was believed to be important to both BCAA and Nutrien. Nutrien proposed and BCAA accepted a procedure for data assessment reporting that was incorporated into the Title V permit.

7.8. Maximum Achievable Control Technology

Under Section 112(d) of the Clean Air Act of 1990 (CAA), the U.S. Environmental Protection Agency (EPA) is required to develop national emission standards for hazardous air pollutants (NESHAP) for source categories. The NESHAPs establish the type of technology, MACT that is required to be used by each source category to control hazardous air pollutants (HAPs).

There are two MACT standards that are potentially applicable to Nutrien:

- DDDDD – Industrial/Commercial/Institutional Boilers and Process Heaters; and
- ZZZZ- Reciprocating Internal Combustion Engines

However, these MACT standards only apply to facilities that are considered to be major sources with respect to emissions of HAPs. A major source is defined as a source that emits more than 10 tons per year or more of any single, or 25 tons per year or more of any combination of, hazardous air pollutants. Based upon analysis of the HAPs emitted by Nutrien on an annual basis, Nutrien does not meet the definition of a major source of HAPs. As such, the MACT standards are not applicable.

7.9. Wallula PM_{10} Nonattainment Area

All of the Nutrien facilities are located within the Wallula PM_{10} nonattainment area, which was established in the federal register on 15-Mar-1991.Due to continuing violations of the PM_{10} NAAQS, the nonattainment area was upgraded to a serious nonattainment area on 09-Feb-2001. Washington submitted a PM-10 attainment plan on November 30, 2004. EPA announced its proposed approval of the Wallula PM-10 plan revisions on February 1, 2005 (70 FR 5085). On

May 2, 2005, EPA approved the Wallula PM-10 attainment plan (70 FR 22597). This AOP is not included in the Attainment Plan.

7.10. AOP 05-0002 Renewal June 11, 2008

Nutrien submitted a renewal application on June 21, 2007. This renewal was processed and issued on June 11, 2008.

There were no new requirements in the January 10, 2001, revision to WAC 173-400 concerning this AOP.

There were no new requirements in the September 16, 2002, revision to WAC 173-401 concerning this AOP.

BCAA and EPA determined that there were no new MACT standards that applied to this source.

7.11. AOP 05-0002 Modification, July 30th, 2010

Inclusion of revised emission limits from PSD 04-01 Amendment 1.

Discussion of this inclusion is in paragraph 3.6.

As this PSD amendment ended the Innovative Technology project, requirements that were no longer useful, as they were specifically related to the IT project, were removed from the permit.

Use of Method 320 for compliance testing: On March 24, 2010, EPA issued a letter in regard to an alternative test method for Nitric Acid Plants required to demonstrate compliance with 40 CFR Part 60 Subpart G, Standards of Performance for Nitric Acid Plants. Rentech Energy Midwest had requested to use Method 320 (40 CFR 63 Appendix Z) instead of Method 7 which is cited in Subpart G. The use of Method 320 allows real time data collection in order to certify the continuous monitors.

On April 5, 2010, Nutrien submitted a request for a BCAA order to approve EPA method 320 for Nitric Acid testing. BCAA issued RO 2010-0003 to allow this test method to be used at Nutrien. All conditions required in EPA's letter were included in this RO.

Alternate Expander Use: On March 11, 2010; Nutrien requested that BCAA specifically approve each of two expanders for plan 9 operation. One is in service, and one is in place as a backup. These expanders are identified by their serial numbers E-4618 and E-4616.

Nutrien had submitted a PSD applicability analysis request to Ecology on February 19, 2010. Ecology determined that the expander replacement (at a future date, when the current one in place is replaced) does not require PSD permitting because it will not result in a significant net emission increase.

BCAA issued RO 2010-0003 on May 7, 2010, to specifically allow each of these expanders to be used in Plant 9.

7.12. AOP 05-0002 Renewal, 2013- 2014

Nutrien submitted a renewal application on June 12, 2012.

Since the last renewal in 2008, there were no new requirements in WAC 173-400 affecting this AOP.

Since the last renewal in 2008, there were no new requirements in WAC 173-401 affecting this AOP.

BCAA and EPA determined that there were no new MACT standards that applied to this source.

Federal and State Greenhouse Gas rules promulgated since the last renewal are included in this renewal.

BCAA issued OA 2013-0004 on October 29, 2013, to add an emergency flare to the Kennewick Plant. This flare has a natural gas pilot and burns ammonia collected from relief valves and other equipment through a header system. It will be installed as a chemical release safety measure in 2014.

BCAA issued OA 2013-0005 on November 13, 2013, to allow modification of the Plant 8 scrubber motor with a variable speed drive (VSD). This is an energy conservation project to modify an existing large motor that is now oversized due to permanent discontinuation of the original process at this same plant (Chevron "Unipel" production was discontinued in the late 1980's). The variable speed drive on this motor reduces electrical consumption. As an added benefit the VSD also significantly reduce noise levels both inside and outside the building. This reduces employee occupational noise exposure and also benefits the neighborhood by reducing overall facility noise levels. It was tested on March 11, 2014 and meets all emission requirements.

7.13. AOP 05-0002 Renewal, 2021

Nutrien submitted a renewal application on January 3, 2019.

BCAA had been made aware that Nutrien planned to add an SCR to the tail gas stack on Plant 9. It was decided to hold the renewal until the PSD Amendment had been processed. That Amendment was completed in May of 2020.

Since the last renewal in 2014, there were no new requirements in WAC 173-400 affecting this AOP.

Since the last renewal in 2014, there were no new requirements in WAC 173-401 affecting this AOP.

OA 2020-0003 was issued by BCAA in May of 2020 to provide requirements for the ammonia emissions resulting from the SCR.

The Revised Code of Washington changed numbers, and those citation changes are incorporated in this renewal.

8. TYPICAL EMISSIONS

Nutrien's three areas, which are considered a single source, emit two principal air pollutants, particulate matter and NO_x (expressed as NO_2) at rates greater than the 100 tons per year threshold which necessitates an air operating permit. Table 6 shows the annual emissions from the Nutrien facility as reported annually to the BCAA and Ecology. The emissions presented in Table 6 are the sum of emissions from individual units at the source. Emissions from individual units are based on one or more of the following: engineering estimates, EPA emission factors, manufacture equipment rating, process knowledge, stack sampling by Method 5, or continuous emission monitoring system (CEMS). The Title V application identifies which method of emission estimation is associated with each individual emission unit.

Table 7: Annual Emissions

Year	Total facility-wide emissions in tons per year (TPY)				
	TSP	PM_{10}	SO_x	NO_x	VOC
1997	128	7	2	2078	8
1998	118	7	0	1414	9
1999	147	11	1	2078	16
2000	90	6	1	1569	9
2001	110	4	0	847	7
2002	137	52	0	258	1
2003	78	44	0	172	0
2004	54	16	0	215	0
2005	25	13	0	84	0
2006	2	1	0	31	0
2007	3	2	0	32	0
2008	3	2	0	34	0
2009	3	2	0	23	0
2010	6	3	0	36	0
2011	5	3	0	49	0
2012	5	2	0	45	0
2013	5	2	0	46	0
2014	2	0	0	48	0
2015	3	0	0	49	0
2016	2	0	0	51	0
2017	2	0	0	47	0
2018	2	0	0	48	0
2019	2	0	0	46	0

9. INSIGNIFICANT EMISSION UNITS

This section identifies insignificant emission units (IEU) or activities for purposes of the operating permit program. Designation of an emission unit or activity as insignificant for purposes of this chapter does not exempt the unit or activity from any applicable requirement. All IEU designations in this section are based on WAC 173-401-530(1)(a) or (d). All designations under subsection (a) were based on not exceeding the emissions threshold listed in WAC 173-401-530(4). The remaining IEU designations are based on subsection (d) that generate only fugitive emissions as defined in WAC 173-400-030(31).

The designated IEUs are not subject to federally enforceable applicable requirements except those federally enforceable requirements that are generally applicable requirements of the state implementation plan that apply universally to all emission units or activities without reference to specific types of emission units or activities. These IEUs shall not have requirements in the permit for testing, monitoring, record keeping, or reporting unless specifically imposed by generally applicable requirements of the state implementation plan or required by the BCAA or Ecology on a case-by-case basis. [17] OTS-5600.3

Nutrien in its Title V permit application listed a total of 29 insignificant emission units (IEU) for the source.

- In a 23-Sep-1996 letter, Nutrien amended their application to remove processes 42, 50, and 62 from the IEU list based on their recalculation of emissions.
- In a 12-Apr-2002 letter, Nutrien added processes 2C, 3B, and 4B.
- Subsequent discussions and calculations between Nutrien and the BCAA resulted in removal of processes 2A, 3A, 4A, 11, and 12 from the IEU list.

An IEU list of 20 units is presented in Tables 8, 9 and 10.

Table 8: Insignificant Emission Units for the Kennewick Area

Process Number	Insignificant Emission Unit (IEU) Name	Basis for IEU Designation	Pollutant	WAC 173-401-530(4) Emissions Threshold (TPY)	Actual Emissions (TPY)
2C	Plant 9 Industrial Hygiene Venting	173-401-530(1)(a); below threshold	NO_x	2	0.9
3A	Plant 7 Start-up/Shutdown vent	173-401-530(1)(a); below threshold	NO_x	2	1.9
3B	Plant 7 Industrial Hygiene Venting	173-401-530(1)(a); below threshold	NO_x	2	0.7
4A	Plant 2 Start-up/Shutdown vent	173-401-530(1)(a); below threshold	NO_x	2	1.9
4B	Plant 2 Industrial Hygiene Venting	173-401-530(1)(a); below threshold	NO_x	2	1.0
5A	Plant 3 neutralizer startup vent	173-401-530(1)(a); below threshold	NO_x	2	0
6A	AN 83% solution tank	173-401-530(1)(a); below threshold	NO_x	2	0
9	AN storage	173-401-530(1)(d); fugitive emissions	Fugitive emissions	N/A	N/A
10	AN loading	173-401-530(1)(d); fugitive emissions	Fugitive emissions	N/A	N/A
18	AN-20 mixer	173-401-530(1)(a); below threshold	NO_x	2	0
17	Nitric Acid Concentrator	173-401-530(1)(a); below threshold	NO_x	2	1.3
22A	CAN-17, Celatom transfer	173-401-530(1)(a); below threshold	PM	0.75	0
22B	CAN-17, Cleatom mixer	173-401-530(1)(a); below threshold	PM	0.75	0

Table 9: Insignificant Emission Units for the Finley Area

Process Number	Insignificant Emission Unit (IEU) Name	Basis for IEU Designation	Pollutant	WAC 173-401-530(4) Emissions Threshold (TPY)	Actual Emissions (TPY)
37	Synthesis startup	173-401-530(1)(a); below threshold	NO_x	2	0

Process Number	Insignificant Emission Unit (IEU) Name	Basis for IEU Designation	Pollutant	WAC 173-401-530(4) Emissions Threshold (TPY)	Actual Emissions (TPY)
38	North salt bath	173-401-530(1)(a); below threshold	NO_x	2	0.2
39	South salt bath	173-401-530(1)(a); below threshold	NO_x	2	0.2
47	Zero-pound condenser	173-401-530(1)(a); below threshold	NO_x	2	0

Table 10: Insignificant Emission Units for the Hedges Area

Process Number	Insignificant Emission Unit (IEU) Name	Basis for IEU Designation	Pollutant	WAC 173-401-530(4) Emissions Threshold (TPY)	Actual Emissions (TPY)
60	Ammonia heater E-400	173-401-530(1)(a); below threshold	NO_x	2	1.6
61	Ammonia heater E-400	173-401-530(1)(a); below threshold	NO_x	2	1.5
63	Purge flare	173-401-530(1)(a); below threshold	NO_x	2	1.9
65	Ammonia storage & transfer	173-401-530(1)(d); fugitive emissions	Fugitive emissions	N/A	N/A

10. MONITORING RATIONALE

For processes and associated emission units that require periodic monitoring that are undefined by any regulation, this section presents the rationale for formulating the monitoring strategy in the permit.

The permitting authority is responsible for including this document in the permit record. In other cases, a more detailed justification may be necessary to demonstrate that the monitoring method is adequate for periodic monitoring purposes. Documentation of the rationale in the permit record is important for reference in future Title V permitting actions.

10.1. Facility-wide Opacity monitoring

The following factors were considered in developing the plant wide opacity monitoring sufficient to assure compliance:

- Frequency of periodic monitoring.
- Minor variability of opacity during normal operating conditions.
- Selected monitoring is currently used successfully at the source to promptly identify and respond to operating upsets.
- Monitoring approach requires routine compliance determination using EPA reference Method 9.
- Tiered monitoring approach is not required to establish compliance as compliance is currently achieved.

10.2. Processes 2 Plant 9 Tailgas.

This unit, which was built in 1969, is subject to federal NSPS (Subpart G) regulations.
Compliance determination, demonstration and monitoring are required to be determined in accordance with 40 CFR Part 60.74.
Plant 7 is required to have a CEMS subject to Appendix F; that requirement is specified in permit section 6.1. The requirement for CEMS to monitor continuous compliance is in section 6.1.

In 2019 Nutrien began the process of installing an SCR on the Plant 9 Tailgas stack. This resulted in the issue of PSD 04-01 Amendment 2 to incorporate this change along with BCAA Order 2020-0005 to address the ammonia emissions from the SCR. The CEMS remains installed on that stack and operates to monitor NO_X and NH_3 emissions.

10.3. Processes 3 Plant 7 Tailgas.

This unit, which was built in 1969, is not subject to federal NSPS regulations but is subject to BCAA Regulatory Order 199901 (RACT Order). Compliance determination, demonstration and monitoring are required to be determined in accordance with 40 CFR Part 60.74.

Plant 7 is required to have a CEMS subject to Appendix F; that requirement is specified in permit section 6.4. The requirement for CEMS to monitor continuous compliance is in section 6.4.

10.4. Processes 5 and 8: Plants 3 and 10, Ammonium nitrate solution and granulation joy scrubber stacks

The level of solution in the scrubber chamber determines the travel distance of scrubbed air stream through the scrubber absorption liquid. Scrubber solution concentration is important because the particulate being removed is soluble and the rate of dissolution is affected by the concentration of this material in the solution. Both the solution level and concentration parameters directly affect the efficiency of particulate removal by the scrubber and therefore serve as surrogates for direct particulate emission measurements. Maintaining these parameters within the stated limits will assure compliance with this applicable requirement when correlated with source testing results.

10.5. Processes 5B: Plant 3, Granulated ammonium nitrate drum cooler

A continuous spray of water is the particulate control system for the drum cooler. Maintaining the water spray performance assures compliance with this applicable requirement. Correlation with source test results is necessary to support this periodic parametric monitoring and its rationale.

10.6. Process Numbers 6 and 7: Plants 8 and 10 MCC Neutralizer, Respectively

WAC 173-400-060 limits particulate emission to 0.1 gr/dscf. This requirement is not applicable to these emission points because stack emissions are primarily steam and consequently contain very little air. Calculation of particulate emission based on standard dry cubic foot of air in the emission is not technically feasible. Additionally, test Method 5 and other EPA reference methods are not appropriate because the sampling train specified will not function properly in an emission composed entirely of steam.

A non-reference (unapproved by EPA) isokinetic grab sampling with direct measurement of particle mass and ammonia previously conducted indicated particulate emissions to be well below the applicable standard. The patented internal design of the MCC reactor serves to reduce emissions by promoting complete mixing of the ammonia and nitric acid reactants, which allows the neutralization reaction to be more complete before contacting the headspace. This issue has been discussed with EPA's technical staff. It was concluded that results of unapproved methods would indicate particulate emissions but would not be appropriate for compliance determination.

If the neutralizer reaction between nitric acid and ammonia is maintained within given pH limits, PM emissions from these process units will meet the applicable requirement. Parametric monitoring for the neutralizer will be continuous pH control in a range from 2.0 to 6.6, which is intended to keep the reaction at or near equilibrium for neutralization of ammonia and nitric acid feed streams. The goal is to minimize particulate emissions of ammonium nitrate reaction product, and emissions of unreacted ammonia or nitric acid feedstock.

10.7. Process 8A: Plant 10 granulated fluid bed product cooler stack

Dust collection is provided by induced draft through the cooler bed enclosure. Proper airflow in the fluid bed cooler as measured by the differential pressure across the bed, which is maintained by keeping the cooler bed enclosure's access doors closed and all gasket and boot seals in good operating condition. Maintaining the operational airflow performance once correlated to source test performance assures compliance with this applicable requirement. Operator shall take necessary and appropriate corrective actions when the airflow indicates the system is not properly functioning. The operator shall record corrective actions taken in the operator log. Correlation with source test results is necessary to support this periodic parametric monitoring and rationale.

10.8. Process 11: Solid urea storage and handling

A properly sized and operated baghouse has documented control efficiency for particulate matter according to manufacturer's specifications. Maintaining the baghouse performance assures compliance with this applicable requirement. Presence of any observable opacity indicates improper baghouse function. Observable leakage of material around access doors or ports in the baghouse is also indicative of improper baghouse functioning. A properly functioning air-pulse system and good filter bag condition also assures proper baghouse function.

10.9. Process 12: Urea loading

A properly sized and operated baghouse has documented control efficiency for particulate matter according to manufacturer's specifications. Maintaining the baghouse performance assures compliance with this applicable requirement. Presence of any observable opacity indicates improper baghouse function. Observable leakage of material around access doors or ports in the baghouse is also indicative of improper baghouse functioning. A properly functioning air-pulse system and good filter bag condition also assures proper baghouse function.

10.10. Three Processes: Process 13, Boiler F-521 (CB-3), Process 14, Process 15, Boiler F-513 (CB-2), Process 16, Boiler F-502 (Ames)

The inherently low sulfur content of natural gas assures that documented use of this fuel is sufficient to meet the applicable requirement. Conversely, other fuel must be limited to 2% sulfur in order to meet the applicable requirement. WAC 173-400-040 (6).

Lack of sufficient excess O_2 and presence of unburned combustible compounds in the stack emission will cause observable opacity. Proper firing of the boilers with natural gas is expected to produce no observable opacity. Therefore, the absence of observable opacity indicates proper levels of excess O_2 content and unburned combustible compounds in the stack emission. WAC 173-400-040 (1).

10.11. Process 19A: Urea transfer to UAN-32 mixer

A properly sized and operated baghouse has documented control efficiency for particulate matter according to manufacturer's specifications. Maintaining the baghouse performance assures compliance with this applicable requirement. Presence of any observable opacity indicates improper baghouse function. Observable leakage of material around access doors or ports in the baghouse is also indicative of improper baghouse functioning. A properly functioning air-pulse system and good filter bag condition also assures proper baghouse function.

10.12. Process 20: UAN-32 Solution Production (Plant 11)

This process involves blending solid urea prills and water with ammonium nitrate solution in a mixer to form UAN-32 solution fertilizer. During mixing operations, there may be some dust generated from the urea prills. However, particulate emissions and opacity are expected to be minimal from this source, and visible emissions and grain loading are expected to be closely related. Therefore, the monitoring obligations to demonstrate compliance with the opacity and grain loading standards have been coordinated.

10.13. Process 21: Plant 8 Calcium ammonium nitrate 17% N solution (CAN-17) production mixer stack

The wet scrubber dissolves gaseous NO_x to remove it from the process air stream, therefore proper water flow through the scrubber is necessary to provide sufficient scrubbing efficiency and capacity.

10.14. Process 22: Plant 8 CAN-17 calcium carbonate transfer baghouse stack

A properly sized and operated baghouse has documented control efficiency for particulate matter according to manufacturer's specifications. Maintaining the baghouse performance assures compliance with this applicable requirement. Presence of any observable opacity indicates improper baghouse function. Observable leakage of material around access doors or ports in the baghouse is also indicative of improper baghouse functioning. A properly functioning air-pulse system and good filter bag condition also assures proper baghouse function.

10.15. Processes 32, 33, and 34: Exhaust stacks for F-600-C (boiler 3).

The inherently low sulfur content of natural gas assures that documented use of this fuel is sufficient to meet the applicable requirement. Conversely, other fuel must be limited to 2% sulfur in order to meet the applicable requirement. WAC 173-400-040 (6)

Lack of sufficient excess O_2 and presence of unburned combustible compounds in the stack emission will cause observable opacity. Proper firing of the boilers with natural gas is expected to produce no observable opacity. Therefore, the absence of observable opacity indicates proper levels of excess O_2 content and unburned combustible compounds in the stack emission. WAC 173-400-040 (1)

10.16. Process 49: Aqua ammonia production (fugitive emission)

Aqua ammonia is collected from various scrubber tanks from which fumes are vented to the aqua ammonia storage tank. Vapors containing ammonia from the headspace of the aqua storage tank are routed to the flare. The flare burns all ammonia emissions coming to it and therefore its operation assures compliance with the applicable requirement for odor. WAC 173-400-040 (4)

11. COMPLIANCE ASSURANCE MONITORING

Several of the processes at Nutrien's Kennewick facility have emission limits that are subject to 40 CFR Part 64 Compliance Assurance Monitoring (CAM). Per 64.2, the requirements of 40 CFR Part 64 apply to a pollutant-specific emissions units (PSEU) at a major source that is required to obtain a Part 70 permit if the unit satisfies all of the following criteria:

1. The PSEU must have pre-controlled emissions of the applicable pollutant which exceeds the major source thresholds established in WAC 173-401-200(19).

2. The PSEU must utilize air pollution control equipment to reduce emissions of the applicable pollutant to a level that meets the established emission limit(s).

3. The PSEU must be subject to an emission limit for the applicable pollutant. The emission limits for these processes are summarized in the following table.

Table 1 of the Statement of Basis summarizes each process at the facility. Based on Nutrien's initial and renewal applications, the following processes were evaluated for CAM applicability. These processes meet the three criteria above.

Table 11: CAM Applicability Analysis by Emission Point/Process

CAM Applicability Analysis by Emission Point/Process							
Process Number	**Description**	**Pollutant**	**Pre-Control Emissions**	**CAM?**	**Control Equipment**	**Controlled PTE**	**Emission Limits contained in Part 70 Permit**
Kennewick Area							
2	**Plant 9** Nitric Acid Plant Tailgas Stack	NO_x	>100 tpy	CEMS	H_2O_2 Injection	47 tpy NO_x	• 0.35 Lb NOx/T_{acid} (technology limit) [6.1.4.1.1] • 400 pounds per day (short term limit) [6.1.4.1.2] • 1,300 lb per 24 hour period including SSD (6.1.4.1.3) • 47 tons per consecutive 12-month period (long term limit) [6.1.4.1.4]
					Note: the BACT determination for PSD-04-01 was an emission level of 20 ppmvd achievable using SCR. Nutrien proposed they alternative control process under the provisions of 40 CFR 52.21(b)(19) Innovative technology to add H_2O_2 to the HNO_3 absorption column. Ecology approved. SCR was installed in 2021 through the second amendment of PSD-04-01.		
2A	**Plant 9** Tailgas stack shutdown	NO_x		CEMS	SCR		•
2B	**Plant 9** Tailgas stack startup	NO_x		CEMS	H_2O_2 Injection		•
2C	**Plant 9**	NH_3	0.2 tpy	no	n/a		•

(IEU)	Industrial Hygiene Venting	NO_x	0.9 tpy				
Process Number	**Description**	**Pollutant**	**Pre-Control Emissions**	**CAM?**	**Control Equip-ment**	**Controlled PTE**	**Emission Limits contained in Part 70 Permit**
3	**Plant 7** Nitric Acid Plant	NO_x	>100 tpy	CEMS	SCR NSCR	27 tpy NO_x	• 0.524 Lb NOx/Tacid (technology limit) [6.4.3.1.1] • 140 lb/day (winter) 190 lb/day (summer) (short term limit) [6.4.3.1.2] • 27 tons per consecutive 12-month period (long term limit) [6.4.3.1.3] • Opacity shall not exceed 20% [5.1]
3A (IEU)	**Plant 7** Startup/ shutdown			no	SCR		•
3B (IEU)	**Plant 7** Industrial Hygiene Venting	NO_x	0.7 tpy	no	n/a		•
5	**Plant 3** AN Solution Granulation	PM PM_{10} NH_3	>100 tpy >100 tpy 307	Parametric	Joy Scrubber	71.3 tpy PM	• Joy Scrubber: 0.23 g/dscf, at standard conditions (0.1 gr/dscf) of exhaust gas. [6.5.1.1] • Granulator exhaust: 0.011 gr/dscft 24-hour average fluid bed cooler exhaust [6.5.2.1.2] • Fluid Bed Cooler: 0.085 gr/dscft an hour on a 24-hour average basis [6.5.2.1.3] • 99.7 tons per consecutive 12-month period sum of PM emissions from granulator and fluid bed cooler [6.5.2.1.4] • Opacity shall not exceed 20% [5.1]
5A (IEU)	**Plant 3** AN Neutralizer SU vent	NH_3	0.1	no	Joy Scrubber		•
5B	**Plant 3** Granulated Ammonium Nitrate Rotary Drum Cooler	PM PM_{10}	12.8 0.3	no	Joy Scrubber		• Joy Scrubber (above)
6	**Plant 8** AN Neutralizer	PM PM_{10} NH_3	2.7 1.4 137	no	n/a		•
6A (IEU)	**Plant 8** AN Solution tank	NH_3	0	no	n/a		

Process Number	Description	Pollutant	Pre-Control Emissions	CAM?	Control Equip-ment	Controlled PTE	Emission Limits contained in Part 70 Permit
7	**Plant 10** AN Neutralizer	PM PM_{10} NH_3	4.7 2.4 192	no	n/a		•
8	**Plant 10** AN Solution Granulation	PM PM_{10} NH_3	>100 tpy 19.9 412	Parametric	Joy Scrubber	99.7 tpy PM	• Joy Scrubber: 0.23 g/dscf, at standard conditions (0.1 gr/dscf) of exhaust gas. [6.5.1.1] • Granulator exhaust: 0.011 gr/dscft 24-hour average fluid bed cooler exhaust [6.5.2.1.2] • Fluid Bed Cooler: 0.085 gr/dscft an hour on a 24-hour average basis [6.5.2.1.3] • 99.7 tons per consecutive 12-month period sum of PM emissions from granulator and fluid bed cooler [6.5.2.1.4] • Opacity shall not exceed 20% [5.1]
8A	**Plant 10** Fluid Bed Cooler	PM PM_{10} NH_3	16.3 0.3 0.8	no	Joy Scrubber		•
9 (IEU)	**Dry Product** storage and handling		Fugitive dust	no	n/a		•
10 (IEU)	**Dry product** unloading		Fugitive dust	no	n/a		•
11	**Urea Storage and Handling**	PM PM_{10}	42 42	no	Fabric Filter		•
12	**Urea Loading**	PM PM_{10}	32 32	no	Fabric Filter		•
13	**Cleaver Brooks Boiler CB-3**	PM PM_{10} VOC SO_X NO_x CO NH_3	2.91 2.91 3.5 0.2 29.1 43.7 0	no	n/a		•
15	**Cleaver Brooks Boiler CB-2**	PM PM_{10} VOC SO_X NO_x CO NH_3	0.41 0.41 0.3 0.0 5.4 4.5 0	no	n/a		•
16	**Ames Boiler CB-2**	PM PM_{10} VOC SO_X	0.46 0.46 0.3 0.0	no	n/a		•

		NO_x CO NH_3	6.0 5.0 0				
Process Number	**Description**	**Pollutant**	**Pre-Control Emissions**	**CAM**	**Control Equip-ment**	**Controlled PTE**	**Emission Limits contained in Part 70 Permit**
17	**Nitric Acid Concentrator**	NO_x	44.6	no	Wet Scrubber		
18 (IEU)	**AN-20 Mixer**			no	n/a		
19	**Plant 8** UAN-32 Mixer	PM PM_{10} NH_3	1.8 1.8 16.	no			
19A	**Plant 8** Urea transfer	PM PM_{10}	0.2 0.2	no	Baghouse		
20	**Plant 11** UAN32 Mixer	PM PM_{10} NH_3	0.2 0.2 1.9	no	n/a		
21	**Plant 8** CAN-17 Mixer Solution Production	NO_x NH_3	90.8 52.6	Parametric	Wet Scrubber		
22	**Plant 8** CAN-17 Handling/Transfer	PM PM_{10}	49.5 49.5	no	Baghouse		
22A (IEU)	**CAN 17 Transfer**	PM PM_{10}	0.5 0.5	no	n/a		
22B (IEU)	**CAN 17 Mixer**	PM PM_{10}	0.5 0.5	no	n/a		
23	**Ammonia Storage**	NH_3	0.8	no	n/a		
24	**Emergency Flare**	NH_3	0.7	no	n/a		• This flare is for control of ammonia emissions from ammonia storage vents and processes and as a chemical release safety measure.

Process Number	Description	Pollutant	Pre-Control Emissions	CAM	Control Equip-ment	Controlled PTE	Emission Limits contained in Part 70 Permit
Finley Area							
34	**Boiler F-600-c**	NO_x CO PM PM_{10}	16.9 14.2 1.3 1.3	no	n/a		•
42	**Utility Flare**	NO_x NH_3	4.9 481 lb/yr	no	n/a		• This flare is for control of ammonia emissions from ammonia storage vents and processes.
48	**Anhydrous Ammonia Storage and Transfer**	NH_3	0.6	no	n/a		•
49	**Aqua Ammonia production**	NH_3	37.8	no	Aqua Process Scrubber		
Hedges Area							
60 (IEU)	**Ammonia Heater E-400 (2)**	NO_x	9.1		n/a		•
61 (IEU)	**Ammonia Heater E-400 (1)**	NO_x	8.3		n/a		•
62	**Utility Flare**	NO_x NH_3	2.9 67.5				• This flare is for control of ammonia emissions from ammonia storage vents and processes.
63 (IEU)	**Purge Flare**	NO_x	0.7				• For purging railcars of ammonia
65 (IEU)	**Storage**	NH_3	0.2		n/a		•

Based on the evaluation in Table 11, the following units are further analyzed:

Detailed CAM requirement analysis follows. This analysis identifies each CAM requirement and shows where it is met in the permit. CAM requirements not met by the prior permit have been added in this revision (2014) by gap filling.

<u>Process 2/Nitric Acid Plant 9 – Nitric Acid Manufacture.</u>

The pollutant specific emissions unit (PSEU) is NO_x from the manufacture of Nitric Acid.

This process is subject to 40 CFR 60 Subpart G Nitric Acid plants, which was promulgated on July 25, 1977. The permit requires that the owner shall install, calibrate, maintain and operate a continuous monitoring system for measuring nitrogen oxides in accordance with 40 CFR 60.73.

Continuous NO_x emission monitor is required in this part 70 permit and meets the design requirements of CAM 64.3(d)(2)(ii) as the CEMS is subject to 40 CFR 60.13 and those requirements are included in the permit. Table 12 provides details.

Process 3/Nitric Acid Plant 7 – Nitric Acid Manufacture.

Plant 7 is not in operation now and will not be restarted until 40 CFR 64 Compliance Assurance Monitoring conditions have been met per Permit Condition 6.4.3.10.

The pollutant specific emissions unit (PSEU) is NO_x from the manufacture of Nitric Acid.

This process is subject to 40 CFR 60 Subpart G Nitric Acid plants, which was promulgated on July 25, 1977. The permit requires that the owner shall install, calibrate, maintain and operate a continuous monitoring system for measuring nitrogen oxides in accordance with 40 CFR 60.73. Since the continuous NO_x emission monitor is required in this part 70 permit and qualifies and a continuous compliance determination method, the requirements of CAM are not applicable to the Plant 9 NO_x emission limits.

Process 5 and 8; Plants 3 and 10 –

Ammonium Nitrate Solution and Granulation – *Plants 3 and 10 are no longer operation now to produce ammonium nitrate granules. This process will not be restarted until 40 CFR 64 Compliance Assurance Monitoring conditions have been met per Permit Condition 6.5.2.8.*

The pollutant specific emissions unit (PSEU) is PM from the granulation process for the manufacture of Granulated Ammonium Nitrate (GAN).

In this process ammonium nitrate is evaporated, concentrated and granulated. All emissions from the 83% Ammonium Nitrate (AN) tank, evaporator, 99% AN tank, as well as the granulator are routed to a Joy Scrubber, a high efficiency wet scrubber.

The regulations applicable to this equipment are contained in the Part 70 Permit. The Emission limits are summarized in the table above.

Detailed Analysis of Plant 9

Nitric Acid Plant 9 is required to have a Continuous Emission Monitor for NO_x by the Part 70 Permit. This requirement originates with 40 CFR 60 Subpart G – Standards of Performance for Nitric Acid Plants. As described above, 40 CFR 64 Compliance Assurance Monitoring is also applicable to this unit.

The monitoring requirements are contained in 40 CFR 60.73 of Subpart G. For emission units subject to CAM, if the post-controlled PTE for NO_x is less than 100 tons per year, the unit is considered a small emissions unit. As specified in permit condition 6.1.1.3.6, the CEMS operated by Nutrien for Plant 9 collects at least four readings per hour, which meets the design requirements of 40 CFR 64.3(b)(4)(ii).

The CEMS required by the Part 70 Permit in Condition 6.1.1.3 states that the CEMS subject to 40 CFR 60.13, and as such satisfies the CAM design requirements included in 64.3(d)(2)(ii). In this renewal (2014) additional CAM requirements have been added to the Part 70 permit to make explicit how the CEM also provides data to indicate compliance with the long-term NO_x limits set forth in the Part 70 Permit.

Plant 9 Compliance Determination:

Compliance with the NO_x emission limits in the Part 70 permit for Plant 9 is determined in accordance with 40 CFR Part 60.74 Test Methods and procedures. This requirement originated in PSD-04-01 and in 40 CFR 60 Subpart G. This testing may use Method 7, 7E or Method 320. This requirement is contained in Condition 6.1.1.2 of the Part 70 Permit.

Continuous Compliance monitoring is provided by the CEMS. This CEMS meets the requirements of 40 CFR Part 64 and is cited in Condition 6.1.4.1.7 of the Part 70 permit.

Compliance with the long term (longer than the length of an emission test) emission limits contained in section 6.1.4 of the Title 70 Permit is demonstrated by:

Establishing the conversion factor: from the data collected during the annual RATA (Condition 6.1.1.3.9.1.3)

Calculation of the emission factor: based on those annual RATA testing results. Details of the calculation are described in Condition 6.1.1.3.3

Compliance Monitoring provided by the CEMS: that measure and records NO_x emissions from the Plant 9 tail gas stack. This requirement originates in 40 CFR 60 Subpart G and PSD 04-01. The Part 70 permit requirements include compliance with 40 CFR 64 Compliance Assurance Monitoring for Plant 9.

The CEMS used for emission monitoring NO_x is required to satisfy the requirements contained in 40 CFR Part 60, Appendix B, Performance Specification 2 or 6 (as applicable) and 40 CFR Part 60, Appendix F, Quality Assurance Procedures ((Section 6.1.1 for CGA requirements) [PSD 04-01 Condition 5.1]
Instead of a NO_x concentration CEMS meeting Performance Specification 2, Nutrien may apply an FTIR CEMS meeting the requirements of Performance Specification 15 of Appendix B of this part to measure NO_x concentrations.

Should Nutrien use an FTIR CEMS, you must replace the Relative Accuracy Test Audit requirements of Procedure 1 of Appendix F of this part with the validation requirements and criteria of Performance Specification 15, sections 11.1.1 and 12.0 of Appendix B of this part. [40 CFR 60.73a (b)(5)]

Table 12: Compliance Assurance Monitoring Details and Analysis– Plant 9

The following table summarizes requirements of the CAM Rule and includes specific terms where those requirements are included in the Part 70 permit.

	Nitric Acid Plant 9	Permit Term/Notes
Definition of Excess Emissions	Periods of excess emission are defined in 40 CFR 60.73(e).	6.1.1.3.2 (e) For the purpose of reports required under §60.7(c), periods of excess emissions that shall be reported are defined as any 3-hour period during which the average nitrogen oxides emissions (arithmetic average of three contiguous 1-hour periods) as measured by a continuous monitoring system exceed the standard (60.73(e))
Reporting of Exceedances		*6.1.4.4.2.3 Each occurrence of monitored NO_x emissions (Condition 6.1.4.1) measured in excess of the limits shall be reported in writing to BCAA after the respective exceedance in accordance with WAC 173-400-107(3). Such reports shall as a minimum include:* • The time of the occurrence [PSD 04-01 #2 Condition 6.3.3.1] • Magnitude of divergence from the limit [PSD 04-01 #2 Condition 6.3.3.2] • The duration of the divergence [PSD 04-01 #2 Condition 6.3.3.3] • The probable cause [PSD 04-01 #2 Condition 6.3.3.4] • Corrective actions taken or planned [PSD 04-01 #2 Condition 6.3.3.5] • Any other agency contacted [PSD 04-01 #2 Condition 6.3.3.6]
Applicable Regulation, Emission Limit, and Monitoring Requirements		
Regulation	**Title V Permit**	
Pollutant	NO_x	
Emission Limits	• 0.35 Lb NOx/T_{acid} (technology limit) • 400 pounds per day (short term limit) • 1,300 pounds in 24 hour pd. Incl SSD • 47 tons per consecutive 12-month period (long term limit)	[6.1.4.1.1] [6.1.4.1.2] [6.1.4.1.3] [6.1.4.1.4]
Monitoring Requirements	NO_x	6.1.1.3 Monitoring: Owner shall install, calibrate, maintain and operate a CEMS.
Control Technology	Extended Absorption and H_2O_2 addition	
Monitoring Approach for Plant 9 CEMS		
Indicator	NO_x hourly emission	6.1.1.3.8 CEMS monitoring data is to be reduced to 1-hour average concentrations. [40 CFR 60.13(h)]
Approach and Duty to Conduct	Continuously monitor NO_x emissions using CEMS	6.1.1.3 Owner shall install, calibrate, maintain and operate a CEMS (for NO_x for Plant 9; the Part 70 permit continues on to cite 60.73 within Subpart G for Nitric Acid Plants.
Indicator Range	0.6 lb NO_x/T_{acid} averaged over all operating hours exclusive of startup and shutdown in any continuous twelve-month period.	[6.1.4.1.1]
	400 pounds per calendar day exclusive of startup and shutdown.	[6.1.4.1.2]
	1,300 pounds per 24 hour period including startup and shutdown.	[6.1.4.1.3]
	47 tons in any consecutive twelve-month period including startup and shutdown periods	[6.1.4.1.4]

QIP Threshold	Excursions will be handled in accordance with the QA/AC plan for the CEMS and this will inform BCAA as to the need to invoke QIP.	Details above – 6.1.4.4.2.3
Monitoring Design criteria (64.3)		
64.3(a)General Criteria	The design criteria for indicators and ranges are defined in 40 CFR 60.73 (Subpart G Nitric Acid Plants) Emission monitoring which requires Performance Specification 2 and calibration as required in 40 CFR 60.13(d). These requirements are explicitly in the Part 70 Permit in section 6.1.1.3 Continuous Emission Monitoring for Plant 9.	
(64.3(b)) Performance Criteria		
Data Representativeness *64.3(b)1*	Measurements are made at the emission point	6.1.1.3.7 CEMS shall be installed and located as specified in Performance Specification 2 of 40 CFR 60, Appendix B. [40 CFR 60.13(f)]
Verification of operational Status *64.3(b)2*	CEMS is in place and operating, verification is not applicable	
QA/QC Practices *64.3(b)3*	QA/QC Practices	6.1.1.3.9 Quality Assurance/Quality Control (included below)
Monitoring Frequency and Data *64.3(b)4*	Continuously monitor NO_x emissions using a CEMS – at least four times per hour	6.1.4.2 CEMS for NO_x will satisfy the requirements contained in CFR 40 Part 60, Appendix B, Performance Specification 2 or 6 (as applicable) and CFR 40 Part 60, Appendix F, Quality Assurance Procedures ((Section 6.1.1 for CGA requirements) [PSD 04-01 Condition 5.1]
	6.1.1.3.6 CEMS with exceptions provided, must be in continuous operation and meet the frequency requirements of 40 CFR 60.13(e). "a; continuous monitoring systems…for measuring emissions shall complete a minimum of once cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.	
(64.3(d)) Special Criteria		
Special Criteria *64.3(d(2)(ii)*	The CEMS installed on Plant 9 is required to meet the requirements of 40 CFR 60.13 and Appendix B of Part 60. These Part 70 requirements salsify the design requirements of 40 CFR 64.3	6.1.1.3.4 CEMS are subject to Performance Specification 2 contained in 40 CFR 60, Appendix B. [40 CFR 60.13(c), 40 CFR 60.73(a)] 6.1.4.2.2 CEMS for NO_x will satisfy the requirements contained in CFR 40 Part 60, Appendix B, Performance Specification 2 or 6 (as applicable) and CFR 40 Part 60, Appendix F, Quality Assurance Procedures ((Section 6.1.1 for CGA requirements) [PSD 04-01 Condition 5.1]
Reporting of exceedances *64.3(d)(3)(i)*	Must be consistent with any period for reporting in an underlying requirement.	6.1.4.4.2.3 Each occurrence of monitored NO_x emissions (Condition 61.1.4.) (Emission limits) measured in excess of the limits shall be reported in writing to BCAA after the respective exceedance in accordance with WAC 173-400-107(3). Additional information above in "Reporting of Exceedances)
Approval of Monitoring (64.6)		
Permitting Authority establishes performance requirements.	The indicator to be monitored	6.1.1 NO_x limit (NO_x is the indicator to be monitored)

64.6(c)(1)(i)		
64.6(c)(1)(ii)	The means or device	6.1.1.3 The owner shall install, calibrate, maintain, and operate a CEMS
64.6(c)(1)(iii)	Establishes performance requirements that satisfy 64.3(b) or (d)	Compliance with 64.3(b) cited above
The means by which the which an excursion will be defined. *64.6(c)(2)*	Define an exceedance or excursion for the purposes of reporting.	6.1.4.4.2.3 (above)
	Specify the level, including the appropriate averaging period. (Specific value or conditions)	Condition 6.1.4.4.2.3 requires reporting when emission limits defined in 6.1.4.1 are exceeded. These e/l include the averaging period
Data Availability *64.6(c)(4)*	In terms of retention	6.1.4.4.3 Nutrien will maintain monitoring, source test, CEM audit tests, and process records at the Kennewick facility for at least 5 years.
Data Availability *64.6(c)(4)*	In terms of completeness of collection	6.1.4.2.4 CEMS for NO_x shall have a minimum data availability requirement of 95% each hour, and a minimum data availability requirement of 95% for each 24-hour period. [40 CFR 64.6(c)(4)] Term added through gap filling.
Operation (64.7)		
		Permit term 6.1.4.3 added through gap filling.
QIP (64.8)		
		Permit term 6.1.4.4 added through gap filling.
Reporting (64.9)		
		Permit term 6.1.4.5 added through gap filling.

Quality Assurance/Quality Control details from the Part 70 Permit: (Section 6.1.1.3 Continuous Emissions Monitoring)

The permittee shall follow the Quality Assurance/Quality Control (QA/QC) plan described below for the CEMS:

<u>Calibration Drift</u>

The daily calibration drift shall be checked for both NO and NO_2 components of tailgas. The calibration gas concentrations for the daily CD test will be at zero and high-level value (approximately 2.0 x the equivalent ppm value based on calculation from the PSD-04-01 mass limit.)

The unadjusted reference gas concentration measurement for both NO and NO_2 shall be recorded daily prior to resetting the calibration. The calibration drift shall be measured at the zero and span values. After each calibration is complete, the amount of adjustment shall be recorded. If the calibration drift is in excess of $\pm$15% or $\pm$5 ppm, whichever is greater, the CEMS system shall be investigated for operational problems and corrective actions shall be taken as necessary.

<u>Relative accuracy test audit (RATA)</u> – a RATA shall be conducted once per year.

<u>Cylinder Gas Audit</u>

CGA shall be conducted during three out of four calendar quarters. A RATA must be conducted during the remaining quarter following 40 CFR Part 60, Appendix F.[1] To conduct a CGA:

Step 1: Challenge the pollutant portion of the CEMS with audit gases of known concentration for NO and NO_2 at two points bracketing at 2.0x and 0.5x the equivalent concentration in ppm based on the calculation from the PSD-04-01 mass limit – four calibration gases total. When challenging the CEMS, record the response three times at each measurement point. The monitor should be challenged for a sufficient period of time to assure adsorption-desorption of the CEMS sample transport surfaces has stabilized.

Step 2: Operate each monitor in its normal sampling mode, i.e., pass the audit gas through all filters, scrubbers, conditioners, and other monitor components used during normal sampling, and as much of the sampling probes as is practical. At a minimum, the audit gas should be introduced at the connection between the probe and the sample line.

Step 3: Use audit gases that have been certified by comparison to National Institute of Standards and Technology (NIST) gaseous Standard Reference Materials (SRM's) or NIST/EPA approved gas manufacturer's Certified Reference Materials (CRM's)[2] following EPA Traceability Protocol No.1[3]. As an alternative to Protocol No. 1 audit gases, CRM's may be used directly as audit gases. Procedures for preparation of CRM's are described in Citation 1. Procedures for preparation of EPA Traceability Protocol 1 materials are described in Citation 2.

[1] PSD requires that 40 CFR Part 60, Appendix B, Specification 2 or 6 (as applicable) and CFR 40 Part 60, Appendix F, Quality Assurance Procedures be used. The Permittee may use gas audit standards containing both NO and NO_2 as approved by the Environmental Protection Agency letter to May 20, 2005 in the span check and in calibration.

[2] "A Procedure for Establishing Traceability of Gas Mixtures to Certain National Bureau of Standards Standard Reference Materials." Joint publication by NBS and EPA-600/7-81-010. Available from the U.S. Environmental Protection Agency. Quality Assurance Division (MD-77). Research Triangle Park, NC 27711.

[3] "Traceability Protocol for Establishing True Concentrations of Gases Used for Calibration and Audits of Continuous Source Emission Monitors (Protocol Number 1)" June 1978. Section 3.0.4 of the Quality Assurance Handbook for Air Pollution Measurement Systems. Volume III. Stationary Source Specific Methods. EPA-600/4-77-027b. August 1977. U.S. Environmental Protection Agency. Office of Research and Development Publications, 26 West St. Clair Street, Cincinnati, OH 45268.

12. Permit Actions

12.1. Permit Renewal Application Submitted — January 3 2019

12.2. Permit application deemed Complete — January 31, 2019

12.3. Permit Application Sent to EPA — January 31, 2019

12.4. Permit placed in Register — January 31, 2019

12.5. Draft permit complete — September 24, 2021

12.6. Final Permit Issued — January 10, 2022

12.7. Administrative Amendment Issued — April 3, 2023

13. EMISSION UNIT DESCRIPTION

The table below lists emission units and activities that are located at the Nutrien US, Inc. facility located at 227515 Bowles Road, Kennewick, Benton County, WA, hereinafter referred to as the permittee. The information presented in this section is for informational purposes, only.

Process	Name	CE Code	Control Equipment (CE)
#2	Plant 9 Nitric acid absorber tail gas	051 139	Tray-type gas absorption column Extended absorption H_2O_2 addition Selective Catalytic Afterburner
#2A	Plant 9 shutdown vent		
#2B	Plant 9 start-up vent		
#3	Plant 7 Nitric acid tail gas	019 139	Catalytic afterburner Selective Catalytic Afterburner
#5	Plant 3 Joy scrubber - AN solution/granulation	001	Wet scrubber, high efficiency
#5B	Plant 3 AN Rotary drum cooler Joy scrubber	001	Wet scrubber, high efficiency
#6	Plant 8 AN neutralization (MCC)		
#7	Plant 10 AN neutralization (MCC)		
#8	Plant 10 Joy scrubber - AN granulation	001	Wet scrubber, high efficiency
#8A	Plant 10 AN Fluid bed cooler		
#11	Urea storage & handling	018	Fabric filter, low temp <180°F
#12	Urea loading & unloading	018	Fabric filter, low temp <180°F
#13	Boiler, Natural gas CB-3 (F-521)		
#15	Boiler, Natural gas CB-2 (F-513)		
#16	Boiler, Natural gas Ames (F-502)		
#17	Nitric acid concentrator	129	Scrubber
#19	Plant 8 UAN-32 Mixer vent		
#19A	Plant 8 Urea transfer	018	Baghouse

#20	Plant 11 UAN-32 mixer vent		
#21	Plant 8 CAN-17 solution production	002	Wet scrubber, medium efficiency
#22	CAN-17 Calcium carbonate transfer	018	Fabric filter, low temp <180°F
#23	Ammonia storage & transfer		
#34	Boiler F-600-C		
#24	Emergency Flare		
#42	Finley utility flare		
#48	Ammonia storage & transfer		
#49	Aqua ammonia production		
#60	Ammonia heater 2 (E-400)		
#61	Ammonia heater 1 (E-204)		
#62	Ammonia Utility flare		
#63	Purge flare 2		
#65	Anhydrous ammonia storage and transfer		