ADEQ PERMIT RENEWAL APPLICATION
ADEQ CLASS I PERMIT 72820

Apache Nitrogen Products, Inc. – Benson, Arizona

Prepared By:

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July 2023

Project 230301.0009

Trinity Consultants

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1. EXECUTIVE SUMMARY

Apache Nitrogen Products, Inc. (ANPI) operates a nitrogen products manufacturing facility in Cochise County, Arizona. The plant is located approximately 7.5 miles southeast of Benson, Arizona, off Arizona Highway 80 on Apache Powder Road. Major processes at the ANPI facility include: (a) nitric acid production using two ammonia oxidation plants (AOP-3 and AOP-4); (b) ammonium nitrate solution (ANS) production using a neutralizer vessel (ANS Plant); (c) low density ammonium nitrate prill production (Prill Plant); and (d) AN Solutions Blending and Dispatch. Auxiliary operations include a Powerhouse, a Prill Transloading process, a Brine Concentrator Plant, cooling towers, fuel, raw material, and finished product tanks, and internal combustion engines. A Truck Emulsion Plant also produces various grades of AN Emulsions. Ammonia is a key raw material, and the site has numerous receiving stations for road a rail delivery and several tanks to store the liquid received. There is also an aqua ammonia batching, storage, and dispatch process. The facility operates continuously for 24 hours/day and 365 days/year.

The ANPI facility is considered a nitric acid or chemical process plant, which is a categorical source for Prevention of Significant Deterioration (PSD) purposes. The facility-wide potential to emit particulate matter less than 10 microns aerodynamic diameter (PM_{10}), carbon monoxide (CO), and nitrogen oxide (NO_X) each exceed the major source threshold of 100 tons per year (tpy) for PSD and Class I (Title V) permitting purposes.

In accordance with Title 18, Chapter 2, Section 304.D.2 (R18-2-304.D.2) of the Arizona Administrative Code (A.A.C.), ANPI is submitting this application for renewal of Class I Air Quality Permit No. 72820 issued January 29, 2019. The application represents current and projected operating scenarios that are anticipated to occur during the term of the renewal permit. The application also includes proposed changes to two (2) permit conditions in Class I Air Quality Permit No. 72820.

This application for a Class I permit renewal meets the requirements of A.A.C. R18-2-304.B and has been prepared in accordance with ADEQ's Application Packet for a Class I Permit. A completeness list identifying all elements required by Section 2.4 – Permit Application Form Filing Instructions of ADEQ's Application Packet for a Class I Permit and their location within this application is presented in **Table 3-1**.

2. ADEQ CLASS I APPLICATION FORM

Pursuant to A.A.C R18-2-304.B, to apply for any permit required by A.A.C. Title 18, Chapter 2, applicants must complete the applicable standard application form provided by the ADEQ and supply all information required by the form's filing instructions. Section 3 of the report includes a completed ADEQ Standard Permit Application Form and an administrative completeness checklist identifying the location of the information required by the associated filing instructions in Section 2.4 of ADEQ's Application Packet for a Class I Permit.

SECTION 2.1

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

1110 West Washington • Phoenix, AZ 85007 • Phone: (602) 771-2338

STANDARD CLASS I PERMIT APPLICATION FORM

(As required by A.R.S. § 49-426, and Chapter 2, Article 3, Arizona Administrative Code)

1. Permit to be issued to (Business license name of organization that is to receive permit):
   Apache Nitrogen Products, Inc.

2. Mailing Address: PO Box 700
   City: Benson State: AZ ZIP: 85602

3. Name (or names) of Owners/ Principals: Apache Nitrogen Products, Inc.
   Phone: 520-720-2217 Fax: 520-720-4158 Email:

4. Name of Owner's Agent: Not Applicable
   Phone: Fax: Email:

5. Plant/Site Manager/ Contact Person and Title: TJ Raica, President and General Manager
   Phone: 520-720-2174 Fax: Email: traica@apachenitro.com

6. Plant Site Name: Apache Nitrogen Products, Inc.

7. Plant Site Location Address: 1436 S. Apache Powder Road
   City: St. David County: Cochise Zip Code: 85630
   Indian Reservation (if applicable, which one):
   Latitude/ Longitude, Elevation: 31° 53' 08" N / 110° 14' 23" W / 3,685 feet
   Section/ Township/ Range:

8. General Nature of Business: Fertilizer Manufacture

9. Type of Organization:
   ☒ Corporation ☐ Individual Owner ☐ Partnership ☐ Government Entity (Government Facility Code----------)
   ☐ Other

8. Permit Application Basis: ☐ New Source ☐ Revision ☒ Renewal of Existing Permit
   (Check all that apply.)
   For renewal or modification, include existing permit number (and exp. date): Class I Permit #72820, exp. 1/28/2024
   Date of Commencement of Construction or Modification:
   Primary Standard Industrial Classification Code: 2873

9. I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by ADEQ as public record. I also attest that I am in compliance with the applicable requirements of the Permit and will continue to comply with such requirements and any future requirements that become effective during the life of the Permit. I will present a certification of compliance to ADEQ no less than annually and more frequently if specified by ADEQ. I further state that I will assume responsibility for the construction, modification,

or operation of the source in accordance with Arizona Administrative Code, Title 18, Chapter 2 and any permit issued thereof.

Signature of Responsible Official: TJ R.

Official Title of Signer: General Manager

Typed or Printed Name of Signer: TJ Raica

Date: July 26, 2023 Telephone Number: 520-720-2174

SECTION 2.2 - EMISSION SOURCES

PAGE_____OF_____
DATE _____

Estimated "Potential to Emit" per A.A.C. R18-2-101.
Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS										
EMISSION POINT [1]		CHEMICAL COMPOSITION OF TOTAL STREAM	AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION POINT [5]			STACK SOURCES [6]					NONPOINT	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME [2]	#/ HR. [3]	TONS/ YEAR [4]	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA			SOURCES [7]	
										DIA (ft.)	VEL (fps)	TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
	Refer to Appendix C.													

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL_____feet
ADEQ STANDARD CONDITIONS ARE 293K AND 101.3 KILOPASCALS (A.A.C. R18-2-101)

****Submit emission calculations spreadsheet with your application****

General Instructions:

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits, and Emissions Inventory Questionnaire. Include fugitive emissions. Limit emission point number to eight (8) character spaces. For each emission point use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler, tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are O.K.

2. Components to be listed include regulated air pollutants as defined in A.A.C. R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (NO_x), Sulfur Dioxide (SO_2), Volatile Organic Compounds (VOC), particulate matter (PM), particulate less than 10 microns (PM_{10}), etc. Abbreviations are O.K.

3. Pounds per hour (#/HR) is maximum potential emission rate expected by applicant.

4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.

5. As a minimum applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.

6. Supply additional information as follows if appropriate:
   (a) Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate if horizontal discharge with a note.
   (b) Stack's height above supporting or adjacent structures if structure is within 3 "stack height above the ground" of stack.

7. Dimensions of nonpoint sources as defined in A.A.C. R18-2-101.

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7. Dimensions of nonpoint sources as defined in A.A.C. R18-2-101.

SECTION 2.3 - EQUIPMENT LIST

The following table should include all equipment utilized at the facility, and should be completed with all the requested information. Be sure to notate the units (tons/hour, horsepower, etc.) when recording the Maximum Rated Capacity information, the Serial Number and/or the Equipment ID Number. The date of manufacture must be included in order to determine if portions of the facility are NSPS applicable. Make additional copies of this form if necessary.

Submit photographs of the faceplates for all engines listed below. If an engine is certified, please also include a copy of the engine certification with the application. For any newly added equipment, include a copy of the specification sheet. These documents will be used to verify equipment information and determine applicable regulations.

Type of Equipment	Maximum Rated Capacity [1]	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Please see Appendix B of this application						

[1] For generator sets, enter the maximum rated capacity of the engine rather than the maximum rated capacity of the generator.

3. APPLICATION ADMINISTRATIVE COMPLETENESS

Table 3-1 provides a list of the permit application items required by Section 2.4 of ADEQ's Application Packet for a Class I Permit along with a reference to where the information is located in this application.

Table 3-1. Application Completeness Summary

Section 2.4 of Class I Application Packet[1]	Information Required	Permit Application Section
1,2	Process/Product Description including Standard Industrial Classification (SIC) code	Section 4
3,4	Description of Alternate Operating Scenarios	Section 4.3
5	Process Flow Diagrams	Section 5
6	Material Balance Calculations[2]	NA
7	Emission Related Information	Section 7
8	Applicable Requirements	Section 11
9	Proposed Exemptions from Applicable Requirements	NA
10(a)-(f), (h)	Annual and Hourly Process Rates, Fuel Usage, Raw Material Information	Section 9
10(g)	Operating Schedule	Section 9
11	Process and Control Equipment	Appendix A, Section 10
12	Stack Information	Appendix B
13	Site Diagram	Section 5
14	Air Pollution Control Information	Section 10
15	Acceptable Documentation for Equipment	NA
16	Compliance Plan	Section 14
17	Compliance Certification	Section 15
18	Acid Rain Information	N/A[a]
19	New Major Source or Major Modification Requirements	NA
20	Emission Calculations	Section 7, Appendix E

[a]Acid rain information is required only for facilities subject to federal acid rain regulations. ANPI is not subject to acid rain regulations.

[1] https://static.azdeq.gov/forms/classI_app.pdf

[2] No emission calculations are based on material balances.

4. PROCESS AND PRODUCT DESCRIPTION

The ANPI facility has been operating for almost a century to support the local mining industry. Ammonium Nitrate (AN) has increasingly become the preferred path to explosives for blasting in mining and quarrying.

To produce the explosive grade variants produced at ANPI raw materials of ammonia, nitric acid and Ammonium Nitrate Solution (ANS) are required. Other minor feedstocks include natural gas to operate the steam raising boilers, various process additives and very small amounts of diesel for essential risk management emergency backup systems. Electrical power is supplied from the local utility to run the numerous electrical systems.

Major processes at the facility include: (a) nitric acid production using two ammonia oxidation plants (AOP-3 and AOP-4); (b) ANS production using a neutralizer (ANS Plant); (c) low density ammonium nitrate prill production (Prill Plant); and (d) ANS Blending and Dispatch. Support operations include a Powerhouse, a Prill Transloading process, a Brine Concentrator Plant, cooling towers, fuel, raw material, finished and intermediate product tanks, and internal combustion engines for emergency backup in case of prolonged power interruptions. The support facilities also include a Truck Emulsion Plant that produces various grades of AN Emulsions, an ammonia handling and storage system comprised of numerous receiving stations for road and rail delivery and several tanks to store the liquid received, and an aqua ammonia batching, storage, and dispatch process.

The processes at ANPI have the potential to produce air pollutant emissions including: particulate matter (PM), particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}), particulate matter equal to or less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$), carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOCs), sulfuric acid (H_2SO_4), hazardous air pollutants (HAPs), and greenhouse gases (GHGs)[3] including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

4.1 Nitric Acid Production

ANPI converts anhydrous ammonia and compressed air into nitric acid using the ammonia oxidation process (AOP) at two acid production plants, AOP-3 and AOP-4.

Nitric acid manufactured at ANPI uses the Ostwald process, which converts ammonia to nitric acid and involves two main steps.

In step 1, ammonia is oxidized in air to form nitric oxide and also nitrogen dioxide. Then in step 2, the nitrogen dioxide that was formed is absorbed in water. This in turn forms nitric acid.

Step 1 — Oxidation (formation of NO_x)
Primary oxidation of ammonia is carried out in a catalyst chamber in which a mixed gas comprising approx. 10% of ammonia by volume ratio with compressed air is fed. A highly exothermic reaction takes place resulting in gas exit temperatures above 16000 °F. This chamber contains a platinum gauze which serves as a catalyst. In primary oxidization approx. 95 per cent of ammonia is converted into nitric oxide (NO).

[3] While GHGs are not included under the definition of "regulated air pollutant" at A.A.C. R18-2-101.122, they are considered a "regulated NSR pollutant" under the federal Prevention of Significant Deterioration (PSD) program at 40 C.F.R. § 52.21(b)(50) and therefore included here for informational purposes.

$$4NH_3 + 5O_2 \leftrightarrow 4NO + 6H_2O$$

Secondary oxidation (formation of nitrogen dioxide) occurs at lower temperatures in equilibrium with Nitric Oxide. In order to create the preferred NO2 molecule the gas needs to be cooled and spare Oxygen must be present.

$$2NO + O_2 \leftrightarrow 2NO_2$$

The cooling of gas is carried out in multiple heat exchangers to capture the heat as economically as possible in order to make the process as energy efficient as possible. This includes waste heat boilers to generate additional steam for compressor duty and hot gas expansion turbines which also capture energy for compressor duty.

Step 2 — Absorption of NO_2 (formation of HNO_3)
The cooled gas containing NO and NO_2 in equilibrium following the secondary oxidation is fed into a tall multistage absorption tower near the bottom. Water is fed in at the top stage and cascades down through each stage. NO_2 gas passing up through the tower reacts with water to form nitric acid.

$$3NO_2 + H_2O \rightarrow 2HNO_3 + NO$$

The finished acid contains traces of dissolved gases and nitric acid so a secondary air stream from the compressor is fed to this stream through a bleaching chamber to remove the impurities and this gas is then also fed to the absorber. It contains additional oxygen which is necessary to support continued secondary oxidation and absorption at each stage in the absorber to ensure effective beneficial production.

The bleached product acid is transferred to storage.

The gas exiting the absorber contains traces of NO_x, N_2O and various unreacted components of nitrogen as well as a small percentage of oxygen. After various energy recovery processes, it is sent to the atmosphere at an elevated discharge point. If necessary, the gas can be abated prior to discharge. Concentrations of pollutants are monitored at this point.

AOP-3
AOP-3 was constructed in 1967 with operations commencing in 1968. The unit operated continuously until being shut down in the early 1980's. An installation permit was issued in January 1992 for its recommissioning, and operations resumed on September 26, 1994.

A selective catalytic oxidation system (SCR) was installed as a Tail Gas NO_x emissions control device prior to re-commissioning. This system requires an addition of ammonia to the tail gas upstream of the SCR where a catalytic reaction occurs to combust the NOx to nitrogen and water.

A hydrogen peroxide (H_2O_2) addition system for further NO_x control during startup was added in 2000. This system injects the H_2O_2 at a desired ratio into the absorber feed water during startup to achieve a colorless tail gas emission where the peroxide reacts with unabsorbed NOx until pressures and temperatures are established and normal reactions occur.

AOP-3 has a nameplate capacity of 160 tons of HNO_3 per day (on a 100% HNO_3 basis).

A process flow diagram showing the details of the production process of AOP-3 is presented in Figure 6-2.

AOP-4
Construction of AOP-4 was completed in May 1978, and the plant became fully operational in January 1979. The plant has operated on a near-continuous basis from 1979 to the present.

AOP-4 has a nameplate capacity of 300 tons of HNO_3 per day (on a 100% HNO_3 basis).

The production process at AOP-4 is very similar to AOP-3, with a few notable exceptions. AOP-4 is a dual-pressure process. Cooled gases following the secondary oxidation phase combined with the gas exiting the Bleacher enter a NOx gas compressor to boost pressure prior to entering the absorber tower. This increased pressure promotes the Step 2 reactions as does low temperature. To support this low temperature aspect the absorber uses a chilling system ensuring the most efficient capture of NOx possible into the product acid. This is known as "extended absorption". As a consequence of this efficiency AOP4 needs no additional Tail Gas treatment of NOx to comply with emissions limits.

The steam turbine drive for the air compressor requires superheated steam which utilizes an adjacent natural gas fired heat exchanger. The exhaust from the combustion system is emitted to atmosphere through a dedicated stack.

Similar to AOP-3, AOP-4 utilizes hydrogen peroxide to achieve colorless startups.

A process flow diagram of AOP-4 is presented in Figure 6-2.

4.1.1 Ammonium Nitrate Solution (ANS) Process (ANS Plant)

The ANS plant was modified in 2004 and has operated on a virtually continuous basis ever since. The rated capacity is approximately 700 tons per day as 100% ammonium nitrate (NH_4NO_3). Raw material inputs are anhydrous ammonia (NH_3) and nitric acid (HNO_3). This process involves the rapid reaction of ammonia and nitric acid together. The reaction is also exothermic liberating significant amounts of energy which evaporates a significant quantity of the water in the acid generating a stream of contaminated steam and a product of 84-88% AN solution. A process flow diagram for the ANS Plant is presented in Figure 6-2.

Vaporized ammonia is added in ratio to nitric acid. The reactor has a natural draft recirculating section in which acid is injected at the bottom and ammonia injected at various sparging locations in the downstream vertical expanding zone to ensure rapid mixing and reaction whilst avoiding confinement.

$$NH_3 + HNO_3 \rightarrow NH_4NO_3$$

The final AN solution product overflows transfers to storage after pH adjustment. The resulting steam from the concentrating process in the ANS neutralizer contains various contaminants including fine particles of ammonium nitrate and small amounts of nitric acid and/or ammonia. This stream vents from the top of the ANS neutralizer and is treated in a two-stage scrubber system to remove traces of ANS and ammonia before being discharged to atmosphere via an elevated vent.

4.1.2 Ammonium Nitrate Prill Production

The low density porous prill plant was initially established in the 60s and was partially replaced in the 2008 period. The process consists of several stages including ANS concentration, dosing of proprietary additives for

crystal habit transformation, solidification in the prilling tower, drying, cooling, coating for caking resistance and storage. A process flow diagram of the prill production process is presented in Figure 6-2.

The ANS is concentrated up in the Falling Film Evaporator (FFE). This is steam heated and has a hot air blown up the tubes to remove water vapor. This used to be an emission point but has since been tied in to the reclaim system effectively eradicating this emission source. From the FFE ANS at 96.5% concentration is fed to a collection tank and pumped to the head tank in the prill tower head house. The head tank drains to 4 proprietary spray pots into the tower. Proprietary ingredients are added to the solution in ratio to flow rate which affect the final quality of the product. Special spray plates distribute the solution evenly across the forming droplets. These fall countercurrent to a rising ambient air stream that cools and enables solidification into spherical prills. Tower operating conditions are controlled to produce the desired low-density, porous prills (ANPAN®), used solely for making blasting agents due to their high porosity and corresponding ability to absorb fuel oil. The air flowing up the tower vents to atmosphere through louvres at the top of the tower. The emission of concern in particulate matter which is a byproduct of the spraying process where micro spheres naturally form when the liquid jets break up to form discrete particles.

The prills are then transported to the drying and cooling area. Here, moisture is removed gradually at the same time as the crystallization process is completed and product cooled and screened. The air used in drying and cooling is fed to the Reclaim system which effectively removes all particulate AN dust carried by the air. The reclaim system does vent the scrubbed air back out to atmosphere through an elevated vent which can be accessed for confirmatory sampling and analysis.

From the drying and cooling systems, the product is transferred to the Coating Drum, where a liquid wax is applied to prevent caking of the product in storage.

The finished product is then transferred to storage. Product is loaded to trucks from storage by means of a floor mounted grizzly screen, a bucket elevator, and a flexible chute system.

4.1.3 Powerhouse

The Powerhouse contains boiler and generator equipment that is used to provide steam, compressed air, or power to the ANPI facility. Equipment includes:

- Erie City Iron Works Boilers (3), natural gas-fired, 30,000 lb/hour of steam production;
- Caterpillar electric power generator, dual fuel (natural gas or diesel fuel); and
- Air compressor, diesel fuel, 350 horsepower (HP).

The engine cooling water for the caterpillar electric power generator is cooled by a cooling tower with a 1,700 gallon per minute (gpm) capacity. A second cooling tower is present at the Powerhouse to be used as a spare.

A process flow diagram of the equipment located at the powerhouse is presented in Figure 6-2. Powerhouse equipment has the potential to emit PM, PM_{10}, $PM_{2.5}$, CO, NO_X, SO_2, VOCs and GHGs including CO_2, CH_4, and N_2O.

4.1.4 Brine Concentrator

The Brine Concentrator Plant provides evaporation of wastewater to achieve a "zero water" discharge status to the environment under the Federal National Pollutant Discharge Elimination System (NPDES) and Arizona Aquifer Protection Programs. A process flow diagram of the Brine Concentrator Plant is presented in Figure 6-2.

Wastewater is first collected from the blowdowns at the powerhouse boilers, AOP-3 cooling tower and waste heat boiler blowdown, the AOP-4 cooling tower and waste heat boiler. The waste streams are collected in a feed water equalization storage tank and pumped through a filter into a feed tank. There, the combined wastewater is treated with sulfuric acid and calcium chloride to minimize scaling in the Evaporator and Evaporator feed system. Sodium hydroxide is used for pH control.

The conditioned wastewater is pumped through a heat exchanger where it is heated to near boiling. The wastewater then enters a deaerator where non-condensable gases are stripped out and vented to the atmosphere. The wastewater then enters the evaporator sump and mixes with the recirculating brine slurry. The slurry is pumped to a flood box where it is distributed as a thin film on the inside wall of evaporator tubes. As the thin film of concentrated brine slurry flows down the inside surface of the tubes, the brine is heated to the boiling point. Water is driven off as steam, which flows down the center of the tubes into the evaporator sump.

The water vapor drawn from the steam cavity of the evaporator passes through a mist eliminator before entering the vapor compressor. The vapor compressor, which was formerly a natural gas-fired unit, was replaced with an electric motor in 2010.

The compressor raises the saturation temperature of the vapor above the boiling point of the recirculating brine. This compressed steam is then introduced to the condenser, where it condenses on the outside of the tube walls. The condensate is collected in a distillate tank and then pumped through the heat exchanger to a product storage tank. From the product storage tank, the condensate is pumped to a life softener for conditioning prior to re-use at various ANPI processes. The concentrated brine slurry is used at the fertilizer plant for addition to fertilizer solutions.

Processes at the Brine Concentrator Plant have the potential to emit NH_3.

4.1.5 Prill Transloading Operations

Prill transloading is the process of transferring a shipment from one mode of transportation to another, in this case, transferring prill from a railcar to storage at the Prill Storage Barns and subsequent loading into trucks for off-site shipment. The primary purpose of adding transloading capabilities to existing ANPI operations is to have the flexibility to provide prill products to customers beyond the current production capability of the Prill Plant. A process flow diagram for prill transloading operations is presented as Figure 6-2.

Prill is brought into the facility via railcar. On the north side of Prill Barn 2, prill in railcars is discharged from the bottom of the railcars into a permanent hopper located below the railcar discharge chutes. The hopper transfers prill to the Prill Barn 2 stockpile through an enclosed conveyor system. Once in the stockpile, the prill from the railcar is processed in the same manner as the prill produced by ANPI: screened through the floor mounted grizzly screen; onto the bulk toter barn loadout conveyor; into the flexible chute system; and then loaded into the haul truck for shipping. The road leading to, and the roads surrounding the Prill Barns have recently been paved. Consequently, all shipments of prill from the Prill Barns will be on paved roads. The maximum annual transloading capacity is 212,430 tons.

Transloading operations at the Prill Plant have the potential to emit PM, PM_{10}, and $PM_{2.5}$.

4.1.6 Truck Emulsion Plant

ANPI regularly provides ANS to clients for use in blasting operations. The ANS is mixed with diesel fuel (fuel oil) to produce an ammonium nitrate-based emulsion at the mine site. This is normally accomplished using portable mixing equipment and liquid storage tanks at the client's facility. ANPI operates a permanent Truck Emulsion Plant (TEP) to produce ammonium nitrate-based emulsions to supply to clients via tanker trucks. A process flow diagram of the truck emulsion process is presented as Figure 6-2.

Diesel fuel will be brought into the facility via tanker truck and stored in a 15,000-gallon storage tank. Urea is used in a dry, pelletized form, and is brought into the facility via delivery truck. Water will be transported from an on-site source to the TEP by a tanker truck (approximate capacity of 2,100 gallons). Ammonium nitrate, in a liquid form, will be transported from the on-site ANS Plant to a 7,600-gallon ANS Solution

Receiving Tank via tanker truck. The concentration of ammonium nitrate in the ANS is approximately 82%. Once the ANS is offloaded from the tanker truck, urea and water are added to the ANS Solution Receiving Tank and mixed together by circulating the ANS Solution and aided by compressed air. The resulting ANS mixture is maintained at a temperature of 170 ºF by the Hot Water System through an electric heating element and circulation of heated water through heat exchange coils located inside the tank.

The heated ANS is then transferred to the ANS Solution Storage Tank for temporary storage before loading into the Slurry Truck. The Slurry Truck, which has a capacity of 30,000 pounds per batch of emulsion, is loaded with approximately 28,000 pounds of ANS mixture by a pump from the ANS Solution Storage Tank. A proprietary mixing technology is then used to mix the ANS solution and diesel fuel (pumped directly into the slurry truck from the diesel fuel storage tank during the mixing process) into an emulsion. Emulsion is produced at a maximum rate of 650 pounds per minute and is pumped directly to a tanker truck for transportation to the end user.

ANPI was authorized under a 317 notice to add a 100-ton Emulsion Storage Silo to the TEP operation. This did not increase the production capacity of the TEP, as the storage capacity does not affect the production rate, which remains 650 pounds per minute. The maximum annual capacity of the TEP is 55,845,000 pounds (27,923 tons) of emulsion.

The Truck Emulsion Plant has the potential to emit PM, PM_{10}, $PM_{2.5}$ and VOCs.

4.1.7 AN Solutions Blending and Dispatch

AN Solutions Blending and Dispatch is a wet process facility and is a negligible source of regulated air pollutants. Storage and process tanks associated with this process are "trivial activities" based on A.A.C. R-18-2-101.146.e.i but nonetheless are included in the Equipment List for clarification purposes.

4.1.8 Miscellaneous Sources

Minor support equipment not included in the above descriptions includes the following emission sources:

- A gasoline dispensing facility used to refuel vehicles onsite; and
- A Diesel Fuel Fire Pump used to pump water in the event of an emergency.

The miscellaneous sources listed above have the potential to emit PM, PM_{10}, $PM_{2.5}$, CO, NO_X, SO_2, VOCs and GHGs including CO_2, CH_4, and N_2O.

4.2 Product Description

ANPI will produce nitric acid using an acid oxidation process and ANS from the reaction of nitric acid and ammonia. These two products are mainly used as internal product sources for the production of prilled ammonium nitrate (prill) at the Prill Plant but may also be sold individually. Transloaded prill (see Section 4.1.5 of this application) is not produced at ANPI but is included below. The materials produced at the Facility are presented in **Table 4-1**.

Table 4-1. List of Materials Produced

Products	CAS Number	UN Number
Nitric Acid (100%)	7697-37-2	UN2031
Ammonium Nitrate Solution (100%)	6484-52-2	---
Aqua Ammonia	7664-41-7	UN2672
LD Prilled Ammonium Nitrate (Produced by ANPI)	6484-52-2	UN1942
LD Prilled Ammonium Nitrate (Transloaded by ANPI)	6484-52-2	UN1942
Emulsion (ANFO Slurry)	6484-52-2	UN3375

4.3 Alternate Operating Scenario and Products

There are no alternate operating scenarios or products proposed. Minor adjustments in process unit configuration and to process chemicals as necessary to respond to customer demand are a routine part of the production process do not warrant treatment as alternate operating scenarios. These types of adjustments are encompassed within the estimated emission calculations presented in this application. Changes to the operations at ANPI requiring authorization via notification or permit revisions will be properly addressed through the applicable permitting requirements.

4.4 Process Flow Diagrams

Process flow diagrams are presented in Appendix B.

5. PROPOSED CHANGES

As a part of this permit renewal application, ANPI is proposing two (2) changes to the permit conditions and equipment list. This section outlines a list of the proposed changes requested by ANPI:

- ANPI is proposing changes to the equipment list as shown in Appendix A of this report. These changes do not modify the potential-to-emit (PTE) from the Facility. The update in maximum capacity of the ANS Plant and AOP-3 were considered have been captured by a previous permit revision dated 09/27/2019; however, the equipment list was not updated as a result of the permit revision.

- Prior to Permit #72820 (As Amended by Minor Permit Revision #77084) dated 09/27/2019, ANPI's permit included the following two provisions (Condition IV.B.4.a(1)(a) and Condition IV.B.4.a(1)(b)):

  - If the results of the performance test indicate the emission rate is greater than 50% of the emission standard in Condition IV.B.1 above, the Permittee shall conduct subsequent performance tests for PM within 11 to 13 months of the previous test.
  - If the results of the performance test indicate the emission rates are less than or equal to 50% of the emission standards in Condition IV.B.1 above, no subsequent performance tests shall be required for the permit term.

As a part of the Minor Permit Revision #77084, this permit condition was inadvertently removed. Since the ANPI Ammonium Nitrate Prill Plant optimization project and all associated testing has been completed, ANPI is proposing that the provision for subsequent annual performance testing be added to Condition IV.B.4.a(1) as follows:

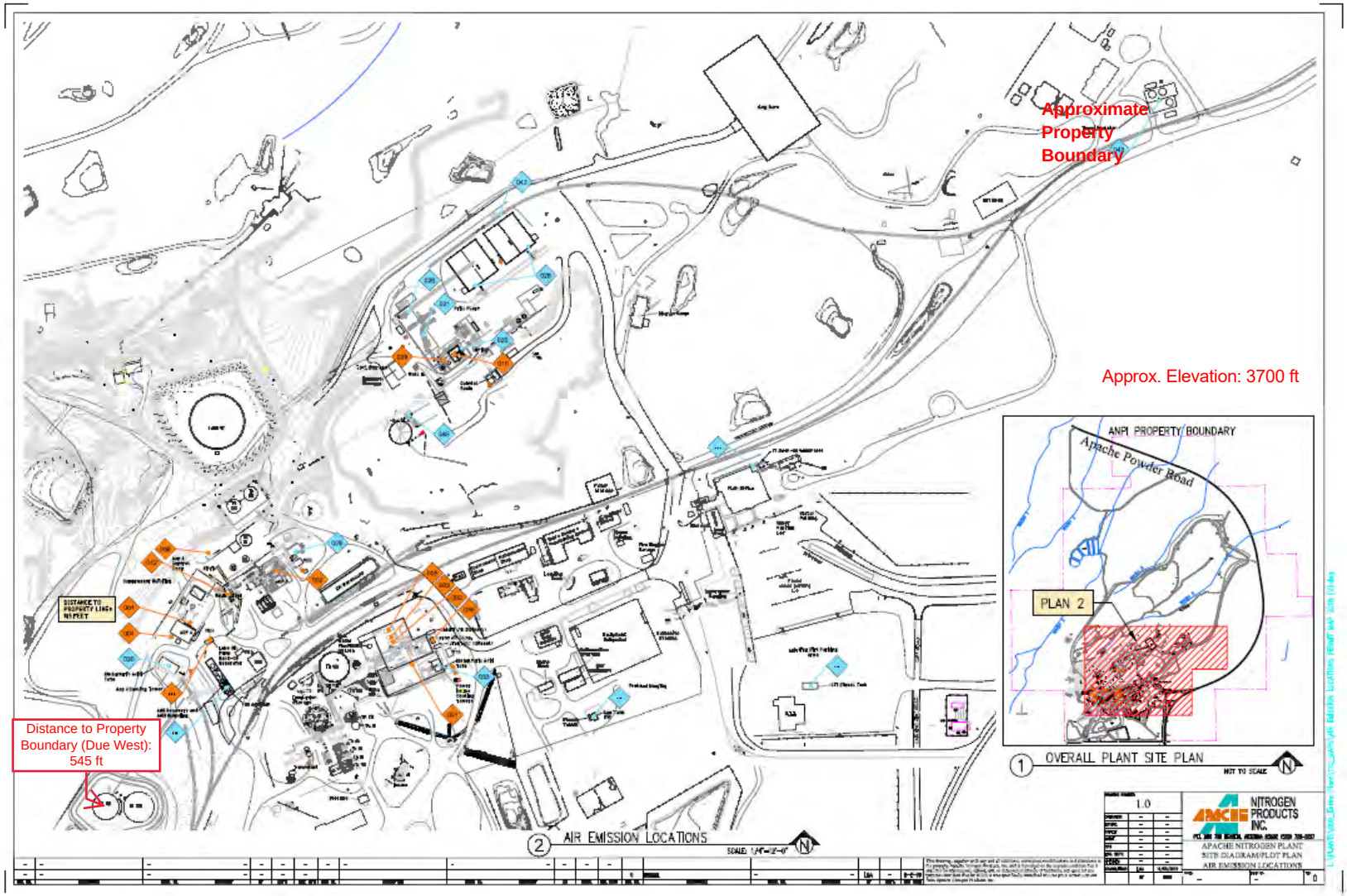
- *Condition IV.B.4.a(1):* To demonstrate compliance with the particulate matter and opacity standards in Condition IV.B, the Permittee shall conduct subsequent annual performance tests for particulate matter within 11 to 13 months of the previous test.
  - *Condition IV.B.4.a(1)(a):* If the results of the performance test indicate the emission rate is greater than 50% of the emission standard in Condition IV.B.1 above, the Permittee shall conduct subsequent performance tests for PM within 11 to 13 months of the previous test.
  - *Condition IV.B.4.a(1)(b):* If the results of the performance test indicate the emission rates are less than or equal to 50% of the emission standards in Condition IV.B.1 above, no subsequent performance tests shall be required for the permit term.

ANPI is proposing the removal of Permit Conditions IV.B.4.a(2) and IV.B.4.a(3) since the ANPI Ammonium Nitrate Prill Plant optimization project and all associated testing has been completed.

6. SITE & PROCESS FLOW DIAGRAMS

The process flow diagrams (PFDs) showing the process at the facility and site diagrams are contained in this section. **Figure 6-1** contains an overall site diagram for the facility. **Figure 6-2** contains multiple PFDs for the facility.

Figure 6-1. ANPI – Overall Site Diagram

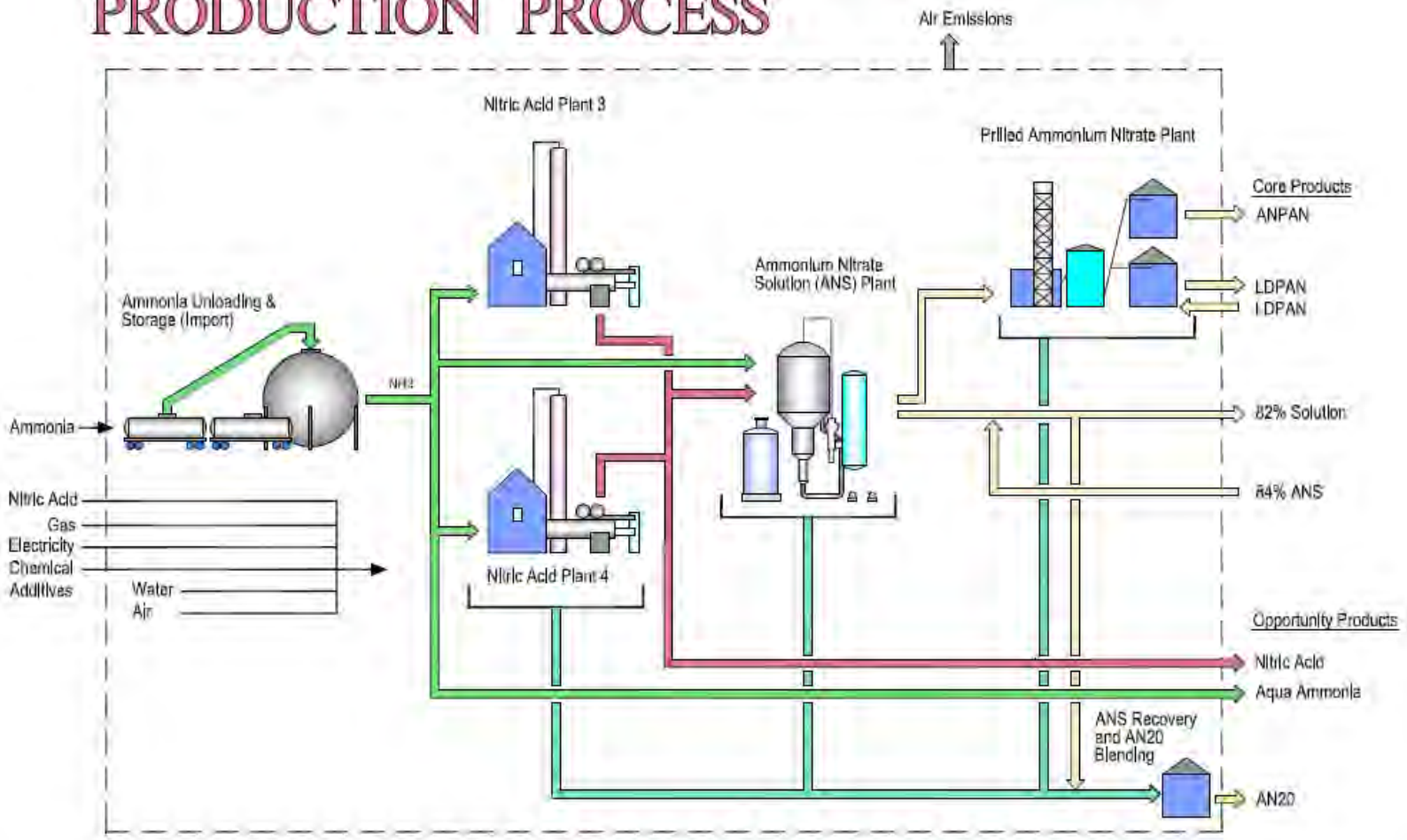


Drawing is not to Scale

FIGURE 5-1 – PROPERTY BOUNDARY Apache Nitrogen Products, Inc Benson, AZ

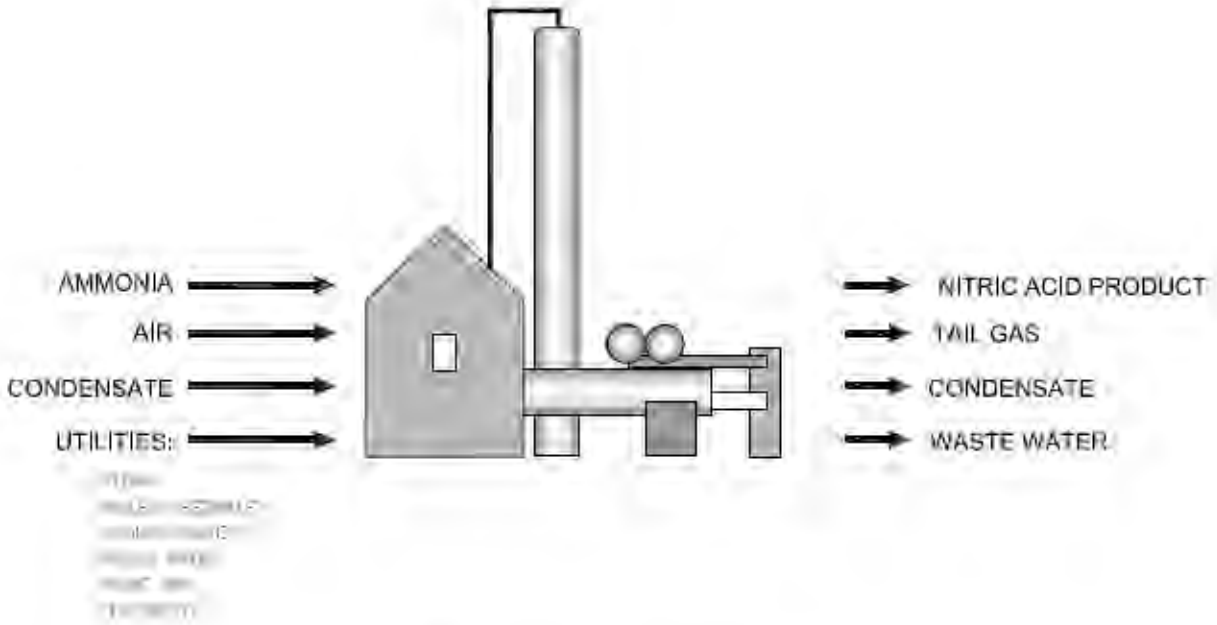
Figure 6-2. ANPI – Process Flow Diagrams

APACHE NITROGEN PRODUCTS, INC.
PRODUCTION PROCESS



AOP3
CHAPTER 1 - FIGURE 1A

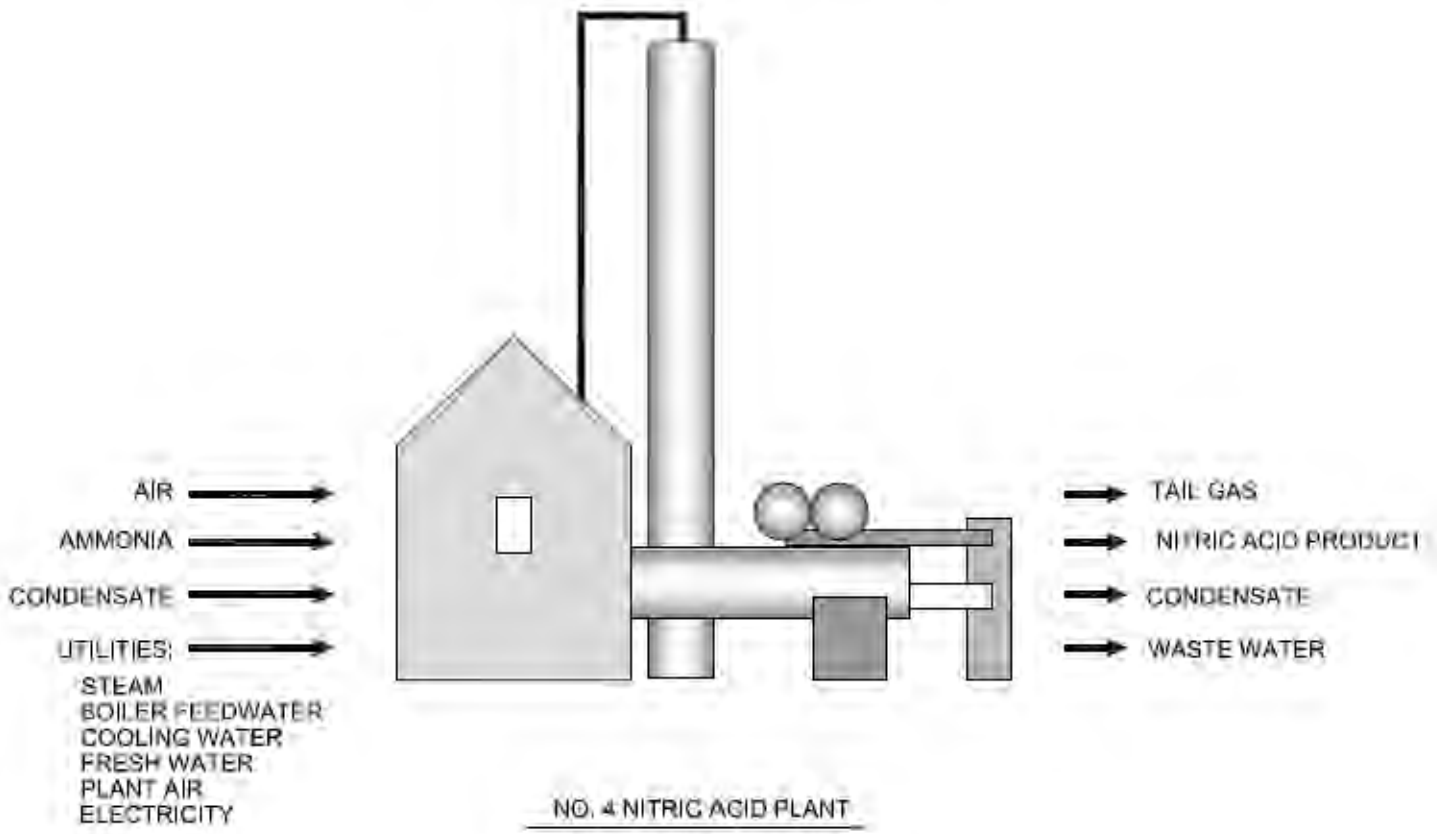
PLANT INPUTS AND OUTPUTS



NO. 3 NITRIC ACID PLANT

AOP4
CHAPTER 1 - FIGURE 1A

PLAN INPUTS AND OUTPUTS



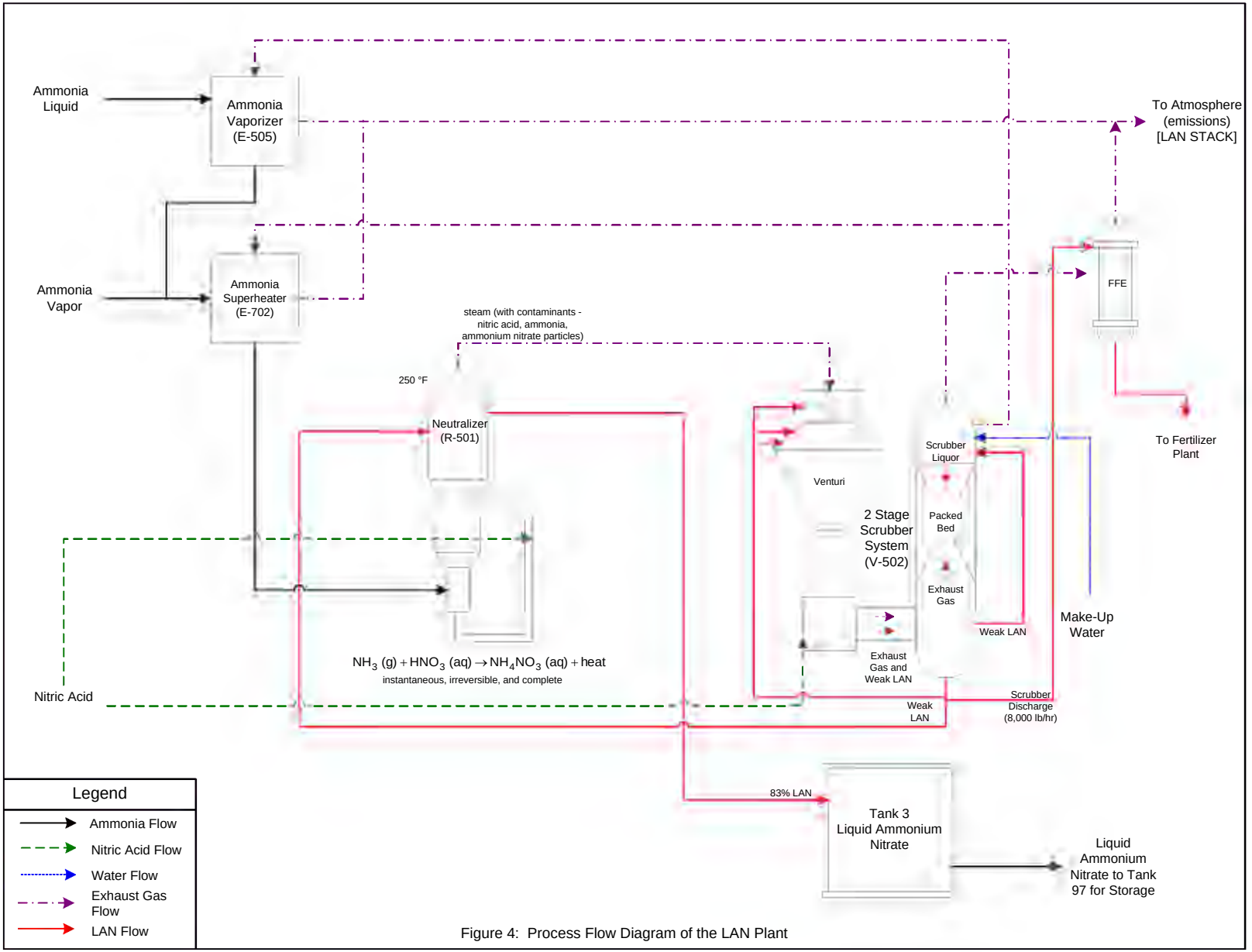


Figure 4: Process Flow Diagram of the LAN Plant

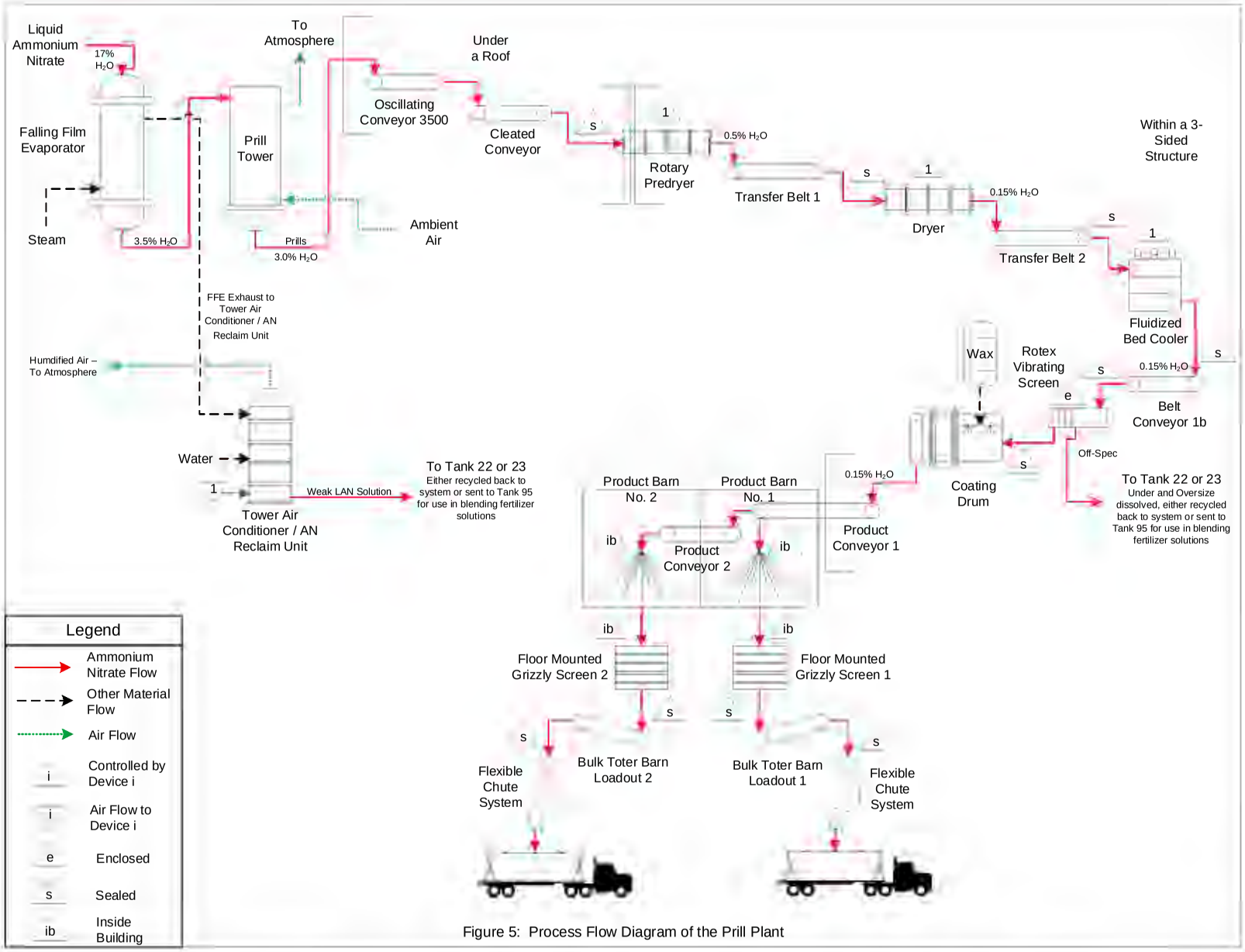


Figure 5: Process Flow Diagram of the Prill Plant

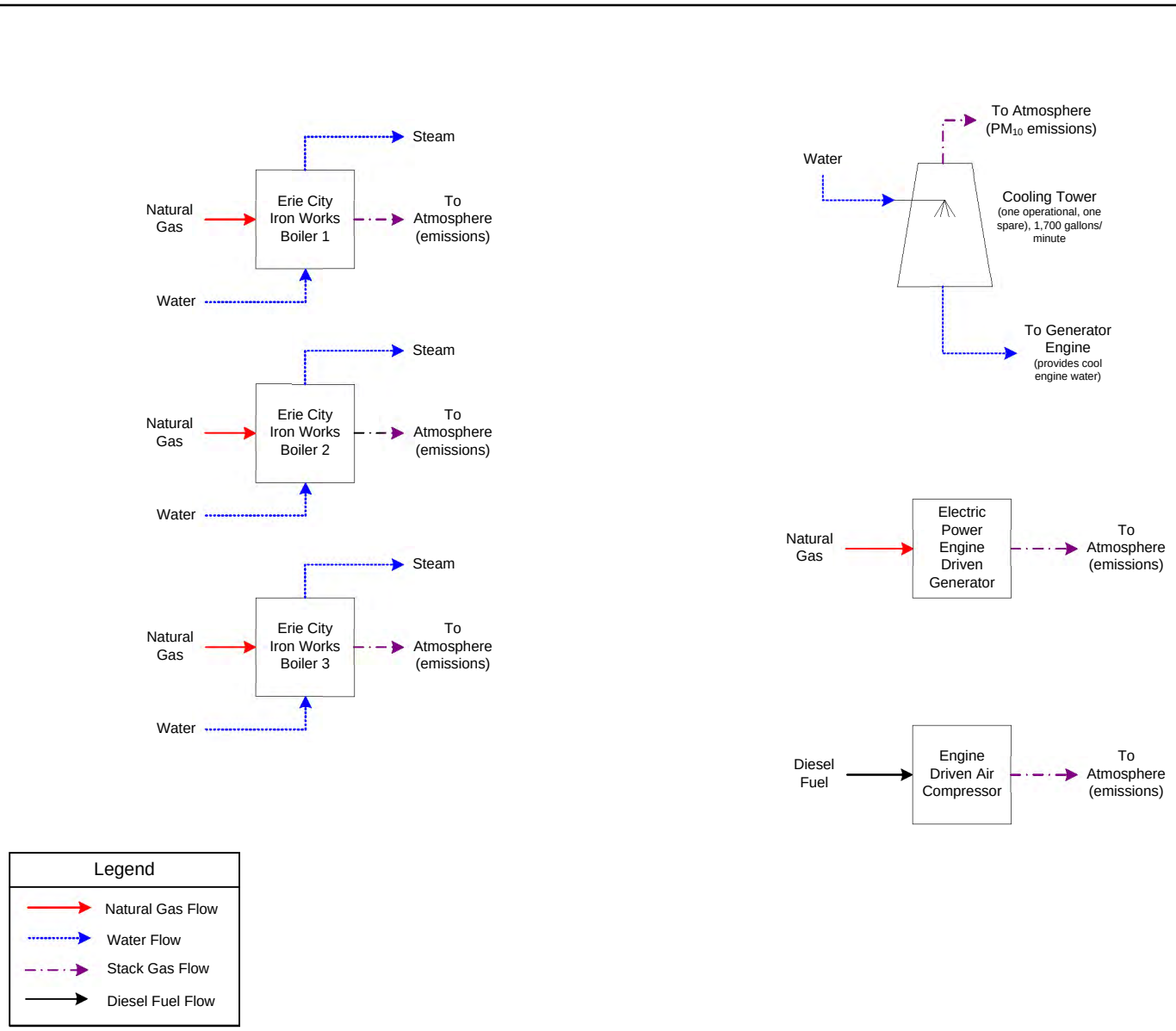


Figure 6: Process Flow Diagram of the Powerhouse

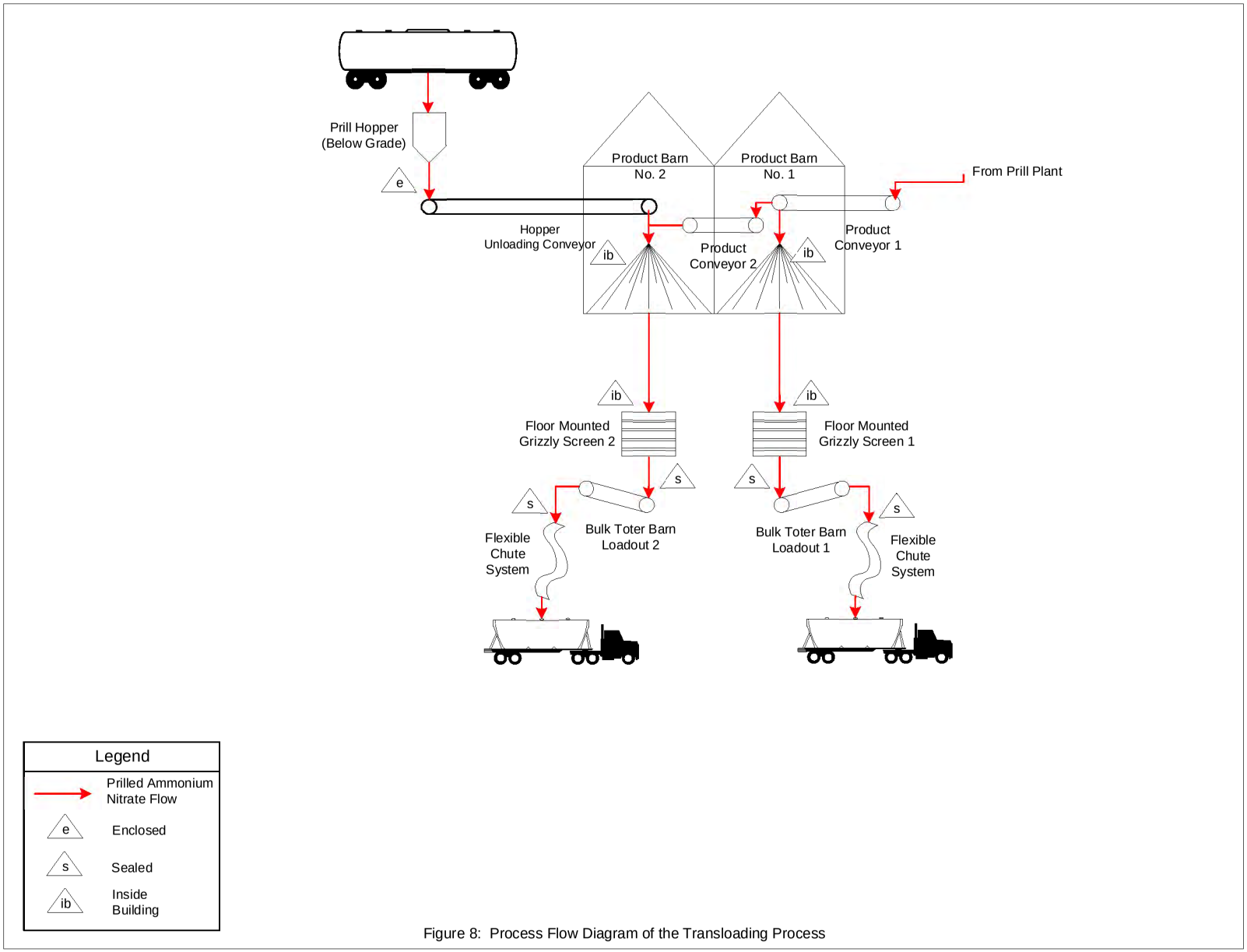


Figure 8: Process Flow Diagram of the Transloading Process

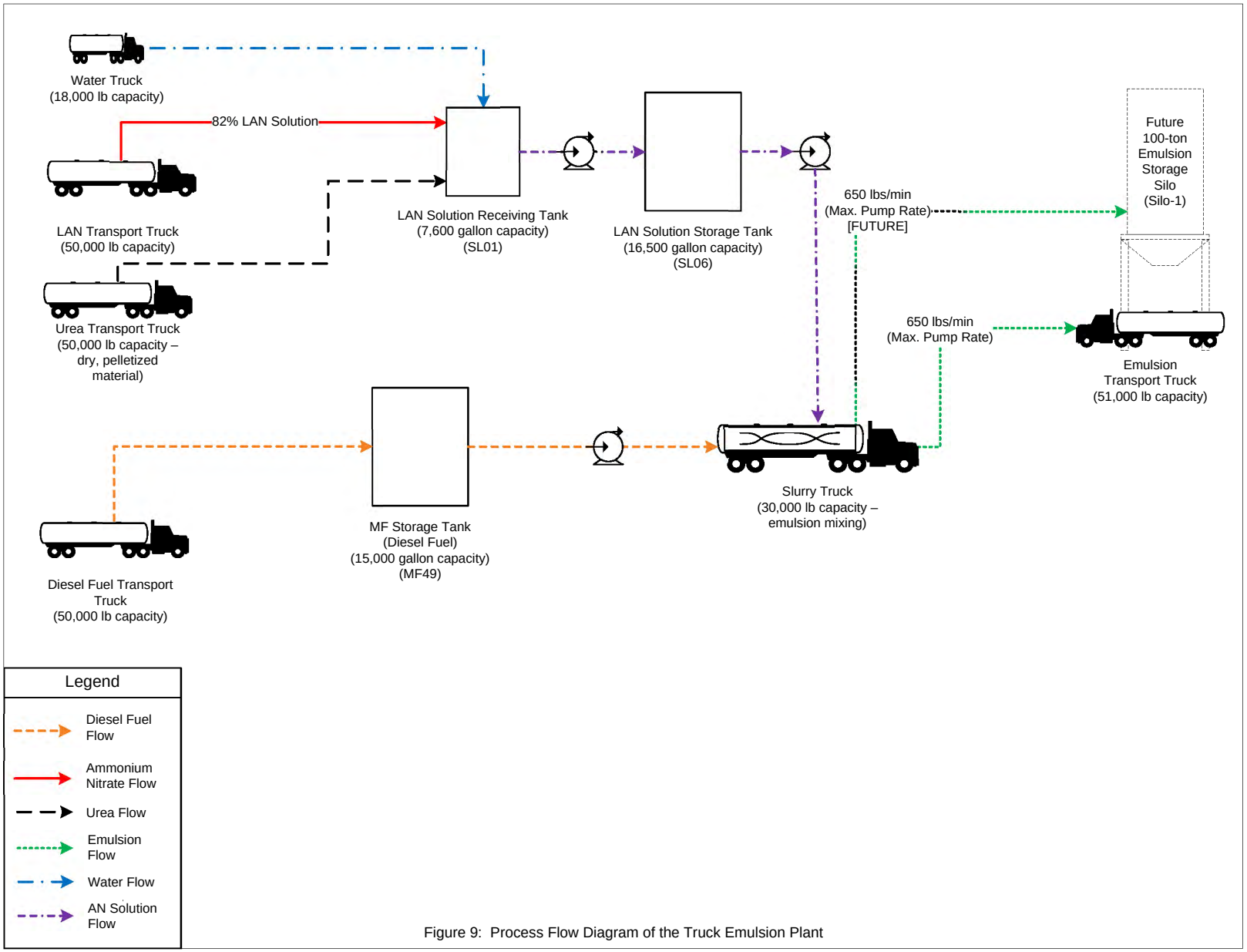
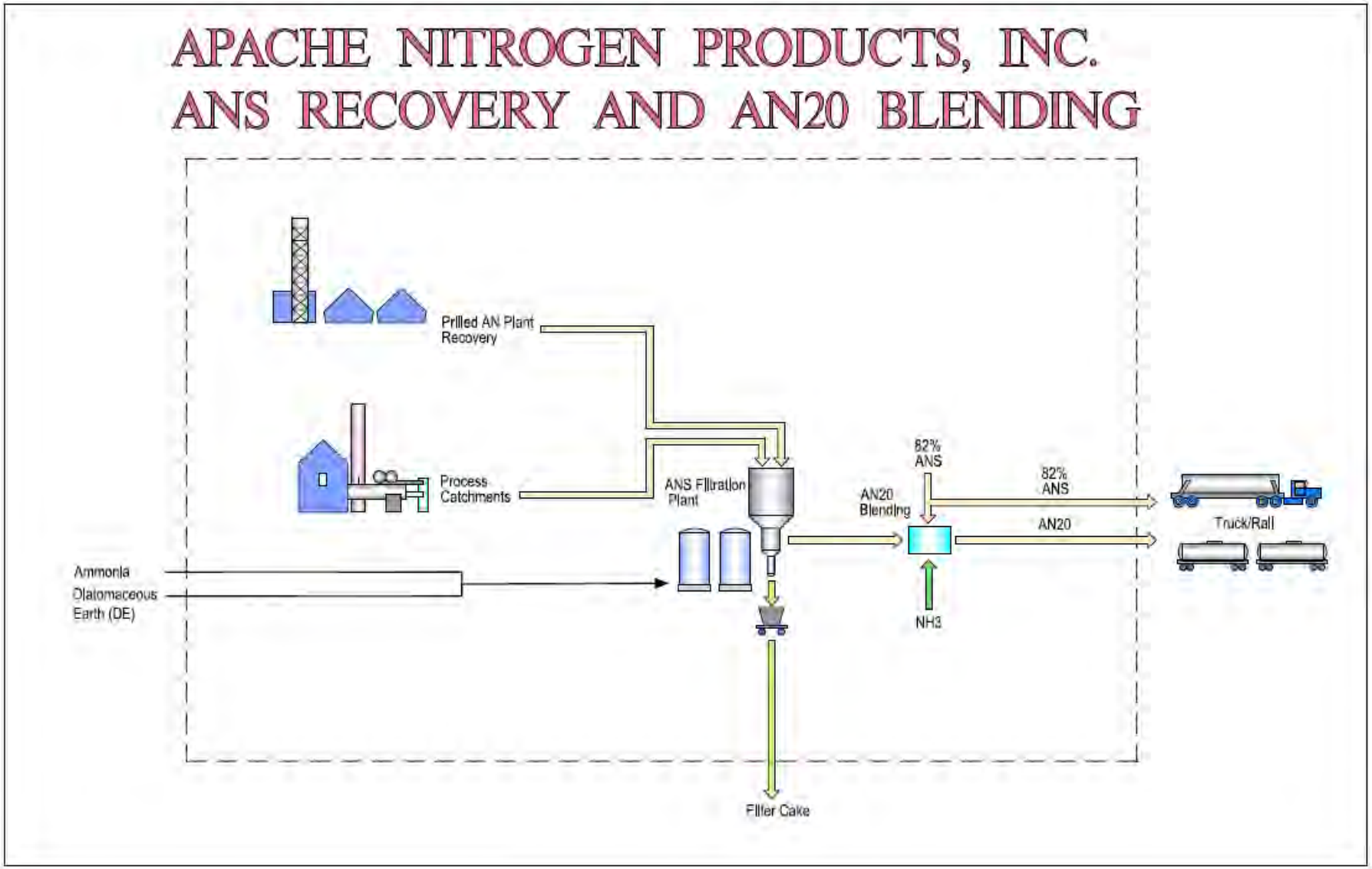


Figure 9: Process Flow Diagram of the Truck Emulsion Plant

APACHE NITROGEN PRODUCTS, INC.
ANS RECOVERY AND AN20 BLENDING



7. EMISSIONS RELATED INFORMATION

The methodologies used to calculate the emission rates presented in this application are explained in the following sections. The maximum potential emissions are calculated using annual and maximum hourly process rates, emission factors derived from historical source testing data, emission factors derived from limits under 40 CFR 60, Subpart IIII, and emission factors provided in the *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition (AP-42), U.S. EPA*. Determination of the maximum process rates are presented in Section 7.1. The determination of emission factors is presented in Section 7.2. The control devices and respective control measures are described in Section 7.3. Detailed emission calculations are provided in Appendix C of this application.

7.1 Determination of Maximum Process Rates

The maximum annual and hourly process rates for the equipment listed in this application are based on the maximum historical operational determined capacity, and the operating schedule. Unless limited by the current permit, a pending permit revision, or the operating schedule equipment is assumed to operate continuously (8,760 hours/year). See Section 9 for details about how maximum process rates are determined.

7.2 Determination of Emission Factors

7.2.1 AP-42 Emission Factors and EPA Emission Factors

AP-42 emission factors were derived from the tables of various sections of the AP-42 guidance, as indicated in Table 3 and Table 4 of the Emission Inventory. Particle size fractions were derived from AP-42 and/or the California Emission Inventory Development and Reporting System. Gaseous emission factors were derived from AP-42 for criteria pollutants and from 40 CFR Part 8, Subpart C, Tables C-1 and C-2 for GHG emissions. Fugitive emissions from the Gasoline Dispensing Facility were calculated using the maximum annual fuel throughput methodology from AP-42 Chapter 7. Working losses were divided by the tank throughput to determine a lb/gallon emission factor for VOCs and HAPs. The emission calculations in Appendix C contain footnotes referencing the source for each emission factor used and how they were derived.

7.2.2 Source Test Data

When source test data is used to develop an emission factor for estimating potential to emit, the PM emissions from the applicable equipment is calculated using the average source test result plus two standard deviations from the mean or average value (Appendix C). This corresponds to a 95% confidence interval (CI). Because the highest applicable source test run observed for the equipment listed is lower than the average result plus two standard deviations from the mean or average value, a 95% confidence interval represents a worst-case scenario for estimating emissions. As mentioned above, the source and derivation of each emission factor is described in footnotes in the emission calculations contained in Appendix C.

7.2.3 Permit Limits

For AOP-3 and AOP-4, the applicable emission limits for NO_X (37.67 tpy and 3.0 lb/ton, respectively) were used in lieu of source test data or AP-42 emission factors to estimate potential to emit.

7.3 Control Efficiencies

Control efficiencies are based on AP-42 or manufacturer's data, as indicated. Emissions from sources without control equipment, such as the Prill Tower, are limited by good operating practices. Tables C-4a and C-4b to Appendix C identify the control efficiencies assigned to each control measure and the basis for each numerical value selected.

8. LIST OF INSIGNIFICANT ACTIVITIES

In **Table 8-1** and **Table 8-2**, ANPI proposes the following list of insignificant and trivial activities.

Table 8-1. Insignificant Activities and Sources

ANPI Insignificant Activities and Sources	A.A.C. Citation
Petroleum product storage tanks containing the following substances: Diesel fuels and fuel oil in storage tanks with capacity ≤ 40,000 gallons or less, lubricating oil, transformer oil, and used oil. • Diesel dispensing tank #25 • Diesel dispensing tank #24 • SWE TEP diesel tanks • CTI diesel dispensing tank • Used Oil Trailer	R18-2-101.68.a.i
Gasoline storage tanks with capacity ≤ 10,000 gallons • Gasoline dispensing tank #1763	R18-2-101.68.a.ii
Storage and handling of drums or other transportable containers where the containers are sealed during storage, and covered during loading and unloading, including containers of waste and used oil regulated under RCRA. • Universal Waste – Less than 100 kg	R18-2-101.68.a.v
Storage tanks of any size containing exclusively soaps, detergents, waxes, greases, aqueous salt solutions, aqueous solutions of acids that are not regulated air pollutants, or aqueous caustic solutions.[4] • Tank 906 brine • Water treatment chemicals – AOP3, AOP4, Powerhouse	R18-2-101.68.a.vi
Internal combustion engine-driven compressors, internal combustion engine-driven electrical generator sets, and internal combustion engine-driven water pumps used for less than 500 hours per calendar year for emergency replacement or standby service. • Diesel Fuel Fire Pump Engine • Diesel Fuel Engine Driven Compressor • Natural Gas Engine Driven Generator • IT Backup Generator	R18-2-101.68.b
Low Emitting Processes • HAP metal emitting brazing, soldering, welding and cutting, various	R18-2-101.68.c
Housekeeping activities and associated products used for cleaning purposes, including collecting spilled and accumulated materials at the source, including operation of fixed vacuum cleaning systems. • Prill area washdown apron • Various plant washdowns	R18-2-101.68.d.i

[4] These insignificant activities are indistinguishable from the trivial activity category in A.A.C R18-2-101.146.e.ii. ANPI is requesting clarification from ADEQ on whether these activities should be treated as trivial or insignificant.

ANPI Insignificant Activities and Sources	A.A.C. Citation
• Process filter changes • ANS filter operation	
Noncommercial (in-house) experimental, analytical laboratory equipment, which is bench scale in nature, including quality control/quality assurance laboratories supporting a stationary source and research and development laboratories. • Equipment used in the analytical laboratory. • Small pilot scale research and development projects, which include, but are not limited to the following. • Research involving alternate product forms. • Geologic and hydrogeologic exploration and drilling activities. • Lab equipment used for chemical and physical analysis. • Equipment used in the analytical laboratory. • Routine calibration and maintenance of laboratory equipment or other analytical instruments. • Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis. • Hydraulic and hydrostatic testing equipment. • Environmental chambers not using hazardous air pollutant gasses. • Lab equipment used exclusively for chemical and physical analyses	R18-2-101.68.e.i
Individual sampling points, analyzers, and process instrumentation, whose operation may result in emissions but that are not regulated as emission units.[5] • AOP3 sample ports • AOP4 sample ports	R18-2-101.68.e.ii
General office activities, such as paper shredding, copying, photographic activities, and blueprinting, but not to include incineration.[6]	R18-2-101.68.f.i
Use of consumer products, including hazardous substances as that term is defined in the Federal Hazardous Substances Act where the product is used at a source in the same manner as normal consumer use.[7]	R18-2-101.68.f.ii
Installation and operation of potable, process and wastewater observation wells, including drilling, pumping, filtering apparatus. • Wells 4 and 5	R18-2-101.68.g.i
Transformer vents.	R18-2-101.68.g.ii

[5] These insignificant activities are indistinguishable from the trivial activity category in A.A.C. R18-2-101.146.f.vii. ANPI is requesting clarification from ADEQ on whether these activities should be treated as trivial or insignificant.

[6] These insignificant activities are indistinguishable from the trivial activity category in A.A.C. R18-2-101.146.d.v. ANPI is requesting clarification from ADEQ on whether these activities should be treated as trivial or insignificant.

[7] These insignificant activities are indistinguishable from the trivial activity category in A.A.C. R18-2-101.146.d.ix. ANPI is requesting clarification from ADEQ on whether these activities should be treated as trivial or insignificant.

Table 8-2. Trivial Activities and Sources

ANPI Trivial Activities and Sources	A.A.C. Citation
Combustion emissions from propulsion of mobile sources. • Company Vehicle travel on site	R18-2-101.146.a.i
Emergency or backup electrical generators at residential locations.	R18-2-101.146.a.ii
Portable electrical generators that can be moved by hand from one location to another. "Moved by hand" means capable of being moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device. • Generator for monitoring wells	R18-2-101.146.a.iii
Brazing, soldering, and welding equipment, and cutting torches related to manufacturing and construction activities that do not result in emission of HAP metals. Brazing, soldering, and welding equipment, and cutting torches related to manufacturing and construction activities that emit HAP metals are insignificant activities based on size or production level thresholds. Brazing, soldering, and welding equipment, and cutting torches directly related to plant maintenance and upkeep and repair or maintenance shop activities that emit HAP metals are treated as trivial and listed separately in this definition. • Non-HAP metals emitting brazing, soldering, welding and cutting, various	R18-2-101.146.b.iii
Air compressors and pneumatically operated equipment, including hand tools. • Pneumatic power and hand tools	R18-2-101.146.b.v
Batteries and battery charging stations, except at battery manufacturing plants.	R18-2-101.146.b.vi
Process water filtration systems and demineralizers. • RO System	R18-2-101.146.b.xv
Oxygen scavenging or de-aeration of water.	R18-2-101.146.b.xvii
Ozone generators.	R18-2-101.146.b.xviii
Steam vents and safety relief valves.	R18-2-101.146.b.xix
Steam leaks.	R18-2-101.146.b.xx
Steam cleaning operations and steam sterilizers. • Brine Concentrator deaerator • Steam vents, safety relief valves and leaks, site wide • Process pipe steam outs	R18-2-101.146.b.xxi
Use of vacuum trucks and high-pressure washer/cleaning equipment within the stationary source boundaries for cleanup and insource transfer of liquids and slurried solids to wastewater treatment units or conveyances.	R18-2-101.146.b.xxii

ANPI Trivial Activities and Sources	A.A.C. Citation
• Process plant maintenance, including cleanout using vacuum and/or pressure washing	
Electric motors. • Electric motors site wide	R18-2-101.146.b.xxiv
Plant and building maintenance and upkeep activities, including grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots, if these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and do not otherwise trigger a permit revision. Cleaning and painting activities qualify as trivial activities if they are not subject to VOC or hazardous air pollutant control requirements.	R18-2-101.146.c.i
Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating, de-greasing, or solvent metal cleaning activities, and not otherwise triggering a permit revision.	R18-2-101.146.c.ii
Janitorial services and consumer use of janitorial products.	R18-2-101.146.c.iii
Landscaping activities. • Landscaping and site housekeeping activities. • Fugitive emissions from landscaping activities. • Use of pesticides, fumigants, and herbicides. • Grounds keeping activities and products. • Internal combustion engines used for landscaping activities.	R18-2-101.146.c.iv
Routine calibration and maintenance of laboratory equipment or other analytical instruments.	R18-2-101.146.c.v
Caulking operations which are not part of a production process.	R18-2-101.146.c.viii
Air-conditioning units used for human comfort that do not have applicable requirements under Title VI of the Act.	R18-2-101.146.d.i
Ventilating units used for human comfort that do not exhaust air pollutants into the ambient air from any manufacturing, industrial or commercial process. • Administrative Building Heater (0.08 MMBtu/hr) • Administrative Building Water Heater (0.075 MMBtu/hr) • Warehouse Heaters (3) (0.075 and 0.15 MMBtu/hr) • Tool Shop Heaters (0.25 MMBtu/hr, each) • Maintenance Office Heater (0.06 MMBtu/hr) • Weld Shop Heaters (4) (0.1 and 0.075 MMBtu/hr) • Weld Shop Water Heater (0.075 MMBtu/hr) • Garage Heaters (0.25 MMBtu/hr)	R18-2-101.146.d.ii
Tobacco smoking areas.	R18-2-101.146.d.iii

ANPI Trivial Activities and Sources	A.A.C. Citation
Non-commercial food preparation.	R18-2-101. 146.d.iv
General office activities, such as paper shredding, copying, photographic activities, pencil sharpening and blueprinting, but not including incineration.[8]	R18-2-101. 146.d.v
Bathroom and toilet vent emissions.	R18-2-101. 146.d.vii
Fugitive emissions related to movement of passenger vehicles, if the emissions are not counted for applicability purposes under subsection (146)(c) of the definition of major source in this Section and any required fugitive dust control plan or its equivalent is submitted with the application.	R18-2-101. 146.d.viii
Use of consumer products, including hazardous substances as that term is defined in the Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) where the product is used at a source in the same manner as normal consumer use.[9]	R18-2-101. 146.d.ix
Circuit breakers.	R18-2-101. 146.d.xi
Adhesive use which is not related to production.	R18-2-101. 146.d.xii
Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP. • Liquid ammonia storage tanks • Water Tanks • ANS Storage Tanks • ANS / Water Mixture Storage Tanks	R18-2-101. 146.e.i
Chemical storage associated with water and wastewater treatment where the water is treated for consumption and/or use within the permitted facility. • RO system	R18-2-101. 146.e.iii
Storage cabinets for flammable products. • Cabinets site wide	R18-2-101. 146.e.v
Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.	R18-2-101. 146.e.vi
Vents from continuous emissions monitors and other analyzers.	R18-2-101. 146.f.i

[8] These trivial activities are indistinguishable from the insignificant activities category in A.A.C. R18-2-101.68.f.i. ANPI is requesting clarification from ADEQ on whether these activities should be treated as trivial or insignificant.

[9] These trivial activities are indistinguishable from the insignificant activities category in A.A.C. R18-2-101.68.f.ii. ANPI is requesting clarification from ADEQ on whether these activities should be treated as trivial or insignificant.

ANPI Trivial Activities and Sources	A.A.C. Citation
Bench-scale laboratory equipment used for physical or chemical analysis, but not laboratory fume hoods or vents.	R18-2-101. 146.f.ii
Equipment used for quality control, quality assurance, or inspection purposes, including sampling equipment used to withdraw materials for analysis.	R18-2-101. 146.f.iii
Individual sampling points, analyzers, and process instrumentation, whose operation may result in emissions but that are not regulated as emission units.[10]	R18-2-101. 146.f.vii
Fire suppression systems.	R18-2-101. 146.g.i
Shock chambers.	R18-2-101. 146.h.i
Cathodic protection systems.	R18-2-101. 146.h.iv
Filter draining.	R18-2-101. 146.h.vi

[10] These trivial activities are indistinguishable from the insignificant activities category in A.A.C. R18-2-101.68.e.ii. ANPI is requesting clarification from ADEQ on whether these activities should be treated as trivial or insignificant.

9. PROCESS RATE INFORMATION AND OPERATING SCHEDULES

9.1 Process Rates

Maximum hourly and annual process rates for each major process and process equipment at ANPI are presented in **Table 9-1**. The maximum hourly process rates should not be used to determine annual capacity as these are determined by process sustainability. This is because while a particular unit or process may be capable of operating at a relatively high capacity for short periods (on the order of an hour), they cannot be assumed to feasibly sustain this high rate for prolonged periods (on the order of a year). In operations where hourly process rates are not determined by the equipment capacity, these rates are based on the annual process rate divided by 8,760 hours.

The maximum process rates presented in **Table 9-1** are used to estimate potential hourly and annual emissions as presented in Appendix C.

Table 9-1. Summary of Maximum Hourly and Annual Process Rates

Equipment / Activity	Process Rates [a]	
	Maximum Hourly	Annual
Nitric Acid Production		
AOP-4	13.8 tons (100% basis)	113,602 tons (100% basis)
AOP-3	7.3 tons (100% basis)	60,368 tons (100% basis)
AOP-3 Cooling Tower	336,000 gallons	2,943,360,000 gallons
AOP-4 Cooling Tower	360,000 gallons	3,153,600,000 gallons
Liquid Ammonium Nitrate (ANS) Plant		
Ammonium Nitrate Neutralizer	29.2 tons	242,725 tons
Prill Plant		
AN Reclaim Unit	1 hour	7,884 Hours
Falling Film Evaporator (FFE)	16.3 tons	128,480 tons
Prill Tower	16.3 tons	128,480 tons
Prill Plant Conveyors	16.3 tons	128,480 tons
Rotary Predryer and Dryer Combined	16.3 tons	128,480 tons
Fluidized Bed Cooler	16.3 tons	128,480 tons
Vibrating Screen	16.3 tons	128,480 tons
Coating Drum	16.3 tons	128,480 tons
Prill Barns / Stockpiles	38.9 tons	340,910 tons
Floor-Mounted Grizzly Screens	38.9 tons	340,910 tons
Flexible Chute Systems (Shipment Truck Loading)	38.9 tons	340,910 tons
Prill Transloading	31.2 tons	212,430 tons
Prill Shipment Truck VMT	1.6 miles [1]	13,782 miles
Powerhouse		
Powerhouse Cooling Tower	1,700 gallons	14,892,000 gallons
Truck Emulsion Plant		
Truck Emulsion Plant – ANFO Slurry	10.6 tons	27,923 tons
Diesel Fuel Delivery Truck VMT	1.0 miles [2]	78.6 miles
ANS Transport Truck VMT	1.0 miles [2]	987.4 miles
Urea Delivery Truck VMT	1.0 miles [2]	26.5 miles
Water Delivery Truck VMT	0.6 miles [2]	40.7 miles
Emulsion Transport Truck VMT	1.0 miles [2]	1,095 miles

Equipment / Activity	Process Rates [a]	
	Maximum Hourly	Annual
Fuel Burning Equipment		
AOP-4 Natural Gas Steam Superheater	5.4 MMBtu	47,304 MMBtu
Generator Tanks		
Nitric Acid Storage Tanks (dedicated storage)	6,993 gallons	2,693,1361[1] gallons
Nitric Acid Storage Tanks (part-time storage)	6,993 gallons	1,800,000[2] gallons

[a] VMT = vehicle miles traveled on paved road

[1] The maximum hourly process rate is estimated based on the maximum annual process rate divided by 8,760 hours of operation.

[2] The maximum hourly process rate is assumed to be one round-trip within ANPI boundaries for a delivery or shipment vehicle.

9.2 Fuel Burning Equipment

A summary of all fuel burning equipment at ANPI that is subject to permitting is presented in **Table 9-2**. For each piece of fuel burning equipment, the type and quantity of fuels that will be used, the percent that will be used for process heat, the higher heating values of the fuels, and the potential sulfur and ash contents of the fuel are also included in **Table 9-2**.

Table 9-2. Summary of Fuel Burning Equipment and Fuel Usage Rates

Emission Unit ID	Emission Unit Description	Fuel Type	Power Rating	Fuel Rates (gallons or MMscf)		% Used for Process Heat	Higher Heating Value [b]	Sulfur / Ash Content
				Maximum Hourly	Annual [a]			
004	AOP-4 Natural Gas Steam Superheater	Natural Gas	5.4 MMBtu/hr	0.00529 MMscf	46.38 MMscf	100%	1,020 Btu/scf	negligible

[a] Annual fuel rates are based on 8,760 hours of operation, and a brake-specific fuel consumption rate of 10,500 Btu/hp-hr.

[b] From AP-42, Appendix A, page A-5

9.3 Raw Material Description and Usage Rates

The hourly and annual usage rates of raw materials used at ANPI are presented in **Table 9-3**. These rates are based on the respective maximum processing rates for the equipment and processes in which they are used. Raw materials that will be used by ANPI include ammonia, nitric acid, liquid ammonium nitrate, diesel fuels, and urea, and the fuels described in **Table 9-2**.

Table 9-3. Chemical and Reagent Usage at ANPI

Main Chemical Name / Group	Purpose / Use	Storage Location	Maximum Hourly Usage	Annual Usage
Ammonia	Nitric Acid	Ammonia Storage tanks	25,000 lb/hr	100,000 tons
	ANS Production	Tk 94		
	LDAN Production			
Nitric Acid (57-60% Conc.)	ANS Production	Tanks 95, 129, 130	41,400 lb/hr	191,145 tons
	Minor Sales	Tk 102 (part time)	543 tons	
ANS (84-86%)	LDAN Production	Tk 97	58,333 lb/hr	242,725 tons
	82% ANS			
	AN20	Tk 101, Tk 102 (part time)		
Urea	Truck Emulsion Production	Urea bag storage shed	660 lb/hr	1,323,000 lb
Diesel	Truck Emulsion Production	Mixed Fuel tank 49	270 gal/hr	550,000 gal

9.4 Anticipated Operating Schedule and Limitations on Source Operations Affecting Emissions

ANPI is operating continuously (8,760 hours/year, 24 hours/day, 365 days/year, and 7 days/week). Emissions from all sources that use time-based emission factors are quantified based on 8,760 hours of operation.

The only operational limitation on source operations that affect emissions for ANPI is the limit of 1,095 emulsion trucks loaded at the Truck Emulsion Plant on a 12-month rolling basis (Attachment B Condition XI.B.1).

10. AIR POLLUTION CONTROL INFORMATION

The characteristics of the air pollution control used at ANPI are presented in **Table 10-1**. This table includes: (a) the list of emission points controlled; (b) the control efficiencies; (c) the type of pollutant controlled; and (d) air pollution control equipment/measure. The process locations of the air pollution control equipment are described in Section 4 and are presented in the process flow diagrams located in **Figure 6-2**.

Table 10-1. Air Pollution Control Equipment at ANPI

Emission Unit ID	Air Pollution Control Equipment/ Measures	Emission Points Controlled	Pollutants Controlled	Control Efficiency (Rated and Operating)
039	AN Reclaim Unit [a]	FFE, Rotary Predryer and Dryer, Fluidized Particulates 80% Bed Cooler	Particulates	80%
--	AOP-3 Tail Gas SCR	AOP-3 Stack	NO_X	95%
012	Neutralizer Scrubber	Neutralizer	Ammonium Nitrate (Particulates), NH_3	99% +
036	Packed Bed Scrubber	Nitric Acid Storage Tanks	NO_X	80%

[a] The AN Reclaim Unit is a product collector but is included in this Table because it controls the FFE, rotary dryer/predryer, and fluidized bed cooler with a minimum product recovery efficiency of 80%. The actual capture efficiency is approximately 95%.

11. FEDERAL AND LOCAL APPLICABLE REQUIREMENTS

11.1 Federal Applicable Requirements

Based on the sources currently in operation, the Federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) programs applies to various sources at the facility. All existing NSPS and NESHAP requirements will continue to apply to the facility. Compliance with NSPS and NESHAPs are included in **Table 11-1**.

Table 11-1. ANPI Applicable Regulatory Requirements of NSPS and NESHAP and Methods for Demonstrating Compliance

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
All equipment subject to A.A.C. Article 9 and 40 CFR 60: ► AOP-3 ► AOP-4 ► Diesel Fire Pump Engine	40 CFR 60.7(b) A.A.C. R18-2-901.1	Maintenance of records of the occurrence and duration of shutdown or malfunction of the emission unit.	Records review.
	40 CFR 60.7(f) A.A.C. R18-2-901.1	Maintenance of a file of all measurements, including any performance testing measurements. Retention of the file for at least two years following the date of such measurements.	Records review.
	40 CFR 60.8(d) A.A.C. R18-2-901.1	Notification to the Director and Administrator 30 days prior to performance testing.	Maintenance of records.
	40 CFR 60.11(d) A.A.C. R18-2-901.1	Operation of the equipment, to the extent practicable, in a manner consistent with good air pollution control practices for minimizing emissions.	Facility procedures; operation and maintenance records.
Nitric Acid Plants ► AOP-3 and AOP-4	40 CFR 60.7(a)(4)	A notification of any physical or operational change which may increase the emission rate of any air pollutant to which a standard applies, postmarked 60 days or as soon as practicable before the change is commenced.	Maintenance of records.
	40 CFR 60.7(c) and (d) A.A.C R18-2-901.1	Submittal of excess emissions and monitoring systems performance report and/or summary report postmarked by the 30th day following the end of each quarter.	Maintenance of records.
	40 CFR 60.8 A.A.C. R18-2-901.1	Performance testing must conform to the requirements of this section.	Equipment design; maintenance of records.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
	40 CFR 60.72(a)(1) A.A.C R18-2-901.11	NOx ≤ 3.0 lb/ton of nitric acid produced with the production expressed as 100 percent nitric acid.	EPA Reference Method 7 (or 7A, 7B, 7C, or 7D) (Modified 7E as approved by EPA].
	40 CFR 60.72(a)(2) A.A.C R18-2-901.11 40 CFR 60.11(c)	Opacity ≤ 10% applies at all times except startup and shutdown.	Records of COMS data.
	40 CFR 60.73(a) A.A.C R18-2-901.11	Installation, calibration, maintenance, and operation of a continuous monitoring system for NOX. a) Compliance with 40 CFR 60.13(d)(1) where the pollutant gas mixture for Performance Specification 2 and calibration checks is NO2. b) Use a span value a 500 ppm NO2. c) Compliance with 40 CFR 60.13(c) with performance evaluation conducted using EPA Reference Method 7. Alternative to Method 7 are 7A, 7B, 7C, or 7D where the sampling time is at least 1-hour for Method 7C or 7D [or Modified 7E as approved by EPA]	Facility procedures; maintenance of records.
	40 CFR 60.73(b) A.A.C R18-2-901.11	Establishment of a conversion factor for converting monitoring data into units of lb/ton where the conversion factor is determined by: a) Conducting concurrent measurement by the CEMS and the applicable reference method. b) Dividing the average of the reference method test data (lb/ton) by the average of the CEMS monitoring data (ppm) to obtain a conversion factor in units of lb/ton per ppm. c) Re-establishment of the conversion factor during any performance test conducted under 40 CFR 60.8 or any CEM performance evaluation under 40 CFR 60.13(d).	Maintenance of records.
	40 CFR 60.73(c) A.A.C R18-2-901.11	Recording of the daily production and hours of operation.	Maintenance of records.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
	40 CFR 60.73(e) A.A.C R18-2-901.11	Periods of excess emissions to be reported per 40 CFR 60.7(c) are any 3-hour period during which the average NOx emissions measured by the CEMS $\geq$ 3 lb/ton.	Maintenance of records.
	40 CFR 60.74 A.A.C R18-2-901.11 40 CFR 60.13	Performance tests for NOx to be conducted in accordance to EPA Methods 1, 2, 7 (or 7A, 7B, 7C, or 7D) [or Modified Method 7E as approved by EPA] and the procedures of 40 CFR 60.73(b) and (c). Monitoring systems must conform to requirements.	Maintenance of records.
40 CFR Part 60 Subpart IIII Requirements for:: ► Diesel Fire Pump Engine	40 CFR 60.4205(c), Table 4	a) Compliance with emission limits: PM $\leq$ 0.30 grams/hp-hr b) NO_X and Non-Methane Hydrocarbons $\leq$ 3.5 grams/hp-hr.	Records of manufacturer certification; facility procedures; operation and maintenance records.
	40 CFR 60.4206, and 60.4211(a)(1)	Operation and maintenance of engine in accordance to manufacturer's emissions-related instructions. Maintenance of a copy of instructions onsite.	Facility procedures; operation and maintenance records.
	40 CFR 60.4207(b)	Diesel fuel must comply with following requirements: a) A maximum sulfur content of 15 ppm, and b) A minimum cetane index of 40, or a maximum aromatic content of 35 volume percent.	Maintenance of fuel supplier records.
	40 CFR 60.4209(a)	Installation of a non-resettable hour meter prior to startup of the engine.	Maintenance of records.
	40 CFR 60.4211(a)(2)	Changes to emissions-related settings are limited to those permitted by the manufacturer.	Facility procedures; maintenance of records.
	40 CFR 60.4211(a)(3)	Compliance with the applicable requirements of 40 CFR 89, 94, and/or 1068.	Facility procedures; maintenance of records.
	40 CFR 60.4211(c)	Installation and configuration of the engine in accordance to the manufacturer's emission- related specifications.	Facility procedures; maintenance of records.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
	40 CFR 60.4211(f)	a) Operation of the engine for purposes of maintenance checks and readiness testing limited to 100 hours per year; b) Operation of the engine for non- emergency situations limited to 50 hours per year, but such hours are counted towards the 100 hours per year provided for maintenance and testing.	Operation and maintenance records.
	40 CFR 60.4214(b)	Maintenance of records of engine operation, the reason of operation, and the duration of time the engine was operated.	Operation and maintenance records.
40 CFR Part 63 Subpart ZZZZ Requirements for:: ► Diesel Fire Pump Engine ► Natural Gas-fired 830-hp Empire Power G399 Generator ► Diesel Fired 350-hp Air Compressor	For the Fire Pump: 40 CFR 63.6590(c)	Demonstration of compliance with 40 CFR 63 Subpart ZZZZ is made by demonstrating compliance with the requirements of 40 CFR 60 Subpart IIII.	Operation and maintenance of records.
	40 CFR 63.6605(a) and (b) 40 CFR 63.6625(e)	Operate and maintain in accordance with good air pollution control practices and according to manufacturer's emission-related instructions	Facility procedures; operation and maintenance records.
	For the Compressor: 40 CFR 63.6604 40 CFR 80.510	Diesel fuel must comply with following requirements: a) A maximum sulfur content of 15 ppm, and b) A minimum cetane index of 40, or a maximum aromatic content of 35 volume percent.	Maintenance of fuel supplier records.
	40 CFR 63.6603 40 CFR Part 63, Subpart ZZZZ, Table 2d 40 CFR 63.6625(j)	Change oil and filter every 500 hours of operations; for diesel-fired engines, inspect air cleaner every 1000 hours; for natural-gas fired engine, inspect spark plugs every 1000 hours; inspect all hoses and belts every 500 hours.	Maintenance records.
	40 CFR 63.6625(f) 40 CFR 63.6640(f)	Install a non-resettable hour meter on emergency engines; qualifications for emergency engines	Operation and maintenance records.
	40 CFR 63.6655 40 CFR 63.6625(i) 40 CFR 63,6660(a), (b) and (c) 40 CFR Part 63 Subpart ZZZZ Table 2d	Recordkeeping and record retention provisions.	Records review; records retention policy.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
40 CFR Part 63 Subpart CCCCCC Requirements for: Gasoline Dispensing Facility (GDF, Cargo tanks and delivery equipment to the 3,000-gallon storage tank)	40 CFR 63.11116(a)	Gasoline shall not be handled in a manner that would result in vapor releases for extended periods of time. Preventive measures shall include: (a) Minimize gasoline spills, (b) Clean up spills as expeditiously as practicable, (c) Cover all open containers and all gasoline storage tank fill pipes with a gasketed seal when not in use. (d) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices such as oil/water separators.	Equipment design; facility procedures.
	40 CFR 63.11117 40 CFR 63.11111(i) 40 CFR 63.11115(b) 40 CFR 63.11124(a) 40 CFR 63.5 40 CFR 63.13 40 CFR 63.11125(d) 40 CFR 63.11126(b)	The following additional requirements shall become applicable if any monthly gasoline throughput exceeds 10,000 gallons, no later than 3 years after such date: a) The requirements of 40 CFR 63.11116(a), b) Loading of gasoline to storage tank shall be conducted using submerged filling as follows: • Submerged fill pipes installed on or before November 9, 2006 must be no more than 12 inches from the bottom of the tank. • Submerged fill pipes installed on after November 9, 2006 must be no more than 6 inches from the bottom of the tank. c) Submerged fill pipes that do not meet the 6- or 12-inch specifications shall be allowed if the liquid level in the tank is always above the entire opening of the fill pipe.	Equipment design; facility procedures; maintenance of records.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
		d) Keep applicable records and submit reports: • Records of the occurrence and duration of each malfunction of operation or the air pollution control and monitoring equipment. • Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.11115(a), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. • By March 15 of each year, submit malfunction reports, including of actions taken to minimize emissions and actions taken to correct a malfunction. No report is necessary for a calendar year in which no malfunctions occurred. e) Submit the initial notification and notification of compliance status required under § 63.11124(a).	
	40 CFR 63.11115(a)	Operation and maintenance of the GDF and associated air pollution control equipment and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions.	Facility procedures.
	40 CFR 63.11111(e) 40 CFR 63.11116(b) 40 CFR 63.11117(d) 40 CFR 63.11132	Maintenance of records of monthly throughput (total loaded or dispensed from the gasoline tank) calculated on the basis of total previous 364 days divided by 12 available within 24 hours of a request by the Administrator.	Maintenance of records.

11.2 Arizona Administrative Code Applicability

This section summarizes the existing regulations from the A.A.C Title 18 Chapter 2 Department of Environmental Quality – Air Pollution Control. ANPI will continue to be in compliance with the regulations listed in **Table 11-2** below.

Table 11-2. ANPI Arizona Applicable Regulatory Requirements and Methods for Determining Compliance

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
Facility-wide	A.A.C. R18-2-309.2.a	Submittal of annual compliance certification.	Records of certification submittal.
	A.A.C. R18-2-310.01	Requirements for reporting excess emissions including but not limited to: (a) telephone or fax notification within 24 hours of first learning of excess emissions, and (b) submittal of a written report within 72 hours of the telephone or fax notification.	Facility procedures; maintenance of records.
	A.A.C. R18-2-315	Posting of permit or certificate of permit issuance at the equipment site in such a manner as to be clearly visible and accessible, and maintaining a complete copy of the permit on the site.	Inspection; maintenance of records.
	A.A.C. R18-2-326	Payment of annual emission fees.	Records of fee payments.
	A.A.C. R18-2-327	Submittal of annual emission inventory survey questionnaires.	Records of questionnaire submittal.
Truck Emulsion Plant	A.A.C. R18-2-306.01	Voluntary limit of 1,095 transport truck shipments of emulsion per year based on a twelve-month rolling total.	Maintenance of records.
Open Burning	A.A.C. R-18-2-602.D, G	Receive authority to conduct open burning by obtaining a permit from the control officer or delegated authority. Meet all requirements of the open burning permit.	Records of any open burning permit(s); facility procedures.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
Plant Open Spaces, Roads and Streets, Material Handling Operations, Storage Piles, and Mineral Tailings (except for those subject to Articles 7 or 9 of the A.A.C.)	A.A.C. R18-2-604 A.A.C. R18-2-605 A.A.C. R18-2-606 A.A.C. R18-2-607 A.A.C. R18-2-608	Implementation of reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne from: • open spaces; • plant roads and streets; • material handling operations; and • storage piles.	Regular inspections; records of reasonable precautions, including application of water to regularly traveled unpaved roads, maintenance of roads, and application of water as needed on material handling operations and storage piles.
All non-point sources as defined in A.A.C. R18-2-101(92)	A.A.C. R18-2-614	Opacity ≤ 40%	Records of visible emission/Method 9 observations.
All existing point sources as defined in A.A.C. R18-2-701 and 702.A unless otherwise specified in this table	A.A.C. R-18-2-702.B.3, C	Opacity ≤ 20% Where the presence of uncombined water is the only reason for the exceedance of the standard, such exceedance shall not constitute a violation.	Records of visible emission/Method 9 observations.
Gasoline Dispensing Facility (GDF, Cargo tanks and delivery equipment to the 3,000-gallon storage tank)	A.A.C. R18-2-710.B	Gasoline storage tank shall be equipped with a submerged filling device or acceptable equivalent for the control of hydrocarbon emissions	Equipment design.
	A.A.C. R18-2-710.D	All pumps and compressors that handle gasoline shall be equipped with mechanical seals or other equipment of equal efficiency to prevent release of organic contaminants into the atmosphere.	Equipment design.
	A.A.C. R18-2-710.E.1	Maintenance of file of the typical Reid vapor pressure of the gasoline, dates of storage, and dates when the storage vessel is empty.	Maintenance of records
	A.A.C. R18-2-710.E.2, 3, and 4	Recording of the average monthly temperature and true vapor pressure of the gasoline if the true vapor pressure exceeds 9.1 psia	Maintenance of records of Reid vapor pressure of gasoline provided by supplier and demonstration that site climatological conditions are insufficient to cause the true vapor pressure above 9.1 psia.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
Equipment subject to A.A.C. R18-2-719 ► Natural Gas 830-hp Engine Driven Electric Power Generator ► Diesel Fuel Driven 350-hp Air Compressor	A.A.C. R18-2-719.B, C.1	PM $\leq$ $1.02Q^{0.769}$ for Q $\leq$ 4,200 MMBtu/hour Where PM = emission limit in lb/hour, Q = Aggregate heat input of all fuel-burning units.	Use of natural gas fuel; maintenance of records; records of emission calculations demonstrating compliance.
	A.A.C. R18-2-719.E	Opacity $\leq$ 40% (except for periods less than 10 consecutive seconds and the first 10 minutes of cold start operation).	Records of visible emissions/Method 9 observations.
	A.A.C. R18-2-719.F	SO_2 $\leq$ 1.0 lb/MMBtu heat input.	Records of low sulfur fuel use; mass balance of fuel sulfur content.
	A.A.C. R18-2-719.I	Maintenance of daily records of fuel sulfur content and the lower heating value of the fuels being fired.	Records review.
	A.A.C. R18-2-719.J	Reporting to the Director any daily period when the sulfur content of the fuel being fired exceeds 0.8% by weight.	Facility procedures; maintenance of records.
All Equipment Subject to A.A.C. R18-2-724 ► Natural Gas Erie City Iron Works Boiler 1 ► Natural Gas Erie City Iron Works Boiler 2 ► Natural Gas Erie City Iron Works Boiler 3 ► AOP-4 Steam Super Heater	A.A.C. R18-2-724.B, C.1	E $\leq$ $1.02\ Q^{0.769}$ Where: E = Maximum allowable particulate emission rate in lb/hour, Q = Aggregate heat input of all fuels whose products of combustion pass through a stack or other outlet.	Use of natural gas fuel; records of calculations demonstrating compliance.
	A.A.C. R-18-2-724.E	SO_2 $\leq$ 1.0 lb/MMBtu heat input.	Use of natural gas fuel; maintenance of records.
	A.A.C. R-18-2-724.J	Opacity $\leq$ 15% Reporting to the Director all six-minute periods in which the opacity exceeds 15%.	Records of visible emissions/Method 9 observations. Maintenance of records.
	A.A.C. R18-2-306.A.2	Fuel shall be limited to natural gas.	Equipment design; maintenance of records.
Equipment Subject to A.A.C. R-18-2-730 ► Falling Film Evaporator #3 ► AN Reclaim Unit Prill Tower ► Prill Plant Rotary Predryer	A.A.C. R-18-2-730.A.1, B	PM $\leq$ $3.59\ P^{0.62}$, when P $\leq$ 30 tph PM $\leq$ $17.31\ P^{0.16}$, when P > 30 tph (where PM = emission limit in lb/hour, P = total process rate in tons-mass/hour)	Records of emission calculations demonstrating compliance; records of EPA Reference Method 5 performance testing.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
► Prill Plant Dryer ► Fluidized Bed Cooler ► Rotex Vibrating Screen Coating Drum ► Product Storage Barns #1 and #2 ► Transloader at Prill Storage Barns ► All Material Conveying Equipment (Belts and Conveyors) ► AOP-3 Cooling Tower ► AOP-4 Cooling Tower ► Powerhouse Cooling Tower ► ANS Plant ► Nitric Acid Storage Tanks ► Liquid Ammonium Storage Tanks ► Liquid Fertilizer Tank ► Brine Concentrator Tank ► Ammonia Storage and Unloading Facility	A.A.C. R-18-2-730.A.2	$SO_2 \leq 600$ ppm	Facility procedures; operation and maintenance records.
	A.A.C. R-18-2-730.A.3	$NO_X \leq 500$ ppm	Facility procedures; operation and maintenance records.
	A.A.C R18-2-730.B	The total process weight rate, P, from all similar units employing a similar process shall be used in determining the maximum allowable emission rate of particulate matter.	Records of emission calculations demonstrating compliance.
	A.A.C. R-18-2-730.D	Operation of equipment, processes, and premises such that gaseous or odorous materials are not emitted in such quantities or concentrations as to cause air pollution.	Facility procedures; operation and maintenance records.
	A.A.C. R-18-2-730.F	Processing, storage, and transportation of solvents or other materials containing volatile organic compounds and acids in such a manner and by such means that the compounds will not evaporate, leak, escape, or otherwise be discharged into the ambient air as to cause or contribute to air pollution; and, where means are available, application of control methods, devices, or equipment to reduce effectively the contribution of these compounds to air pollution.	Facility procedures; operation and maintenance records.
Off-Road Machinery	A.A.C. R-18-2-802.A	No off-road machinery shall emit smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40% (except for periods less than 10 consecutive seconds and the first 10 minutes of cold start operation).	Visible emissions observations.

Emission Unit	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
Roadway and Site Cleaning Machinery	A.A.C. R-18-2-804.A	No roadway or site cleaning machinery shall emit smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40% (except for periods less than 10 consecutive seconds and the first 10 minutes of cold start operation).	Performance of EPA Reference Method 9 Test.

12. COMPLIANCE ASSURANCE MONITORING (CAM)

The U.S. Environmental Protection Agency (EPA) promulgated the CAM rule, 40 CFR 64, on October 22, 1997. Pursuant to 40 CFR 64.2(a), CAM applies to a pollutant-specific emission unit at a major source that satisfies all of the following criteria:

1. The unit is subject to an emission limitation or standard for a regulated air pollutant (or a surrogate thereof) other than an emission limitation or standard that is exempt under 40 CFR 64.2(b);
2. The unit uses a control device to achieve compliance with any such emission limitation or standard; and
3. The unit has potential pre-control device emissions of the regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

The only pollutant-specific emission unit that meets all of the above criteria at the ANPI facility is the ANS Plant, which is subject to CAM requirements under Attachment "B" Condition III.B.3 of ANPI's current Class I permit. The only other pollutant-specific emission units for which the potential pre-control device emissions are greater than 100 tpy of a regulated air pollutant are AOP-3 and AOP-4. However, the emission limitation or standard for which AOP-3 and AOP-4 uses a control device to achieve compliance is exempt under 40 CFR 64.2(b)(vi) because ANPI's Class I permit specifies a continuous compliance determination method (i.e., a Continuous Emission Monitoring System (CEMS)).

13. PERMIT PROCESSING FEE

In accordance with A.A.C R18-2-326, Fees Related to Individual Permits, and the ADEQ Permit Fee Schedule[11] (effective November 1, 2022), no fee is being submitted with this Class I permit application. However, ANPI agrees to pay the $186.10 per hour processing fee required based on the total actual time spent by ADEQ staff on processing this application as well as any fees associated with public notice.

[11] https://static.azdeq.gov/aqd/aqd_class_fees.pdf

14. COMPLIANCE PLAN AND SCHEDULE

As required by Permit 72820 ANPI is committed to maintaining compliance schedule as follows:

- For applicable requirements with which the source is in compliance at the time of permit issuance.

  The facility will continue to comply with all existing applicable requirements.

- For applicable requirements that will become effective during the permit term.

  The facility will meet in a timely manner applicable requirements that become effective during the permit term. ANPI is not presently aware of any particular applicable requirements requiring a more specific future schedule. Furthermore, ANPI shall submit a compliance certification annually which describes the compliance status of the facility with respect to each permit condition.

- A schedule of compliance for sources that are not in compliance with all applicable requirements at the time of permit issuance. Such a schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the source will be in noncompliance at the time of permit issuance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.

  The facility is currently in compliance with all applicable requirements. Therefore, no compliance schedule is required.

- A schedule for the submission of certified progress reports no less frequently than every 6 months for sources required to have a schedule of compliance to remedy a violation.

  Because a compliance schedule is not required, a schedule for submission of certified progress reports is likewise not required.

15. COMPLIANCE CERTIFICATION

As required by Attachment "A", Condition VII.A of the permit, the most recent compliance certification for ANPI was submitted to the EPA and ADEQ by the due date of May 15, 2021. This certification identified ANPI's compliance status with all applicable Title V requirements. ANPI will continue to comply with all applicable requirements as described in Section 11, and will, in a timely manner, meet any additional applicable requirements that become effective during the permit term.

I certify that based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.

Name: TJ Raica

Title: General Manager

Signature: Tyler J. Raica Date: July 26, 2023

APPENDIX A. EQUIPMENT LIST

Table A-1. Equipment List

Equipment	Qty.	Maximum Rated Capacity	Manufacturer	Model/Type	Serial No.	Date Installed or Modified
Ammonium Nitrate Solution Production						
ANS Plant (Neutralizer)	1	~~700~~ 900 tons/day	Custo-O-Fab, Inc.	Reactor Vessel	04-320	2004
Two Stage Venturi / Packed Bed Scrubber	1	27,000 lbs/hr	DR Technologies/ Koch-Giltsch	ELV-001 Wet Scrubber	P-1395/ 10-1047	1992/2010
Ammonium Nitrate Solution Railcar Unloading Station [a]	1	160 ton/day	TBD	TBD	TBD	2019
Nitric Acid Production						
AOP-4	1	330 tons/day	Chemico	Dual Pressure Unit	N/A	1975
AOP-4 Superheater	1	5.4 MM BTU/hr	Smalling	N/A	N/A	1989
AOP-4 Cooling Tower	1	6,000 gallons/min	Ecodyne	N/A	N/A	1975
AOP-3	1	~~176~~ 250 tons/day	Jacobs Engineering	Single Pressure Unit	N/A	Modified in 1993
AOP-3 Tail Gas Catalytic Reactor	1	N/A	Enprosol	Honeycomb SCR denox catalyst	2676	2007
AOP-3 Cooling Tower	1	5,600 gallons/min	Marley	N/A	N/A	1984
Nitric Acid Tank – Packed Bed Scrubber	1	N/A	N/A	N/A	N/A	N/A
Ammonium Nitrate Prill Production						
Falling Film Evaporator	1	391 tons/day	Struthers	Falling Film Evaporator	140FFE3	1962
Prill Tower	1	391 tons/day	ANP	N/A	140F620	2009
AN Reclaim Unit	1	20’ x 56’ Vessel	Smyth Steel	N/A	140MIS0901	2009

Equipment	Qty.	Maximum Rated Capacity	Manufacturer	Model/Type	Serial No.	Date Installed or Modified
Oscillating Conveyor 3500	1	352 tons/day	Link Belt	3500	140CN0177	1962
Rotary Predryer	1	352 tons/day	Standard Steel	N/A	140DR0901/ 0902	2009
Cleated Belt Conveyor	1	352 tons/day	N/A	N/A	140CN0901	2009
Fluidized Bed Dryer/Cooler	1	352 tons/day	N/A	N/A	140E0901	2009
Belt Conveyor 1b	1	352 tons/day	N/A	N/A	140CN0904	2009
~~Vibrating Screen~~	~~1~~	~~352 tons/day~~	~~N/A~~	~~N/A~~	~~140E0901~~	~~2009~~
Vibrating Screen [a]	1	586 tons/day	Rotex	842A	R131291	2020
Coating Drum	1	352 tons/day	N/A	N/A	140D0901	2009
Barn1	1	1,500 tons	Star	N/A	PB1	1969
Barn 2	1	1,500 tons	Star	N/A	PB2	1980
Transfer Belt 1	1	352 tons/day	N/A	N/A	140CN902	2009
Transfer Belt 2	1	352 tons/day	N/A	N/A	140CN0903	2009
Belt Conveyor to Barn 1	1	352 tons/day	Link Belt	N/A	140CN0905	1970
Belt Conveyor to Barn 2	1	352 tons/day	Link Belt	N/A	140CN0170	1940
Bulk Toter Barn Loadout Conveyors	2	40 tons/hr	A.J. Sackett & Sons Co.	312UT	140CN1239/ 43	2012
Bulk Toter/ Transloader	1	70 tons/hr	A.J. Sackett & Sons Co.	BT101	140CN1247	2012
~~Truck Loading System – Screener~~ [a]	~~1~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~

Equipment	Qty.	Maximum Rated Capacity	Manufacturer	Model/Type	Serial No.	Date Installed or Modified
~~Truck Loading System – Screener to Silo Feed Conveyor~~ [a]	~~1~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~
~~Truck Loading System – Screener to Reject Bin~~ [a]	~~1~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~
~~Truck Loading System – Silo Feed Conveyor to Silo~~ [a]	~~1~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~
~~Truck Loading System – Silo Bin Vent~~ [a]	~~1~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~
~~Truck Loading System – Truck Delivery Chute~~ [a]	~~1~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~	~~TBD~~
Powerhouse						
Process Steam Boiler No. 1 [b]	1	87 MMBTU/hr	Nationwide Boiler Incorporated	Natural Gas Fired	TBD	2021
Process Steam Boilers No. 2 [c]	1	99.0 MMBTU/hr	Nationwide Boiler Incorporated	Natural Gas Fired	TBD	2022
~~Process Steam Boilers No. 3~~ [c]	~~1~~	~~40 MMBTU/hr~~	~~Eric City Iron Works with Zurn Economizer~~	~~Natural Gas Fired~~	~~215BLR3~~	~~1967~~
Powerhouse Cooling Towers (215 CT 2201 & 215 CT 2202) [c]	2	1,180 gallons/min	Marley	NC8307 M1 SS-04	NC248099-11	TBD

Equipment	Qty.	Maximum Rated Capacity	Manufacturer	Model/Type	Serial No.	Date Installed or Modified
Electric Power Generator (Emergency)	1	830 HP	Caterpillar	Natural Gas Engine-driven Model G399	G399	1998
Diesel Air Compressor (Emergency)	1	350 HP	COMPAIR	Diesel Engine-driven Model OFQ1500D	N/A	2006
Diesel Fuel Fire Pump Engine (Emergency)	1	73 HP	N/A	N/A	FPE	2009
Electric Power Generator (Emergency)	1	96 HP	Generac	Natural Gas-driven Model SG060	TBD	2013
Electric Power Generator (Emergency)	1	1150 HP	Caterpillar	Model XQ800 Engine	TBD	2013
Brine Concentrator Plant						
Deaerator and Distillate Tank	1	70,000 lbs/hr boiler feed water	Allied Steel Production Corporation	10879	N/A	1999
Storage Vessels for Petroleum Liquids						
Tank 1763	1	3,000 gallons	TY-CO	Horizontal gasoline tank	TK-1763	~1998
Storage Vessels for NH3						
Ammonia unloading stations	5	200 tons NH_3/day (2 rail cars)	ANPI	Custom Fabricated	N/A	2023
Tanks 90 & 91	2	60 tons	Austad Steel and Construction Company	250 psig ammonia storage tank with 250 psig relief valve	T-90 & T-91	1958
~~Tanks 92 & 93~~	~~2~~	~~40 tons~~	~~Chicago Bridge and Iron~~	~~250 psig ammonia storage tank with 250 psig relief valve~~	~~T-92 & T-93~~	~~1960~~
Tank 94	1	1,600 tons	Chicago Bridge and Iron	60 psig ammonia storage tank	T-94	1964

Equipment	Qty.	Maximum Rated Capacity	Manufacturer	Model/Type	Serial No.	Date Installed or Modified
~~Tanks 37 & 38~~	~~2~~	~~2,500 tons each~~	~~Graver Ordinance (37/38), EMI Works~~	~~250 psig ammonia storage tank with 250 psig relief valve~~	~~T-37 & T-38,~~	~~1943 (37/38)~~
Tanks 39 & 40	2	2,500 tons each	Graver Ordinance (39/40), EMI Works	250 psig air storage tank with 250 psig relief valve	T-39 & T-40	1938 (39/40)
Miscellaneous Storage Vessels						
T-15	1	13,500 gallons	N/A	Steam condensate	T-15	1960's
~~T-67~~	~~1~~	~~20,000 tons~~	~~Skinner~~	~~ANS Storage~~	~~T-67~~	~~2000~~
T-81	1	125 tons	Trumbo	~~ANS Storage~~ Aqua Ammonia	T-81	1984
T-82	1	150 tons	Kansas City Steel	ANS Storage	T-82	1950
T-95	1	600 tons	Chicago Bridge and Iron Co.	Nitric Acid	T-95	1964
T-97	1	2,000 tons	Schuff Steel Co.	ANS Storage	T-97	1982
T-101	1	5,000 tons	GATX	ANS Storage	T-101	1972
T-102	1	5,000 tons	ATS	Nitric acid	T-102	2017
T-171	1	15 tons	N/A	ANS mix/storage	T-171	N/A
T-129	1	N/A	N/A	Nitric acid	T-129	2008
T-130	1	N/A	N/A	Nitric acid	T-130	2008
T-1701	1	50 tons	ATS	ANS/mix storage	~~T-1702~~ T-1701	2017
T-1702	1	10 tons	Kentan, Kennedy Tanic	ANS/mix storage	~~T-1701~~ T-1702	2017
T-2101 [b]	1	100 tons	TBD	ANS Storage	TBD	TBD
T-2102 [b]	1	1,000 tons	TBD	ANS Storage	TBD	TBD
Truck Emulsion Plant and Mixed Fuel Operations						
ANS Solution Receiving Tank	1	7,650 gallons	TBD	ANS Storage	SL01	TBD
ANS Solution Storage Tank	1	15,300 gallons	TBD	ANS Storage	SL06	TBD
Mixed Fuel Storage Tank	1	15,000 gallons	TBD	Mixed Fuel Storage	MF49	TBD
Emulsion Storage Silo	1	100 tons	TBD	Emulsion	Silo-01	TBD

Equipment	Qty.	Maximum Rated Capacity	Manufacturer	Model/Type	Serial No.	Date Installed or Modified
Diesel Fuel Storage Tank [a]	1	16,900 gallons	TBD	Diesel Storage	DF-31	TBD
Surfactant Storage Tank	2	27,630 gallons	TBD	Surfactant Storage	SO-08/SO-09	TBD
Surfactant Storage Tank	1	15,000 gallons	TBD	Surfactant Storage	SO-07	TBD
Blending Tank	1	10,000 gallons	TBD	Blending	BT-02	TBD
Mixed Fuel Tank	1	10,000 gallons	TBD	Mixed Fuel Storage	MF-33	TBD
Mixed Fuel Tank	1	8,500 gallons	TBD	Mixed Fuel Storage	MF-25	TBD
Diesel Fuel Storage Tank [a, b]	2	2,000 gallons	TBD	Diesel Storage	TBD	2018

[a] Changes from Permit Revision 77084.

[b] Changes from Permit Revision 90402.

[c] Changes from Permit Revision 93752.

Table B-2. Stack Information

Stack		UTM Coordinates of Emission Point			Stack Sources			
						Exit Data		
No.	Name/Description	Zone	East (meters)	North (meters)	Height Above Ground (feet)	I.D. (ft)	Velocity (fps)	Temp (˚F)
001	AOP-4 Tail Gas Vertical Pipe	12	571522	3527413	53	2.43	93.2	300
002	Powerhouse Boiler 1 Vertical Pipe	12	571522	3527413	57	2.83	33.1	359
003	Powerhouse Boiler 2 Vertical Pipe	12	571522	3527413	57	2.83	33.1	359
004	AOP-4 Natural Gas Steam Superheater (E- 102)	12	571522	3527413	50	2.00	63.7	600
005	Powerhouse Boiler 3 Vertical Pipe	12	571522	3527413	57	2.83	33.1	359
010	Low Density Prill Tower Top Horizontal Exit	12	571522	3527413	200	13.8	22.3	200
012	Ammonium Nitrate Neutralizer Vent Vertical Pipe	12	571522	3527413	47	1.58	119	200
032	AOP-3 Tail Gas Vertical Pipe	12	571522	3527413	52	2.50	57.6	521
036	Nitric Acid Storage Tanks Scrubber Vent Vertical Pipe	12	571522	3527413	27	0.25	25.45	80
041	041 AN Reclaim Unit Vertical Stack	12	571522	3527413	NA	NA	NA	NA

APPENDIX C. EMISSION CALCULATIONS

Table B-1. Apache Nitrogen Products, Inc. - Inputs

Process Description	Annual Process Rate	Units	Emission Inventory/Stack ID	Notes
Nitric Acid Production				
AOP-3				
100% Nitric Acid Produced	91,250	tons	--	250 (dry basis), 24 hours operation, 365 days
AOP-3 - Operating Hours	8,760	hours	032	24 hours per day, 365 days operation
AOP-3 Cooling Tower	8,760	hours	029	Operating hours assuming the cooling tower is operating even when the plant is down
	2,943,360,000	gal		
AOP-4				
100% Nitric Acid Produced	120,450	tons	--	330 (dry basis), 24 hours operation, 365 days
AOP-4 - Operating Hours	8,760	hours	001	24 hours 9er day, 365 days operation
AOP-4 Cooling Tower	8,760	hours	030	Operating hours assuming the cooling tower is in operation even when the plant is down
	3,153,600,000	gal		
AOP-4 NG Steam Superheater	**8,760**	hours	004	AOP-4 Steam Superheater is operated in conjunction to plant operation, that is 365 x 94% uptime. Assumed maximum heat input rate is 5.4 MMBtu/hour.
	46.38	MMscf		
Nitric Acid Storage Tanks				
Dedicated acid storage tank	2,693,136	gal	036	5 tank fills in a year in order to support market demands during major maintenance periods
Part time acid storage tank	1,800,000	gal		Annual maximum of 2 times a year in order to support market demands during major maintenance periods,
Truck Transport of Ammonia, Nitric Acid and AN solution Products				
Number of Trucks	9,500	truckloads	041	Number of Trucks of Ammonia, Nitric Acid and AN solution Products
Distance Traveled by Trucks on Unpaved Roads	0.27	miles	041a	Measured using Google Earth
Distance Traveled by Trucks on Paved Roads	0.73	miles	041b	Measured using Google Earth
Ammonium Nitrate Solution (ANS) Plant				
Ammonium Nitrate Solution Produced	**328,500**	tons	012	Name plate capacity 900 tons/day. Total expressed as 100% ANS. Per call with ANPI on April 9, 2020
Neutralizer - Operating Hours	**365**	days	012	24 hours per day, 365 days operation
Prill Plant				
AN Reclaim Unit - Operating Hours	**8,760**	hours	039	24 hours per day, 365 days operation
Prill Tower - Operating Hours	**8,760**	hours	010	24 hours per day, 365 days operation
Prill Produced	**214,000**	tons	008, 009, 010, 011, 020, 021, 022, 023, 024, 026, 027, 028, 037, 038	Total amount produced by the Prill Plant.
ANS Railcar Unloading Station	14,267	tons		Per 9/2020 NH3 Opt calculations
	168	railcars		
Distance Traveled by Prill Trucks on Paved Roads	0.95	miles	038b	Measured using Google Earth - Prill Plant was paved at the end of 2012
Number of Railcars transloaded during Calendar Year	7725	truckloads	042	Prill transloading is done to supplement site capacity in the event the prill plant or any upstream plant (AOP3, AOP4, ANS plant)
Total Prill Transloaded	212,430	tons	042	suffers a prolonged shut down. The transloading goes to one half of the Prill Barn #2. Physical limitation of the location limits how
Powerhouse				
Nationwide NG Boiler 1	8,760	hours	002	Assume continuous operation (maximum case scenario). Assumed maximum heat input rate of 87.0 MMBtu/hour.
	747.18	MMscf		
Nationwide NG Boiler 2	8,760	hours	003	Assume continuous operation (maximum case scenario). Assumed maximum heat input rate of 99.0 MMBtu/hour.
	850.24	MMscf		
Powerhouse Cooling Tower	8,760	hours	033	Maximum operating hours for Powerhouse Cooling Tower. Maximum recirculation rate of 800 gallons/minute.
	420,480,000	gallons		

Table B-1. Apache Nitrogen Products, Inc. - Inputs

Process Description	Annual Process Rate	Units	Emission Inventory/Stack ID	Notes
Truck Emulsion Plant				
Mixed Fuels (Diesel plus Emulsifiers)	549,798	gallons	043	Maximum diesel used in emulsion mixture each year
	3,931,053	pounds	043	Assume one gallon = 7.15 pounds.
Mixed Fuels truck delivery capacity	50,000	pounds	043	Maximum weight in truck 25 tons (50,000 lbs)
Distance traveled by Mixed Fuels Delivery Trucks on Paved Roads	0.6	miles	043	Measured using Google Earth, update each year.
Distance traveled by Mixed Fuels Delivery Trucks on Unpaved Roads	0.4	miles	043	Measured using Google Earth, update each year.
ANS Deliveries from ANPI	987	truckloads	045	ANS used in emulsion mixture each year
ANS Transport Truck Capacity	50,000	pounds	045	Maximum weight in truck 25 tons (50,000 lbs)
ANS Deliveries from ANPI	49,370,325	pounds	045	Truckloads multiplied by truck capacity.
Distance Traveled by ANS Transport Trucks on Paved Roads	0.6	miles	045	Measured using Google Earth, update each year.
Distance Traveled by ANS Transport Trucks on Unpaved Roads	0.4	miles	045	Measured using Google Earth, update each year.
Urea used in Emulsion Mixture	1,322,684	pounds	045	Assume total Urea is 33% of the diesel fuel used in the emulsion mixture (from SPR Application)
Urea Transport Truck Capacity	50,000	pounds	045	Maximum weight in truck 25 tons (50,000 lbs)
Total Emulsion Mixture Shipped	54,750,000	pounds	045	Emusion produced in a year
Emulsion Transport Truck Capacity	50000	pounds	045	Maximum weight in truck 25 tons (50,000 lbs)
Number of Emulsion Transport Trucks Out	1,095	truckloads	045	Number of truck transports by SW Energy
Distance Traveled by Urea and Emulsion Transport Trucks on Paved Roads	0.6	miles	045	Measured using Google Earth, update each year.
Distance Traveled by Urea and Emulsion Transport Trucks on Unpaved Roads	0.4	miles	045	Measured using Google Earth, update each year.
Aqua Ammonia Traffic	624	trucks	045	52 trucks per month, per email from Jackson Sia, ANPI, on April 14, 2021
	0.78	paved miles	045	
	0.26	unpaved miles	045	
Magazine Truck Traffic				
Distance Traveled by Magazine Trucks on Unpaved Roads (Round Trip)	3.66	miles	042a	Measured using Google Earth
Distance Traveled by Magazine Trucks on Paved Roads (Round Trip)	0.58	miles	042b	Measured using Google Earth
Number of Magazine Delivery Trips per year	52	trips	042c	Assumes approximately one delivery trip to magazines every week
Number of Magazine Pick-Up Trips per year	252	trips	042d	Assumes one trip each weekday during the year.
ANFO Bagging				
ANFO Production	224,993	bags		Maximum production based on review of last 5 years of production at the SWE Lehi, UT facility (which is substantially similar to the
	5,287	ton Prill		St. David process). Each bag is 50 lbs and 94 wt% prill. A 20% variablilty factor was applied to the Lehi throughput to determine
Diesel Surface Area	1.58	ft^2		Area of the top of an unsealed ANFO bag, susceptible to evaporation.
Prill Transport Trucks on Unpaved Roads (ANFO)	0.25	miles		
	27.5	tons		
Prill Transport Trucks on Paved Roads (ANFO)	0.95	miles		
	27.5	tons		

Table B-2a. Apache Nitrogen Products, Inc. - $PM/PM_{10}/PM_{2.5}$ Emission Factors

Process Code	Process Description	SCC Code	Emission Factors				Prod. Rate Units				
			PM	PM_{10}	$PM_{2.5}$	Units		k (PM)	k (PM_{10})	k ($PM_{2.5}$)	U (mph)
CT	Cooling Tower	3-85-001-10	0.027	0.019	0.011	lb/1000 gal	1000 gallons	1.43	1	0.60	
Neut	Neutralizer	3-01-027-04	0.13	0.13	0.13	lb/ton	hours	1	1	1	
NatGas1	Natural Gas Combustion (< 10 MMBtu/hr)	1-02-006-03	7.60	7.60	7.60	lb/MMscf	MMscf	1	1	1	
BOL1	Powerhouse Boiler 1		7.60	7.60	7.60	lb/MMscf	MMscf	1	1	1	
BOL23	Powerhouse Boiler 2		5.10	5.10	5.10	lb/MMscf	MMscf	1	1	1	
	Powerhouse Emergency Generator		0.08	0.08	0.08	g/hp-hr	hp-hr				
PrillTower	Prill Tower - Filterable PM	3-01-027-22	21.27	18.49	12.02	lb/hr	hours	1	0.87	0.57	
PrillTower	Prill Tower - Condensable PM	3-01-027-22	8.13	8.13	8.13	lb/hr	hours	1	1.00	1.00	
FFE1	Falling Film Evaporator	3-01-027-27	2.28	2.15	1.28	lb/hr	hours	1	0.94	0.56	
ANReclaim	AN Reclaim Unit - Filterable PM	3-01-999-98	4.02	3.78	2.25	lb/hr	hours	1	0.94	0.56	
ANReclaim	AN Reclaim Unit - Condensable PM	3-01-999-98	10.56	10.56	10.56	lb/hr	hours	1	1.00	1.00	
Predry	Predryer	3-01-027-25	0.0288	0.02	0.004	lb/hr	hours	1	2E-03	3E-04	

Table B-2a. Apache Nitrogen Products, Inc. - $PM/PM_{10}/PM_{2.5}$ Emission Factors

Process Code	Process Description	SCC Code	Emission Factors				Prod. Rate Units				
			PM	PM_{10}	$PM_{2.5}$	Units		k (PM)	k (PM_{10})	k ($PM_{2.5}$)	U (mph)
FBDC	Dryer and Fluidized Bed Cooler	3-01-027-23	0.18	0.15	0.02	lb/hr	hours	1	3E-03	4E-04	
PMT3.0	Prill Material Transfer Point - Moisture Content = 3%	3-01-830-01	0.003	0.001	0.0002	lb/ton	tons	0.74	0.35	5.E-02	9
PMT1.5	Prill Material Transfer Point - Moisture Content = 1.5%	3-01-830-01	0.008	0.004	0.0005	lb/ton	tons	0.74	0.35	5.E-02	9
PPMT0.5	Protected Prill Material Transfer Point - Moisture Content = 0.5%	3-01-830-01	0.01	0.007	0.001	lb/ton	tons	0.74	0.35	5.E-02	4.5
PMT0.15	Prill Material Transfer Point - Moisture Content = 0.15%	3-01-830-01	0.19	0.09	0.01	lb/ton	tons	0.74	0.35	5.E-02	9
PPMT0.15	Protected Prill Material Transfer Point - Moisture Content = 0.15%	3-01-830-01	0.08	0.04	0.006	lb/ton	tons	0.74	0.35	5.E-02	4.5
BAG	Railcar to Transloader	3-01-830-02	0.08	0.04	0.006	lb/ton	tons	0.74	0.35	5.E-02	7.9
BAG	Transloader to truck	3-01-830-03	0.08	0.04	0.006	lb/ton	tons	0.74	0.35	5.E-02	7.9
BAG	Truck to LDPAN Silo	3-01-830-04	0.08	0.04	0.006	lb/ton	tons	0.74	0.35	5.E-02	7.9
BAG	LDPAN Silo to LDPAN Surge Bin	3-01-830-05	0.08	0.04	0.006	lb/ton	tons	0.74	0.35	5.E-02	7.9
BAG	LDPAN Surge Bin to ANFO Bin	3-01-830-06	0.08	0.04	0.006	lb/ton	tons	0.74	0.35	5.E-02	7.9
BAG	ANFO Bin to ANFO Bags	3-01-830-07	0.08	0.04	0.006	lb/ton	tons	0.74	0.35	5.E-02	7.9
Screen	Screening	3-01-027-20	0.02	0.009	0.001	lb/ton	tons	1	0.47	0.07	
BagSplit	Prill Bag Splitting	3-05-104-96	0.19	0.09	0.014	lb/ton	tons	0.74	0.350	0	9.00

Table B-2a. Apache Nitrogen Products, Inc. - $PM/PM_{10}/PM_{2.5}$ Emission Factors

Process Code	Process Description	SCC Code	Emission Factors				Prod. Rate Units				
			PM	PM_{10}	$PM_{2.5}$	Units		k (PM)	k (PM_{10})	k ($PM_{2.5}$)	U (mph)
AcidUnpaved	Truck Transport of Ammonia, Nitric Acid and AN solution Products on Unpaved Roads	3-01-999-99	7.39	1.99	0.20	lb/VMT	VMT	4.9	1.5	0.15	
AcidPaved	Truck Transport of Ammonia, Nitric Acid and AN solution Products on Paved Roads	3-01-999-99	1.85	0.37	0.09	lb/VMT	VMT	1.E-02	2.E-03	5.E-04	
MagUnpaved	Magazine Supply (Delivery and Pick-up) Truck Travel on Unpaved Roads	3-01-999-99	7.21	1.95	0.19	lb/VMT	VMT	4.9	1.5	0.15	
MagPaved	Magazine Supply (Delivery and Pick-up) Truck Travel on Paved Roads	3-01-999-99	1.75	0.35	0.09	lb/VMT	VMT	1.E-02	2.E-03	5.E-04	
PrillUnpaved	Prill Truck Travel on Unpaved Roads	3-01-999-99	7.58	2.05	0.20	lb/VMT	VMT	4.9	1.5	0.15	
PrillPaved	Prill Truck Travel on Paved Roads	3-01-999-99	1.96	0.39	0.10	lb/VMT	VMT	1.E-02	2.E-03	5.E-04	
MixedFUnpaved	Mixed Fuels Truck Travel on Unpaved Roads	3-01-999-99	7.54	2.04	0.20	lb/VMT	VMT	4.9	1.5	0.15	
MixedFPaved	Mixed Fuels Truck Travel on Paved Roads	3-01-999-99	1.94	0.39	0.10	lb/VMT	VMT	1.E-02	2.E-03	5.E-04	
ANSUnpaved	ANS Truck Travel on Unpaved Roads	3-01-999-99	7.54	2.04	0.20	lb/VMT	VMT	4.9	1.5	0.15	
ANSPaved	ANS Truck Travel on Paved Roads	3-01-999-99	1.94	0.39	0.10	lb/VMT	VMT	1.E-02	2.E-03	5.E-04	
UreaUnpaved	Urea Truck Travel on Unpaved Roads	3-01-999-99	7.54	2.04	0.20	lb/VMT	VMT	4.9	1.5	0.15	
UreaPaved	Urea Truck Travel on Paved Roads	3-01-999-99	1.94	0.39	0.10	lb/VMT	VMT	1.E-02	2.E-03	5.E-04	
EmulsionUnpaved	Emulsion Truck Travel on Unpaved Roads	3-01-999-99	7.54	2.04	0.20	lb/VMT	VMT	4.9	1.5	0.15	
EmulsionPaved	Emulsion Truck Travel on Paved Roads	3-01-999-99	1.94	0.39	0.10	lb/VMT	VMT	1.E-02	2.E-03	5.E-04	
NH3AquaPaved	Aqua Ammonia Truck Travel on Paved Roads	3-01-999-99	1.85	0.37	0.091	lb/VMT	VMT	0.011	0.0022	0.00054	
NH3AquaUnpaved	Aqua Ammonia Travel on Paved Roads	3-01-999-99	7.39	1.99	0.20	lb/VMT	VMT	4.90	1.5	0.15	
ANFOUnpaved	Prill Transport Trucks on Unpaved Roads (ANFO)	3-01-999-100	7.54	2.04	0.20	lb/VMT	VMT	4.90	1.50	0.15	
ANFOPaved	Prill Transport Trucks on Pnpaved Roads (ANFO)	3-01-999-101	1.94	0.39	0.10	lb/VMT	VMT	1.E-02	2.E-03	5.E-04	

[a] k = particle size multiplier, U = wind speed, M = material moisture content, W = mean vehicle weight, s = surface material silt content, sL = road surface silt loading, P = number of days per year with at least 0.01 inches of precipitation, a = constant based on particle siz

Particulate Matter Emission Factor Inputs [a]											Reference
M (%)	W (tons)	s (%)	sL (g/m^2)	P (days/yr)	a (PM)	a (PM_{10})	a ($PM_{2.5}$)	b (PM)	b (PM_{10})	b ($PM_{2.5}$)	
											AP-42, Section 13.4, Table 13.4-1 (01/95), particle size fractions from California Emission Inventory Development and Reporting System
											PM Value is the mean + two standard deviations of available source test data (see Emission Rates Table). Particle size fractions from EPA WebFIRE and assumes all PM10 is PM2.5
											AP-42, Section 1.4, Table 1.4-2 (07/98). All particulate matter emission factors are
											U.S. EPA AP-42 Section 1.4 (July 1998)
											Per letter from Brett Barnes, Nationwide Boiler, dated February 9, 2022
											PM factor based on average of 2014 through 2019 test data + 2 standard deviations + 10% reduction in emissions. Particle size fractions from EPA WebFIRE
											Based on ratio of condensable to filterable emissions based on 2019 source testing +32.45% increase in emissions
											Performance Test completed on 11/1/12, particle size fractions from EPA WebFIRE and AP-42, Table 8.3-3 (07/93), Low Density Prill Towers
											PM factor based on average of 2014 through 2019 test data + 2 standard deviations. Particle size fractions from EPA WebFIRE and August 2018 permit renewal application.
											Based on ratio of condensable to filterable emissions based on 2019 source testing
											Performance Test completed on 10/27/2009, particle size fractions from AP-42, Table 8.3-3 (07/93), Low Density Prill Predryer, converted to uncontrolled emissions using an 85% control efficiency

Particulate Matter Emission Factor Inputs [a]											Reference
M (%)	W (tons)	s (%)	sL (g/m^2)	P (days/yr)	a (PM)	a (PM_{10})	a ($PM_{2.5}$)	b (PM)	b (PM_{10})	b ($PM_{2.5}$)	
											Performance Test completed on 10/27-29/2009, particle size fractions from AP-42, Table 8.3-3 (07/93), Low Density Prill Dryer and Cooler, converted to uncontrolled emissions using a 85% control efficiency
3.0											AP-42, Section 13.2.4, Expression 1 (11/06)
1.5											AP-42, Section 13.2.4, Expression 1 (11/06)
0.5											AP-42, Section 13.2.4, Expression 1 (11/06)
0.15											AP-42, Section 13.2.4, Expression 1 (11/06)
0.15											AP-42, Section 13.2.4, Expression 1 (11/06)
0.25											AP-42, Section 13.2.4, Expression 1 (11/06)
0.25											AP-42, Section 13.2.4, Expression 1 (11/06)
0.25											AP-42, Section 13.2.4, Expression 1 (11/06)
0.25											AP-42, Section 13.2.4, Expression 1 (11/06)
0.25											AP-42, Section 13.2.4, Expression 1 (11/06)
0.25											AP-42, Section 13.2.4, Expression 1 (11/06)
											AP-42, Table 8.3-2 (07/93), Bulk Loading Operations, particle size fractions from AP-
0.15											

Particulate Matter Emission Factor Inputs [a]											Reference
M (%)	W (tons)	s (%)	sL (g/m^2)	P (days/yr)	a (PM)	a (PM_{10})	a ($PM_{2.5}$)	b (PM)	b (PM_{10})	b ($PM_{2.5}$)	
	26.25	6.4		43	0.7	0.9	0.9	0.45	0.45	0.45	AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
	26.25		7.4	43							AP-42, Section 13.2.1, Expression 2 and Tables 13.2.1-1 and 13.2.1-3 (01/11)
	24.88	6.4		43	0.7	0.9	0.9	0.45	0.45	0.45	AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
	24.88		7.4	43							AP-42, Section 13.2.1, Expression 2 and Tables 13.2.1-1 and 13.2.1-3 (01/11)
	27.75	6.4		43	0.7	0.9	0.9	0.45	0.45	0.45	AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
	27.75		7.4	43							AP-42, Section 13.2.1, Expression 2 and Tables 13.2.1-1 and 13.2.1-3 (01/11)
	27.50	6.4		43	0.7	0.9	0.9	0.45	0.45	0.45	AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
	27.50		7.4	43							AP-42, Section 13.2.1, Expression 2 and Tables 13.2.1-1 and 13.2.1-3 (01/11)
	27.50	6.4		43	0.7	0.9	0.9	0.45	0.45	0.45	AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
	27.50		7.4	43							AP-42, Section 13.2.1, Expression 2 and Tables 13.2.1-1 and 13.2.1-3 (01/11)
	27.50	6.4		43	0.7	0.9	0.9	0.45	0.45	0.45	AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
	27.50		7.4	43							AP-42, Section 13.2.1, Expression 2 and Tables 13.2.1-1 and 13.2.1-3 (01/11)
	27.50	6.4		43	0.7	0.9	0.9	0.45	0.45	0.45	AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
	27.50		7.4	43							AP-42, Section 13.2.1, Expression 2 and Tables 13.2.1-1 and 13.2.1-3 (01/11)
	26.25		7.4	43							AP-42, Section 13.2.1, Expression 2 and Tables 13.2.1-1 and 13.2.1-3
	26.25	6.4		43	0.70	0.90	0.90	0.45	0.45	0.45	AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
	27.50	6.4		43	0.70	0.90	0.90	0.45	0.45	0.45	
	27.50		7.4	43							

e, b = constant based on particle size

Table B-3. Apache Nitrogen Products, Inc. - Vapor Emission Factors

Process Description	SCC Code	Emission Factor										Prod. Rate Units	Reference
		CO	NO_x	SO_2	VOC	HNO_3	NH_3	CO_2	CH_4	N_2O	Units		
Ammonia Oxidation Plant 3	3-01-013-02	-		-	-	-	4.14	-	-	-	lb/hr	hours	NH3 Emissions are based on average + 2 x standard deviations, of historic test data
		-	3.00	-	-	-	-	-	-	32	lb/ton	tons	N2O emissions are the mean + two standard deviations of all available source test data. See Emission Rates Table. NOx emissions are equivalent to the NSPS limit of 3.0 lb/ton acid produced (100% basis).
Ammonia Oxidation Plant 4	3-01-013-02	-	3.00	-	-	-	-	-	-	19	lb/ton	tons	NOx CEMS Data and Performance Test completed on 7/2/15
Neutralizer	3-01-027-04	-	-	-	-	-	10	-	-	-	lb/hr	hours	Air permit
ANS Railcar Unloading Station	3-02-005-53	-	-	-	-	2.53E-01	6.83E-02	-	-	-	lb/railcar	railcars	Per discharge of gas in 25 ft x 4" diameter connection hose (2.2 cubic feet). Using ideal gas law.
Prill Tower	3-01-027-22	-	-	-	-	-	0.26	-	-	-	lb/ton	tons	AP-42, Section 8.3, Table 8.3-2 (07/93)
Rotary Predryer and Dryer Combined	3-01-027-25	-	-	-	-	-	2	-	-	-	lb/ton	tons	AP-42, Section 8.3, Table 8.3-2 (07/93), average value
Fluidized Bed Cooler	3-01-027-24	-	-	-	-	-	0.30	-	-	-	lb/ton	tons	AP-42, Section 8.3, Table 8.3-2 (07/93)
AN Reclaim Unit	3-01-999-98	-	-	-	-	-	17	-	-	-	lb/ton	tons	AP-42, Section 8.3, Table 8.3-2 (07/93), average value
Natural Gas Combustion (< 10 MMBtu/hr)	1-02-006-03	84	100	0.60	5.5	-	-	120,162	2.27	2.27E-01	lb/MMscf	MMscf	AP-42, Section 1.4, Tables 1.4-1 and 1.4-2 (07/98), 40 CFR 98, Subpart C, Tables C-1 and C-2, and EPA WebFIRE
Powerhouse Boiler 1		38	37	0.60	5.5	-	-	119,337	2.25	2.25E-01	lb/MMscf	MMscf	Letter from Nationwide Boiler to ANPI, dated June 2, 2021 (Appendix B), Spec sheet and PFD of "Trailer Mounted Superheat Boiler (B-512)" (Appendix C), U.S. EPA AP-42 Section 1.4 (July 1998), 40 CFR Part 98 Subpart C
Powerhouse Boiler 2		37	31	0.60	5.5	-	-	119,337	2.25	2.25E-01	lb/MMscf	MMscf	Spec sheet and PFD of "Trailer Mounted Superheat Boiler (B-712)" (Appendix B), converted from 50 ppm and 1,368 lbs CO/MMBtu per ppm 1, Spec sheet and PFD of "Trailer Mounted Superheat Boiler (B-712)" (Appendix B), converted from 25 ppm and 833 lbs NOx/MMBtu per ppm 1, U.S. EPA AP-42 Section 1.4 (July 1998), 40 CFR Part 98 Subpart C
ANFO Bagging		-	-	-	1.96E-02	-	-	-	-	-	lb/hr	hr	Per MPR dated February 2023 and Equation 3-24 from EPA Methods for Estimating Air Emissions from Chemical Manufacturing Facilities, August 2007.
Nitric Acid Storage Tanks (Dedicated Storage)	3-01-870-06	-	1.38E-05	-	-	-	-	-	-	-	lb/ton	tons	Based on measured NOX concentration in product acid and scrubber efficiency of 99% per manufacturer
Nitric Acid Storage Tanks (Part Time Storage)	3-01-870-06	-	5.23E-04	-	-	-	-	-	-	-	lb/ton	tons	Minor permit revision dated July 2018

Table B-4a. Apache Nitrogen Products, Inc. - Particulate Matter Control Efficiencies

Control Code	Control Description	Pick-Up / Control Efficiency (%)		
		PM	PM_{10}	$PM_{2.5}$
None	No Pollution Controls	0.0%		
Enclosed	Enclosed Process	100.0%		
Sealed	Sealed Process (process under slight vacuum)	100.0%		
Inside	Inside Building	100.0%		
Water	Watering of Paved Roads	25.0%		
Sweep	Sweeping of Paved Roads	70.0%		
Gravel	Gravel on Unpaved Roads	50.0%		
Two-Stage Scrubber	Two-Stage Venturi / Packed Bed Scrubber	90.00%	90.00%	90.00%
ANRU	AN Reclaim Unit	80.0%		

Table B-4b. Updated Apache Nitrogen Products, Inc. - Particulate Matter Control Efficiencies

Control Code	Capture Efficiency (%)	Reference
None	0%	
Screen Partial Enclosure	85%	TCEQ NSR Guidance for Rock Crushing Plants, Table 7, Draft RG 058, February 2002.
3-Sided Partial Enclosure	85%	Technical Support document for CMC MCAQD Title V Permit V07-001, dated March 2016
Full Enclosure	90%	TCEQ NSR Guidance for Rock Crushing Plants, Table 7, Draft RG 058, February 2002.
Enclosed by Building	90%	TCEQ NSR Guidance for Rock Crushing Plants, Table 7, Draft RG 058, February 2002.
Vacuum	100%	TCEQ NSR Guidance for Rock Crushing Plants, Table 7, Draft RG 058, February 2002.

Reference
Assumed
Assumed
Assumed
Assumed
Assumed - From Surface Treatment of the Control of Open Fugitive Dust Sources, PB89-10369, Section 3.3.3
Assumed - 14-day sweeping frequency
Assumed
Analysis for the Neutralizer based on Venturi and Wet Scrubber (Hi-Efficiency) Information from AP-42, Table B.2-3 (09/96)
2013 Minor Permit Revision

Table B-5a. Powerhouse Emergency Engine - Parameters

Parameter	Value	Units
Hours of Operation [1]	500	hr/yr
Power Output [2]	1,150	hp
Fuel Consumption Rate [2]	58.80	gal/hr
Heating Value of Diesel [3]	137,000	Btu/gal
Heat Input [4]	8.06	MMBtu/hr
Fuel [2]	Diesel	

[1] Hours of operation per EPA memo "Calculating Potential to Emit (PTE) for Emergency Generators", dated September 6, 1995.
[2] Based on engine's manufacturer data. Per CAT C-27 engine noted in CAT XQ800 specs.
[3] Heating value of diesel provided in AP-42, Appendix A (09/85).
[4] Heat Input (MMBtu/hr) = Fuel Consumption Rate (gal/hr) * Heating Value of Diesel (Btu/gal) / 1,000,000 (Btu/MMBtu).

Table B-5b. Powerhouse Emergency Engine - Emission Factors

Pollutant	Emission Factor	
	Value	Units
$PM/PM_{10}/PM_{2.5}$ [1, 2]	0.075	grams/hp-hr
NO_x [1]	2.60	grams/hp-hr
VOC [1]	0.030	grams/hp-hr
CO [1]	0.11	grams/hp-hr
SO_2 [3]	0.0015	wt% S

[1] Emission factor provided in the manufacturer specification sheet.
[2] It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
[3] The engine uses ultra low sulfur diesel fuel per the manufacturer specification sheet. The emission factor is based on a fuel sulfur content of 0.0015% for ultra low sulfur diesel fuel, as defined under 40 CFR 80, Subpart I.

Table B-5c. Powerhouse Emergency Engine - Emissions

Pollutant	Potential Emissions [1, 2, 3] (lb/hr)	(tpy)
$PM/PM_{10}/PM_{2.5}$	0.19	0.048
NO_x	6.59	1.65
VOC	0.076	0.019
CO	0.28	0.070
SO_2	0.013	0.0031

[1] Conversion from gram to pound 0.0022 gram/lb

[2] Potential emissions for PM, NOx, VOC, and CO (lb/hr) = Emission Factor (gram/bhp-hr) * 0.0022 lbs/gram * Power Output (bhp)
Potential emissions for SO_2 (lb/hr) based on maximum fuel sulfur content, average brake specific fuel consumption, and heating value.
Average brake specific fuel consumption 7,000 Btu/hp-hr
Diesel heating value 19,300 Btu/lb

[3] Potential emissions (tpy) = Potential Emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2,000 (lb/ton)

Table B-5d. Powerhouse Emergency Engine - Greenhouse Gases

Pollutant	GHG Potential Emissions (tpy)
CO_2	328.37
CH_4	0.013
N_2O	0.0027
CO_2e	**329.50**

[1] Global Warming Potentials per 40 CFR 98 Subpart A of 40 CFR 98, Table A–1.
CO_2 1
CH_4 25
N_2O 298

[2] Emission factor for CO_2 per 40 CFR 98 Subpart C, Table C–1.
Emission factors for CH_4 and N_2O per 40 CFR 98 Subpart C, Table C–2.
CO_2 163 lb/MMBtu
CH_4 0.0066 lb/MMBtu
N_2O 0.0013 lb/MMBtu

[3] CO_2e Potential Emissions (tpy) = [E_{CO2} (lb/MMBtu) * GWP_{CO2} + E_{CH4} (lb/MMBtu) * GWP_{CH4} + E_{N2O} (lb/MMBtu) * GWP_{N2O}]

Table B-5e. Powerhouse Emergency Engine - HAPs

Pollutant	Emission Factors [1] (lb/MMBtu)	Hourly Emissions [2] (lb/hr)	Annual Emissions [3] (tpy)
Benzene	9.33E-04	7.52E-03	1.88E-03
Toluene	4.09E-04	3.29E-03	8.24E-04
Xylene	2.85E-04	2.30E-03	5.74E-04
1,3-Butadiene	3.91E-05	3.15E-04	7.87E-05
Formaldehyde	1.18E-03	9.51E-03	2.38E-03
Acetaldehyde	7.67E-04	6.18E-03	1.54E-03
Acrolein	9.25E-05	7.45E-04	1.86E-04
Naphthalene	8.48E-05	6.83E-04	1.71E-04
Acenaphthylene	5.06E-06	4.08E-05	1.02E-05
Acenaphthene	1.42E-06	1.14E-05	2.86E-06
Fluorene	2.92E-05	2.35E-04	5.88E-05
Phenanthrene	2.94E-05	2.37E-04	5.92E-05
Anthracene	1.87E-06	1.51E-05	3.77E-06
Fluoranthene	7.61E-06	6.13E-05	1.53E-05
Pyrene	4.78E-06	3.85E-05	9.63E-06
Benz(a)anthracene	1.68E-06	1.35E-05	3.38E-06
Chrysene	3.53E-07	2.84E-06	7.11E-07
Benzo(b)fluoranthene	9.91E-08	7.98E-07	2.00E-07
Benzo(k)fluoranthene	1.55E-07	1.25E-06	3.12E-07
Benzo(a)pyrene	1.88E-07	1.51E-06	3.79E-07
Indeno(1,2,3-cd)pyrene	3.75E-07	3.02E-06	7.55E-07
Dibenzo(a,h)anthracene	5.83E-07	4.70E-06	1.17E-06
Benzo(g,h,i)perylene	4.89E-07	3.94E-06	9.85E-07
Total			**7.80E-03**
Max			**2.38E-03**

[1] HAP emissions are calculated based on emission factors for diesel engines per AP-42 Section 3.3, Table 3.3-2.
[2] Hourly Emissions (lb/hr) = Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)
[3] Annual Emissions (tpy) = Hourly Emissions (lb/hr) x 500 (hours/yr) / 2,000 (lb/ton)

Table B-6. Apache Nitrogen Products, Inc. - Particulate Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors			EF Units	Control Code	Pick-Up / Control Ef	
							PM	PM_{10}	$PM_{2.5}$			PM	PM_{10}
Nitric Acid Production (Point ID: 001)													
029	AOP-3 Cooling Tower [1]	CT	3-85-001-10	NF	2,943,360	1000 gallons	0.027	0.019	0.01140	lb/1000 gal	None	0%	
030	AOP-4 Cooling Tower [1]	CT	3-85-001-10	NF	3,153,600	1000 gallons	0.027	0.019	0.01140	lb/1000 gal	None	0%	
004	AOP-4 Natural Gas Steam Superheater (D-102)	NatGas1	1-02-006-03	NF	46.38	MMscf	7.60	7.60	7.60	lb/MMscf	None	0%	
040a	Truck Movements of Ammonia, Nitric Acid and AN solution Products on Unpaved Roads	AcidUnpaved	3-01-999-99	F	2,565.00	VMT	7.389	1.995	0.19946	lb/VMT	Gravel	50%	
040b	Truck Movements of Ammonia, Nitric Acid and AN solution Productsl on Paved Roads	AcidPaved	3-01-999-99	F	6,935.00	VMT	1.849	0.370	0.09077	lb/VMT	Sweep	70%	
Ammonium Nitrate Solution (ANS) Plant (Point ID: 002)													
012	Ammonium Nitrate Neutralizer (Controlled by Two-Stage Venturi / Packed Bed Scrubber)	Neut	3-01-027-04	NF	328,500	tons	0.13	0.13	0.13	lb/ton	Two-Stage Scrubber	Accounted for ir	
Prill Plant (Point ID: 004)													
008	Falling Film Evaporator	FFE1	3-01-027-27	NF	8,760	hours	2.280	2.148	1.277	lb/hr	ANRU	100%	
010	Low Density Prill Tower	PrillTower	3-01-027-22	NF	8,760	hours	29.396	26.622	20.149	lb/hr	None	0%	
039	AN Reclaim Unit	ANReclaim	3-01-999-98	NF	8,760	hours	14.572	14.340	12.805	lb/hr	None	0%	
	Prill Bag Splitting	BagSplit	3-05-104-96	NF	3,750	tons	0.191	0.090	0.014	lb/ton	None	0%	
020a	Prill Tower to Conveyor 3500	PMT3.0	3-01-830-01	F	214,000	tons	0.003	0.001	0.000	lb/ton	None	0%	
020b	Conveyor 3500 to Conveyor	PMT3.0	3-01-830-01	F	214,000	tons	0.003	0.001	0.000	lb/ton	None	0%	
020c	Oversized removal Conveyor to Rotary Predryer	PMT3.0	3-01-830-01	F	214,000	tons	0.003	0.001	0.000	lb/ton	Full Enclosure	90%	
011	Rotary Predryer	Predry	3-01-027-25	NF	8,760	hours	0.029	0.024	0.004	lb/hr	ANRU	100%	
021a	Rotary Predryer to Transfer Conveyor	PPMT0.5	3-01-830-01	F	214,000	tons	0.014	0.007	0.001	lb/ton	3-Sided Partial Enclosure	85%	
021b	Transfer conveyor to Dryer	PPMT0.5	3-01-830-01	F	214,000	tons	0.014	0.007	0.001	lb/ton	Full Enclosure	90%	
021c	Dryer to Transfer Conveyor	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	None	0%	

Table B-6. Apache Nitrogen Products, Inc. - Particulate Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors			EF Units	Control Code	Pick-Up / Control Ef	
							PM	PM_{10}	$PM_{2.5}$			PM	PM_{10}
021d	Transfer Conveyor to Fluidized Bed Cooler	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	Sealed		100%
009	Dryer and Fluidized Bed Cooler	FBDC	3-01-027-23	NF	8,760	hours	0.180	0.150	0.019	lb/hr	ANRU		100%
022a	Fluidized Bed Cooler to Conveyor	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	3-Sided Partial Enclosure		85%
022b	Conveyor 1b to Vibrating Screen	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	Full Enclosure		90%
023	Vibrating Screen	Screen	3-01-027-20	F	214,000	tons	0.020	0.009	0.001	lb/ton	Screen Partial Enclosure		85%
024	Vibrating Screen to Coating Drum	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	Full Enclosure		90%
037	Coating Drum	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	None		0%
026a	Coating Drum to Product Conveyor 1	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	3-Sided Partial Enclosure		85%
026b	Product Conveyor 1 to Product Conveyor 2	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	Enclosed by Building		90%
027	Product Conveyors 1,2 to Stockpiles 1,2	PPMT0.15	3-01-830-01	F	214,000	tons	0.078	0.037	0.006	lb/ton	Inside		100%
043c	Railcar to Hopper - *Transloaded Prill Only*	PMT0.15	3-01-830-01	F	212,430	tons	0.191	0.090	0.014	lb/ton	Enclosed		100%
043c	Hopper to Enclosed Product Conveyor - *Transloaded Prill Only*	PPMT0.15	3-01-830-01	F	212,430	tons	0.078	0.037	0.006	lb/ton	Enclosed		100%
043c	Enclosed Product Conveyor to Stockpile 2 - *Transloaded Prill Only*	PPMT0.15	3-01-830-01	F	212,430	tons	0.078	0.037	0.006	lb/ton	Inside		100%
028a	Stockpiles 1,2 to Floor Mounted Grizzly Screens 1,2 - *Includes Transloaded Prill*	PPMT0.15	3-01-830-01	F	426,430	tons	0.078	0.037	0.006	lb/ton	Inside		100%
028b	Floor Mounted Grizzly Screens 1,2 - *Includes Transloaded Prill*	Screen	3-01-027-20	F	426,430	tons	0.020	0.009	0.001	lb/ton	Inside		100%
028c	Floor Mounted Grizzly Screens 1,2 to Bulk Toter Barn Loadout 1,2 - *Includes Transloac*	PMT0.15	3-01-830-01	F	426,430	tons	0.191	0.090	0.014	lb/ton	Sealed		100%
028d	Barn Loadout Conveyor 1,2 to Flexible Chute Systems - *Includes Transloaded Prill*	PMT0.15	3-01-830-01	F	426,430	tons	0.191	0.090	0.014	lb/ton	Sealed		100%
028e	Flexible Chute Systems to Trucks - *Includes Transloaded Prill*	PMT0.15	3-01-830-01	F	426,430	tons	0.191	0.090	0.014	lb/ton	None		0%
039b	Truck Travel on Paved Roads - *Includes Transloaded Prill*	PrillPaved	3-01-999-99	F	17,238.66	VMT	1.957	0.391	0.096	lb/VMT	Water		25%
Powerhouse (Point ID: 005)													
002	Natural Gas Nationwide Boiler 1	BOL1	0	NF	747.18	MMscf	7.60	7.60	7.60	lb/MMscf	None		0%

Table B-6. Apache Nitrogen Products, Inc. - Particulate Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors			EF Units	Control Code	Pick-Up / Control Ef	
							PM	PM_{10}	$PM_{2.5}$			PM	PM_{10}
003	Natural Gas Nationwide Boiler 2	BOL23	0	NF	850.24	MMscf	5.10	5.10	5.10	lb/MMscf	None		0%
033	Powerhouse Cooling Tower [1]	PH CT	#N/A	NF	420,480	1000 gal	0.027	0.019	0.011	lb/1000 gal	None		0%
	Emergency Generator	-	-	-	-	-	-	-	-	-	-		-
Truck Emulsion Plant Vehicle Travel (Sitewide Fugitives)													
045	Mixed Fuel Truck Travel on Unpaved Roads	MixedFUnpaved	3-01-999-99	F	47.17	VMT	7.54	2.04	0.20	lb/VMT	Gravel		50%
045	Mixed Fuel Truck Travel on Paved Roads	MixedFPaved	3-01-999-99	F	31.45	VMT	1.94	0.39	0.10	lb/VMT	Sweep		70%
045	ANS Delivery Truck Travel on Unpaved Roads	ANSUnpaved	3-01-999-99	F	592.44	VMT	7.54	2.04	0.20	lb/VMT	Gravel		50%
045	ANS Delivery Truck Travel on Paved Roads	ANSPaved	3-01-999-99	F	2,468.52	VMT	1.94	0.39	0.10	lb/VMT	Sweep		70%
045	Urea Delivery Truck Travel on Unpaved Roads	UreaUnpaved	3-01-999-99	F	0.40	VMT	7.54	2.04	0.20	lb/VMT	Gravel		50%
045	Urea Delivery Truck Travel on Paved Roads	UreaPaved	3-01-999-99	F	0.60	VMT	1.94	0.39	0.10	lb/VMT	Sweep		70%
045	Emulsion Delivery Truck Travel on Unpaved Roads	EmulsionUnpaved	3-01-999-99	F	438.00	VMT	7.54	2.04	0.20	lb/VMT	Gravel		50%
045	Emulsion Delivery Truck Travel on Paved Roads	EmulsionPaved	3-01-999-99	F	657.00	VMT	1.94	0.39	0.10	lb/VMT	Sweep		70%
045	Aqua Ammonia Truck Travel on Paved Roads	NH3AquaPaved	3-01-999-99	F	486.72	VMT	1.85	0.37	0.09	lb/VMT	Sweep		70%
045	Aqua Ammonia Travel on Paved Roads	NH3AquaUnpaved	3-01-999-99	F	162.24	VMT	7.39	1.99	0.20	lb/VMT	Gravel		50%
Magazine Truck Travel (Sitewide Fugitives)													
042	Magazine Pick-up Truck Travel on Unpaved Roads	MagUnpaved	3-01-999-99	F	922.32	VMT	7.21	1.95	0.19	lb/VMT	Gravel		50%
042	Magazine Pick-up Truck Travel on Paved Roads	MagPaved	3-01-999-99	F	146.16	VMT	1.75	0.35	0.09	lb/VMT	Sweep		70%
042	Magazine Delivery Truck Travel on Unpaved Roads	MagUnpaved	3-01-999-99	F	190.32	VMT	7.21	1.95	0.19	lb/VMT	Gravel		50%
042	Magazine Delivery Truck Travel on Paved Roads	MagPaved	3-01-999-99	F	0.58	VMT	1.75	0.35	0.09	lb/VMT	Sweep		70%
ANFO Bagging													
	Railcar to Transloader	BAG	3-01-830-02	F	212,430	tons	0.08	0.04	0.01	lb/ton	None		0%

Table B-6. Apache Nitrogen Products, Inc. - Particulate Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors			EF Units	Control Code	Pick-Up / Control Ef	
							PM	PM_{10}	$PM_{2.5}$			PM	PM_{10}
	Transloader to truck	BAG	3-01-830-02	F	212,430	tons	0.08	0.04	0.01	lb/ton	None		0%
	Truck to LDPAN Silo	BAG	3-01-830-02	F	212,430	tons	0.08	0.04	0.01	lb/ton	None		0%
	LDPAN Silo to LDPAN Surge Bin	BAG	3-01-830-02	F	212,430	tons	0.08	0.04	0.01	lb/ton	None		0%
	LDPAN Surge Bin to ANFO Bin	BAG	3-01-830-02	F	212,430	tons	0.08	0.04	0.01	lb/ton	None		0%
	ANFO Bin to ANFO Bags	BAG	3-01-830-02	F	212,430	tons	0.08	0.04	0.01	lb/ton	None		0%
	Prill Transport Trucks on Unpaved Roads (ANFO)	ANFOUnpaved	3-01-999-100	F	7,338	VMT	7.54	2.04	0.20	lb/VMT	Gravel		50%
	Prill Transport Trucks on Pnpaved Roads (ANFO)	ANFOPaved	3-01-999-101	F	7,338	VMT	1.94	0.39	0.10	lb/VMT	Sweep		70%
Total Emissions From Non-Fugitive Sources:													
Total Emissions From Fugitive Sources:													
Total Emissions:													

ANPI Permit Renewal Emissions Calculations

ficiency	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)		Notes
$PM_{2.5}$	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	
	39.95	39.95	27.96	27.96	16.78	16.78	
	42.80	42.80	29.96	29.96	17.98	17.98	
	0.18	0.18	0.18	0.18	0.18	0.18	
	9.48	4.74	2.56	1.28	0.26	0.13	
	6.41	1.92	1.28	0.38	0.31	0.09	
n EF	20.57	20.57	20.57	20.57	20.57	20.57	
	9.99	0.00	9.41	0.00	5.59	0.00	All emissions from this equipment goes to the AN reclaim unit. Any emission is already accounted for in that unit
	128.76	128.76	116.60	116.60	88.25	88.25	
	63.82	63.82	62.81	62.81	56.08	56.08	
	0.36	0.36	0.17	0.17	0.03	0.03	
	0.31	0.31	0.15	0.15	0.022	0.022	
	0.31	0.31	0.15	0.15	0.022	0.022	
	0.31	0	0.15	0	0.022	0	
	0.13	0	0.10	0	0.016	0	All emissions from this equipment goes to the AN reclaim unit. Any emission is already accounted for in that unit
	1.54	0.23	0.73	0.11	0.11	0.02	
	1.54	0	0.73	0	0.11	0	
	8.30	8.30	3.93	3.93	0.59	0.59	

ficiency	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)		Notes
$PM_{2.5}$	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	
	8.30	0	3.93	0	0.59	0	
	0.79	0	0.66	0	0.08	0	All emissions from this equipment goes to the AN reclaim unit. Any emission is already accounted for in that unit
	8.30	1	3.93	1	0.59	0	
	8.30	1	3.93	0	0.59	0	
	2.14	0	1.01	0	0.15	0	
	8.30	1	3.93	0	0.59	0	
	8.30	8.30	3.93	3.93	0.59	0.59	
	8.30	1.25	3.93	0.59	0.59	0.09	
	8.30	1	3.93	0	0.59	0	
	8.30	0	3.93	0	0.59	0	
	20.29	0.00	9.60	0.00	1.45	0.00	
	8.24	0.00	3.90	0.00	0.59	0.00	
	8.24	0.00	3.90	0.00	0.59	0.00	
	16.54	0	7.82	0	1.18	0	
	4.26	0	2.02	0	0.31	0	
	40.74	0	19.27	0	2.92	0	
	40.74	0	19.27	0	2.92	0	
	40.74	40.74	19.27	19.27	2.92	2.92	
	16.87	12.65	3.37	2.53	0.83	0.62	
	2.84	2.84	2.84	2.84	2.84	2.84	

ficiency	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)		Notes
$PM_{2.5}$	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	
	2.17	2.17	2.17	2.17	2.17	2.17	
	5.71	5.71	3.99	3.99	2.40	2.40	Rental
	0.05	0.05	0.05	0.05	0.05	0.05	See eGen tab for calculations
	1.78E-01	8.90E-02	4.80E-02	2.40E-02	4.80E-03	2.40E-03	
	3.05E-02	9.15E-03	6.10E-03	1.83E-03	1.50E-03	4.49E-04	
	2.23	1.12	0.603	0.302	6.03E-02	3.02E-02	
	2.39	0.72	0.479	0.144	1.17E-01	3.52E-02	
	1.51E-03	7.54E-04	4.07E-04	2.04E-04	4.07E-05	2.04E-05	
	5.82E-04	1.74E-04	1.16E-04	3.49E-05	2.86E-05	8.57E-06	
	1.65	0.83	0.446	0.223	4.46E-02	2.23E-02	
	0.64	0.19	0.127	0.038	3.13E-02	9.38E-03	
	0.45	0.13	0.090	0.027	2.21E-02	6.63E-03	
	0.60	0.30	0.162	0.081	1.62E-02	8.09E-03	
	3.33	1.66	0.90	0.45	0.09	0.04	
	0.13	0.04	2.56E-02	7.68E-03	6.28E-03	1.88E-03	
	0.69	0.34	1.85E-01	9.26E-02	1.85E-02	9.26E-03	
	5.08E-04	1.52E-04	1.02E-04	3.05E-05	2.49E-05	7.48E-06	
	8.38	8.38	3.96	3.96	6.00E-01	6.00E-01	

ficiency	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)		Notes
$PM_{2.5}$	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	
	8.38	8.38	3.96	3.96	6.00E-01	6.00E-01	
	8.38	8.38	3.96	3.96	6.00E-01	6.00E-01	
	8.38	8.38	3.96	3.96	6.00E-01	6.00E-01	
	8.38	8.38	3.96	3.96	6.00E-01	6.00E-01	
	8.38	8.38	3.96	3.96	6.00E-01	6.00E-01	
	27.68	13.84	7.47	3.74	7.47E-01	3.74E-01	
	7.11	2.13	1.42	0.43	3.49E-01	1.05E-01	
	318.05	**307.14**	**277.42**	**267.25**	**212.96**	**207.26**	
	390.81	**154.68**	**166.25**	**63.65**	**25.18**	**9.65**	
	708.86	**461.83**	**443.67**	**330.90**	**238.13**	**216.92**	

Table B-7. Apache Nitrogen Products, Inc. - Vapor Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors							
							CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O
Nitric Acid Production (Point ID: 001)														
032	AOP-3 Tail Gas	AOP-3	3-01-013-02	NF	1	yr	0	0.00	0	0	4.142	0	0	0
				NF	91,250	tons	0	3.00	0	0	0	0	0	32.28
001	AOP-4 Tail Gas	AOP-4	3-01-013-02	NF	120,450	tons	0	3.00	0	0	0	0	0	18.792676
004	AOP-4 Natural Gas Steam Superheater (D-102)	NatGas1	1-02-006-03	NF	46.38	MMscf	84.00	100.00	0.60	5.50	0.00	120,162	2.27	0.23
036	Nitric Acid Storage Tanks (Controlled by Packed Bed Scrubber) - Dedicated Storage	NAST	3-01-870-06	NF	15,351	tons	0	1.38E-05	0	0	0	0	0	0
	Nitric Acid Storage Tanks (Controlled by Peroxide Addition)			NF	10,260	tons	0	5.23E-04	0	0	0	0	0	0
Ammonium Nitrate Solution (ANS) Plant (Point ID: 002)														
012	Ammonium Nitrate Neutralizer (Controlled by Two-Stage Venturi / Packed Bed Scrubber)	Neut	3-01-027-04	NF	328,500	hours	0	0	0	0	10.00	0	0	0
Prill Plant (Point ID: 004)														
	ANS Railcar Unloading Station	ANS	3-02-005-53	NF	168	railcars	0	0	0	0	0.07	0	0	0
039	AN Reclaim Unit	ANReclaim	3-01-999-98	NF	214,000	tons	0	0	0	0	16.97	0	0	0
	AN Reclaim unit ammonia scrubbing				95%	Pick-Up Efficiency								
010	Low Density Prill Tower	PrillTower	3-01-027-22	NF	214,000	tons	0	0	0	0	0.26	0	0	0
011	Rotary Predryer and Dryer Combined	Predry/Dry	3-01-027-25	NF	214,000	tons	0	0	0	0	1.59	0	0	0
	Vented to the AN Reclaim Unit				100%	Pick-Up Efficiency								
009	Fluidized Bed Cooler	FBC	3-01-027-24	NF	214,000	tons	0	0	0	0	0.30	0	0	0
	Vented to the AN Reclaim Unit				100%	Pick-Up Efficiency								
Powerhouse (Point ID: 005)														
002	Natural Gas Nationwide Boiler 1	BOL1	0	NF	747.18	MMscf	37.74	36.72	0.60	5.50	0.00	119,337	2.25	0.22

Table B-7. Apache Nitrogen Products, Inc. - Vapor Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors							
							CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O

Table B-7. Apache Nitrogen Products, Inc. - Vapor Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors							
							CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O
003	Natural Gas Nationwide Boiler 2	BOL23	0	NF	850.24	MMscf	37.28	30.61	0.60	5.50	0.00	119,337	2.25	0.22

Table B-7. Apache Nitrogen Products, Inc. - Vapor Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors							
							CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O

Table B-7. Apache Nitrogen Products, Inc. - Vapor Emissions

Unit ID	Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Production Rate	Rate Units	Emission Factors							
							CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O
	Emergency Generator	-	-	-	-	-	-	-	-	-	-	-	-	-
ANFO Bagging														
	ANFO Bagging	BAG		NF	8,760	hr	0.00	0.00	0.00	0.02	0.00	0	0.00	0.00
Total Emissions From Non-Fugitive Sources:														
Total Emissions From Fugitive Sources:														
Total Emissions:														

ANPI Permit Renewal Emissions Calculations

HAP Name	HAP EF	EF Units	Emissions (tpy)									Notes
			CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O	HAP	
--	--	lb/hr	0	37.67	0	0	0.00	0	0	--	--	Used installation permit limit of 37.67 tons/year NOx
--	--	lb/ton	--		--	--	--	--	--	1,472.78	--	
--	--	lb/ton	0	180.68	0	0	0	0	0	1,131.79	--	
Lead	5.00E-04	lb/MMscf	1.95	2.32	0.01	0.13	0.00	2,786.34	0.05	0.005	1.16E-05	
--	--	lb/ton	0	1.06E-04	0	0	0	0	0	0	--	
--	--	lb/ton	0	2.68E-03	0	0	0	0	0	0	--	
--	--	lb/hr	0	0	0	0	1,642.50	0	0	0	--	
	--	lb/railcar	0	0	0	0	0.01	0	0	0	--	
--	--	lb/ton	0	0	0	0	**90.79**	0	0	0	--	**Applied control efficiency of AN Reclaim Unit for ammonia release**
--	--	lb/ton	0	0	0	0	27.82	0	0	0	--	
--	--	lb/ton	0	0	0	0	0	0	0	0	--	
--	--	lb/ton	0	0	0	0	0	0	0	0	--	
Lead	5.00E-04	lb/MMscf	14.10	13.72	0.22	2.05	0.00	44,582.99	0.84	0.08	1.87E-04	
2-Methylnaphthalene	2.40E-05	lb/MMscf									8.97E-06	

HAP Name	HAP EF	EF Units	Emissions (tpy)									Notes
			CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O	HAP	
3-Methylchloranthrene	1.80E-06	lb/MMscf									6.72E-07	
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMscf									5.98E-06	
Acenaphthene	1.80E-06	lb/MMscf									6.72E-07	
Acenaphthylene	1.80E-06	lb/MMscf									6.72E-07	
Anthracene	2.40E-06	lb/MMscf									8.97E-07	
Benz(a)anthracene	1.80E-06	lb/MMscf									6.72E-07	
Benzene	2.10E-03	lb/MMscf									7.85E-04	
Benzo(a)pyrene	1.20E-06	lb/MMscf									4.48E-07	
Benzo(b)fluoranthene	1.80E-06	lb/MMscf									6.72E-07	
Benzo(g,h,i)perylene	1.20E-06	lb/MMscf									4.48E-07	
Benzo(k)fluoranthene	1.80E-06	lb/MMscf									6.72E-07	
Chrysene	1.80E-06	lb/MMscf									6.72E-07	
Dibenzo(a,h)anthracene	1.20E-06	lb/MMscf									4.48E-07	
Dichlorobenzene	1.20E-03	lb/MMscf									4.48E-04	
Fluoranthene	3.00E-06	lb/MMscf									1.12E-06	
Fluorene	2.80E-06	lb/MMscf									1.05E-06	
Formaldehyde	7.50E-02	lb/MMscf									2.80E-02	
Hexane	1.80E+00	lb/MMscf									6.72E-01	
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/MMscf									6.72E-07	
Naphthalene	6.10E-04	lb/MMscf									2.28E-04	
Phenanthrene	1.70E-05	lb/MMscf									6.35E-06	

HAP Name	HAP EF	EF Units	Emissions (tpy)									Notes
			CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O	HAP	
Pyrene	5.00E-06	lb/MMscf									1.87E-06	
Toluene	3.40E-03	lb/MMscf									1.27E-03	
Arsenic	2.00E-04	lb/MMscf									7.47E-05	
Beryllium	1.20E-05	lb/MMscf									4.48E-06	
Cadmium	1.10E-03	lb/MMscf									4.11E-04	
Chromium	1.40E-03	lb/MMscf									5.23E-04	
Cobalt	8.40E-05	lb/MMscf									3.14E-05	
Manganese	3.80E-04	lb/MMscf									1.42E-04	
Mercury	2.60E-04	lb/MMscf									9.71E-05	
Nickel	2.10E-03	lb/MMscf									7.85E-04	
Selenium	2.40E-05	lb/MMscf									8.97E-06	
Lead	5.00E-04	lb/MMscf	15.85	13.01	0.26	2.34	0.00	50,732.37	0.96	0.10	2.13E-04	
2-Methylnaphthalene	2.40E-05	lb/MMscf									1.02E-05	
3-Methylchloranthrene	1.80E-06	lb/MMscf									7.65E-07	
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMscf									6.80E-06	
Acenaphthene	1.80E-06	lb/MMscf									7.65E-07	
Acenaphthylene	1.80E-06	lb/MMscf									7.65E-07	
Anthracene	2.40E-06	lb/MMscf									1.02E-06	
Benz(a)anthracene	1.80E-06	lb/MMscf									7.65E-07	
Benzene	2.10E-03	lb/MMscf									8.93E-04	
Benzo(a)pyrene	1.20E-06	lb/MMscf									5.10E-07	

HAP Name	HAP EF	EF Units	Emissions (tpy)									Notes
			CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O	HAP	
Benzo(b)fluoranthene	1.80E-06	lb/MMscf									7.65E-07	
Benzo(g,h,i)perylene	1.20E-06	lb/MMscf									5.10E-07	
Benzo(k)fluoranthene	1.80E-06	lb/MMscf									7.65E-07	
Chrysene	1.80E-06	lb/MMscf									7.65E-07	
Dibenzo(a,h)anthracene	1.20E-06	lb/MMscf									5.10E-07	
Dichlorobenzene	1.20E-03	lb/MMscf									5.10E-04	
Fluoranthene	3.00E-06	lb/MMscf									1.28E-06	
Fluorene	2.80E-06	lb/MMscf									1.19E-06	
Formaldehyde	7.50E-02	lb/MMscf									3.19E-02	
Hexane	1.80E+00	lb/MMscf									7.65E-01	
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/MMscf									7.65E-07	
Naphthalene	6.10E-04	lb/MMscf									2.59E-04	
Phenanthrene	1.70E-05	lb/MMscf									7.23E-06	
Pyrene	5.00E-06	lb/MMscf									2.13E-06	
Toluene	3.40E-03	lb/MMscf									1.45E-03	
Arsenic	2.00E-04	lb/MMscf									8.50E-05	
Beryllium	1.20E-05	lb/MMscf									5.10E-06	
Cadmium	1.10E-03	lb/MMscf									4.68E-04	
Chromium	1.40E-03	lb/MMscf									5.95E-04	
Cobalt	8.40E-05	lb/MMscf									3.57E-05	
Manganese	3.80E-04	lb/MMscf									1.62E-04	

HAP Name	HAP EF	EF Units	Emissions (tpy)									Notes
			CO	NO_x	SO_2	VOC	NH_3	CO_2	CH_4	N_2O	HAP	
Mercury	2.60E-04	lb/MMscf									1.11E-04	
Nickel	2.10E-03	lb/MMscf									8.93E-04	
Selenium	2.40E-05	lb/MMscf									1.02E-05	
-	-	-	0.07	1.65	3.13E-03	0.02	-	328.37	0.01	2.66E-03	7.80E-03	See eGen tab for calculations
--	--	lb/hr	0	0	0	8.60E-02	0	0	0	0	0	
			31.90	**247.40**	**0.49**	**4.52**	**1,761.12**	**98,101.70**	**1.85**	**2,604.75**	**1.55**	
			0.00	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	
			31.90	**247.40**	**0.49**	**4.52**	**1,761.12**	**98,101.70**	**1.85**	**2,604.75**	**1.55**	

Table B-8. Apache Nitrogen Products, Inc. - Sitewide PTE Summary

Pollutant	Total (tpy)	Non-fugitive (tpy)	Fugitive (tpy)
PM	461.8	307.1	154.7
PM_{10}	330.9	267.3	63.7
$PM_{2.5}$	216.9	207.3	9.7
CO	31.9	31.9	0
NO_x	247.4	247.4	0
SO_2	0.5	0.5	0
VOC	4.5	4.5	0
NH_3	1,761.1	1,761.1	0
Lead	4.11E-04	4.11E-04	0
HAPs	1.6	2	0
CO_2	98,102	98,102	0
CH_4	1.8	1.8	0
N_2O	2,605	2,605	0
CO2e	839,767	839,767	0