STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502
www.deq.idaho.gov

Governor Brad Little
Director John H. Tippets

August 19, 2019

Trish Arave, Plant Manager
J.R. Simplot Company – Don Siding Pocatello
P.O. Box 912
Pocatello, ID 83204

RE: Facility ID No. 077-00006, J.R. Simplot Company – Don Siding Pocatello
Final Permit Letter

Dear Ms. Arave:

The Department of Environmental Quality (DEQ) is issuing Permit to Construct (PTC) No. P-2016.0055 Project 62103 to J.R. Simplot Company – Don Siding Pocatello for the PTC revision to incorporate the requirements of the EPA consent decree. This PTC is issued in accordance with IDAPA 58.01.01.200 through 228 (Rules for the Control of Air Pollution in Idaho) and is based on the certified information provided in your PTC application received August 31, 2018.

This permit is effective immediately and replaces PTC No. P-2016.0055, issued on August 3, 2017. This permit does not release J.R. Simplot Company – Don Siding Pocatello from compliance with all other applicable federal, state, or local laws, regulations, permits, or ordinances.

This PTC was processed in accordance with IDAPA 58.01.01.209.05.c. Since DEQ is currently processing a Tier I permit renewal application for this facility, this PTC will be incorporated into your draft Tier I permit.

Pursuant to the Construction and Operation Notification General Provision of your permit, it is required that construction and operation notification be provided. Please provide this information as listed to DEQ's Pocatello Regional Office, 444 Hospital Way, #300, Pocatello, ID 83201, Fax (208) 236-6168.

In order to fully understand the compliance requirements of this permit, DEQ highly recommends that you schedule a meeting with Melissa Gibbs, Regional Air Quality Manager, at (208) 236-6160 to review and discuss the terms and conditions of this permit. Should you choose to schedule this meeting, DEQ recommends that the following representatives attend the meeting: your facility's plant manager, responsible official, environmental contact, and any other staff responsible for day-to-day compliance with permit conditions.

Pursuant to IDAPA 58.01.23, you, as well as any other entity, may have the right to appeal this final agency action within 35 days of the date of this decision. However, prior to filing a petition for a contested case, I encourage you to contact Kelli Wetzel at (208) 373-0502 or kelli.wetzel@deq.idaho.gov to address any questions or concerns you may have with the enclosed permit.

Sincerely,

Mike Simon
Stationary Source Program Manager
Air Quality Division

MS\kw

Permit No. P-2016.0055 PROJ 62103

Air Quality

PERMIT TO CONSTRUCT

Permittee	J.R. Simplot Company – Don Siding Pocatello
Permit Number	P-2016.0055
Project ID	62103
Facility ID	077-00006
Facility Location	1150 West Highway 30 Pocatello, ID 83204

Permit Authority

This permit (a) is issued according to the "Rules for the Control of Air Pollution in Idaho" (Rules), IDAPA 58.01.01.200–228; (b) pertains only to emissions of air contaminants regulated by the State of Idaho and to the sources specifically allowed to be constructed or modified by this permit; (c) has been granted on the basis of design information presented with the application; (d) does not affect the title of the premises upon which the equipment is to be located; (e) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment; (f) does not release the permittee from compliance with other applicable federal, state, tribal, or local laws, regulations, or ordinances; and (g) in no manner implies or suggests that the Idaho Department of Environmental Quality (DEQ) or its officers, agents, or employees assume any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment. Changes in design, equipment, or operations may be considered a modification subject to DEQ review in accordance with IDAPA 58.01.01.200–228.

Date Issued August 19, 2019

Kelli Wetzel

Kelli Wetzel, Permit Writer

Mike Simon, Stationary Source Manager

Contents

1 Permit Scope

Purpose

1.1 This is a revised permit to construct (PTC) to incorporate the December 3, 2015, consent decree (CD) agreement requirements with U.S. EPA and the State of Idaho to settle alleged Clean Air Act (CAA) violations at the Don Plant sulfuric acid plants.

1.2 Those permit conditions that have been modified or revised by this permitting action are identified by the permit issue date citation located directly under the permit condition and on the right-hand margin.

1.3 This PTC replaces Permit to Construct No. P-2016.0055, issued on August 3, 2017.

Regulated Sources

Table 1.1 lists all sources of regulated emissions in this permit.

Table 1.1 Regulated Sources

Permit Section	Source	Control Equipment
2	Phosphoric acid manufacturing plants Manufacturer: Mulberry Welding and Simplot Rated capacity: 64.6 T/hr phosphoric acid, P_2O_5 equivalent Installed date: 1985 Last modified date: 1992	Digester scrubber Belt filter scrubber
3	Granulation No. 1 process Manufacturer: Anaconda Reactor/granulator rated capacity: 54.2 T/hr phosphate product Reactor/granulator installed date: 1961 Dryer rated capacity: 54.2 T/hr phosphate product Dryer rated heat input rate: 20 MMBtu/hr Dryer fuel type: natural gas Dryer installed date: 1961 Dryer last modified date: 1984/1985 Material handling rated capacity: 54.2 T/hr phosphate product Material handling equipment installed date: 1961 Material handling equipment last modified date: 1992	Cyclone and dryer scrubber in series Reactor/granulator scrubber Cooler baghouse Granulation No. 1 baghouse (also called vent baghouse)
4	Granulation No. 2 process Manufacturer: D.M. Westherly Reactor/granulator rated capacity: 52.1 T/hr phosphate product Reactor, granulator, and dryer installed date: 1964 Reactor, granulator, and dryer last modified date: 1992/1993 Dryer rated capacity: 52.1 T/hr phosphate product Dryer rated heat input rate: 20 MMBtu/hr Dryer fuel type: natural gas Material handling rated capacity: 52.1 T/hr phosphate product Material handling equipment installed date: 1964 Material handling equipment last modified date: 1992	Cyclone dust collector and Dryer venturi scrubber in series (primary function as process equipment) Tailgas scrubber Granulation No.2 Baghouse/dust baghouse Cooler baghouse

Permit Section	Source	Control Equipment
5	Granulation No. 3 process Manufacturer: various manufacturers including Simplot Mixer/blunger/dryer/granulator material handling rated capacity: 31.3 T/hr phosphate product Dryer rated heat input rate: 35 MMBtu/hr Dryer fuel type: natural gas Reactor, granulator, dryer, and granulator material handling equipment installed date: 1953 Reactor, granulator, dryer, and granulator material handling equipment last modified date: 2002 Defluorination process rated capacity: 21 T/hr phosphate product, 12 P_2O_5 T/hr Defluorination process installed date: 2000 Limestone silos and limestone baghouse installed date: 1953 Limestone silos and limestone baghouse last modified date: 1989	Cyclone Entoleter scrubber Defluorination scrubber (material handling) Baghouse Limestone baghouse Diatomaceous earth baghouse1
6	Ammonium sulfate plant Manufacturer: Simplot and various contractors Dryer rated capacity: 8.3 T/hr ammonium sulfate Dryer burner rated heat input rate: 3 MMBtu/hr Dryer installed date: 1964 Dryer last modified date: 1998 Cooler rated capacity: 8.3 T/hr ammonium sulfate Cooler installed date: 1964 Cooler last modified date: 1991	Dryer Venturi scrubber Cooler Venturi scrubber Barometric condenser Building enclosure
7	Superphosphoric acid (SPA) plant Manufacturer: various manufacturers including Simplot Rated capacity: 55 T/hr SPA, 69% of P_2O_5 equivalent Installed date: 1972 Last modified date: 1999	Primary control scrubber Non-contact condenser and primary control scrubber Extended absorber system and primary control scrubber
8	Sulfuric acid plant No. 300 Manufacturer: Monsanto Rated capacity: 1,750 T/day or 72.9 T/hr 100% H_2SO_4 Installed date: February 1966 Last modified date: 2001	DynaWave reverse-jet scrubber followed by Ammsox packed-bed ammonia scrubber
9	Sulfuric acid plant No. 400 Manufacturer: Chemetics Rated capacity: 166.7 T/hr 100% H_2SO_4 Installed date: January 1986 Last modified date: 1992 - stack; 1993 economizer	mist-eliminator (an inherent process equipment)
10	Gypsum stack (pile) A fugitive source. Refer to Section 10 for details.	Reasonable control of fugitive emissions
11	HPB&W boiler Manufacturer: Babcock & Wilcox Model: FM 106-97 Rated heat input rate: 175 MMBtu/hr Rated steaming capacity: 120,000 lb/hr Burner type: LoNOx® burner Fuel: natural gas Manufactured date: 2000 Installed date: 2000	None

Permit Section	Source	Control Equipment
12	Babcock and Wilcox boiler Manufacturer: Nationwide Boiler Incorporated Model: Babcock and Wilcox FM 10-79 Rated heat input rate: 63.8 MMBtu/hr Rated steaming capacity: 58,000 lb/hr Burner type: COEN QLN, low NOx spud type Fuel: natural gas Manufactured date: 1977 Date installed: 2/17/95	None
13	Reclaim cooling towers Manufacturer: east tower by Fluor, west tower by Lillie-Hoffman, and north tower by Thermal Dynamic Installed date: 1966 Last modified dates: 1976, 1990	Mist-eliminator (primary function as process equipment)

2 Phosphoric Acid Manufacturing Plants – Phosphoric Acid Plant No. 400 / Wet Process Phosphoric Acid Process Line

2.1 Process Description

Phosphoric acid is produced by the reaction of sulfuric acid with phosphate ore. The sulfuric acid is generally produced on site at one of the two sulfuric acid plants (No. 300 and No. 400) and the phosphate ore is pumped in from the Smoky Canyon mine as slurry. The ore slurry is partially dewatered in the ore thickener and excess water can be stored in one of the three slurry water storage silos. The thickened phosphate ore slurry is pumped into the main reactor at the phosphoric acid plant and mixed with high concentration sulfuric acid (typically 93% or 98%), water, and recycled phosphoric acid from the belt filters. This reaction produces phosphoric acid and gypsum. The gypsum is removed by pumping the slurry onto belt filters where the phosphoric acid is removed. The solid gypsum is washed on the filters. The gypsum cake is dropped into a launder and slurried to the repulp tanks(s), and then to the gypsum stack. The phosphoric acid filtrate is concentrated using clarifiers and evaporators. The phosphoric acid is sent either to product storage tanks or on to the superphosphoric acid manufacturing process.

The Purified Phosphoric Acid Plant, which is embedded in the 400 Phosphoric Acid Plant, uses membrane technology to remove residual ore impurities to produce a technical grade product. A step in the process requires dewatering an intermediate stream via evaporation. An evaporator similar to the phosphoric acid evaporators is used.

The plant uses the following equipment:

- Digester/reactor – the ore slurry, sulfuric acid, and recycled acid are fed into the digester/reactor. The chemical reaction yields phosphoric acid (approximately 27% P_2O_5 content) and calcium sulfate crystals known as phosphogypsum.
- Digester contact barometric condenser – draws the vacuum on the cooler for the digester. The condenser requires a hot well to maintain the necessary vacuum and collect the condensate. The condensate is then transferred into a pump tank where it is pumped to the gypsum stack for cooling or to the vacuum belt filter system as process water.
- Vacuum belt filter – separates the slurry of phosphoric acid and phosphogypsum, allowing the gypsum to be delivered to the repulp tank(s) and the phosphoric acid to proceed for further refining. (The precipitated gypsum is pumped to the gypsum stack).
- Vacuum evaporator – concentrates incoming feed phosphoric acid to approximately 50% P_2O_5.
- Evaporator contact barometric condenser – draws the vacuum on the evaporator. The condenser requires a hot well to maintain the necessary vacuum and collect the condensate. The condensate is then transferred into the hot pit. The effluent from the hot pit is fed to the evaporative cooling tower.
- Hot wells (which may also be called seal cans, hot pits, and filtrate cans) – retain the vacuum in critical equipment, collect effluent, and process fluids from the evaporation processes.

2.2 Control Device Descriptions

Table 2.1 Phosphoric Acid Manufacturing Plant Description

Emissions Units / Processes	Control Devices	Emission Points
Phosphoric acid reactor (also called digester)	Digester scrubber	Belt filter scrubber stack (Phosphoric acid plant No. 400 stack)
Digester hotwell		
Digester flash cooler pre-condensers		
Digester flash cooler vacuum pumps		
No. 2 Hot pit	Belt filter scrubber	
Belt filter filtrate cans		
Belt filters		
Evaporator hotwells		
Belt filter vacuum pumps		

Emission Limits

2.3 PM Emission Limit

The PM emissions from the phosphoric acid plant No. 400 shall not exceed the emission limits set by IDAPA 58.01.01.701, or 3.38 lb/hr (whichever is more restrictive), and shall not exceed 14.80 T/yr (tons per any consecutive 12 month period).

2.4 PM_{10} Emission Limit

The PM_{10} emissions from the phosphoric acid plant No. 400 stack shall not exceed 5.69 lb/hr and 24.92 T/yr (tons per any consecutive 12 month period).

2.5 Total Fluoride Emission Limit

Total fluoride (i.e., particulates and gaseous) emissions from the phosphoric acid plant No. 400 stack shall not exceed 1.30 lb/hr, and 4.71 T/yr (tons per any consecutive 12 month period).

2.6 Total Reduced Sulfur Emission Limit

Total reduced sulfur emissions from the phosphoric acid plant No. 400 stack shall not exceed 8.61 lb/hr, and 37.7 T/yr (tons per any consecutive 12 month period).

2.7 Fugitive PM_{10} Emissions

Uncaptured fugitive PM_{10} emissions shall be reasonably controlled, as required in IDAPA 58.01.01.650 and 651.

2.8 Opacity Limit

Emissions from the phosphoric acid plant No. 400 stack, or any other stack, vent, or functionally equivalent opening associated with the phosphoric acid plant No. 400, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

2.9 Scrubber Maintenance

Maintenance to a scrubber and/or process maintenance shall be performed if visible emissions from the scrubber stack exceed 15% opacity. This maintenance opacity applies to all scrubbers described in this process. The permittee shall maintain a record of emission control equipment maintenance, which will be made available to inspectors on request.

Performance Testing Requirements

2.10 PM and PM_{10} Performance Test

The permittee shall conduct a compliance test to demonstrate compliance with hourly PM and PM_{10} emissions limits in Permit Conditions 2.3 and 2.4. Emissions from the scrubber stack shall be measured using the following EPA reference test methods, or approved alternatives: PM - Method 5; PM_{10} - Methods 5 and 202.

Testing shall be performed according to the following schedule. If the pollutant emission rate measured in the most recent test is less than or equal to 75% of the emission limit, the next test shall be conducted within five years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission limit, the next test shall be conducted within two years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 90% of the emission limit, the next test shall be conducted within 13-months of the test date.

[August 19, 2019]

40 CFR 63 Subpart AA – National Emission Standards for Hazardous Air Pollutants From Phosphoric Acid Manufacturing Plants

2.11 40 CFR Subpart AA

The permittee shall comply with the applicable requirements of 40 CFR 63, Subpart AA.

3 Granulation No. 1 Process

3.1 Process Description

Granulation No. 1 normally produces mono-ammonium phosphate (MAP, 11-52-0) and ammonium phosphate sulfate (16-20-0) granulated products. The Granulation No. 1 process involves reacting phosphoric acid or sulfuric acid to produce ammonium phosphate or ammonium phosphate-sulfate slurry. The slurry is sprayed onto a recycle stream of product in the granulator. Depending on the product, phosphoric acid or ammonia is also added at this time. Process gases from both the reactor and granulator are combined in a common stream before passing through the reactor/granulator Venturi scrubber. Scrubber blowdown is transferred to the reactor for further P_2O_5 recovery, and the cleaned air stream is discharged to the atmosphere.

The product from the granulator is transferred to the dryer where it is dried. A cyclone dust collector removes the larger dust particles entrained in the off-gases exiting the dryer. This dust collected by the cyclone returns to the granulator via the recyle drag conveyer below the cyclones outlet. Finer dust particles and gaseous pollutants are removed as they pass through the dryer Venturi scrubber. Scrubber blowdown is returned to the reactor tank for further P_2O_5 recovery. The exhaust of the dryer scrubber exits through the dryer stack.

The product stream is screened into three fractions: oversized, product, and fines. The fines are recycled to the granulator via the recycle drag conveyor while the oversize first passes through a cage mill where it is crushed and incorporated back into the granulator via the drag conveyor. A slip stream off the product stream undergoes a second screening (polishing screens) to further reduce the percentage of fines. The size of this stream is regulated by the motor amp draw on the granulator elevator. Fines from the polishing screen are returned to the granulator via the recycle drag conveyor. Dust from the screening process passes through the Granulation No. 1 vent baghouse dust collector where it is separated from the air. The dust removed in the vent baghouse is transported to the granulator via the recycle drag conveyor.

The product stream is transferred to the fluidized bed cooler, cooled, and then coated with wax for dust control before being sent out to the warehouse. The dust laden offgas stream from the fluidized bed cooler passes through the cooler baghouse dust collector where the particulates are separated from the air. The dust removed in the baghouse is recycled to the granulator via a screw conveyor that reports to the recycle drag conveyor. The cleaned air stream is ducted to the dryer burner, where the heat value of the cooler gas stream is reclaimed.

3.2 Control Device Descriptions

Table 3.1 Granulation No. 1 Description

Emissions Units / Processes	Control Devices	Emission Points
Dryer	Cyclone and dryer scrubber in series	Granulation No. 1 dryer stack
Granulator	Reactor/granulator scrubber	Granulation No. 1 reactor/granulator stack
Reactor		
Cooler	Cooler baghouse	Dryer burner
Polishing screen	Granulation No. 1 baghouse (also called vent baghouse)	Granulation No. 1 baghouse stack
Fines drag		
Elevator to granulator		
Elevator to screens		
Reject conveyor to fines drag		
Product dump from overhead	Reasonable control of fugitive emissions (enclosure)	Fugitive
Front-end loader operation		
Underground conveyor		
Elevator		
Crossover belt		
Screens for crossover belt		
Bulking loadout		

Emission Limits

3.3 PM/PM_{10} Emission Limit

Emissions from the Granulation No. 1 plant (all stacks combined) shall not exceed the emissions limits in Table 3.2.

Table 3.2 Granulation No. 1 PM/PM_{10} Emission Limits

Source Description	PM/PM_{10}	
	lb/hr	T/yr
Reactor/granulator stack	10.9	47.7
Dryer stack		
Baghouse stack (Granulation No. 1 baghouse, also called vent baghouse)		

3.4 Fluoride Emission Limit

Total fluoride emissions from the combined Granulation No. 1 process stacks shall not exceed 7.8 lb/hr and 34.16 T/yr (tons per any consecutive 12 month period).

3.5 NO_x Emission Limit

The NO_x emissions from the combined Granulation No. 1 process stacks shall not exceed 1.44 lb/hr and 6.3 T/yr (tons per any consecutive 12 month period).

3.6 CO Emission Limit

The CO emissions from the combined Granulation No. 1 process stacks shall not exceed 0.37 lb/hr and 1.6 T/yr (tons per any consecutive 12 month period).

3.7 SO_2 Emission Limit

The SO_2 emissions from the combined Granulation No. 1 process stacks shall not exceed 0.004 lb/hr and 0.019 T/yr (tons per any consecutive 12 month period).

3.8 Opacity Limit

Emissions from the Granulation No. 1 process stack, or any other stack, vent, or functionally equivalent opening associated with the Granulation No. 1 process, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

3.9 Scrubber Maintenance

Maintenance to the scrubbers and/or process maintenance shall be performed if visible emissions from the scrubber stacks exceed 15% opacity. A record of maintenance shall be maintained on site for the most recent five years and shall be made available to DEQ representatives upon request.

3.10 Baghouse Maintenance

Maintenance to the baghouse shall be performed if visible emissions from the baghouse stack exceed 10% opacity. A record of maintenance shall be maintained on site for the most recent five years and shall be made available to DEQ representatives upon request.

Monitoring, Compliance Tests, and Compliance Provisions

3.11 PM and PM_{10} Compliance Test

The permittee shall conduct a compliance test to demonstrate compliance with the hourly PM/PM_{10} emission limit in Permit Condition 3.3. The PM/PM_{10} emissions shall be measured using EPA reference test methods 5 and 202, or methods 201A and 202, or DEQ approved alternatives.

Testing shall be performed according to the following schedule. If the pollutant emission rate measured in the most recent test is less than or equal to 75% of the emission limit, the next test shall be conducted within five years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission limit, the next test shall be conducted within two years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 90% of the emission limit, the next test shall be conducted within 13-months of the test date.

The permittee shall record the equivalent P_2O_5 feed rate to the process, the pressure drop across the baghouse, the pressure drop across each scrubber, and the flow rate of the scrubber liquid to each scrubber during compliance tests.

[August 19, 2019]

3.12 Natural Gas Dryer Usage

For the purposes of determining compliance with the short-term (lb/hr) and yearly (tons-per-year) emission limits for the pollutants NO_x, CO, and SO_2 in Permit Conditions 3.5 through 3.7, the permittee shall continuously monitor the amount of natural gas fired in the dryer. On a monthly basis, the permittee shall record the monthly natural gas consumption of the dryer, the monthly operating hours of the dryer, and the rolling 12-month natural gas usage.

3.13 Fugitive Emissions Compliance

The permittee shall maintain the documentation that lists the methods to control fugitive emissions. Fugitive emissions shall be reasonably controlled, as required in IDAPA 58.01.01.650 and 651.

[August 19, 2019]

40 CFR 63 Subpart BB – National Emission Standards for Hazardous Air Pollutants From Phosphate Fertilizers Production Plants

3.14 40 CFR Subpart BB

The permittee shall comply with the applicable requirements of 40 CFR 63, Subpart BB.

4 Granulation No. 2 Process

4.1 Process Description

Granulation No. 2 normally produces mono-ammonium phosphate (MAP, 11-52-0) and ammonium phosphate sulfate (16-20-0) granulated products. The Granulation No. 2 process involves reacting phosphoric acid with ammonia to produce ammonium phosphate or ammonium phosphate sulfate slurry in the reactor. The slurry is sprayed onto a product recycle stream in the granulator. Depending on the product, phosphoric acid or ammonia is added to the granulator at his time. The product from the granulator is transferred to the dryer where it is dried. A cyclone removes the larger dust particles entrained in the off-gases exiting the dryer. This dust collected by the cyclone returns directly to the recycle drag conveyer below the cyclone's outlet. Finer particles and gaseous pollutants are removed as they pass through the dryer Venturi scrubber.

Off-gases from both the reactor and granulator are combined in a common stream before passing through a high-mole spray scrubber separator and on to a low-mole scrubber. This air stream is combined with the air stream from the dryer venturi scrubber described below receives a final scrubbing in the Tailgas scrubber. Blowdown from the low-mole and high-mole scrubber is recycled back to the reactor.

The product stream is screened into three fractions: oversized, product, and fines. The fines report directly to the recycle drag conveyor while the oversize first passes through a cage mill where it is crushed before reporting to the recycle drag conveyor. A slip stream off the product stream undergoes a second screening (polishing screens) to further reduce the percentage of fines. The size of this stream is regulated by the motor amp draw on the granulator elevator. Fines from the polishing screen are returned to the granulator via the recycle drag conveyor. Dust from the screening process passes through the Granulation No. 2 vent baghouse dust collector where it is separated from the air. The dust removed in the baghouse is transported to the recycle drag conveyor by a screw conveyor.

The product stream is transferred to the rotary cooler, cooled, and then coated with wax for dust control before being sent out to the warehouse. The dust laden off-gas stream from the cooler passes through the cooler baghouse dust collector where the particulates are separated from the air. The dust removed in the baghouse is transported to the granulator via a screw conveyor that reports to the recycle drag conveyor. The cleaned air stream is then combined with the air off the dust baghouse and discharged to the atmosphere.

4.2 Control Device Descriptions

Table 4.1 Granulation No. 2 Description

Emissions Units / Processes	Control Devices		Emission Points
Reactor	----------	Tailgas scrubber	Tailgas scrubber stack
Granulator			
Dryer	Cyclone dust collector and Dryer venturi scrubber in series (primary function as process equipment)		
Recycle drag conveyor	Granulation No.2 Baghouse/dust baghouse		Granulation No.2 baghouse and cooler baghouse stack
Screens			
Polishing screen			
Elevator to granulator			
Elevator to screens			
Product elevator			
Cooler	Cooler baghouse		
Product dump from overhead	Reasonable control of fugitive emissions (enclosure)		Fugitive
Front-end loader operation			
Underground conveyor			
Elevator			
Crossover belt			
Bulking loadout			
Screens			

Emission Limits

4.3 PM/PM_{10} Emission Limit

Emissions from the Granulation No. 2 plant (all stacks combined) shall not exceed the emissions limits in Table 4.2.

Table 4.2 Granulation No. 2 PM/PM_{10} Emission Limits

Source Description	PM/PM_{10}	
	lb/hr	T/yr
Tailgas scrubber stack	10.7	46.9
Baghouse stack		

4.4 Fluoride Emission Limit

Total fluoride emissions from the combined Granulation No. 2 process stacks shall not exceed 6.8 lb/hr and 29.78 T/yr (tons per any consecutive 12 month period).

4.5 NO_x Emission Limit

The NO_x emissions from the combined Granulation No. 2 process stacks shall not exceed 1.69 lb/hr, and shall not exceed 7.4 T/yr (tons per any consecutive 12 month period).

4.6 CO Emission Limit

The CO emissions from the combined Granulation No. 2 process stacks shall not exceed 0.41 lb/hr, and 1.8 T/yr (tons per any consecutive 12 month period).

4.7 SO_2 Emission Limit

The SO_2 emissions from the combined Granulation No. 2 process stacks shall not exceed 0.0016 lb/hr and 0.007 T/yr (tons per any consecutive 12 month period).

4.8 Opacity Limit

Emissions from the Granulation No. 2 process stack, or any other stack, vent, or functionally equivalent opening associated with the Granulation No. 2 process, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

4.9 Scrubber Maintenance

Maintenance to the scrubbers and/or process maintenance shall be performed if visible emissions from the scrubber stacks exceed 15% opacity. A record of maintenance shall be maintained on site for the most recent five years and shall be made available to DEQ representatives upon request.

4.10 Baghouse Maintenance

Maintenance to the baghouse shall be performed if visible emissions from the baghouse stack exceed 10% opacity. A record of maintenance shall be maintained on site for the most recent five years and shall be made available to DEQ representatives upon request.

Monitoring, Compliance Tests, and Compliance Provisions

4.11 PM and PM_{10} Compliance Test

The permittee shall conduct a compliance test to demonstrate compliance with hourly PM/PM_{10} emissions limit in Permit Condition 4.3. The PM/PM_{10} emissions shall be measured using EPA reference test methods 5 and 202, or methods 201A and 202, or DEQ approved alternatives.

Testing shall be performed according to the following schedule. If the pollutant emission rate measured in the most recent test is less than or equal to 75% of the emission limit, the next test shall be conducted within five years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission limit, the next test shall be conducted within two years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 90% of the emission limit, the next test shall be conducted within 13-months of the test date.

The permittee shall record the equivalent P_2O_5 feed rate to the process, the pressure drop across the baghouse, the pressure drop across each scrubber, and the flow rate of the scrubber liquid to each scrubber during compliance tests.

[August 19, 2019]

4.12 Natural Gas Dryer Usage

For the purposes of determining compliance with the short-term (lb/hr) and yearly (tons-per-year) emission limits for the pollutants NO_x, CO, and SO_2 in Permit Conditions 4.5 through 4.7, the permittee shall continuously monitor the amount of natural gas fired in the dryer. On a monthly basis, the permittee shall record the monthly natural gas consumption of the dryer, the monthly operating hours of the dryer, and the rolling 12-month natural gas usage.

4.13 Fugitive Emissions Compliance

The permittee shall maintain the documentation that lists the methods to control fugitive emissions. Fugitive emissions shall be reasonably controlled, as required in IDAPA 58.01.01.650 and 651.

[August 19, 2019]

40 CFR 63 Subpart BB – National Emission Standards for Hazardous Air Pollutants From Phosphate Fertilizers Production Plants

4.14 40 CFR Subpart BB

The permittee shall comply with the applicable requirements of 40 CFR 63, Subpart BB.

5 Granulation No. 3 Process

5.1 Process Description

The Granulation No. 3 process can produce low fluoride, mono-calcium phosphate ($Ca(H_2PO_4)2*H_2O$) product, di-calcium phosphate ($CaHPO_4*2H_20$) product, or triple superphosphate (TSP, 0-45-0). For Monocalcium phosphate product or Dicalcium phosphate product, low fluoride phosphoric acid from the de-fluorination process is used. For triple superphosphate (0-45-0,) 42% acid from the adjacent phosphoric acid plant is used. The Granulation No. 3 process is not capable of making diammonium and/or monoammonium phosphate by introducing ammonia into the process.

Deflourination process – Low fluoride phosphoric acid used to make low fluoride, mono-calcium phosphate product or dicalcium phosphate product is produced in two batch defluorination reactors by heating the phosphoric acid in the defluorination reactor tank and then adding diatomaceous earth as a silica source. The fluoride in the phosphoric acid volatilizes as silica tetrafluoride. A crossflow defluorination scrubber is used to control emissions from this process. Emissions from diatomaceous earth silo are controlled by a baghouse, which is vented to the atmosphere.

The Granulation No. 3 process Phosphoric acid is reacted with dry fed ground limestone in the mixer and blunger to produce calcium phosphate slurry. The calcium phosphate slurry is then added to recycled granules before being fed to the dryer. The dried granules are screened into three sizes: product, oversize, and fines. A portion of the product size is sent to the storage area for shipping while the remainder is recycled through the system with the fines and crushed oversize material.

Emissions from the mixer and blunger are controlled by the Entoleter scrubber. Emissions from the limestone bins are controlled by the limestone baghouse. Emissions from the dryer are controlled by a cyclone following the Entoleter scrubber. Emissions from the screening process are controlled by the material handling baghouse. The gases from the Entoleter scrubber, material handling baghouse, and the deflourination scrubber are exhausted through the Granulation No. 3 stack.

East Dry Bulking Station - Granulation No.3 Loadout is an almost completely enclosed loadout station and is used to loadout triple superphosphate and livestock feed supplement into train cars and trucks for transport out of the facility. The only appreciable opening is the loadout bays, which must remain open to the atmosphere, allowing rail cars and trucks to enter and exit the bays.

5.2 Control Device Descriptions

Table 5.1 Granulation No. 3 Description

Emissions Units / Processes	Control Devices		Emission Points
Mixer	----------	Entoleter scrubber	Granulation No. 3 stack
Blunger			
Dryer	Cyclone		
Two batch defluorination reactors	Defluorination scrubber		
Screens	(material handling) Baghouse		
Rotex screen (Conveyors)			
Fines loadout (Recycle Drag)			
Production elevator (screen feed elevator)			
Reject elevator			
Reject Hopper			
Limestone bins	Limestone baghouse		Limestone baghouse stacks
Diatomaceous earth silo	Diatomaceous earth baghouse[1]		Diatomaceous earth baghouse stack/vent
Conveying	Reasonable control of fugitive emissions		Fugitive
Conveyor drop			
Front-end loader operations			
Bulking elevator			
Crossover belt			
East dry-bulking			
Conveying			
Conveyor drop			
Front-end loader operations			
Bulking elevator			
Crossover belt			

[1] A side stream of air from the baghouse will be used to strip fluoride from the hot treated acid. The fluoride enriched air stream from the reactors will then be scrubbed in the Defluorination Scrubber.

Emission Limits

5.3 PM Emission Limit

The PM emissions from the Granulation No. 3 stack shall not exceed 7.0 lb/hr and 30.7 T/yr (tons per any consecutive 12 month period).

5.4 PM_{10} Emission Limit

The PM_{10} emissions from the Granulation No. 3 stack shall not exceed 5.7 lb/hr and 25.0 T/yr (tons per any consecutive 12 month period).

5.5 Baghouse PM_{10} Emission Limit

The PM_{10} emission from the diatomaceous earth baghouse shall not exceed 0.28 lb/hr and 1.2 T/yr (tons per any consecutive 12 month period) as determined by multiplying the measured pound-per-hour emission rate by the allowable hours per year that the processes may operate(s), or by actual annual production rates.

5.6 Fluoride Emission Limit

Total fluoride emissions from the Granulation No. 3 stack shall not exceed 1.28 lb/hr and 5.63 T/yr (tons per any consecutive 12 month period).

5.7 NO_x Emission Limit

The NO_x emissions from the Granulation No. 3 stack shall not exceed 3.4 lb/hr and 14.9 T/yr (tons per any consecutive 12 month period).

5.8 SO_2 Emission Limit

The SO_2 emissions from the Granulation No. 3 stack shall not exceed 0.02 lb/hr and 0.09 T/yr (tons per any consecutive 12 month period).

5.9 CO Emission Limit

The CO emissions from the Granulation No. 3 stack shall not exceed 2.9 lb/hr and 12.7 T/yr (tons per any consecutive 12 month period)

5.10 VOC Emission Limit

The VOC emissions from the Granulation No. 3 stack shall not exceed 0.2 lb/hr and 0.9 T/yr (tons per any consecutive 12 month period).

5.11 Opacity Limit

Emissions from the Granulation No. 3 process stack, or any other stack, vent, or functionally equivalent opening associated with the Granulation No. 3 process, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

5.12 Maximum Operating Rate

The maximum allowable operating rate to Granulation No.3 process, measured in tons of P_2O_5 equivalent feed per hour, shall be limited to 120% of the average operating rate attained during any compliance test period for which a test protocol has been granted prior to approval by DEQ; unless (1) the test demonstrates noncompliance, (2) a more restrictive operating limit is specified elsewhere in this permit, or (3) at such an operating rate, emissions would exceed any emission limit(s) set forth in this permit.

5.13 Throughput Limit Defluorination Process

The maximum monthly throughput of P_2O_5 to the defluorination process shall not exceed 6,250 T/month. The maximum annual throughput of P_2O_5 to the process shall not exceed 75,000 T/yr.

5.14 O&M Manuals

The permittee shall have developed an O&M manual for the material handling baghouse and wet scrubber system and the defluorination scrubber and diatomaceous earth baghouse that describes the procedures that will be followed to comply with General Provision 13.2.

The respective pressure drop across the material handling baghouse for the Granulation No. 3 process and Diatomaceous earth baghouse for the defluorination process and the respective pressure drop and the liquid flow rate of the Entoleter wet scrubber and Defluorination scrubber shall be maintained within O&M manual specifications. Documentation of the above operating parameters shall remain on site at all times and shall be made available to DEQ representatives upon request.

The permittee shall have submitted an updated O&M Manual for the Granulation No. 3 Entoleter scrubber, which includes the provisions that the fresh water flow to the scrubber does not drop below 10 gpm while producing Monocalcium Phosphate (21 P) and Dicalcium Phosphate (18.5P), that the fresh water flow to the scrubber does not drop below 32 gpm while producing triple superphosphate (0-45-0), that the total scrubber flow does not drop below 600 gpm, and that the scrubber duct spray water flow does not drop below 250 gpm, all determined based upon daily averaging of data collected during operations on approximately four hour intervals.

5.15 Limestone Baghouse

Particulate emissions from the limestone bins shall be controlled by the limestone baghouse.

5.16 Fuel Restriction

The dryer of granulation No.3 process, with a maximum rated heat input capacity of 35 MMBtu/hr (determined on a 24-hour rolling average), shall burn only natural gas as fuel.

5.17 Scrubber Maintenance

Maintenance to the scrubbers (i.e., Entoleter scrubber and defluorination scrubber,) process equipment, and/or material handling baghouse shall be performed if visible emissions from the Granulation No. 3 plant stack exceed 15% opacity.

5.18 Air Pollution Emergency Rules

The permittee shall comply with the Air Pollution Emergency Rules in IDAPA 58.01.01.550 through 562.

Performance Tests and Compliance Procedures

5.19 Fluoride Performance Test

The permittee shall conduct fluoride performance testing on the Granulation No. 3 plant stack. Emissions shall be measured using EPA Reference Methods 13A or 13B, or a DEQ approved alternative.

Testing shall be performed according to the following schedule. If the pollutant emission rate measured in the most recent test is less than or equal to 75% of the emission limit, the next test shall be conducted within five years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission limit, the next test shall be conducted within two years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 90% of the emission limit, the next test shall be conducted within 13-months of the test date.

The following shall be monitored and recorded during each compliance test:

- For each fluoride performance test, all process areas which emit fluoride emissions out the Granulation No. 3 stack shall be in operation. Production throughput for each process area shall be monitored and recorded for each performance test run in addition to the throughput in pounds per hour to the defluorination process.
- The pressure drop across the Entoleter wet scrubber.
- The liquid flow rate through the Entoleter wet scrubber.
- The fresh water flow to the Entoleter wet scrubber.
- The duct spray water flow of the Entoleter wet scrubber.
- The pressure drop across the defluorination scrubber.
- The liquid flow rate through the defluorination scrubber.
- The pressure drop across the material handling baghouse.

The feed rate, in tons of P_2O_5 equivalent per hour, to the Granulation No. 3 plant shall be recorded during each compliance test. The permittee shall determine the rate of equivalent P_2O_5 feed by first determining the mass rate in tons per hour of phosphorus-bearing feed, then multiplying the phosphorus bearing feed rate by the decimal fraction of P_2O_5 content.

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5.20 PM/PM_{10} Performance Tests

The permittee shall conduct PM and PM_{10} performance testing on the Granulation No. 3 plant stack. PM emissions shall be measured using EPA Reference Method 5. PM_{10} emissions shall be measured using EPA Reference Methods 5 and 202, or Methods 201A and 202, or a DEQ approved alternative.

For emissions limits of PM and PM_{10}, if the pollutant emission rate measured in the most recent test is less than or equal to 75% of the emission limit, the next test shall be conducted within five years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission limit, the next test shall be conducted within two years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 90% of the emission limit, the next test shall be conducted within 13-months of the test date.

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5.21 Natural Gas Dryer Usage

To demonstrate compliance with annual NO_x, CO, SO_2, and VOC emissions limits, the permittee shall continuously monitor the amount of natural gas fired in the dryer. On a monthly basis, the permittee shall record the natural gas consumption of the dryer, the operating hours of the dryer, and the rolling 12-month natural gas usage.

5.22 Fugitive Emissions

The permittee shall maintain the documentation that lists the methods to control fugitive emissions. Fugitive emissions shall be reasonably controlled, as required in IDAPA 58.01.01.650 and 651.

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5.23 Fugitive Emission Inspection

The permittee shall conduct a weekly plant-wide fugitive emission inspection of potential sources of fugitive emissions, during daylight hours and under normal operating conditions, to ensure that the methods used to reasonably control fugitive emissions are effective. If fugitive emissions are not being reasonably controlled, the permittee shall take corrective action as expeditiously as practicable.

5.24 Monitoring Operating Parameters

The permittee shall monitor and record the following information:

- The feed rate of P_2O_5 equivalent to the Granulation No. 3 plant, in tons per hour, and tons per rolling 12-month period on a monthly basis.
- The throughput of P_2O_5 to the defluorination process for that month and for the previous rolling 12-month period on a monthly basis.

- The pressure drop across the material handling baghouse of the Granulation No. 3 plant, pressure drop across the Entoleter scrubber, and liquid flow rate through the Entoleter scrubber on a daily basis.
- The rolling 24-hour average heat input of natural gas to the dryer of Granulation No.3 Process in MMBtu per hour.
- The throughput of triple superphosphate and livestock feed through the east dry-bulking station on both a daily and annual basis.
- The pressure drop across the diatomaceous earth baghouse.
- The pressure drop across the defluorination scrubber on a daily basis.
- The liquid flowrate of the defluorination scrubber on a daily basis.

6 Ammonium Sulfate Plant

6.1 Process Description

This process involves making crystalline ammonium sulfate and transferring it to storage and loadout.

Recycled Ammsox® scrubber liquor from sulfuric acid plant No.300 is transferred to the Ammonium Sulfate Plant where it is combined with sulfuric acid and ammonia in a reactor. Crystallized ammonium sulfate is formed in the reactor, removed from the mother liquor by a centrifuge, transferred to a dryer, and then transferred to a cooler.

The Ammonium sulfate product is transferred from the cooler to the product belt conveyors, which dump to the product stockpile. Product is then transferred by loader from the product stockpile to the reclaim hopper, which feeds a bucket elevator. The bucket elevator chute feeds product into trucks.

6.2 Control Device Descriptions

Table 6.1 Ammonium Sulfate Plant Description

Emissions Units / Processes	Control Devices	Emission Points
Dryer	Dryer Venturi scrubber	Dryer stack
Cooler	Cooler Venturi scrubber	Cooler stack
Cooler elevator		
Reactor (crystallizer)	Entrainment separator and non-contact condenser	Vacuum pump vent
Product stockpile and associated materials transfer to and from product stockpile	Building enclosure	Fugitive
Bucket elevator material transfer	Wind protection	

Emission Limits

6.3 PM Emission Limit

The total PM emissions from the combined dryer and cooler stacks shall not exceed 2.44 lb/hr and 10.68 T/yr (tons per any consecutive 12 month period).

6.4 PM_{10} Emission Limit

The total PM_{10} emissions from the combined dryer and cooler stacks shall not exceed 2.0 lb/hr and 8.76 T/yr (tons per any consecutive 12 month period).

6.5 SO_2 Emission Limit

The total SO_2 emissions from the combined dryer and cooler stacks shall not exceed 0.0007 lb/hr and 0.003 T/yr (tons per any consecutive 12 month period).

6.6 CO Emission Limit

The total CO emissions from the combined dryer and cooler stacks shall not exceed 0.07 lb/hr and 0.3 T/yr (tons per any consecutive 12 month period).

6.7 NO_x Emission Limit

The total NO_x emissions from the combined dryer and cooler stacks shall not exceed 0.25 lb/hr and 1.1 T/yr (tons per any consecutive 12 month period).

6.8 Opacity Limit

Emissions from the ammonium sulfate scrubber stack, or any other stack, vent, or functionally equivalent opening associated with the ammonium sulfate plant, shall not exceed 15% opacity.

Operating Requirements

6.9 Scrubber Maintenance

Maintenance to the corresponding scrubber and process shall be performed if visible emissions from one of the stacks exceed 15% opacity.

6.10 O&M Manual

The permittee shall have developed an Operations and Maintenance (O&M) manual for each wet scrubber system which describes the procedures that will be followed to comply with Permit Conditions 6.3 and 6.4. The O&M manual shall include, but not be limited to, operating ranges for fluid flow rate to each scrubber, pressure drop across each scrubber, and maintenance procedures and schedule. The O&M manual shall be developed based on manufacturer specifications and the compliance test data obtained in Permit Condition 6.11.

The O&M manual shall remain on site at all times and shall be made available to DEQ representatives upon request.

The permittee shall operate each scrubber system in accordance with the O&M manual.

Compliance Tests

6.11 PM and PM_{10} Compliance Test

The permittee shall conduct a compliance test to demonstrate compliance with hourly PM and PM_{10} emissions limits in Permit Conditions 6.3 and 6.4.

- Emissions shall be measured using the following EPA reference test methods, or approved alternatives: PM - Method 5; PM_{10} - Methods 5 and 202.
- Testing shall be performed according to the following schedule. If the pollutant emission rate measured in the most recent test is less than or equal to 75% of the emission limit, the next test shall be conducted within five years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission limit, the next test shall be conducted within two years of the test date. If the pollutant emission rate measured during the most recent performance test is greater than 90% of the emission limit, the next test shall be conducted within 13-months of the test date.
- The permittee shall record the ammonium sulfate plant production rate, the pressure drop across each scrubber, and the flow rate of the scrubber liquid to each scrubber during source tests.

[August 19, 2019]

Monitoring and Recordkeeping Requirements

6.12 Natural Gas Dryer Usage

To demonstrate compliance with emissions limits in Permit Conditions 6.5 through 6.7, the permittee shall continuously monitor the amount of natural gas fired in the dryer. On a monthly basis, the permittee shall record the natural gas consumption for the previous month and for the previous rolling 12-month period.

- The permittee shall monitor and record the hours of operation of the dryer on a monthly basis.

6.13 Fugitive Emissions

The permittee shall maintain the documentation that lists the methods to control fugitive emissions. Fugitive emissions shall be reasonably controlled, as required in IDAPA 58.01.01.650 and 651.

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6.14 Scrubber Flow Rate

The permittee shall monitor the fluid flow rate to each scrubber. The flow rate shall be recorded once per 24-hour period in gallons per minute (gpm).

6.15 Scrubber Pressure Drop

The permittee shall monitor the pressure drop across each scrubber. The pressure drop shall be recorded once per 24-hour period as inches of water column.

6.16 Control Equipment Maintenance Log

The permittee shall maintain an emissions control equipment maintenance log. This log shall be made available to DEQ representatives upon on request.

40 CFR 60 Subpart PP – Standards of Performance for Ammonium Sulfate Manufacture

6.17 40 CFR 60 Subpart PP

The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart PP.

7 Superphosphoric Acid Plant / Superphosphoric Acid Process Line

7.1 Process Description

Phosphoric acid from the wet-phosphoric acid production line is heated and concentrated into super phosphoric acid (SPA, with nominal 69% of P_2O_5 content by weight) in evaporators under vacuum. The SPA is oxidized in the reaction vessel, aged in aging tanks, and filtered. NOx produced during oxidation of SPA is pressurized and processed in the extended absorber system (i.e., extended absorption scrubbers, two in series.). The final SPA is piped to product storage tanks, and is then loaded into trucks or railcars.

Emissions from the evaporators, effluent tank, acid sumps, cooling tanks, the extended absorber system, and other sources of the process are vented to the primary control scrubber. The scrubber water of the primary control scrubber is sent to the consensate pump tank associated with the digester contact barometric condenser or the repulp tank(s).

A detailed description of the SPA process is included as follows:

- Acid evaporation - phosphoric acid from the wet-phosphoric acid production line is heated and concentrated into SPA in the evaporators under vacuum. The vapors from this process are condensed in a non-contact condenser. The remaining vapors and the vapors from the evaporator feed tank are vented to the primary control scrubber to capture fluoride emissions prior to discharging to the atmosphere.
- Acid oxidation - SPA is sent to a reaction vessel where residual impurities are oxidized by nitric acid. The NOx produced during oxidation, in both the reactor vessel, first stage aging tank, and second stage aging tank, is collected, pressurized, and then processed in the extended absorber system. The emissions from the extended absorption system are vented to the primary control scrubber prior to discharging to the atmosphere.
- Acid aging and cooling - SPA is aged in multiple aging tanks and cooled in heat exchangers. The aging allows time for residual reactions to complete. Fumes from the first and second stage aging tank are vented to the extended absorber system prior to discharging to the atmosphere.
- Acid Filtration - cooled SPA is delivered to filters where solids are separated from the acid under pressure. The product SPA is piped to the filter product storage tanks. Tank emissions are routed to the primary scrubber.

7.2 Control Device Descriptions

Table 7.1 SPA Plant Description

Emissions Units / Processes	Control Devices	Emission Points
Product tank	Primary control scrubber	Scrubber stack
Evaporators	Non-contact condenser and primary control scrubber	
Sump No.6	Primary control scrubber	
Oxidizer	Extended absorber system and primary control scrubber	
SPA aging tanks	Primary control scrubber	
Evaporator feed tank	Primary control scrubber	
Effluent tank	Primary control scrubber	
Deflo-dilution tank	None	

Emission Limits

7.3 NO_x Emission Limit

Emissions of NO_x from the SPA oxidation process shall not exceed 0.10 lb/hr and 0.40 T/yr (tons per any consecutive 12 month period).

7.4 CO Emission Limit

Emissions of CO from the SPA oxidation process shall not exceed 4.2 lb/hr and 18.3 T/yr (tons per any consecutive 12 month period).

7.5 Opacity Limit

Emissions from the SPA Plant scrubber stack, or any other stack, vent, or functionally equivalent opening associated with the SPA Plant, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

7.6 Extended Absorber System

The extended absorber system shall be operated according to Simplot's Standard Operating Procedures (SOPs) for the extended absorber system.

7.7 Absorber System Maintenance

Maintenance on the extended absorber system shall be performed when visible emissions from the system exceed 10% opacity for no more than three minutes aggregate in any 60-minute period, as determined using the procedures in IDAPA 58.01.01.625.04.

Monitoring Requirements

7.8 CO Emissions

The permittee shall calculate emissions using emissions factor of 0.042 lb CO/ton of equivalent P_2O_5 feed obtained during December 9, 2004 source testing to demonstrate compliance with the CO limits in Permit Condition 7.5. The lb/hr shall be determined by multiplying the emissions factor by the actual or allowable equivalent P_2O_5 feed rate of the superphosphoric acid plant. The ton-per-year rate shall be determined by multiplying the actual pound-per-hour emission rate by the actual hours per year the process(es) venting to the stack operate(s).

40 CFR 63 Subpart AA – National Emission Standards for Hazardous Air Pollutants From Phosphoric Acid Manufacturing Plants

7.9 40 CFR 63 Subpart AA

The permittee shall comply with the applicable requirements of 40 CFR 63, Subpart AA.

8 Sulfuric Acid Plant No. 300

8.1 Process Description

The single-contact process in the sulfuric acid plant No. 300 begins with burning elemental sulfur in a furnace to produce SO_2. The SO_2 is oxidized to SO_3 in a converter. The SO_3 gas stream is passed through an absorber unit where it is absorbed in less concentrated sulfuric acid (approximately 93%) which allows absorption of the SO_3 to form more concentrated sulfuric acid. The exhaust from the absorbing tower is treated with a DynaWave® reverse-jet scrubber followed by an AmmSOx packed-bed ammonia scrubber to remove SO_2.

The DynaWave® SO_2 scrubber is a vertical gas/liquid contact barrel and spray jet, connected to a vertical/cylindrical disengagement vessel. Process gas from the absorbing tower enters the top of the vertical DynaWave® barrel and collides with a jet of circulating liquid, which is injected upward through a large bore nozzle. A region of highly turbulent flow and mixing is created at the point the liquid is reversed by the gas. The gas and scrubbing solution enter the disengagement vessel where the gas and liquid are separated. A circulation pump circulates the scrubbing liquid back to the DynaWave® nozzle and pumps the product liquor to the acidifier and stripping tower. Process gas passes through the demister and out of the disengagement vessel. The DynaWave® scrubber removes most of the SO_2 from the process gas before entering the AmmSOx scrubber.

Gas leaving the DynaWave® scrubber enters the AmmSOx packed tower scrubber where further scrubbing is performed. The AmmSOx scrubber consists of a packed scrubbing tower, retention chamber, scrubber circulation pumps, and demister section. The scrubber system also contains a stripping system that recovers the scrubbed SO_2 for recycling to the drying tower. The gas exits the packed tower through the mist eliminator and proceeds to the plant stack.

8.2 Control Device Descriptions

Table 8.1 Sulfuric Acid Plant No. 300 Description

Emissions Units / Processes	Control Devices	Emission Points
Sulfuric acid plant No. 300	DynaWave reverse-jet scrubber followed by Ammsox packed-bed ammonia scrubber	No. 300 sulfuric stack

8.3 Consent Decree with the U.S. EPA

Limits, requirements, and restrictions with citations to the Consent Decree (CD) were established pursuant to a Consent Decree with U.S. EPA and shall not be deleted or modified without the U.S. EPA approval.

[August 19, 2019]

Definitions

8.4 Startup

For purposes of the limits in this section of the permit, "Startup" shall mean the setting in operation of a Sulfuric Acid Plant for any purpose, consistent with 40 C.F.R. §60.2. With respect to any Sulfuric Acid Plant, startup begins at the time the feed of elemental sulfur to the furnace commences and lasts no more than 4 hours.

[August 19, 2019]

8.5 Shutdown

For purposes of the limits in this section of the permit, "Shutdown" shall mean the cessation of operation of a Sulfuric Acid Plant for any purpose, consistent with 40 C.F.R. §60.2. With respect to any Sulfuric Acid Plant, shutdown begins at the time the feed of elemental sulfur to the furnace ceases and ends 3 hours later or when the blower is turned off, whichever is earlier.

[August 19, 2019]

8.6 Malfunction

For purposes of the limits in this section of the permit, "Malfunction" shall mean any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner, but shall not include failures that are caused in part by poor maintenance or careless operation, consistent with 40 C.F.R. §60.2.

[August 19, 2019]

8.7 Consent Decree

Consent Decree (CD) shall mean *USA et al. v. J.R. Simplot Company,* Case No. 1:15-cv-00562-CWD (Dist. Idaho 2015). In any permit action after April 12, 2016 (effective date of the CD), the permittee shall adjust the baseline actual emissions downward to eliminate any portion of SO_2 emissions that would have exceeded the SO_2 emission limitation in the CD, that have also been incorporated in Permit Conditions 8.11 and 9.10, for the #300 and #400 sulfuric acid plants respectively.

[August 19, 2019]

Emission Limits

8.8 RACT NO_x Emission Limit

Emissions of NO_x from the No. 300 sulfuric acid plant stack shall not exceed 16.0 lb/hr based on a 24-hour average.

8.9 Annual NO_x Emission Limit

Emissions of NO_x from the No. 300 sulfuric acid plant stack shall not exceed 64 tons per any consecutive 12 month period.

8.10 RACT PM_{10} Emission Limit

Emissions of PM_{10} from the No. 300 sulfuric acid plant stack shall not exceed 11.4 lb/hr based on a 24-hour average and 49.8 T/yr (tons per any consecutive 12 month period).

8.11 Consent Decree (CD) SO_2 Emission Limits

- Emissions of SO_2 from the No. 300 sulfuric acid plant stack shall not exceed 2.5 lb/T of 100% sulfuric acid produced on a rolling 3-hour average basis, except during periods of start-up, shutdown, or malfunction.

- Emissions of SO_2 from the No. 300 sulfuric acid plant stack shall not exceed 1.5 lb/T of 100% sulfuric acid produced on a rolling 365-day average basis including periods of start-up, shutdown, or malfunction.

[August 19, 2019]

8.12 SO_2 Emission Limit

Emissions of SO_2 from the No. 300 sulfuric acid plant stack shall not exceed 4.0 lb/T of 100% sulfuric acid produced.

Emissions of SO_2 shall not exceed 170 lb/hr calculated as a three-hour rolling average and 750 tons per any consecutive 12-month period.

8.13 Sulfuric Acid Mist Emission Limit

Emissions of sulfuric acid mist (as total H_2SO_4) shall not exceed 3 lb/hr calculated as a 24-hour rolling average and shall not exceed 13 tons per any consecutive 12-month period.

Emissions of acid mist shall not exceed 0.15 lb/T of sulfuric acid produced, expressed as 100% H_2SO_4 in accordance with 40 CFR 60.83(a)(1).

8.14 Ammonia Emission Limit

Emissions of NH_3 shall not exceed 2.5 lb/hr and 11 tons per any consecutive 12 month period.

8.15 Opacity Limit

In accordance with 40 CFR 60.83(a)(2), emissions from the No. 300 sulfuric acid plant stack shall not exceed 10% opacity as determined by following EPA Reference Method 9. In accordance with 40 CFR 60.11(c), the opacity standards set forth here shall apply at all times except during periods of startup, shutdown, and malfunction. In accordance with 40 CFR 60.11(b), for purposes of initial compliance, the minimum total time of observations shall be three hours (a total of 30 six-minute averages) using EPA Reference Method 9.

Operating Requirements

8.16 Production Limit

The maximum production rate of the sulfuric acid plant No. 300 shall not exceed 1,750 tons of 100% sulfuric acid per day calculated as a rolling 24-hour average.

8.17 Scrubber System

The two-stage scrubber system shall be used to control pollution from the sulfuric acid plant No. 300 process at all times the plant is operating. The two stages shall include the packed-bed scrubber and the DynaWave reverse-jet scrubber operated in series. Within 60 days following startup, the permittee will develop an O&M manual for the two-stage scrubber. The O&M manual shall be kept on site at all times and shall be made available to DEQ representatives upon request.

8.18 Air Pollution Control Practices

At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions in accordance with 40 CFR 60.11(d).

8.19 Operation and Maintenance Plan

In accordance with the CD, the permittee shall prepare and implement an operations and maintenance plan that describes the operating and maintenance procedures necessary to: minimize the frequency of sulfuric acid plant shutdowns and maintain and operate the sulfuric acid plant, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, including during periods of startup, shutdown, or malfunction. No less frequently than once every three years, the facility shall review, and update as necessary, the O&M plan for each sulfuric acid plant.

[August 19, 2019]

Monitoring and Recordkeeping Requirements

8.20 Compliance with SO_2 Emission Limits

Compliance with the SO_2 emissions limits from the consent decree shall be determined in accordance with Simplot's CEMS (Continuous Emission Monitoring System) plan. A copy of the CEMS plan must be kept at the Don Plant site for the Department's inspection and review.

[August 19, 2019]

8.21 Continuous Emission Monitoring

In accordance with 40 CFR §60.13(i), and paragraph 17 of the CD, the provisions of 40 CFR § 60.84(a) are an approved alternative with the following requirement. A continuous monitoring system for the measurement of sulfur dioxide emissions from the sulfuric acid plant shall be installed, calibrated, maintained, and operated to demonstrate compliance on a continual basis with the applicable standard for sulfur dioxide capable of directly measuring the SO_2 emissions rate expressed as lb/ton of 100% sulfuric acid produced. The pollutant gas used to prepare calibration gas mixtures under 40 CFR part 60, Appendix B, Performance Specification 2 and for calibration checks under §60.13(d), shall be sulfur dioxide (SO_2). Method 8 shall be used for conducting monitoring system performance evaluations under §60.13(c) except that only the sulfur dioxide portion of the Method 8 results shall be used. The CEMS shall have a dual range with span values set at 500 ppm of sulfur dioxide for periods of normal operation and 3,600 ppm of sulfur dioxide for periods of startup, shutdown, or malfunction operation.

[August 19, 2019]

8.22 Hourly SO_2 Emissions Rate

In accordance with 40 CFR §60.13(i), and paragraph 17 of the CD, the provisions of 40 CFR §§ 60.84(b) and (c) are not applicable and the provisions of 40 CFR §60.84(d) are replaced with the following requirements. The 1-hour SO_2 emission rate shall be calculated as follows:

$$E_{\frac{lb}{ton}} = \frac{Cs \cdot S}{(0.264 - 0.0126 \cdot \%O_2 - 7.61 \cdot Cs)}$$

Where:

$P_{H_2SO_4}$ = 100% sulfuric acid production, tons per unit of time

M_{SO_2Stack} = Mass SO_2 stack emission rate, lb per unit of time

$\%O_2$ = Stack O_2 concentration, percent by volume dry basis

C_{Si} = Stack SO_2 concentration, lb/DSCF (to convert parts per million by volume, dry basis (ppmvd) to lb/DSCF, multiply by 1.661×10^{-7}.

$E_{\frac{lb}{ton}}$ = lb SO_2 per ton 100% sulfuric acid produced

S = the acid production rate factor, 11,800 DSCF/ton of 100% sulfuric acid produced

The 3-hour rolling average SO_2 emission rate shall be calculated as follows:

$$E_{3hravg} = \frac{\sum_i^3 E_{1hravg\ i}}{3}$$

Where:

$E_{1hravg\ i}$ = 1-hour average lb SO_2 per ton 100% sulfuric acid produced for hour i

E_{3hravg} = 3-hour rolling average lb SO_2 per ton 100% sulfuric acid produced, rounded to the nearest tenth

[August 19, 2019]

8.23 Daily SO_2 Emissions Rate

In accordance with 40 CFR §60.13(i), and paragraph 17 of the CD, the provisions of 40 CFR §§ 60.84(b) and (c) are not applicable and the provisions of 40 CFR §60.84(d) are replaced with the following requirements. The daily mass SO_2 emissions *(M_{SO2Day})* (which are based on a calendar day) shall be calculated for each Sulfuric Acid Plant using the hourly values of the estimated 100% Sulfuric Acid Production rate, and the following equation:

$$M_{SO_2Day} = \sum_i^n \left(E_{1hravg\ i} \cdot P_{H_2SO_4Hour\ i}\right)$$

Where:

$E_{1hravg\ i}$ = 1-hour average lb SO_2 per ton 100% sulfuric acid produce during hour i

$P_{H_2SO_4Hour\ i}$ = 100% sulfuric acid produced during hour i, tons

M_{SO_2Day} = Mass emissions of SO_2 during a calendar day, lb

n = Number of operating hours in the day

For the purposes of calculating a 365-day rolling average lb/ton SO2 emission rate, the system will maintain an array of M_{SO_2Day} and $P_{TonsH2O4}$ each day for 365 days. Every day, the system will add the values from that day to the array and exclude the readings from the oldest day.

The 365-day rolling average lb/ton SO2 emission rate ($E_{365-Day\ Avg}$) will be calculated as follows:

$$E_{365-Day\ Avg} = \frac{\sum_i^n M_{SO_2Day\ i}}{\sum_i^n P_{H_2SO_4Day\ i}}$$

Where:

$M_{SO_2Day\ i}$ = Mass emissions of SO_2 during a calendar day i, lb

$P_{H_2SO_4Day\ i}$ = 100% sulfuric acid produced during day i, tons

$E_{365\text{-}Day\ Avg}$ = 365-day rolling average lb SO_2 per ton 100% sulfuric acid produced, rounded to the nearest hundredth.

[August 19, 2019]

8.24 Alternative Continuous Emission Monitoring

In accordance with 40 CFR §§ 60.84(d), alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen may use the following continuous emission monitoring approach and calculation procedures in determining SO_2 emission rates in terms of the standard. This procedure is not required, but is an alternative that would alleviate problems encountered in the measurement of gas velocities or production rate. Continuous emission monitoring systems for measuring SO_2, O_2, and CO_2 (if required) shall be installed, calibrated, maintained, and operated by the owner or operator and subjected to the certification procedures in Performance Specifications 2 and 3. The calibration procedure and span value for the SO_2 monitor shall be as specified in paragraph (b) of this section. The span value for CO_2 (if required) shall be 10% and for O_2 shall be 20.9% (air). A conversion factor based on process rate data is not necessary. Calculate the SO_2 emission rate as follows:

$$Es = (CsS) / [0.265 - (0.126\ \%O_2) - (A\ \%CO_2)]$$

Where:

E_S = emission rate of SO_2, kg/metric ton (lb/ton) of 100% of H_2SO_4 produced.

C_s = concentration of SO_2, kg/dscm (lb/dscf).

S = acid production rate factor, 368 dscm/metric ton (11,800 dscf/ton) of 100% H_2SO_4 produced.

$\%O_2$ = oxygen concentration, percent dry basis.

A = auxiliary fuel factor.

= 0.00 for no fuel.

= 0.0226 for methane.

= 0.0217 for natural gas.

= 0.0196 for propane.

= 0.0172 for No 2 oil.

= 0.0161 for No 6 oil.

= 0.0148 for coal.

= 0.0126 for coke.

$\%CO_2$= carbon dioxide concentration, percent dry basis.

Note: It is necessary in some cases to convert measured concentration units to other units for these calculations:

Use the following table for such conversions:

From	To	Multiply by
g/scm	kg/scm	10^{-3}
mg/scm	kg/scm	10^{-6}
ppm (SO_2)	kg/scm	2.660×10^{-6}
ppm (SO_2)	lb/scf	1.660×10^{-7}

For the purpose of reports under 40 CFR 60.7(c), periods of excess emissions shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards.

[August 19, 2019]

Performance Testing Requirements

8.25 Compliance Test

The permittee shall conduct compliance tests to demonstrate that the pollution control equipment is capable of achieving pollutant-specific emission limits. Any compliance tests conducted to demonstrate compliance shall be performed in accordance with IDAPA 58.01.01.157, General Provisions 13.7 through 13.9, and the requirements outlined in the following subsections.

[August 19, 2019]

8.26 Sulfur Dioxide, Sulfuric Acid Mist, and Visible Emissions

The performance tests shall include a performance evaluation of the CEMS. Method 8 (or an alternative method approved by both DEQ and EPA in accordance with IDAPA 58.01.01.157) shall be used to determine the concentration of H_2SO_4.

In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in Appendix A of 40 CFR 60 or other methods and procedures as specified in this section, except as provided in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in 40 CFR 60.85(c).

In accordance with 40 CFR 60.85(b), the owner or operator shall determine compliance with the SO_2, acid mist, and visible emission standards as follows:

(1) The emission rate (E) of acid mist shall be computed for each run using the following equation:

$E = (CQ_{sd}) / (PK)$

Where:

E = emission rate of acid mist kg/metric ton (lb/ton) of 100% H_2SO_4 produced.
C = concentration of acid mist, g/dscm (lb/dscf).
Q_{sd} = volumetric flow rate of the effluent gas, dscm/hr (dscf/hr).
P = production rate of 100% H_2SO_4, metric ton/hr (ton/hr).
K = conversion factor, 1000 g/kg (1.0 lb/lb).

(2) Method 8 shall be used to determine the acid mist and SO_2 concentrations (C's) and the volumetric flow rate (Qsd) of the effluent gas. The moisture content may be considered to be zero. The sampling time and sample volume for each run shall be at least 60 minutes and 1.15 dscm (40.6 dscf).

(3) Suitable methods shall be used to determine the production rate (P) of 100% H_2SO_4 for each run. Material balance over the production system shall be used to confirm the production rate.

(4) Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.

(c) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) If a source processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen, the following procedure may be used instead of determining the volumetric flow rate and production rate:

(i) The integrated technique of Method 3 is used to determine the O_2 concentration and, if required, CO_2 concentration.

(ii) The SO_2 or acid mist emission rate is calculated as described in Permit Condition 8.24, substituting the acid mist concentration for C's as appropriate.

8.27 NO_x Performance Test

The performance test for NO_x shall be conducted in accordance with IDAPA 58.01.01.157. The test shall use the reference methods and procedures described in 40 CFR 60, Appendix A. Method 7 (or an alternative method approved by DEQ in accordance with IDAPA 58.01.01.157) shall be used to determine the emission rate of NO_x.

At least once every five years, the permittee shall conduct a performance test to demonstrate compliance with the emissions limit specified in Permit Condition 8.9. After the initial performance test conducted within six-months of the permit issuance date, future testing shall be performed according to the following schedule. If the emissions rate measured in the most recent test is less than or equal to 75% of the emission standard in the permit, the next test shall be conducted within five years of the test date. If the emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission standard in the permit, the next test shall be conducted within two years of the test date. If the emission rate measured during the most recent performance test is greater than 90% of the emission standard in the permit, the next test shall be conducted within 13 months of the test date.

8.28 PM_{10} Performance Test

A performance test shall be conducted to evaluate total PM_{10} from the sulfuric acid plant No. 300. The test shall use the reference methods and procedures described in 40 CFR 51, Appendix M. Method 201A and Method 202 (or alternative methods approved by DEQ in accordance with IDAPA 58.01.01.157) shall be used to determine the emission rate of PM_{10}.

At least once every five years, the permittee shall conduct a performance test to demonstrate compliance with the emissions limit specified in Permit Condition 8.10. After the initial performance test conducted within six-months of the permit issuance date, future testing shall be performed according to the following schedule. If the emissions rate measured in the most recent test is less than or equal to 75% of the emission standard in the permit, the next test shall be conducted within five years of the test date. If the emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission standard in the permit, the next test shall be conducted within two years of the test date. If the emission rate measured during the most recent performance test is greater than 90% of the emission standard in the permit, the next test shall be conducted within 13 months of the test date.

8.29 Ammonia Performance Test

The performance test for NH_3 shall be conducted in accordance with IDAPA 58.01.01.157. EPA conditional test method CTM-027 (or alternative method approved by DEQ) shall be used to determine the emission rate of NH_3.

At least once every five years, the permittee shall conduct a performance test to demonstrate compliance with the emissions limit specified in Permit Condition 8.14. After the initial performance test conducted within six-months of the permit issuance date, future testing shall be performed according to the following schedule. If the emissions rate measured in the most recent test is less than or equal to 75% of the emission standard in the permit, the next test shall be conducted within five years of the test date. If the emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission standard in the permit, the next test shall be conducted within two years of the test date. If the emission rate measured during the most recent performance test is greater than 90% of the emission standard in the permit, the next test shall be conducted within 13 months of the test date.

8.30 Visible Emissions

Visible emissions shall be observed during each performance test run using the methods specified in EPA Reference Method 9 and IDAPA 58.01.01.625.

8.31 Production Rate

The production rate in pounds per hour and tons per day and the operating parameters shall be recorded during each performance test.

8.32 Opacity

Opacity shall be determined using the Method 9 procedures contained in IDAPA 58.01.01.625. The permittee shall monitor the visible emissions monthly and keep a record of the observations, complete with conditions of time of observation. A compilation of the most recent five years of records shall be kept on site and shall be made available to DEQ representatives upon request.

8.33 Sulfuric Acid Production

The permittee shall monitor and record the production rate of the sulfuric acid plant No. 300 in tons per hour, tons per rolling 24-hour period, and tons per any consecutive 12-month period. The permittee shall monitor and record any deviations of scrubber operations from the standard operating procedures recorded in the O&M manual.

Reporting Requirements

8.34 Performance Test Reporting

The permittee shall submit reports of the results of the performance tests required, including all required process data, to DEQ within 60 days after the date on which the performance tests are concluded.

8.35 Emission Credit Generation - Prohibition

In accordance with the CD, the facility shall neither generate nor use any CD Emissions Reductions: as netting reductions; as emissions offsets; or to apply for, obtain, trade, or sell any emission reduction credits. Except as provided in Permit Condition 8.37, baseline actual emissions for each unit during any 24-month period selected by the permittee shall be adjusted downward to exclude any portion of the baseline emissions that would have been eliminated as CD Emissions Reductions had the facility been complying with the CD during that 24-month period. Any plant-wide applicability limits ("PALs") or PAL-like limits that apply to emission

units addressed by the CD must be adjusted downward to exclude any portion of the baseline emissions used in establishing such limit(s) that would have been eliminated as CD Emissions Reductions had the facility been complying with the CD during such baseline period.

[August 19, 2019]

8.36 Emission Credit Generation – Outside the Scope of the Prohibition

In accordance with the CD, nothing in Permit Condition 8.35 is intended to prohibit the facility from seeking to:

- Use or generate emission reductions from emissions units that are covered by the CD to the extent that the proposed emission reductions represent the difference between CD Emissions Reductions and more stringent control requirements that the facility may elect to accept for those emissions units in a permitting process;
- Use or generate emission reduction from emissions units that are not subject to an emission limitation or control requirement pursuant to the CD; or
- Use CD Emissions Reductions for compliance with any rules or regulations designed to address regional haze or the non-attainment status of any area (excluding PSD and Non-attainment NSR rules, but including, for example Reasonably Available Control Technology rules) that apply to the facility; provided, however, that the facility shall not be allowed to trade or sell any CD Emissions Reductions.

[August 19, 2019]

8.37 Emission Credit Generation – Exception to the Prohibition

In accordance with the CD, notwithstanding the general prohibition set forth in Permit Condition 8.35, the facility may use past actual emissions from the #300 Don Plant as baseline actual emissions in the actual-to-projected-actual applicability test to determine the emissions increase at that emissions unit from a capacity increase project at that Sulfuric Acid Plant. Utilization of this exception is subject to each of the following conditions:

- Under no circumstance shall the facility use CD Emissions Reductions prior to the time that actual CD Emissions Reductions have occurred;
- If use of past actual emissions from the #300 Don Plant as baseline actual emissions in the actual-to-projected-actual applicability test leads to the calculation of a negative (below zero) emissions increase at that emissions unit, the emissions increase at that emissions unit shall be considered equal to zero in determining whether the project will result in a significant emissions increase;
- Use of past actual emissions under this Exception to the Prohibition does not extend to any use of past actual emissions in determining the net emissions increase from the major stationary source;
- CD Emissions Reductions may be used only at the Facility that generated them;
- The facility shall still be subject to all federal and state regulations applicable to the PSD, Non-attainment NSR, and/or Minor NSR permitting process; and
- Not later than thirty (30) days before the facility seeks to use any CD Emission Reductions allowed under this permit condition, the facility shall provide notice of such projects to EPA (including copies of all permit applications and other relevant documentation submitted to the permitting authority).

[August 19, 2019]

40 CFR 60 Subparts A and H – General Provisions and Standards of Performance for Sulfuric Acid Plants

8.38 40 CFR 60 Subparts A and H

In accordance with the CD, the permittee shall comply with the applicable requirements of 40 CFR 60, Subparts A and H.

[August 19, 2019]

9 Sulfuric Acid Plant No. 400

9.1 Process Description

The No. 400 Sulfuric Acid Plant uses a double-absorption contact process to produce sulfuric acid (H_2SO_4) from elemental sulfur. The elemental sulfur is burned in a furnace to produce a SO_2-rich gas stream. The SO_2-rich gas stream is then routed to a catalytic converter where it reacts with oxygen to form sulfur trioxide (SO_3). After the third catalyst bed, the now SO_3-rich gas stream is cooled and sent to an intermediate absorbing tower where much of the SO_3 is absorbed into a concentrated sulfuric acid solution. The exhaust gas from the intermediate absorbing tower is reheated and returned to the catalytic converter where it passes through the fourth and final catalyst bed where most of the remaining SO_2 is converted to SO_3. This gas stream exits the converter, is cooled, and is then routed to the final absorbing tower where virtually all of the remaining gas-phase SO_3 is absorbed into a concentrated sulfuric acid solution. The gas exiting the final absorbing tower passes through a set of high-efficiency mist eliminators which collect most of the residual H_2SO_4 mist before travelling out of the plant stack.

9.2 Control Device Descriptions

Table 9.1 Sulfuric Acid Plant No. 400 Description

Emissions Units / Processes	Control Devices	Emission Points
Sulfuric acid plant No. 400 with double-contact SO_2 removal	mist-eliminator (an inherent process equipment)	No. 400 sulfuric stack

9.3 Consent Decree with the U.S. EPA

Limits, requirements, and restrictions with citations to the Consent Decree (CD) were established pursuant to a Consent Decree with U.S. EPA and shall not be deleted or modified without the U.S. EPA approval.

[August 19, 2019]

Definitions

9.4 Startup

For purposes of the limits in this section of the permit, "Startup" shall mean the setting in operation of a Sulfuric Acid Plant for any purpose, consistent with 40 C.F.R. §60.2. With respect to any Sulfuric Acid Plant, startup begins at the time the feed of elemental sulfur to the furnace commences and lasts no more than 4 hours.

[August 19, 2019]

9.5 Shutdown

For purposes of the limits in this section of the permit, "Shutdown" shall mean the cessation of operation of a Sulfuric Acid Plant for any purpose, consistent with 40 C.F.R. §60.2. With respect to any Sulfuric Acid Plant, shutdown begins at the time the feed of elemental sulfur to the furnace ceases and ends 3 hours later or when the blower is turned off, whichever is earlier.

[August 19, 2019]

9.6 Malfunction

For purposes of the limits in this section of the permit, "Malfunction" shall mean any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner, but shall not include failures that are caused in part by poor maintenance or careless operation, consistent with 40 C.F.R. §60.2.

[August 19, 2019]

9.7 Consent Decree

Consent Decree (CD) shall mean *USA et al. v. J.R. Simplot Company,* Case No. 1:15-cv-00562-CWD (Dist. Idaho 2015). In any permit action after April 12, 2016 (effective date of the CD), the permittee shall adjust the baseline actual emissions downward to eliminate any portion of SO_2 emissions that would have exceeded the SO_2 emission limitation in the CD, that have also been incorporated in Permit Conditions 8.11 and 9.10, for the #300 and #400 sulfuric acid plants respectively.

[August 19, 2019]

Emission Limits

9.8 RACT NO_x Emission Limit

Emissions of NO_x from the No. 400 sulfuric acid plant stack shall not exceed 10.1 lb/hr based on a 24-hour average and 42.1 T/yr for any consecutive 12 month period.

9.9 RACT PM_{10} Emission Limit

Emissions of PM_{10} from the No. 400 sulfuric acid plant stack shall not exceed 13.6 lb/hr based on a 24-hour average and 59.6 T/yr for any consecutive 12 month period.

9.10 Consent Decree (CD) SO_2 Emission Limits

- Emissions of SO_2 from the No. 400 sulfuric acid plant stack shall not exceed 2.5 lb/T of 100% sulfuric acid produced on a rolling 3-hour average basis, except during periods of start-up, shutdown, or malfunction.
- Emissions of SO_2 from the No. 400 sulfuric acid plant stack shall not exceed 1.6 lb/T of 100% sulfuric acid produced on a rolling 365-day average basis including period of startup, shutdown, and malfunction.
- If the permittee applies for a PTC to replace the converter at this unit, obtains a PTC to replace the converter at this unit, or commences construction to replace the converter at this unit, no later than 180 days from Startup following such construction, the permittee shall commence monitoring SO_2 emissions in accordance with the CEMS Plan, but shall have 365 additional days to ensure that SO_2 shall not exceed 1.2 lb/T of 100% sulfuric acid produced on a rolling 365-day average basis including periods of startup, shutdown, and malfunction.

[August 19, 2019]

9.11 SO_2 Emission Limit

Emissions of SO_2 from the No. 400 sulfuric acid plant stack shall not exceed 999 lb per each running three-hour period. SO_2 emissions shall not exceed 1,458 T/yr (tons per any consecutive 12 month period). The ton-per-year emission rate shall be determined by multiplying the actual pound per hour emissions by the actual hours per year the process venting to this stack operates.

9.12 Consent Decree (CD) Sulfuric Acid Mist Emission Limit

Emissions of sulfuric acid mist from the No. 400 sulfuric acid plant stack shall not exceed 0.05 lb of acid mist per ton of 100% sulfuric acid produced.

[August 19, 2019]

9.13 Sulfuric Acid Mist Emission Limit

Sulfuric acid mist emissions shall not exceed 54.8 T/yr (tons per any consecutive 12 month period). The ton-per-year emission rate shall be determined by multiplying the actual pound per hour emissions by the actual hours per year the process venting to this stack operates.

9.14 Consent Decree (CD) $PM_{2.5}$ Emission Limit

Emissions of $PM_{2.5}$ from the No. 400 sulfuric acid plant stack shall not exceed 0.08 lb/T of 100% sulfuric acid produced.

[August 19, 2019]

9.15 Opacity Limit

Emissions from the No. 400 sulfuric acid plant stack, or any other stack, vent, or functionally equivalent opening associated with the No. 400 sulfuric acid plant, shall not exceed 10% opacity as determined using the U.S. EPA Reference Method 9 and procedures in 40 CFR 60.11. The opacity standards set forth here shall apply at all times except during periods of startup, shutdown, or malfunction.

Operating Requirements

9.16 Consent Decree (CD) and State Production Limit

The maximum production rate of Sulfuric Acid Plant No. 400 shall not exceed 789,579 tons of 100% sulfuric acid produced in any consecutive 12-calendar months. Upon termination of the U.S. EPA Consent Decree, this production limit will remain solely as a state only requirement.

The production rate of sulfuric acid plant No. 400 processes shall be determined during the tests required in Permit Condition 9.28. The maximum production during the following year shall not exceed 105% of the rate achieved or 789,579 tons of 100% sulfuric acid produced in any consecutive 12-month period, whichever is lower, during the tests unless the following conditions are met:

- The SO_2 monitor is calibrated at least once every 24 hours using certified test gases, one of which has an SO_2 concentration equal to or less than the expected stack gas SO_2 concentration, and one of which has an SO_2 concentration greater than the expected stack gas SO_2 concentration.
- The calibrated SO_2 monitor is cross-checked and agrees with the initial compliance test, which demonstrates SO_2 emission limit compliance.
- Prior written approval by DEQ is received.
- An emission test is performed at the requested increased emission rate, and the test demonstrates that the continuous emission monitor is accurate at the increased rate.
- The PM_{10}, NO_X, SO_2, and acid mist emission limits will not be violated at the requested increased emission rates.

[August 19, 2019]

9.17 Consent Decree (CD) Production Rate

The maximum production rate of Sulfuric Acid Plant No. 400 shall not exceed 789,579 tons of 100% sulfuric acid produced in any consecutive 12-month period until no earlier than 364 days before the 1.2 lb/T of 100% sulfuric acid produced (for the converter replacement) on a rolling 365-day average basis including periods of startup, shutdown, and malfunction.

[August 19, 2019]

9.18 Air Pollution Control Practices

At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions in accordance with 40 CFR 60.11(d).

9.19 Operation and Maintenance Plan

In accordance with the CD, the permittee shall prepare and implement an operations and maintenance plan that describes the operating and maintenance procedures necessary to: minimize the frequency of sulfuric acid plant shutdowns and maintain and operate the sulfuric acid plant, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, including during periods of startup, shutdown, or malfunction. No less frequently than once every three years, the facility shall review, and update as necessary, the O&M plan for each sulfuric acid plant.

[August 19, 2019]

Monitoring and Recordkeeping Requirements

9.20 Compliance with SO_2 Emission Limit

Compliance with the SO_2 emissions limit from the consent decree shall be determined in accordance with Simplot's CEMS (Continuous Emission Monitoring System) plan. A copy of the CEMS plan must be kept at the Don Plant site for the Department's inspection and review.

[August 19, 2019]

9.21 Continuous Emission Monitoring

In accordance with 40 CFR §60.13(i), and paragraph 17 of the CD, the provisions of 40 CFR § 60.84(a) are an approved alternative with the following requirement. A continuous monitoring system for the measurement of sulfur dioxide emissions from the sulfuric acid plant shall be installed, calibrated, maintained, and operated to demonstrate compliance on a continual basis with the applicable standard for sulfur dioxide capable of directly measuring the SO_2 emissions rate expressed as lb/ton of 100% sulfuric acid produced. The pollutant gas used to prepare calibration gas mixtures under 40 CFR part 60, Appendix B, Performance Specification 2 and for calibration checks under §60.13(d), shall be sulfur dioxide (SO_2).

Method 8 shall be used for conducting monitoring system performance evaluations under §60.13(c) except that only the sulfur dioxide portion of the Method 8 results shall be used. The CEMS shall have a dual range with span values set at 500 ppm of sulfur dioxide for periods of normal operation and 3,600 ppm of sulfur dioxide for periods of startup, shutdown, or malfunction operation.

[August 19, 2019]

9.22 Hourly SO_2 Emissions Rate

In accordance with 40 CFR §60.13(i), and paragraph 17 of the CD, the provisions of 40 CFR §§ 60.84(b) and (c) are not applicable and the provisions of 40 CFR §60.84(d) are replaced with the following requirements. The 1-hour SO_2 emission rate shall be calculated as follows:

$$E_{\frac{lb}{ton}} = \frac{Cs \cdot S}{(0.264 - 0.0126 \cdot \%O_2 - 7.61 \cdot Cs)}$$

Where:

$P_{H_2SO_4}$ = 100% sulfuric acid production, tons per unit of time

M_{SO_2Stack} = Mass SO_2 stack emission rate, lb per unit of time

$\%O_2$ = Stack O_2 concentration, percent by volume dry basis

Cs = Stack SO_2 concentration, lb/DSCF (to convert parts per million by volume, dry basis (ppmvd) to lb/DSCF, multiply by 1.661×10^{-7}.

$E_{\frac{lb}{ton}}$ = lb SO_2 per ton 100% sulfuric acid produced

S = the acid production rate factor, 11,800 DSCF/ton of 100% sulfuric acid produced

The 3-hour rolling average SO_2 emission rate shall be calculated as follows:

$$E_{3hravg} = \frac{\sum_i^3 E_{1hravg\ i}}{3}$$

Where:

$E_{1hravg\ i}$ = 1-hour average lb SO_2 per ton 100% sulfuric acid produced for hour i

E_{3hravg} = 3-hour rolling average lb SO_2 per ton 100% sulfuric acid produced, rounded to the nearest tenth

[August 19, 2019]

9.23 Daily SO_2 Emissions Rate

In accordance with 40 CFR §60.13(i), and paragraph 17 of the CD, the provisions of 40 CFR §§ 60.84(b) and (c) are not applicable and the provisions of 40 CFR §60.84(d) are replaced with the following requirements. The daily mass SO_2 emissions *(M_{SO2Day})* (which are based on a calendar day) shall be calculated for each Sulfuric Acid Plant using the hourly values of the estimated 100% Sulfuric Acid Production rate, and the following equation:

$$M_{SO_2Day} = \sum_i^n (E_{1hravg\ i} \cdot P_{H_2SO_4Hour\ i})$$

Where:

$E_{1hravg\ i}$ = 1-hour average lb SO_2 per ton 100% sulfuric acid produce during hour i

$P_{H_2SO_4Hour\ i}$ = 100% sulfuric acid produced during hour i, tons

M_{SO_2Day} = Mass emissions of SO_2 during a calendar day, lb

n = Number of operating hours in the day

For the purposes of calculating a 365-day rolling average lb/ton SO2 emission rate, the system will maintain an array of M_{SO_2Day} and $P_{TonsH2O4}$ each day for 365 days. Every day, the system will add the values from that day to the array and exclude the readings from the oldest day.

The 365-day rolling average lb/ton SO2 emission rate ($E_{365-Day\ Avg}$) will be calculated as follows:

$$E_{365-Day\ Avg} = \frac{\sum_i^n M_{SO_2Day\ i}}{\sum_i^n P_{H_2SO_4Day\ ii}}$$

Where:

$M_{SO_2Day\ i}$ = Mass emissions of SO_2 during a calendar day i, lb

$P_{H_2SO_4Day\ i}$ = 100% sulfuric acid produced during day i, tons

$E_{365-Day\ Avg}$ = 365-day rolling average lb SO_2 per ton 100% sulfuric acid produced, rounded to the nearest hundredth.

[August 19, 2019]

9.24 Alternative Continuous Emission Monitoring

In accordance with 40 CFR §§ 60.84(d), alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen may use the following continuous emission monitoring approach and calculation procedures in determining SO_2 emission rates in terms of the standard. This procedure is not required, but is an alternative that would alleviate problems encountered in the measurement of gas velocities or production rate. Continuous emission monitoring systems for measuring SO_2, O_2, and CO_2 (if required) shall be installed, calibrated, maintained, and operated by the owner or operator and subjected to the certification procedures in Performance Specifications 2 and 3. The calibration procedure and span value for the SO_2 monitor shall be as specified in paragraph (b) of this section. The span value for CO_2 (if required) shall be 10% and for O_2 shall be 20.9% (air). A conversion factor based on process rate data is not necessary. Calculate the SO_2 emission rate as follows:

$$Es = (CsS) / [0.265 - (0.126\ \%O_2) - (A\ \%CO_2)]$$

Where:

E_s = emission rate of SO_2, kg/metric ton (lb/ton) of 100% of H_2SO_4 produced.

C_s = concentration of SO_2, kg/dscm (lb/dscf).

S = acid production rate factor, 368 dscm/metric ton (11,800 dscf/ton) of 100% H_2SO_4 produced.

$\%O_2$ = oxygen concentration, percent dry basis.

A = auxiliary fuel factor.

= 0.00 for no fuel.

= 0.0226 for methane.

= 0.0217 for natural gas.

= 0.0196 for propane.

= 0.0172 for No 2 oil.

= 0.0161 for No 6 oil.

= 0.0148 for coal.

= 0.0126 for coke.

$\%CO_2$= carbon dioxide concentration, percent dry basis.

Note: It is necessary in some cases to convert measured concentration units to other units for these calculations:

Use the following table for such conversions:

From	To	Multiply by
g/scm	kg/scm	10^{-3}
mg/scm	kg/scm	10^{-6}
ppm (SO_2)	kg/scm	2.660×10^{-6}
ppm (SO_2)	lb/scf	1.660×10^{-7}

For the purpose of reports under 40 CFR 60.7(c), periods of excess emissions shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards.

[August 19, 2019]

9.25 Opacity

Opacity shall be determined using the Method 9 procedures contained in IDAPA 58.01.01.625. On a monthly basis, the permittee shall monitor and record the visible emissions observations complete with conditions at the time of observation. The records shall be kept at the facility for the most recent five-year period and shall be made available to DEQ representatives upon request.

9.26 Production Rate Monitoring

The permittee shall monitor and record the production rate of the No. 400 sulfuric acid plant in tons per hour, tons per rolling 24-hour period, and tons per any consecutive 12 month period.

Performance Testing Requirements

9.27 PM_{10} and NO_x Performance Test

At least once every five years, the permittee shall conduct a performance test to demonstrate compliance with the emissions limits specified in Permit Conditions 9.8 and 9.9. After the initial performance test conducted within six-months of the permit issuance date, future testing shall be performed according to the following schedule. If the emissions rate measured in the most recent test is less than or equal to 75% of the emission standard in the permit, the next test shall be conducted within five years of the test date. If the emission rate measured during the most recent performance test is greater than 75%, but less than or equal to 90%, of the emission standard in the permit, the next test shall be conducted within two years of the test date. If the emission rate measured during the most recent performance test is greater than 90% of the emission standard in the permit, the next test shall be conducted within 13 months of the test date.

9.28 SO_2 and Sulfuric Acid Mist Performance Tests

Annual SO_2 and H_2SO_4 mist emissions tests shall be performed. All emission tests shall be performed at the process equipment's maximum operating rate.

In accordance with the CD, in conducting the performance tests, the owner or operator shall use as reference methods and procedures the test methods in Appendix A of 40 CFR 60, Reference Method 8, or an alternative method approved by U.S. EPA. Acceptable alternative methods and procedures are given in paragraph (c) of the section. This test may serve as the NSPS performance test required under 40 CFR 60.8. The permittee shall take all steps necessary to assure accurate measurements of 100% sulfuric acid produced during each test run. The permittee shall conduct the first test no later than October 12, 2016. Thereafter, the permittee shall conduct annual stack tests by December 31 of each calendar year and will submit the results of each test within 60 days.

In accordance with 40 CFR 60.85(b), the owner or operator shall determine compliance with the SO_2, acid mist, and visible emission standards as follows:

(1) The emission rate (E) of acid mist shall be computed for each run using the following equation:

$E = (CQ_{sd}) / (PK)$

Where:

E = emission rate of acid mist kg/metric ton (lb/ton) of 100% H_2SO_4 produced.
C = concentration of acid mist, g/dscm (lb/dscf).
Q_{sd} = volumetric flow rate of the effluent gas, dscm/hr (dscf/hr).
P = production rate of 100% H_2SO_4, metric ton/hr (ton/hr).
K = conversion factor, 1000 g/kg (1.0 lb/lb).

(2) Method 8 shall be used to determine the acid mist and SO_2 concentrations (C's) and the volumetric flow rate (Qsd) of the effluent gas. The moisture content may be considered to be zero. The sampling time and sample volume for each run shall be at least 60 minutes and 1.15 dscm (40.6 dscf).

(3) Suitable methods shall be used to determine the production rate (P) of 100% H_2SO_4 for each run. Material balance over the production system shall be used to confirm the production rate.

(4) Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.

(c) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) If a source processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen, the following procedure may be used instead of determining the volumetric flow rate and production rate:

(i) The integrated technique of Method 3 is used to determine the O_2 concentration and, if required, CO_2 concentration.

(ii) The SO_2 or acid mist emission rate is calculated as described in Permit Condition 9.24, substituting the acid mist concentration for C's as appropriate.

[August 19, 2019]

9.29 $PM_{2.5}$ Performance Tests

In accordance with the CD, compliance with the $PM_{2.5}$ emission limit is to be demonstrated using EPA Methods 201A and 202, except that Method 5 may be substituted for Method 201A provided that Method 202 is also used for condensable particulate matter and the test results consider all particulate matter to be $PM_{2.5}$. The permittee shall conduct the first test no later than October 12, 2016. Thereafter, the permittee shall conduct annual stack tests by December 31 of each calendar year and will submit the results of each test within 60 days. Upon demonstrating through at least five annual tests that the $PM_{2.5}$ emission limit is not being exceeded, the permittee may request EPA and IDEQ approval to conduct tests less frequently than annually.

[August 19, 2019]

9.30 Increase in $PM_{2.5}$ Emission Limit through Performance Testing

If during the first five years following the effective date of the CD, performance testing results using EPA Method 201A and Method 202 show that $PM_{2.5}$ emissions exceed 0.08 lb/T of sulfuric acid produced, despite best efforts at design, installation, operation, and maintenance of controls, the permittee may submit a request to U.S. EPA and IDEQ to increase the $PM_{2.5}$ emission limit, not to exceed 0.11 lb/T of 100% sulfuric acid produced. Such request shall include all available $PM_{2.5}$ emissions data for the #400 sulfuric acid plant using the controls existing at the plant as of April 12, 2016, as well as a description of any efforts taken by the permittee or its technology vendors, contractors, or consultants to achieve compliance with that emission limit, along with any supporting documentation.

The increased limit shall be calculated by using all available, but no less than five, performance test results that used EPA Methods 201A and 202 for the #400 sulfuric acid plant using the controls existing at the plant as of April 12, 2016 and in accordance with the following formula. If the calculation exceeds 0.11 lb/T of 100% sulfuric acid produced, then the increased limit would be set at 0.11 lb/T of 100% sulfuric acid produced.

$$\text{Limit} = X + 1.96*\sigma$$

Where:

X = the sample mean of n stack tests (lb $PM_{2.5}$ / ton 100% sulfuric acid produced)

σ = the standard deviation of n stack tests (lb $PM_{2.5}$ / ton 100% sulfuric acid produced)

n = the number of stack tests that have been performed using U.S. EPA Method 201A and 202; n shall be greater than or equal to 5.

[August 19, 2019]

9.31 Approval of Increased $PM_{2.5}$ Limit

If U.S. EPA approves the permittee's demonstration and request for an increased $PM_{2.5}$ limit, the approved increased limit shall be deemed to have been effective and in lieu of the previous limit during:

- The time when achievement of the previous limit was infeasible (including any time that occurred prior to submittal of the demonstration)
- The pendency of the U.S. EPA's review of the permittee's demonstration, and

- The pendency of any proceeding undertaken pursuant to CD Section XII (Dispute Resolution).

[August 19, 2019]

Reporting Requirements

9.32 Emission Credit Generation - Prohibition

In accordance with the CD, the facility shall neither generate nor use any CD Emissions Reductions: as netting reductions; as emissions offsets; or to apply for, obtain, trade, or sell any emission reduction credits. Except as provided in Permit Condition 9.34, baseline actual emissions for each unit during any 24-month period selected by the permittee shall be adjusted downward to exclude any portion of the baseline emissions that would have been eliminated as CD Emissions Reductions had the facility been complying with the CD during that 24-month period. Any plant-wide applicability limits ("PALs") or PAL-like limits that apply to emission units addressed by the CD must be adjusted downward to exclude any portion of the baseline emissions used in establishing such limit(s) that would have been eliminated as CD Emissions Reductions had the facility been complying with the CD during such baseline period.

[August 19, 2019]

9.33 Emission Credit Generation – Outside the Scope of the Prohibition

In accordance with the CD, nothing in Permit Condition 9.32 is intended to prohibit the facility from seeking to:

- Use or generate emission reductions from emissions units that are covered by the CD to the extent that the proposed emission reductions represent the difference between CD Emissions Reductions and more stringent control requirements that the facility may elect to accept for those emissions units in a permitting process;
- Use or generate emission reduction from emissions units that are not subject to an emission limitation or control requirement pursuant to the CD; or
- Use CD Emissions Reductions for compliance with any rules or regulations designed to address regional haze or the non-attainment status of any area (excluding PSD and Non-attainment NSR rules, but including, for example Reasonably Available Control Technology rules) that apply to the facility; provided, however, that the facility shall not be allowed to trade or sell any CD Emissions Reductions.

[August 19, 2019]

9.34 Emission Credit Generation – Exception to the Prohibition

In accordance with the CD, notwithstanding the general prohibition set forth in Permit Condition 9.32, the facility may use past actual emissions from the #400 Don Plant as baseline actual emissions in the actual-to-projected-actual applicability test to determine the emissions increase at that emissions unit from a capacity increase project at that Sulfuric Acid Plant, but only if the project includes replacement of the #400 Don Plant converter and compliance with the emissions limit set forth in the third bullet of Permit Condition 9.10 . Utilization of this exception is subject to each of the following conditions:

- Under no circumstance shall the facility use CD Emissions Reductions prior to the time that actual CD Emissions Reductions have occurred;
- If use of past actual emissions from the #400 Don Plant as baseline actual emissions in the actual-to-projected-actual applicability test leads to the calculation of a negative

(below zero) emissions increase at that emissions unit, the emissions increase at that emissions unit shall be considered equal to zero in determining whether the project will result in a significant emissions increase;

- Use of past actual emissions under this Exception to the Prohibition does not extend to any use of past actual emissions in determining the net emissions increase from the major stationary source;
- CD Emissions Reductions may be used only at the Facility that generated them;
- The facility shall still be subject to all federal and state regulations applicable to the PSD, Non-attainment NSR, and/or Minor NSR permitting process; and
- Not later than thirty (30) days before the facility seeks to use any CD Emission Reductions allowed under this permit condition, the facility shall provide notice of such projects to EPA (including copies of all permit applications and other relevant documentation submitted to the permitting authority).

[August 19, 2019]

40 CFR 60 Subparts A and H – General Provisions and Standards of Performance for Sulfuric Acid Plants

9.35 40 CFR 60 Subparts A and H

In accordance with the CD, the permittee shall comply with the applicable requirements of 40 CFR 60, Subparts A and H.

[August 19, 2019]

10 Gypsum Stack (Pile)

10.1 Process Description

Slurried phosphogypsum (i.e., calcium sulfate dehydrate, CaSO4*2H20, commonly referred to as gypsum) produced in the phosphoric acid plant is combined with process water and flows to the pulp tank(s). Gypsum slurry is pumped from the repulp tank(s) to the gypsum stack (pile). The gypsum stack consists of six primary ponds/cells separated by dikes and levees. Gypsum slurry is collected in one cell while the other cells are allowed to dry. Excavators move the gypsum up around the edges of the dry cell(s), and bulldozers spread and compact the material to increase the embankment height, which increases the capacity of the stack. With the new edges in place, the slurried gypsum feed line(s) are then diverted to the dry cell(s) and the slurried cell is allowed to dry. Water used to transport gypsum to the gypsum stack is decanted and recycled back to the process via the decant ponds and blend tank to be used as process make up and cooling water.

The sources in the gypsum stack are the gypsum stack pond, dike-building activities and wind-blown dust.

10.2 Control Device Descriptions

Table 10.1 Gypsum Stack Description

Emissions Units / Processes	Control Devices	Emission Points
Gypsum stack pond	Reasonable control of fugitive emissions	Fugitive
Dike building activities		
Wind-blown dust		

Emission Limits

10.3 Fluoride Emission Limit

Fluoride emissions from the gypsum stack shall not exceed 17.5 lb/hr and 76.65 T/yr (tons per any consecutive 12 month period).

10.4 PM_{10} Emission Limit

The PM_{10} emissions from the gypsum stack shall not exceed 4.30 lb/hr and 18.84 T/yr (tons per any consecutive 12 month period).

Monitoring and Recordkeeping Requirements

10.5 Fluoride and PM_{10} Limits

The permittee shall maintain the documentation that lists the methods to control emissions to demonstrate compliance with the total fluoride emissions limits in Permit Condition 10.3 and PM_{10} emissions limits in Permit Condition 10.4.

10.6 Inactive Stack

If the gypsum stack ever becomes classified as an inactive stack, the permittee shall record the date of inactivity and notify DEQ immediately. If the gypsum stacks become classified as inactive, the permittee is then immediately subject to the Radon-222 emissions limits and its related requirements in 40 CFR 61 Subpart R.

40 CFR 61 Subpart R – National Emission Standards for Radon Emissions From Phosphogypsum Stacks

10.7 40 CFR 61 Subpart R

The permittee shall comply with the applicable requirements of 40 CFR 61, Subpart R.

40 CFR 63 Subpart AA – National Emission Standards for Hazardous Air Pollutants From Phosphoric Acid Manufacturing Plants

10.8 40 CFR 63 Subpart AA

The permittee shall comply with the applicable requirements of 40 CFR 63, Subpart AA.

[August 19, 2019]

11 HPB&W and Babcock and Wilcox Boilers

11.1 Process Description

The HPB&W boiler, Model No. FM 106-97, is a natural gas-fired boiler equipped with a LoNO$_x$® burner. It has a steam capacity of 120,000 lb of steam per hour and heat input rating of 175 MMBtu/hr. The boiler is used to maintain the steam needs of the facility. The HPB&W boiler was installed in 2000 to replace the Foster-Wheeler and Combustion Engineering boilers.

The Babcock and Wilcox boiler is a natural gas-fired boiler equipped with a COEN QLN, low NO_x spud-type burner. The boiler has a design capacity of 58,000 lb of steam per hour and a burner capacity of 63.8 MMBtu/hr.

11.2 Control Device Descriptions

Table 11.1 HPB&W & Babcock and Wilcox Boiler Description

Emissions Units / Processes	Control Devices	Emission Points
HPB&W Boiler	None	Boiler stack
Babcock and Wilcox Boiler	None	Boiler stack

Emission Limits

11.3 Emission Limits

The emissions from the HPB&W Boiler and Babcock and Wilcox Boiler stack shall not exceed any corresponding emissions rate limits listed in Table 11.2.

Table 11.2 HPB&W & Babcock and Wilcox Boiler Emission Limits[a]

Source Description	PM_{10} [b]		SO_2		NO_X		CO		VOC	
	lb/hr [c]	T/yr [d]	lb/hr [c]	T/yr [d]	lb/hr [c]	T/yr [d]	lb/hr [c]	T/yr [d]	lb/hr [c]	T/yr [d]
HPB&W Boiler	1.33	5.83	0.11	0.46	7.00	30.7	14.0	61.3	0.96	4.22
Babcock and Wilcox Boiler	0.32	1.40	0.04	0.17	2.88	12.63	11.7	51.1	0.19	0.84

a) In absence of any other credible evidence, compliance is ensured by complying with permit operating, monitoring, and record keeping requirements.
b) Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
c) Pounds per hour, as determined by a test method prescribed by IDAPA 58.01.01.157, EPA reference test method, continuous emission monitoring system (CEMS) data, or DEQ-approved alternative.
d) Tons per any consecutive 12-calendar month period.

11.4 HPB&W NO_x Limit

The NO_x emissions from the HPB&W Boiler shall not exceed 0.04 lb/MMBtu.

11.5 Babcock and Wilcox PM Limit

The PM emissions from the Babcock and Wilcox boiler exhaust stack shall not exceed 0.64 lb/hr and 2.79 T/yr (tons per any consecutive 12 month period).

11.6 Opacity Limit

Emissions from the HPB&W Boiler and Babcock and Wilcox Boiler stack, or any other stack, vent, or functionally equivalent opening associated with the HPB&W Boiler and Babcock and Wilcox Boiler, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

11.7 Throughput Limits

The maximum hourly natural gas throughput of the HPB&W boiler shall not exceed 0.175 MMcf/hr. The maximum annual natural gas throughput of the HPB&W boiler shall not exceed 1,533 MMcf/yr.

The Babcock and Wilcox boiler shall not burn more than 559 MMcf of natural gas per year.

11.8 Fuel Limit

The HPB&W boiler and Babcock and Wilcox boiler shall only use natural gas as fuel.

Monitoring and Recordkeeping Requirements

11.9 O&M Manual

An O&M manual for the HPB&W boiler and LoNOx - EGR systems shall remain on site at all times.

The Permittee shall at all times (except as provided in the Rules for the Control of Air Pollution in Idaho) maintain in good working order and operate as efficiently as practicable, all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

11.10 Throughput Monitoring Requirement

Each operating day, the permittee shall monitor and record the natural gas usage in the HPB&W boiler for that day, in MMcf/day. Once per month, the permittee shall record the total natural gas usage for the previous rolling 12-month period, in MMcf/yr.

The permittee shall record and maintain records of the amounts of natural gas combusted in the Babcock and Wilcox boiler during each calendar month.

The permittee shall record the cumulative volume of natural gas fuel consumed by the Babcock and Wilcox boiler on a monthly basis. The permittee shall record the total natural gas usage in MMcf per rolling 12-month period. The records shall be kept on site for at least five years and shall be made available to DEQ representatives upon request.

11.11 Operational Hours

For each HPB&W boiler operating day, the permittee shall record and maintain the records of the number of hours that the HPB&W boiler operates.

40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

11.12 40 CFR 60 Subpart Db

The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart Db for the HPB&W Boiler.

40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

11.13 40 CFR 60 Subpart Dc

The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart Dc for the Babcock and Wilcox Boiler.

40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

11.14 40 CFR 63 Subpart DDDDD

The permittee shall comply with the applicable requirements of 40 CFR 63, Subpart DDDDD for both boilers.

12 Reclaim Cooling Towers

12.1 Process Description

This process cools process water from the Phosphoric Acid Plant and Purified Phosphoric Acid Plant Evaporator Condensers in direct-contact cooling towers. There are three cooling towers containing a total of eight cooling tower cells. The north reclaim cooling tower contains two cells (Cell Nos. 7 and 8), the east reclaim cooling tower contains three cells (Cell Nos. 1, 2, and 3), and the west reclaim cooling tower contains three cells (Cell Nos. 4, 5, and 6). The cooling towers use mist-eliminators that reduce particulate matter emissions.

12.2 Control Device Descriptions

Table 12.1 Reclaim Cooling Towers Description

Emissions Units / Processes	Control Devices	Emission Points
North reclaim cooling tower	Mist-eliminator (primary function as process equipment)	Exhaust fans
West reclaim cooling tower	Mist-eliminator (primary function as process equipment)	Exhaust fans
East reclaim cooling tower	Mist-eliminator (primary function as process equipment)	Exhaust fans

Emission Limits

12.3 Particulate Matter (PM) Emission Limit

Particulate matter emissions from each cell of the reclaim cooling towers shall not exceed 17.65 lb/hr and 77.31 T/yr (tons per any consecutive 12 month period). The ton-per-year emissions limit shall be determined by multiplying the actual or allowable (if actual is not available) pound-per-hour emission rate by the actual hours per year the process(es) venting to this stack operate(s).

12.4 PM_{10} Emission Limit

The PM_{10} emissions from each cell of the reclaim cooling towers shall not exceed 3.53 lb/hr, and 15.48 T/yr (tons per any consecutive 12 month period). The ton-per-year emissions limit shall be determined by multiplying the actual or allowable (if actual is not available) pound-per-hour emission rate by the actual hours per year the process(es) venting to this stack operate(s).

12.5 Fluoride Emission Limit

Fluoride emissions from each cell of the reclaim cooling towers shall not exceed 4.9 lb/hr, and 21.70 T/yr (tons per any consecutive 12 month period). The ton-per-year emissions limit shall be determined by multiplying the actual or allowable (if actual is not available) pound-per-hour emission rate by the actual hours per year the process(es) venting to this stack operate(s).

Operating Requirements

12.6 Control Device Operations

The permittee shall operate the mist-eliminator at all times during operation of the reclaim cooling towers and in accordance with the O&M manual.

The permittee shall have developed and submitted to DEQ an O&M manual for the mist-eliminator which describes the procedures that will be followed to comply with the manufacturer specifications for the mist-eliminator and the following:

The permittee shall at all times (except as provided in the Rules for the Control of Air Pollution in Idaho) maintain in good working order and operate as efficiently as practicable of the mist-eliminator.

At a minimum, the manual shall include:

- Inspection and maintenance schedule
- The items to be inspected

The manual shall be a permittee developed document independent of the manufacturer supplied operating manual.

12.7 40 CFR 63 Subpart AA Requirements

No owner or operator shall introduce into any evaporative cooling tower any liquid effluent from any wet scrubbing device installed to control emissions from process equipment. Each owner or operator of an affected source subject to this paragraph must certify to the Administrator annually that he/she has complied with the requirements contained in this section.

No owner or operator of an industrial process cooling tower shall use chromium-based water treatment chemicals in any affected industrial process cooling tower.

Performance Tests and Compliance Procedures

12.8 PM and PM_{10} Compliance Tests

In and after 2005, for PM and PM_{10} compliance tests, the permittee shall test two cooling tower cells in each of the three reclaim cooling towers. The permittee shall select different cooling tower cells for testing from year to year until all of the cells within a particular cooling tower have been tested. Once all cells in a cooling tower have been tested, the cell selection process shall start again. The PM_{10} fraction of the PM emission rate determined during the test shall be determined by multiplying the PM emission rate by a 0.20 conversion factor.

12.9 Total Fluorides Compliance Test

To demonstrate compliance with the hourly total fluorides emissions limit, the permittee shall conduct performance testing on three reclaim cooling tower cells during the first six months of the calendar year, and three different reclaim cooling tower cells during the last six months of the calendar year. Testing shall be conducted in such a manner that: 1) at least 60 days separate each set (three cells) of reclaim cooling tower cell tests; 2) testing of the cells is conducted on a rotational basis, such that the permittee shall test different cells until all of the reclaim cooling tower cells have been tested. A total of six reclaim cooling tower cells will be tested in each calendar year. During the next calendar year the two cells not tested previously will be included in the next years testing; and 3) once all of the reclaim cooling tower cells have been tested, the selection process shall start again.

40 CFR 63 Subpart Q – National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

12.10 40 CFR 63 Subpart Q

The permittee shall comply with the applicable requirements of 40 CFR 63, Subpart Q for the Reclaim Cooling Towers.

13 General Provisions

General Compliance

13.1 The permittee has a continuing duty to comply with all terms and conditions of this permit. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the "Rules for the Control of Air Pollution in Idaho." The emissions of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit, the "Rules for the Control of Air Pollution in Idaho," and the Environmental Protection and Health Act (Idaho Code §39-101, et seq).

[Idaho Code §39-101, et seq.]

13.2 The permittee shall at all times (except as provided in the "Rules for the Control of Air Pollution in Idaho") maintain in good working order and operate as efficiently as practicable all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

[IDAPA 58.01.01.211, 5/1/94]

13.3 Nothing in this permit is intended to relieve or exempt the permittee from the responsibility to comply with all applicable local, state, or federal statutes, rules, and regulations.

[IDAPA 58.01.01.212.01, 5/1/94]

Inspection and Entry

13.4 Upon presentation of credentials, the permittee shall allow DEQ or an authorized representative of DEQ to do the following:

- Enter upon the permittee's premises where an emissions source is located, emissions-related activity is conducted, or where records are kept under conditions of this permit;
- Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;
- Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
- As authorized by the Idaho Environmental Protection and Health Act, sample or monitor, at reasonable times, substances or parameters for the purpose of determining or ensuring compliance with this permit or applicable requirements.

[Idaho Code §39-108]

Construction and Operation Notification

13.5 This permit shall expire if construction has not begun within two years of its issue date, or if construction is suspended for one year.

[IDAPA 58.01.01.211.02, 5/1/94]

13.6 The permittee shall furnish DEQ written notifications as follows:

- A notification of the date of initiation of construction, within five working days after occurrence; except in the case where pre-permit construction approval has been granted then notification shall be made within five working days after occurrence or within five working days after permit issuance whichever is later;
- A notification of the date of any suspension of construction, if such suspension lasts for one year or more;

- A notification of the anticipated date of initial start-up of the stationary source or facility not more than sixty days or less than thirty days prior to such date;
- A notification of the actual date of initial start-up of the stationary source or facility within fifteen days after such date; and
- A notification of the initial date of achieving the maximum production rate, within five working days after occurrence - production rate and date.

[IDAPA 58.01.01.211.03, 5/1/94]

Performance Testing

13.7 If performance testing (air emissions source test) is required by this permit, the permittee shall provide notice of intent to test to DEQ at least 15 days prior to the scheduled test date or shorter time period as approved by DEQ. DEQ may, at its option, have an observer present at any emissions tests conducted on a source. DEQ requests that such testing not be performed on weekends or state holidays.

13.8 All performance testing shall be conducted in accordance with the procedures in IDAPA 58.01.01.157. Without prior DEQ approval, any alternative testing is conducted solely at the permittee's risk. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the testing does not satisfy the testing requirements. Therefore, at least 30 days prior to conducting any performance test, the permittee is encouraged to submit a performance test protocol to DEQ for approval. The written protocol shall include a description of the test method(s) to be used, an explanation of any or unusual circumstances regarding the proposed test, and the proposed test schedule for conducting and reporting the test.

13.9 Within 60 days following the date in which a performance test required by this permit is concluded, the permittee shall submit to DEQ a performance test report. The written report shall include a description of the process, identification of the test method(s) used, equipment used, all process operating data collected during the test period, and test results, as well as raw test data and associated documentation, including any approved test protocol.

[IDAPA 58.01.01.157, 4/5/00 and 4/11/15]

Monitoring and Recordkeeping

13.10 The permittee shall maintain sufficient records to ensure compliance with all of the terms and conditions of this permit. Monitoring records shall include, but not be limited to, the following: (a) the date, place, and times of sampling or measurements; (b) the date analyses were performed; (c) the company or entity that performed the analyses; (d) the analytical techniques or methods used; (e) the results of such analyses; and (f) the operating conditions existing at the time of sampling or measurement. All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes, but is not limited to, all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available in either hard copy or electronic format to DEQ representatives upon request.

[IDAPA 58.01.01.211, 5/1/94]

Excess Emissions

13.11 The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130–136 for excess emissions due to start-up, shut-down, scheduled maintenance, safety measures, upsets, and breakdowns.

[IDAPA 58.01.01.130–136, 4/5/00]

Certification

13.12 All documents submitted to DEQ—including, but not limited to, records, monitoring data, supporting information, requests for confidential treatment, testing reports, or compliance certification—shall contain a certification by a responsible official. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

[IDAPA 58.01.01.123, 5/1/94]

False Statements

13.13 No person shall knowingly make any false statement, representation, or certification in any form, notice, or report required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.125, 3/23/98]

Tampering

13.14 No person shall knowingly render inaccurate any monitoring device or method required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.126, 3/23/98]

Transferability

13.15 This permit is transferable in accordance with procedures listed in IDAPA 58.01.01.209.06.

[IDAPA 58.01.01.209.06, 4/11/06]

Severability

13.16 The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

[IDAPA 58.01.01.211, 5/1/94]