

Fact Sheet



For Final Renewal Permitting Action Under 45CSR30 and Title V of the Clean Air Act

Permit Number: **R30-05100002-2018**
Application Received: **10/24/2017 (Renewal), 10/31/2017 (SM03), and 6/26/2018 (MM02)**
Plant Identification Number: **03-054-051-00002**
Permittee: **Eagle Natrium LLC**
Facility Name: **Natrium Plant**
Mailing Address: **P.O. Box 191, New Martinsville, WV 26155**

Revised: *N/A*

Physical Location: New Martinsville, Marshall County, West Virginia
UTM Coordinates: 512.70 km Easting • 4,399.60 km Northing • Zone 17
Directions: WV State Route 2, 5 miles north of New Martinsville, WV.

Facility Description

Eagle Natrium LLC owns and operates a Chlor-Alkali and Derivatives Plant in Marshall County, West Virginia commonly known as the Natrium Plant. The plant employs approximately 500 people and operates 24 hours a day, 7 days a week. The facility is located five miles north of New Martinsville, thirty miles south of Wheeling, and is built 6,850 feet above salt deposits. In 1941 the U.S. Government purchased the current plant site and began to drill the salt bed to produce the brine needed to produce chlorine (Cl₂) and caustic soda (NaOH). In addition to producing Cl₂ and NaOH, the facility produces hydrogen gas (H₂), hydrochloric acid (HCl), and calcium hypochlorite [Ca(OCl)₂]. The facility is a Chemicals and Allied Products facility and operates under the following SIC Codes:

Primary 2812 – Alkalies and Chlorine
Secondary 2819 – Industrial Inorganic Chemicals, Not Elsewhere Classified

The facility's Title V Permit is organized by Department as follows:

Title V Permit Section	Department
4.0	Power - Boilers
5.0	<i>Reserved (since Coal & Flyash Handling Systems are no longer utilized)</i>
6.0	Brine
7.0	HCl
8.0	Chlorine
9.0	Cal-Hypo
10.0	Caustic
11.0	PELS™
12.0	Plant Paint Spray Booth
13.0	Emergency Generators and Pumps

The **Power Department (4.0 and 5.0)** operates three natural gas-fired boilers (Boilers No. 4, 5, and 6), with two units capable of also firing hydrogen (Boilers No. 4 and No. 6) to generate steam and electricity for the facility. Boilers No. 1, 2, and 3 have been decommissioned and have either been removed, or will be removed, from the facility. The permittee also operates a Rental Boiler (R200) during the fuel conversion of No. 4 Boiler and will cease operating R200 in accordance with the time period specified in the PSD permit R14-0027F. The operational status and relevant details for the remaining boilers is summarized as follows:

- No. 3 Boiler – This 243 MMBtu/hr coal-fired unit (EU# R011) was shut down on July 7, 2016. According to application Attachment E, the boiler and some supporting equipment are still on the plant site with plans of removal in 2018. The unit used to vent to EP# S076.
- No. 4 Boiler – This 496 MMBtu/hr coal-fired unit (EU# R015; EP# S076) was shut down on August 8, 2016. The permittee submitted application R14-0027F to modify and restart Boiler 4 as a 540 MMBtu/hr natural gas-fired unit with the capability to also combust hydrogen alone or in combination with natural gas. The requirements applicable to the No. 4 Boiler fuel conversion are further discussed in this Fact Sheet. According to technical correspondence¹ from the permittee, the anticipated initial startup for No. 4 Boiler is January 31, 2019.
- No. 5 Boiler – This 999 MMBtu/hr natural gas-fired unit (EU# R072; EP# S482) was converted in 2016 from coal-fired to natural gas-fired. The unit is currently operating.
- No. 6 Boiler – This 181 MMBtu/hr natural gas- and hydrogen-fired unit (EU# R097; EP# S076) was converted in 2015 from hydrogen gas-fired only to co-firing natural gas and hydrogen gas. The unit is currently operating.
- Rental Boiler – This 99.9 MMBtu/hr natural gas-fired Babcock & Wilcox Model RB-747 unit (EU# R200; EP# S200) was installed in 2017 under permit R14-0027E. The permitting requirements for this unit were retained in current underlying permit R14-0027F and have been incorporated into the renewal permit as subsequently discussed herein.

¹ E-mail dated June 8, 2018 from Roni Williams.

The **Brine Department (6.0)** (Process #017) produces brine solution for the production of chlorine. Well water is injected into underground salt cavities. The brine streams exiting the salt cavities potentially contain entrained natural gas with traces of hydrogen sulfide (H_2S). The Zero Discharge Collection Tank Flare (FL002/E418) are used to eliminate the explosion hazard from entrained natural gas and to reduce odors from H_2S . The Zero Discharge Collection Tank collects waste brine streams from the depressurization of the brine cavities and the backwash of individual wells. The Zero Discharge Collection Tank Flare combusts the entrained gas in these waste brine streams. The Raw Brine/Gas Separator Flare has been utilized to combust the entrained gas that is separated from the liquid brine stream but will be removed from service as permitted in NSR Permit No. R13-3328 (discussed below). The brine department is also responsible for the operation of the plant package sewer treatment plant and the plant drinking water system. Neither of these facilities have any emissions or applicable requirements.

HCl Department (7.0)

The Eagle Natrium LLC Plant has not produced organic products since September 29, 2008 and the Chlorobenzene (MCB) Department was temporarily shutdown at the end of 2008. In July 2009, it was determined to permanently shutdown the MCB Department. The MCB Department formerly produced organic products and hydrochloric acid as a by-product. The former MCB Department has evolved into the current HCl Department. The department still produces hydrochloric acid, but utilizes a different process. Existing storage tanks and transfer equipment utilized by the former MCB Department are still used by the HCl Department.

In the HCl Department, hydrochloric acid is produced with three HCl synthesis units (the third of which was installed in 2013 under NSR permit R13-2046F). Chlorine and hydrogen produced by the chlorine circuits are sent to the units. Inside the units, hydrogen and chlorine are combusted to produce hydrogen chloride gas. The hydrogen chloride gas is then sent to the respective tails tower on each synthesis unit. The towers are adiabatic absorbers that utilize condensate to absorb residual hydrochloric acid vapors into solution. The top of the towers vent to the atmosphere. The bottoms from the towers are routed back to the synthesis unit. The hydrochloric acid is then ready for dilution, storage, use or shipping.

In the **Chlorine Department (8.0)** three (3) circuits produce gaseous chlorine (Cl_2) from the electrolysis of sodium chloride ($NaCl$) brine solution. Production of the salt brine solution is discussed above under the Brine Department. Hydrogen gas (H_2) and sodium hydroxide ($NaOH$) are by-products from the chlorine process.

Eagle Natrium LLC uses two (2) cell technologies: diaphragm and mercury, to produce chlorine. Two of the three circuits use diaphragm cells (#6 and #8). The #7 circuit, containing 54 mercury type electrochemical cells, uses mercury cell technology which produces a higher strength and purity sodium hydroxide solution (48 – 52% by weight). The ability to produce high strength $NaOH$ represents the main advantage of the mercury cell over the diaphragm cell.

Chlorine produced from the circuits is collected in headers, then cooled, dried, compressed, and liquefied. Chlorine is used onsite. In addition, it is shipped to customers via rail car or pipeline. The hydrogen and sodium hydroxide by-products are separated and used onsite or shipped to customers.

In the **Cal-Hypo Department (9.0)** a mixture of sodium hydroxide solution ($NaOH$) and hydrated lime ($CaOH_2$) are mixed with gaseous chlorine (Cl_2) to produce calcium hypochlorite [$Ca(ClO_2)$] which is widely used for water treatment and as a bleaching agent (bleaching powder). Calcium hypochlorite is considered to be relatively stable and has greater available chlorine than sodium hypochlorite (liquid bleach). The remainder of the process involves separating the calcium hypochlorite from the salt by-product then filtering out the calcium hypochlorite from the liquor. The filtered liquor is recycled back to the beginning of the process. The filtercake is dried, screened, and packaged for shipment. For this renewal the Rock Separator (EU# SP018) and Air Stripper (EU# SP017) have been added to this section of the Title V permit as permitted in NSR Permit No. R13-3328 and a review of the applicability of 40 C.F.R Part 64 (CAM) has been performed.

The **Caustic Department (10.0)** receives cell liquor from the Chlorine Department at approximately 11% and 50% NaOH by weight in solution. The streams can be further concentrated to produce 50% and 73% NaOH solutions. This is accomplished through a series of three evaporators. The concentrated solution is sent to the DH process which removes any remaining NaCl and NaClO₃ salts by reacting the solution with anhydrous ammonia. After the reaction, the ammonia is then separated from the caustic solution and distilled for reuse. The caustic solution is further purified to remove any unwanted trace metals and conveyed to storage tanks. Most of the 50% NaOH solution is shipped offsite as product. The PELS and Calcium Hypochlorite Departments are also supplied 50% solution. In addition, a small portion of 50% NaOH undergoes further processing to remove impurities before being shipped to customers. A small amount of both final products is further concentrated to 73% caustic soda for shipment to customers.

In the **PELSTTM Department (11.0)** 50% NaOH solution from the Caustic Department is concentrated to produce 100% NaOH pellets which are primarily used in the manufacture of household and industrial strength drain cleaners. The basic process uses steam to evaporate water from the 50% NaOH solution to make a more concentrated NaOH solution. The remaining moisture is driven off using a molten salt furnace fueled by natural gas to create anhydrous liquid NaOH which is then conveyed to the top of the prill tower where the liquid falls and is congealed in mid-air to form small aggregate prills which are cooled, screened, and stored in silos to be loaded as product. The product is packaged into drums, bags, trucks, or railroad cars for shipment to customers. Dust arising from product screening, storage, packaging, and loading is routed to a scrubber before being discharged to the atmosphere.

In the **Plant Paint Spray Booth (12.0)** section of the Title V permit the plant's paint spray booth is limited per permit R13-1664, and rules 45CSR7 and 45CSR30.

In the **Emergency Generators and Pumps (13.0)** section of the Title V permit the applicable requirements of 40 C.F.R. 63 Subpart ZZZZ are set forth for the plant's emergency power generators and fire water pumps, all of which are powered by compression ignition (CI) reciprocating internal combustion engines (RICE).

Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Regulated Pollutants	Potential Emissions	2017 Actual Emissions ¹
Carbon Monoxide (CO)	693	453.6
Nitrogen Oxides (NO _x)	1,290	593.7
Lead	0	0
Particulate Matter (PM _{2.5})	615.5	10.1
Particulate Matter (PM ₁₀)	615.5	27.1
Total Particulate Matter (TSP)	615.5	55.6
Sulfur Dioxide (SO ₂)	8,524	17.3
Volatile Organic Compounds (VOC)	132	23.8
Hazardous Air Pollutants	Potential Emissions	2017 Actual Emissions ¹
Chlorine	1.1	0.29
Mercury	1.1	0.11
Hydrochloric acid	661	327.44
Hydrofluoric acid	38	15.02

Regulated Pollutants other than Criteria and HAP	Potential Emissions	2017 Actual Emissions ¹
Ammonia	46	5.78
Reduced sulfur compounds (TRS)	90	52

¹ Actual emissions values are from the State and Local Emissions Inventory System (SLEIS) 2017 Summary Report Total Emissions by Source, and represent emissions from January 1, 2017, through December 31, 2017.

Title V Program Applicability Basis

This facility has the potential to emit 693 tpy of CO; 1,290 tpy of NO_x; 615.5 tpy of PM₁₀; 8,524 tpy of SO₂; 132 tpy of VOC; 661 tpy of hydrochloric acid; and 38 tpy of hydrofluoric acid. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, over 10 tons per year of a single HAP, and over 25 tons per year of aggregate HAPs, Eagle Natrium LLC's Natrium Plant is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR2	PM from Indirect Heat Exchangers
	45CSR6	Open burning prohibited.
	45CSR7	PM from Manufacturing Sources
	45CSR10	Sulfur oxides limits
	45CSR11	Standby plans for emergency episodes.
	45CSR13	Permits to Construct/Modify
	45CSR14	Prevention of Significant Deterioration
	45CSR16	New Source Performance Standards
	45CSR20	Good Engineering Practices as Applicable to Stack Heights
	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for HAPs
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	40 C.F.R. Part 60, Subpart Db	NSPS for Industrial-Commercial-Institutional Steam Generating Units
	40 C.F.R. Part 60, Subpart Dc	NSPS for Small Industrial-Commercial-Institutional Steam Generating Units
	40 C.F.R. Part 61, Subpart E	Mercury NESHAP. Must comply only with 40 C.F.R. Part 63, Subpart IIIII.
	40 C.F.R. Part 61	Asbestos inspection and removal.
	40 C.F.R. Part 63, Subpart ZZZZ	Reciprocating Internal Combustion Engine (RICE) NESHAP-MACT
	40 C.F.R. Part 63, Subpart DDDDD	Industrial/Commercial/Institutional Boilers and Process Heaters Major Source MACT
	40 C.F.R. Part 63, Subpart IIIII	Mercury NESHAP-MACT
	40 C.F.R. Part 64	Compliance Assurance Monitoring (CAM)
	40 C.F.R. Part 82, Subpart F	Ozone depleting substances

State Only:	45CSR4 45CSR27 45CSR40	No objectionable odors. Prevent and Control the Emissions of Toxic Air Pollutants. Control of Ozone Season NO _x Emissions
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Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Title V Permit Section	Dept.	Date of Issuance	Permit Determinations or Amendments That Affect the Permit (if any)
R13-1664	12.0	Plant Paint Spray Booth	12/20/1993	
R13-2046G	7.0	HCl	8/1/2013	
R13-2886	10.0	Caustic	10/28/2011	
R13-3328	6.0, 9.0	Brine, Cal-Hypo	11/28/2016	Requirement 4.1.6. amended by 6/1/2018 e-mail from Mr. Jesse Adkins (DAQ C&E) to Mr. Tom Horan (Permittee)
R14-0027F	4.0	Power - Boilers	3/19/2018	
CO-R27-91-18	8.0	Chlorine Recovery	6/25/1991	Amended by CO-R27-98-39A(91)
CO-R27-98-39A(91)	8.0	Chlorine Recovery	6/02/1992	
CO-SIP-C-2003-27	3.0, 6.0, 8.0, 11.0	Facility-wide, Brine, Chlorine Recovery, PELS™	7/29/2003	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table B," which may be downloaded from DAQ's website.

Determinations and Justifications

In the following discussion, the terms “current permit” or “current Title V permit” mean the most recent permit R30-05100002-2013 (SM02), unless otherwise noted. The following discussion concerns changes to the most recent permit.

- I. **45CSR2 – To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers.** The applicable requirements of this rule have been updated in the renewal permit based upon the fuel type now utilized in the units. Each of the boilers are discussed in detail below.

No. 4 Boiler

This boiler combusts natural gas alone, or in combination with hydrogen gas, as permitted in R14-0027F. The underlying PSD permit states in its requirement 4.1.1.b. that “Compliance with this condition satisfies compliance with the limitations of 45CSR§2-3.1. (incorporated under Condition 4.1.5.), 45CSR§2-4.1.b., and 45CSR§10-3.1.e.; and the requirement of 45CSR§2-8.1.a., 45CSR§2-8.2., and Section 8 of 45CSR10.” The PM weight rate limitation under 45CSR§2-4.1.b. is $(0.09) \times (540 \text{ MMBtu/hr}) = 48.6 \text{ lb/hr}$. This limit has been added to condition 4.1.1.b. Continuing to maintain records of the fuel combusted according to 45CSR§2-8.3.c. in permit condition 4.4.2. ensures compliance with the 45CSR2 opacity standard; the weight rate limit; periodic testing; and monitoring plans prescribed by 45CSR2.

The visible emission monitoring and performance testing are no longer required since the underlying PSD permit determined that compliance with the fuel types to be combusted ensures compliance with 45CSR§2-8.1.a. Therefore, the current permit conditions 4.2.1. and 4.3.1. for visible emissions monitoring and performance testing, respectively, have been removed for the renewal permit.

The monitoring plan is no longer required since the underlying PSD permit determined that compliance with the fuel types to be combusted ensures compliance with 45CSR§2-8.2. Therefore, the current 45CSR2 monitoring plan has been removed for the renewal permit.

The applicable interpretive rule requirement from 45CSR§2A-7.1.a. has been retained for permit condition 4.4.2.

No. 5 Boiler

The same rationale and determination made above for No. 4 Boiler also applies to No. 5 Boiler, except that the underlying PSD permit requirement is 4.1.2.b. and the PM limitation differs based upon the design heat input of the boiler.

No. 6 Boiler

The same rationale and determination made above for No. 4 Boiler also applies to No. 6 Boiler, except that the underlying PSD permit requirement is 4.1.3.b. and the PM limitation differs based upon the design heat input of the boiler. Similarly, the 45CSR2 monitoring plan requirement in current condition 4.2.2. is no longer applicable and has been removed for the renewal permit.

Rental Boiler R200

Pursuant to the definition of “fuel burning unit” under 45CSR§2-2.10. (“producing heat or power by indirect heat transfer”), 45CSR2 applies to the new 99.9 MMBtu/hr Babcock & Wilcox Model RB-747 natural gas-fired boiler and is, therefore, subject to the applicable requirements therein. Each substantive 45CSR2 requirement is discussed below.

- **45CSR§2-3.1 Opacity Standard.** Pursuant to 45CSR§2-3.1, the boiler is subject to an opacity limit of 10%. Proper maintenance and operation of the unit (and the use of natural gas as fuel) should keep the opacity of the unit well below 10% during normal operations. The underlying requirement

states that compliance with the opacity limitation is satisfied when the unit is firing natural gas; therefore, records of the fuel combusted will be sufficient to demonstrate compliance with the standard. Refer to permit conditions 4.1.8.c. and 4.4.2. for the opacity standard and recordkeeping requirement, respectively.

- *45CSR§2-4.1.b Weight Emission Standard.* The allowable particulate matter (non-condensable total particulate matter) emission rates for the unit (as part of a facility-wide 45CSR2 fuel burning allowable emission rate), identified as a Type “b” fuel burning unit, per 45CSR§2-4.1.b, is the product of 0.09 and the total design heat input of the unit in million Btu per hour. The maximum aggregate design heat input (short-term) of the boiler is 99.90 mmBtu/hr. Using the above equation, the 45CSR2 particulate matter emission limit of the boiler is 8.99 lb/hr. The maximum potential hourly PM emissions (including condensables) from the boiler is estimated to be 0.50 lb/hr. This emission rate is in compliance with the 45CSR2 limit. A streamlining note has been added to permit condition 4.1.8.a. and the applicable requirement cited below the table in the permit condition.
- *45CSR§2-8 Testing, Monitoring, Recordkeeping & Reporting.* Section 8 of Rule 2 requires testing for initial compliance with the limits therein, monitoring for continued compliance, and keeping records of that compliance. 45CSR§2-8.4.c. provides that the owner or operator of a fuel burning unit with a Design Heat Input of less than 100 MMBtu/hr shall be exempt from the periodic testing requirements of subdivision 8.1.a and the monitoring requirements of subsection 8.2. The Director reserves the right to require testing pursuant to subdivisions 8.1.b and 8.1.c. The requirements are further clarified under 45CSR2A and discussed below.
- *45CSR§2A-3 Applicability.* Pursuant to 45CSR§2A-3.1.b., as a “fuel burning unit” under 45CSR2 with an MDHI less than 100 MMBtu/hr, the boiler is not subject to the testing in Section 5 (VE observations and weight emissions) and MRR requirements in Section 6 (monitoring plans) under 45CSR2A. The unit is subject to the recordkeeping in 45CSR§2A-7.1.a., which has been added to the citation of authority in permit condition 4.4.2.

- II. **45CSR10 – To Prevent and Control Air Pollution from the Emission of Sulfur Oxides.** The requirements applicable to Boilers 5 and 6 are in the current operating permit. Some permit conditions have been modified to account for the conversions to natural gas. No. 4 Boiler remains subject to this rule after its conversion from firing coal to co-firing natural gas and hydrogen gas. The source operates and maintains a SO₂ continuous emission monitor for No. 4 Boiler. The conversion for No. 4 Boiler will allow the permittee to discontinue these monitoring measures. For SO₂ emissions from No. 4 Boiler, the new potential emissions will be less than a two hundredth of a percent of the allowable of 1,674 lb/hr. After the conversion, the permit will establish compliance with this rule by restricting the fuel type to natural gas and hydrogen for No. 4 Boiler.

No. 4 Boiler

This boiler combusts natural gas alone, or in combination with hydrogen gas, as permitted in R14-0027F. For Boiler No. 4, Condition 4.1.1.b. reads “Compliance with this condition satisfies compliance with the limitations of 45CSR§2-3.1. (incorporated under Condition 4.1.5.), 45CSR§2-4.1.b., and 45CSR§10-3.1.e.; and the requirement of 45CSR§2-8.1.a., 45CSR§2-8.2., and Section 8 of 45CSR10.” The SO₂ weight rate limitation under 45CSR§10-3.1.e. is $(3.1) \times (540 \text{ MMBtu/hr}) = 1,674 \text{ lb/hr}$. This limit has been added to condition 4.1.1.b. Continuing to maintain records of the fuel combusted according to 45CSR§10-8.3.c. in permit condition 4.4.2. ensures compliance with the 45CSR10 weight rate limit in 45CSR§10-3.1.e. Moreover, an SO₂ Monitoring Plan pursuant to 45CSR§10-8.2.c. is not required since the underlying permit requirements states that Section 8 of 45CSR10 is satisfied when the fuel requirements are adhered to. Consequently, the current operating permit SO₂ monitoring plan has been removed for this renewal permit.

No. 5 Boiler

The same rationale and determination made above for No. 4 Boiler also applies to No. 5 Boiler, except that the underlying PSD permit requirement is 4.1.2.b. and the SO₂ limitation differs based upon the design heat input of the boiler.

No. 6 Boiler

The same rationale and determination made above for No. 4 Boiler also applies to No. 6 Boiler, except that the underlying PSD permit requirement is 4.1.3.b. and the SO₂ limitation differs based upon the design heat input of the boiler. Finally, the SO₂ monitoring plan has been removed for the renewal since underlying PSD permit requirement 4.1.3.b. states that compliance with the fuel requirement satisfies section 8 of 45CSR10, which includes SO₂ monitoring plans.

Rental Boiler R200

45CSR10 establishes requirements limiting SO₂ emissions from “fuel burning units,” limiting in-stack SO₂ concentrations of “manufacturing processes,” and limiting H₂S concentrations in process gas streams. The new boiler is defined as a “fuel burning unit” in 45CSR§10-2.8 and is subject to the applicable requirements discussed below.

- *45CSR10 Weight Emission Standard for Fuel Burning Units - Section 3.* The allowable SO₂ emission rates for the new boiler (facility located in Priority Classification I), identified as a Type “b” fuel burning unit, per 45CSR§10-3.1.e., is the product of 3.1 and the total design heat input of the unit in million Btu per hour (as part of a facility-wide 45CSR10 fuel burning allowable emission rate). The maximum aggregate design heat input (short-term) of the boiler is 99.9 MMBtu/hr. Using the above equation, the 45CSR10 SO₂ emission limit of the boiler is 309.69 lb/hr. The maximum potential hourly SO₂ emissions from the unit is estimated to be 0.06 lb/hr. This emission rate represents only a trace of the 45CSR10 limit. Although the underlying PSD permit did not specify the 45CSR10 limit, it has been included in the Title V renewal permit as part of a streamlining statement in condition 4.1.8.a. since a Title V permit must include all applicable requirements. Compliance with the emission limit will be demonstrated by combusting only natural gas as required in underlying PSD permit R14-0027F, requirements 4.1.8.a.
- *45CSR10 Testing, Monitoring, Record-keeping, & Reporting (TMR&R) - Section 8.* Section 8 of Rule 10 requires testing for initial compliance with the limits therein, monitoring for continued compliance, and recordkeeping of that compliance. However, 45CSR§10-10.3. provides that a fuel burning unit that combusts “natural gas, wood or distillate oil, alone or in combination” is exempt from the requirements of 45CSR§10-8. For this reason, the Rental Boiler R200 has been excluded from the parenthetical list of affected emission units after the 45CSR10 citation of authority for condition 4.4.2. Additionally, an SO₂ Monitoring Plan pursuant to 45CSR§10-8.2.c. is not required for R200. This exemption is also reiterated by interpretive rule 45CSR10A as discussed below.
- *45CSR10A Applicability - Section 3.* Pursuant to 45CSR§10A-3.1.b. as the proposed new boiler combusts “natural gas, wood or distillate oil, alone or in combination,” the unit is not subject to the Testing and MRR Requirements under 45CSR10A.

- III. **45CSR13 – Permit No. R13-3328 and Title V Permit Minor Modification (R30-05100002-2013, MM01).** On June 15, 2016, the permittee submitted an NSR permit application for a new Brine H₂S Removal System. However, no corresponding Title V modification was submitted. On June 27, 2018, a Title V Minor Modification application was received to incorporate the requirements of R13-3328 into the operating permit. This permitting action affects how the permittee utilizes raw brine (sodium chloride solution) obtained from solution mining rock salt at the Natrium facility. Raw brine is currently produced from several underground wells at the facility. This brine has a known dissolved hydrogen sulfide content which varies depending on the well currently in operation and can be in the range of 100-200 ppm.

Current Operation

The permittee currently operates a gas separator (Emission Unit SP007) and flare (Flare FL003) on the raw brine tank to flash the dissolved hydrogen sulfide (H₂S) from the raw brine and then convert the H₂S to sulfur dioxide (SO₂) in the flare. The raw brine continues to storage or for direct feed to the process.

Combustion of the hydrogen sulfide produces SO₂ at the flare, which is vented to atmosphere. The gas separator flare is currently permitted to emit no more than 11.65 lb/hr of SO₂ to the atmosphere (CO-SIP-C-2003-27, requirement IV.3.D. in current Title V condition 6.1.6.). Depending on the well in operation and the brine flow rate, the amount of sulfur dioxide produced can come close to meeting the permit threshold, requiring operational adjustments and negatively affecting brine supply reliability to the plant.

Proposed Modification

The permittee proposed to replace the current H₂S gas separator (SP007) and flare (FL003) on the raw brine tank with a new brine H₂S removal system which would:

- Increase the removal of hydrogen sulfide from the brine;
- Produce a material valuable to the plant (sodium hydrosulfide); and
- Eliminate approximately 51 ton/yr of SO₂ emissions from the Natrium Plant (11.65 lb/hr for 8,760 hr/yr).

The new process will consist of two packed columns: one column, the stripper column, to air strip the H₂S from the brine solution and the second column, the scrubber column, to absorb the H₂S from the vapor stream and convert it to sodium hydrosulfide (NaHS).

The two pack column scrubber system would increase the removal efficiency of H₂S from the raw brine and eliminate the production of sulfur dioxide (SO₂) from the flare, thus eliminating an air pollutant emission source from the plant. The H₂S vapors would be absorbed in caustic to produce a sodium hydrosulfide solution to beneficially use in the plant.

The current Gas Separator Flare (FL003) will be demolished after the new brine H₂S removal system is fully commissioned and proven operational and the Zero Discharge Collection Tank Flare (FL002) will remain in place and only be used during depressurizing of the raw brine wells.

Startup Schedule

Due to multiple issues encountered during operational testing of the system, the permittee e-mailed a request for an extension to the date specified in R13-3328, 4.1.6. (Title V condition 6.1.6.). According to technical correspondence forwarded to the writer, in an e-mail dated June 1, 2018, the permittee received approval from Mr. Jesse Adkins (WVDAQ Compliance & Enforcement) for an anticipated startup of the H₂S Removal System by October 1, 2018.

Consolidation of Permit No. R13-1527

NSR permit R13-3328 incorporates the requirements in permit R13-1527, which regulated emissions from the Zero Discharge Collection Tank (Emission Unit ID: V273; Emission Point ID: E418) and Flare FL002. R13-1527 contained two specific requirements (A)(1) and (A)(2), which have become requirements 4.1.4. and 4.1.5. in R13-3328, respectively. In addition, the permit also contained a testing requirement (B), which is now requirement 4.3.1. Moreover, the second page of permit R13-3328 states that it will supersede and replace permit R13-1527. As such, R13-1527 has been excluded from the table of active underlying permits in subsection 1.2. of the renewal permit.

Consent Order CO-SIP-C-2003-27

This consent order (CO) affects multiple processes at the facility. As such, permit R13-3328 did not incorporate all requirements from the consent order. As expected, then, no closure document for the CO has been written by the DAQ Compliance and Enforcement Section. Due to these facts, all applicable requirements in the CO will continue to be included and cited in the renewal operating permit even if they have been duplicated by R13-3328. However, duplicate language will be consolidated as much as practicable. The table below correlates the applicable requirements to the Title V renewal and provides any necessary explanation regarding interaction between the requirements.

NSR	CO	Title V	Discussion
None	IV.2.	3.1.9.	R13-3328 neither affects nor incorporates this CO requirement; therefore, the condition is unaltered in the renewal permit.
4.1.6.	IV.3.D.	6.1.6.	The second paragraph in the NSR requirement is the same substantive requirement as IV.3.D. in the CO.
None	IV.4.	6.1.7.	The CO requirement establishes the stack height for the flare FL003, which will be demolished per NSR requirement 4.1.6. in the future. Considering that the permittee received an extension until October 1, 2018 for startup of the new brine H ₂ S removal system, this applicable CO requirement will remain in the renewal permit.
4.3.2.	V.5.	6.3.2.	While the NSR and CO requirements contain several common details, the CO requires testing to be conducted twice per year to determine the H ₂ S concentration in the gas stream sent to the flare. Considering that the permittee received an extension until October 1, 2018 for startup of the new brine H ₂ S removal system, this applicable CO requirement will remain in the renewal permit. The first two sentences, and the last sentence of the condition are from the CO, while the language between the second and last sentence are from the NSR permit.
None	V.8.	6.3.3.	R13-3328 neither affects nor incorporates this CO requirement; therefore, the condition is unaltered in the renewal permit.
4.4.3.	VI.1.	6.4.1.	While this CO requirement VI.1. applies to all sources of SO ₂ emissions that are subject to the CO, it should be noted that within the context of section 6.0 of the Title V permit it only applies to flare FL003. Therefore, a separate citation of authority for the CO requirement has been written for FL003.
None	VI.6.	6.4.2.	This record format and retention requirement VI.6. in CO-SIP-C-2003-27 pertains to conditions 6.3.2., 6.3.3., and 6.4.1. Since these requirements remain effective until the Raw Brine Flare (FL003) is removed from service, this condition has been retained in the renewal operating permit.
None	VI.4.	6.5.2.	Since this requirement remains effective until the Raw Brine Flare (FL003) is removed from service, this

NSR	CO	Title V	Discussion
			condition has been retained in the renewal operating permit.
None	IV.3.B.	8.1.1.	R13-3328 neither affects nor incorporates these CO requirements; therefore, the conditions are unaltered in the renewal permit.
	V.3.	8.2.1.	
	IV.3.B.	11.1.2.	
	V.3.	11.2.2.	

Incorporation of Applicable Requirements

The requirements of this NSR permit pertaining to the Flare FL002 (E418) and the Zero Discharge Collection Tank (V273) have been included in the Brine Department Section 6.0. The requirements pertaining to the Wet Scrubber SC080 (E427) controlling the Air Stripper (SP017) have been included in the Cal-Hypo Department Section 9.0. The requirements have been incorporated into the renewal operating permit as further detailed in the table below.

R13-3328	Title V	Discussion
1.0.	1.1.	The following changes have been made to the emission units table: <ul style="list-style-type: none"> • Under 6.0 Brine Department – Brine, the row for the Gas Separator (emission unit SP007; emission point E417) and Flare FL003 has been revised to indicate that this equipment will be removed from service by June 1, 2018. • Under 6.0 Brine Department – Brine, in the row for V272, the date has been changed from 1948 to 1956 to reflect permit R13-3328. • Under 9.0 Cal-Hypo Department (sub-heading for NaHS Storage Tanks and Transfer Operations), new rows have been created for the Rock Separator (SP018) and Air Stripper (SP017).
4.0	9.0	The language “SC080 – Wet Scrubber on SP017 – Air Stripper” has been added to the section heading for 9.0. For the heading of section 6.0, the language “E417 – Flare (FL003) on Gas Separator (SP007)” has been retained since there are requirements that remain applicable until this equipment is removed from service in accordance with underlying permit requirement 4.1.6.
4.1.1.	6.1.1.	The following changes have been made to the condition: <ul style="list-style-type: none"> • The row for emission point E417 was removed from the second table. • The description of E418 was modified to include FL002 and V273. • FL003 – Flare on Gas Separator (SP007) has been deleted after the second table. • The underlying NSR permit requirement was added to the citation of authority.
4.1.2.	6.1.2.	<ul style="list-style-type: none"> • FL003 – Flare on Gas Separator (SP007) has been deleted after the requirement. • The underlying NSR permit requirement was added to the citation of authority.
4.1.3.	6.1.3.	<ul style="list-style-type: none"> • FL003 – Flare on Gas Separator (SP007) has been deleted after the requirement. • The underlying NSR permit requirement was added to the citation of authority.

R13-3328	Title V	Discussion
4.1.4.	6.1.4.	This underlying requirement replaces requirement A.1. of R13-1527. The language and citation of authority have been revised to reflect permit R13-3328.
4.1.5.	6.1.5.	This underlying requirement replaces requirement A.2. of R13-1527. The language is identical; therefore, only the citation of authority has been revised.
4.1.6.	6.1.6.	The language and citation of authority have been revised to include permit R13-3328. According to technical correspondence forwarded to the writer, the permittee received approval from Mr. Jesse Adkins (e-mail dated June 1, 2018) for anticipated startup of the H ₂ S Removal System by October 1, 2018. The request for an extension was due to multiple issues encountered during operational testing of the system.
4.1.7.	9.1.4.	Even though there is a facility-wide requirement in condition 3.1.4, this requirement has been written in Section 9.0 since it is specific to the sources identified within the Cal-Hypo department. A parenthetical note specifying State-enforceability only has been added to the requirement because even though permits written under 45CSR13 are both federally- and state-enforceable, the NSR permit requirement is verbatim from the 45CSR4 requirement, which is state-enforceable only. Since the foundational requirement is state-enforceable only, the NSR permit requirement is also state-enforceable only.
4.1.8.	9.1.5.	Same rationale as in requirement 4.1.7., except that there is no corresponding facility-wide condition in Section 3.0.
4.1.9.	9.1.6.	The requirement has been incorporated into the Title V permit.
4.1.10.	9.1.7.	The requirement has been incorporated into the Title V permit.
4.1.11.	9.4.1.	The requirement has been incorporated into the Title V permit.
4.1.12.	6.1.8. 9.1.8.	The requirement has been incorporated into the Title V permit. Since the requirement applies only to the control devices in Section 1.0 of R13-3328, the requirement has been written in Section 6.0 for Flare FL002 and in Section 9.1 for the Wet Scrubber SC080.
4.2.1.	6.2.1.	This opacity monitoring requirement is in the current permit for both FL003 and FL002. Since FL003 is still in operation at the time of writing this renewal permit, it will remain in the permit condition with the current citation of authority (45CSR§30-5.1.c.). The NSR permit requirement will also be added to the citation of authority for FL002.
4.2.2.	9.2.2.	The requirement has been incorporated into the Title V permit.
4.3.1.	6.3.1.	The requirement has been incorporated into the Title V permit and the former citation of R13-1527, B, has been replaced with the NSR permit requirement.
4.3.2.	6.3.2.	The requirement has been incorporated into the Title V permit by combining it with the applicable requirements in CO-SIP-C-2003-27, V.5.
4.3.3.	6.3.4.	The requirement has been incorporated into the Title V permit by citing it with the identical 45CSR6 requirement contained in the current operating permit.
4.4.1.	3.4.1.	This requirement to maintain records of monitoring has been incorporated into the renewal permit by citing it as authority in condition 3.4.1. followed by the source-specific monitoring to which the recordkeeping is applicable.
4.4.2.	6.4.4. 9.4.2.	The requirement to record maintenance of air pollution control equipment has been incorporated into the respective sections of the renewal operating permit for the control devices FL002 and SC080.

R13-3328	Title V	Discussion
4.4.3.	6.4.1. 9.4.3.	The underlying requirement is applicable to the control devices FL002 and SC080. The content of current permit condition 6.4.1. is a consent order requirement to maintain records of malfunctions of FL003, which is yet to be decommissioned in accordance with condition 6.1.6. The CO requirement has been retained in the renewal permit since FL003 is operational at the time of writing this renewal permit. However, the NSR permit requirement 4.4.3. has been inserted in condition 6.4.1. with the CO requirement since both requirements are fundamentally identical. Finally, since this requirement is applicable to the Wet Scrubber SC080, it also has been written as permit condition 9.4.3.
4.4.4.	6.4.3.	This requirement is to maintain records of monitoring data required by 4.2.1. (condition 6.2.1.), which is opacity monitoring for demonstrating compliance with the opacity limitations in requirements 4.1.2. and 4.1.3. (conditions 6.1.2. and 6.1.3.) for the flare FL002. The current citation of authority (45CSR§30-5.1.c.) has been replaced with the NSR permit requirement since there is no additional monitoring or applicability in the current condition that is not covered by the underlying permit requirement.
4.4.5.	9.4.4.	This requirement pertains to monitoring records in requirement 4.2.2. (permit condition 9.2.2.). Therefore, the requirement has been written as permit condition 9.4.4.
4.4.6.	9.4.5.	This requirement pertains to records prescribed in requirements 4.1.10. and 4.1.11. (permit conditions 9.1.7. and 9.4.1.). Therefore, the requirement has been written as permit condition 9.4.5.
4.5.1.	6.5.1.	The current operating permit condition 6.5.1. requires a calculation for three operating scenarios: backwash only, depressurization only, and the combination of backwash and depressurization. However, the NSR permit requirement requires the calculation for depressurization operating scenario only since the backwash, and the combination of backwash and depressurization operating scenarios shall no longer be performed at the Zero Discharge Collection Tank (V273). All other details in each requirement are identical. The language in condition 6.5.1. has been revised to reflect the underlying permit requirement and the citation of authority has been changed.

IV. **45CSR14 – Permit No. R14-0027F and Title V Permit Significant Modification (R30-05100002-2013, SM03).** On October 31, 2017, the permittee submitted a combined NSR and Title V significant modification application. The purpose of this modification is the conversion of No. 4 Boiler from being coal-fired to natural gas-fired with the capability to co-fire hydrogen gas.

Description of Process

No. 4 Boiler is currently shut down because of the natural gas conversion project for No. 5 Boiler. The No. 4 Boiler was originally designed to burn pulverized coal and utilize natural gas only for start-up and flame stabilization operations. The unit commenced operations in 1952 and ceased operating in 2016. The boiler had a design heat input rating of 496 MMBtu/hr.

The proposed modification will allow No. 4 Boiler to be fired with natural gas, hydrogen gas or a mixture of these two fuels. To maintain the original steam production rate of 384,000 lb per hour, the heat input rate of the unit will increase up to a maximum of 540 MMBtu/hr. To support operation on natural gas after this conversion, No. 4 Boiler will be equipped with an economizer and six new low-NO_x burners complete with air registers. The steam generated by the boiler will be first utilized to generate electricity to be entirely consumed by the facility through two steam turbines. Then, the steam exhaust will be used for process heat energy for the facility.

The requirements of this permit have been incorporated into the renewal operating permit as described in the table below.

R14-0027F	Title V	Discussion
1.0	1.1	<p>The following changes have been made in the emission units table:</p> <ul style="list-style-type: none"> • No. 3 Boiler (Em. Unit ID: R011; Em. Pt. ID: S076) has been deleted. • In the row for No. 4 Boiler, the year modified has been added; the design capacity has been revised; and the ESP control device ES002 has been deleted. • In the row for No. 5 Boiler, the ESP control device ES001 has been deleted. Also, the design capacity has been revised to reflect the completed fuel conversion. • In the row for No. 6 Boiler, the control device CD006 for LNB has been deleted since this ID is not used elsewhere in the permit. • The Rental Boiler R200 has been added. • The acronym “ESP=Electrostatic Precipitators” in footnote 2 has been deleted at the bottom of the first page of the emission units table. • Footnote 3 has been revised to reflect the completed fuel conversion. • Footnote 4 has been deleted since it stated that the ESP ES001 on No. 5 Boiler will not be required to operate once the boiler becomes natural gas-fired only.
Limitations and Standards		
4.0	4.0	<p>The following changes were made in the section heading:</p> <ul style="list-style-type: none"> • Boiler No. 3 has been deleted. • Rental Boiler R200 has been added.
4.1.1.	4.1.1.	<p>The previous underlying permit requirement in the current operating permit pertained to No. 3 Boiler, which has been removed from service. The condition now embodies the underlying permit requirements for No. 4 Boiler.</p> <p>Compliance with underlying requirement 4.1.1.c. has been added as renewal permit condition 4.4.10. This parallels the same requirement in condition 4.4.9. for No. 6 Boiler, which was current permit condition 4.4.16.</p>
4.1.2.	4.1.2.	<p>The previous underlying permit requirements in the current operating permit pertained to No. 4 Boiler, which are now in condition 4.1.1. The condition now embodies the underlying permit requirements for No. 5 Boiler.</p>
4.1.3.	4.1.3.	<p>The previous underlying permit requirements in the current operating permit pertained to No. 5 Boiler, which are now in condition 4.1.2. The condition now embodies the underlying permit requirements for No. 6 Boiler.</p>

R14-0027F	Title V	Discussion
		The italicized streamlining note that was in condition 4.1.4.b. has been carried over to renewal condition 4.1.3.a.ii. Compliance with underlying requirement 4.1.3.c. is retained for the renewal permit in condition 4.4.9.
4.1.4.	4.1.4.	This requirement limits the mercury (Hg) concentration of the hydrogen gas to be fired in No. 4 and No. 6 boilers. The mercury limitation had been in condition 4.1.4.d. of the current operating permit and was 40 µg of mercury per cubic meter of gas and became effective after January 31, 2016. The new requirement sets the Hg limit at 20 µg/m ³ on a 3-hour average basis for the gas to be classified as an “other gas 1 fuel” under 40 C.F.R. 63 Subpart DDDDD.
4.1.5.	4.1.5.	The applicability of the 10 percent opacity limitation from 45CSR§2-3.1. has been revised by removing the reference to decommissioned No. 3 Boiler.
4.1.6.	4.1.6.	The requirement to utilize an oxygen trim system pursuant to 40 C.F.R. 63 Subpart DDDDD has been revised to include a reference to No. 4 Boiler.
4.1.7.	4.1.7.	The permit condition has been revised to reflect the underlying permit. However, the requirements in §§63.7540(a)(vi)(A) through (C) have been retained in the operating permit.
4.1.8.	4.1.8.	The requirements for the Rental Boiler R200 have been included to replace the fulfilled requirements for the facility’s one-time energy assessment pursuant to §63.7500(a)(1) and Table 3 of Subpart DDDDD.
4.1.9.	4.1.9.	The compliance plan requirements that have passed have been replaced with requirements for APCDs. However, this new requirement applies only to APCDs listed in R14-0027F, of which there are none. Therefore, in parenthesis a statement has been written in the condition to define the applicability of this requirement.
Monitoring		
4.2.1.	4.2.1.	The requirement for No. 4 Boiler has been incorporated into the renewal permit.
4.2.2.	4.2.2.	The requirement for No. 5 Boiler has been incorporated into the renewal permit.
4.2.4. ²	4.2.3.	The requirement for No. 6 Boiler has been incorporated into the renewal permit. 45CSR16 has been added to the citations of authority since they contain NSPS Subpart Db requirements.
4.2.5.	4.2.4.	The requirement for monitoring mercury in the hydrogen fuel administered to No. 4 and No. 6 Boilers has been incorporated into the renewal permit.
4.2.6.	4.2.5.	The requirement for determining valid hourly emission data for compliance with requirements 4.1.1., 4.1.2., and 4.1.3. for Boilers 4 through 6 has been incorporated into the renewal permit. 45CSR16 has been added to the final citation of authority since the requirement contains multiple NSPS general requirements.
Testing		
4.3.1.	None	The underlying condition is reserved; therefore, no operating permit condition is warranted.

² Note that there is no requirement 4.2.3. in permit R14-0027F.

R14-0027F	Title V	Discussion
Recordkeeping		
4.4.1.	3.4.1.	The recordkeeping of monitoring information in the current permit has been retained for the renewal permit.
4.4.2.	4.4.3.	The recordkeeping of maintenance of air pollution control equipment in the current permit has been retained for the renewal permit.
4.4.3.	4.4.4.	The recordkeeping of malfunctions of air pollution control equipment in the current permit has been retained for the renewal permit.
4.4.4.	4.4.2.	The requirement has been revised to remove references to coal and associated ash and heat content analysis. The underlying permit cites §60.49b(d)(2), while the current operating permit cites §60.49b(d)(1). The alternative in §60.49b(d)(2) applies when the affected facility is subject to a federally enforceable permit restricting fuel use to a single fuel such that the facility is not required to continuously monitor any emissions (excluding opacity) or parameters indicative of emissions. R14-0027F permits No. 6 Boiler to combust more than one fuel (<i>i.e.</i> , natural gas and hydrogen gas), and requires continuous monitoring of emissions per requirement 4.2.4. (renewal permit condition 4.2.3.). Therefore, the citation of authority will remain as §60.49b(d)(1) in the renewal Title V permit.
4.4.5.	4.4.5.	The condition numbers in the first paragraph and requirements 4.4.5.d. have been revised. The language “if applicable to the monitoring system” has been added to requirement 4.4.5.i.
Reporting		
4.5.1.	4.5.1.	The performance evaluation report for the No. 4 Boiler CEMS or PEMS has been incorporated into the renewal permit. Note that similar requirements for No. 5 and No. 6 Boilers were in current permit conditions 4.5.9. and 4.5.10.
4.5.2.	4.5.2.	The semi-annual excess emissions and monitoring report for the No. 4, No. 5, and No. 6 Boilers has been incorporated into the renewal permit. Note that a similar requirement that did not include No. 4 Boiler was in current permit condition 4.5.11.
4.5.3.	4.5.3.	The 40 C.F.R. 63 Subpart DDDDD NOCS reporting requirement has been incorporated into the renewal permit for No. 4 Boiler. Note that a similar requirement applicable to No. 5 and No. 6 Boilers was in current permit condition 4.5.13. but has been fulfilled for these boilers. The current citation of §63.7530(f) has been deleted since it is not part of the NOCS but applies only for periods of gas curtailment. The current citation of §63.7545(a) has been retained (though not cited in the PSD permit) since it specifies compliance with §63.9(h), which is the NOCS general requirement. The reference to §63.7525 in the last statement has been changed to §63.7521 since none of the requirements in §63.7525 are applicable and the applicable fuel analysis requirements for “other gas 1 fuel” demonstration are in §63.7521. Refer to the discussion of 40 C.F.R. 63 Subpart DDDDD below in Section IX of this Fact Sheet.
4.5.4.	4.5.4.	The 40 C.F.R. 63 Subpart DDDDD Compliance Report requirement has been incorporated into the renewal permit for No. 4, No. 5, and No. 6 Boilers. Note that a similar requirement for No. 5 and No. 6 Boilers was in current permit condition 4.5.14.

R14-0027F	Title V	Discussion
		<p>The underlying permit cited §§63.7550(c)(1), and (c)(5)(i) through (iv) and (xiv) as being the applicable content for the report. Since the facility is subject to both the tune-up and fuel analysis requirements, then the content specified in both §§63.7550(c)(1) and (2) is applicable, which is: §§63.7550(c)(5)(i) through (iii), (xiv) and (xvii) for the tune-up reporting, and additionally §§63.7550(vi), (x), (xi), (xiii), (xv), (xviii), and paragraph (d) of §63.7550 for complying with the fuel analysis.</p> <p>However, §63.7550(d) is not applicable since it applies to sources that are subject to a Subpart DDDDD emission limit or operating limit. None of the boilers 4 through 6 are subject to such limits.</p> <p>In addition, it has been determined that items 1.b. and 1.c. in Table 9 (referenced in §63.7550(a)) are not applicable since none of the Boilers 4, 5, and 6 are subject to work practices for periods of <i>startup</i> and <i>shutdown</i>. This has been determined due to the fact that the boilers are not subject to Subpart DDDDD emission limits as specified in items 5 and 6 in Table 3 to Subpart DDDDD. The boilers are subject to the tune-ups and one-time energy assessment work practices, but these are not specifically mentioned in items 1.b. and 1.c. in Table 9. Based upon these facts, items 1.b. and 1.c. in Table 9 have been excluded from the Compliance Report condition in the renewal permit.</p>

The Certification of Data Accuracy appended to permit R14-0027F is not specifically mentioned in any requirement of the PSD permit; therefore, it has been excluded from the Title V renewal permit.

Other Title V permit conditions affected by this PSD permit revision are:

- a. Current Permit Condition 4.3.4. – This condition contained requirement 4.3.1. of R14-0027D, which was a testing requirement applicable to Boilers 4, 5, and 6 to demonstrate compliance with their particulate matter mass rate limits and visible emission standard (10% opacity) in 45CSR2. Once No. 5 Boiler was converted from coal-fired to natural gas-fired, this requirement was no longer applicable to No. 5 Boiler. Considering that No. 6 Boiler has been converted to natural gas-fired, this requirement is no longer applicable to it. Also, No. 4 Boiler is in the process of being converted to natural gas-fired, and this requirement is no longer applicable to it. The VE observations in this requirement were to be in conjunction with the performance testing for PM mass rate, which is no longer applicable. Consequently, current condition 4.3.4. has been excluded from the renewal permit. Nevertheless, the units are still subject to the opacity limit in 45CSR§2-3.1. (condition 4.1.5.), and compliance with the standard is accomplished by combusting only hydrogen gas, natural gas or any combination of these two fuels as specified in conditions 4.1.1.b., 4.1.2.b., and 4.1.3.b., for Boilers 4, 5, and 6, respectively. As such, only records of the fuel utilized are necessary to demonstrate compliance with 45CSR§2-3.1. The applicable recordkeeping is from 45CSR§2-8.3.c., which has been set forth as renewal condition 4.4.2.

- b. Current Permit Condition 4.3.5. – This condition contained requirement 4.3.2. of R14-0027D (and R14-0027E). Though this underlying permit requirement no longer exists in R14-0027F since No. 6 Boiler has demonstrated initial compliance, the Subpart DDDDD requirement to submit a fuel analyses plan for the hydrogen gas remains applicable to No. 4 Boiler that will demonstrate initial compliance for combusting the hydrogen gas. Consequently, the citation of the PSD permit has been deleted, and the applicability has been changed to No. 4 Boiler and No. 6 Boiler for renewal permit condition 4.3.1.
- c. Current Permit Section 5.0 – This section contained requirements from 45CSR2 (fugitive PM control) and 45CSR30 (monitoring and recordkeeping) for the Power Department Coal Handling. Since none of the boilers or other emission units at the facility combust coal (and consequently do not produce flyash), the requirements of this section are no longer applicable. Therefore, all requirements in Section 5.0 of the current operating permit have been deleted and the conditions reserved. The section has been reserved in lieu of renumbering all of the conditions in renewal permit sections 6 through 12.

V. **45CSR40 - Control of Ozone Season Nitrogen Oxides Emissions.** The rule establishes ozone season NO_x emission limitations, MRR, NO_x reduction, and NO_x control standards. The No. 4 and No. 5 Boilers are subject to this rule as they meet the applicability criteria in 45CSR§40-4.1.

Sub-section 5.1. of the rule requires the NO_x emission limitation for each unit be contained in a permit issued under 45CSR13, 45CSR14, 45CSR19, or via consent order. The NO_x emission limits for No. 4 and No. 5 Boilers are in requirements 4.1.1. and 4.1.2. of permit R14-0027F, respectively. Refer to renewal operating permit conditions 4.1.1. and 4.1.2.

The applicable monitoring, recordkeeping, and reporting in 45CSR§40-6.1. for No. 4 and No. 5 Boilers are in requirements 4.2.1. and 4.2.2. of permit R14-0027F, respectively. Refer to renewal operating permit conditions 4.2.1. and 4.2.2.

Finally, the No. 6 Boiler (R097) and Rental Boiler (R200) are not subject to 45CSR40 since the maximum design heat input of each boiler is less than 250 MMBtu/hr (cf. 45CSR§40-1.1.a.).

VI. **40 C.F.R. 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.** The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 100 MMBtu/hr. The applicability of this regulation to each of the boilers has been discussed below.

No. 4 Boiler

The permitted change to fire natural gas has the potential to make No. 4 Boiler an affected source under Subpart Db of the New Source Performance Standard as a reconstructed source or modification in 40 C.F.R. §60.14(a), which states "... operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act...". No. 4 Boiler meets the basic criteria of a potentially affected source under Subpart Db (i.e., indirect heat exchanger (boiler) with a heat input of greater than 100 MMBtu/hr). The pollutants that Subpart Db specifies a standard for are PM, SO₂, and NO_x. The permitted fuel conversion for No. 4 Boiler will not increase the potential to emit of any of these three pollutants, as demonstrated in the following table.

Pollutant	Using Coal (lb/hr)	Using Gas (lb/hr)	Net Change (lb/hr)
PM	44.6	0.97	-43.63
SO ₂	1,538	0.32	-1,537.68
NO _x	508.9	86.4	-422.5

Because the permittee is attempting to re-gain lost steam generating capacity due to the installation of low-NO_x burners, the source had to make a demonstration to prove that the project does not constitute “reconstruction” as defined under Part 60. Under 40 C.F.R. §60.15(d), reconstruction is triggered if the “fixed capital cost” of a project exceeds 50 percent that would be required to construct a comparable new emission unit. For this project, the permittee estimated the fixed capital cost to be 38.9 % of the cost of a replacement unit. Thus, the cost of the conversion project for No. 4 Boiler is less than 50% of a replacement unit and does not meet the Part 60 definition of reconstruction. Therefore, **No. 4 Boiler will not be an affected source** under 40 C.F.R. 60 Subpart Db.

No. 5 Boiler

This boiler continues to **not be an affected source** under 40 C.F.R. 60 Subpart Db as determined in the Fact Sheet for significant permit modification R30-05100002-2013 (SM02).

No. 6 Boiler

This boiler continues to **be an affected source** under 40 C.F.R. 60 Subpart Db. In particular, upon its conversion to fire natural gas in addition to hydrogen gas, No. 6 Boiler became subject to the 0.20 lb/MMBtu NO_x limit in §60.44b. The streamlining note for this limitation has been carried over into renewal permit condition 4.1.3.a.ii.

Rental Boiler R200

The maximum design heat input of this boiler is less than the 100 MMBtu/hr threshold specified by the applicability criteria in §60.40b(a); therefore, Subpart Db is **not applicable** to boiler R200.

Chlorine Recovery Boiler (R881)

The Chlorine Recovery Boiler is **not subject to this subpart** since it is rated less than 100 MMBtu/hr and was constructed before June 19, 1984.

- VII. **40 C.F.R. 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.** This regulation is a New Source Performance Standard (NSPS) for industrial-commercial-institutional steam generating units for which construction, modification, or reconstruction is commenced after June 9, 1989 and that have a maximum design heat input capacity between 10 and 100 MMBtu/hr. The Rental Boiler R200 is subject to 40 C.F.R. 60 Subpart Dc pursuant to the above applicability requirements of §60.40c(a). Subpart Dc does not have any emission standards for units that combust only natural gas. The unit is, however, subject to the recordkeeping and reporting requirements given under §60.48c(g). The requirements of §60.48c(g)(1) to maintain records of fuel combusted each day, and the alternative under §60.48c(g)(2) to maintain monthly records, are applicable. However, the alternative recordkeeping in §60.48c(g)(3) for fuel delivered to the property is not practicable for pipeline quality natural gas. Refer to permit condition 4.4.1. None of the boilers No. 4, No. 5, and No. 6 are subject to this regulation since the maximum design heat input of each unit is greater than 100 MMBtu/hr. The Chlorine Recovery Boiler (Em. Unit: R881) is not subject to this subpart since it is rated less than 10 MMBtu/hr and was constructed before June 9, 1989.

- VIII. **40 C.F.R. Part 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.** The affected engines are listed in subsection 1.1. having been retained from the current permit for this renewal. The only change in the permit with respect to Subpart ZZZZ is that the language “and replace as necessary” has been added in condition 13.1.2.b.
- IX. **40 C.F.R. 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters.** This subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAP. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards. The permittee is subject to this subpart since it operates industrial boilers or process heaters as defined in §63.7575 that is located at, or is part of, a major source of HAP, and does not meet any exceptions specified in §63.7491. The following units are affected sources under this subpart:

No. 4 Boiler

This 496 MMBtu/hr coal-fired unit (EU# R015; EP# S076) was shut down on August 8, 2016. The permittee submitted an application and was issued permit R14-0027F to modify and restart Boiler 4 as a 540 MMBtu/hr natural gas-fired unit with capability to also combust hydrogen alone or in combination with natural gas. The unit is required by permit R14-0027F, requirement 4.1.6., to be equipped with an oxygen trim system.

The hydrogen fuel for No. 4 Boiler will be supplied from the chlorine circuits at the facility. There are three chlorine circuits, including Circuits 6, 7 and 8. The hydrogen gas generated from Circuits 6 and 8 does not contain mercury. Conversely, the hydrogen from Circuit 7 will have the potential to exceed the mercury threshold as defined. The hydrogen from Circuit 7 will be combined with hydrogen from the other two circuits to meet the threshold level of an “other gas 1 fuel”. Under the Chlor-Alkali MACT (40 C.F.R. 63 Subpart IIII), the permittee is required to continuously measure the actual mercury concentration in the hydrogen gas produced from Circuit 7.

The permittee submitted a plan to continuously monitor the mercury in the gas from Circuit 7 and measure the flow rate of hydrogen from all three of the circuits to calculate the mercury concentration for the hydrogen gas as delivered to the power house in terms of the standard of “other gas 1 fuel” of $\mu\text{g}/\text{dscm}$. The permittee plans on only using hydrogen gas with a mercury concentration of less than 20 $\mu\text{g}/\text{dscm}$, which is 50% of the “other gas 1 fuel” criteria. At this proposed concentration level, Subpart DDDDD does not require any additional fuel sampling demonstrations (See 40 C.F.R. §63.7540(c)(1)).

Subpart DDDDD requires sources using “other gas 1 fuel” to prepare and submit site specific fuel analysis plan for approval to determine if the gas meets the definition. Once the plan is approved, the permittee will have to implement it and determine if the hydrogen fuel meets the criteria of an “other gas 1 fuel”. Refer to permit condition 4.3.2. for the requirement to develop a site-specific fuel analysis plan for other gas 1 fuels.

Under Part 63, the definition of *reconstruction* is the same as under Part 60, which has been discussed above under 40 C.F.R. 60 Subpart Db. The cost of the fuel conversion for No. 4 Boiler was estimated to be 39% of a new replacement unit. As such, the modification for No.4 Boiler does not meet the definition of *reconstruction* in 40 C.F.R. §63.2. Therefore, this project does not trigger reconstruction for the boiler under Part 63 and No. 4 Boiler will be considered an existing unit as specified in §63.7490(d).

No. 5 Boiler

This 999 MMBtu/hr natural gas-fired unit (EU# R072; EP# S482) was converted in 2016 from coal-fired to natural gas-fired. The Subpart DDDDD requirements applicable to No. 5 Boiler were incorporated into the current operating permit as part of a significant modification (R30-05100002-2013 – SM02) issued on January 6, 2015. The unit is currently operating and continues to be an affected source under 40 C.F.R. 63 Subpart DDDDD.

No. 5 Boiler is required by R14-0027F, 4.1.6., to be equipped with an oxygen trim system. However, the fact that it utilizes an oxygen trim system was accounted for when the requirements were analyzed in the previous significant modification. Therefore, this underlying PSD permit requirement does not affect the applicable Subpart DDDDD requirements for this renewal.

No. 6 Boiler

This 181 MMBtu/hr natural gas- and hydrogen-fired unit (EU# R097; EP# S076) was converted in 2015 from hydrogen gas-fired only to co-firing natural gas and hydrogen gas. The Subpart DDDDD requirements applicable to No. 6 Boiler were incorporated into the current operating permit as part of a significant modification ((R30-05100002-2013 – SM02)) issued on January 6, 2015. The unit is currently operating and continues to be an affected source under 40 C.F.R. 63 Subpart DDDDD.

No. 6 Boiler is required by R14-0027F, 4.1.6., to be equipped with an oxygen trim system. As with No. 5 Boiler, this was accounted for when the requirements were analyzed in the previous significant modification; therefore, the Subpart DDDDD requirements are unaffected for this renewal.

Rental Boiler R200

This 99.9 MMBtu/hr natural gas-fired Babcock & Wilcox Model RB-747 unit (EU# R200; EP# S200) was installed in 2017 under permit R14-0027E. The permitting requirements for this unit were retained in current underlying permit R14-0027F, which has been incorporated into this renewal permit. According to 6/8/2018 technical correspondence, the Rental Boiler utilizes a continuous oxygen trim system that maintains an optimum air to fuel ratio.

The Rental Boiler R200 is subject to the applicable requirements of this regulation as a gas 1 fuel subcategory unit under §63.7499(l); however, it is not subject to any Subpart DDDDD emission standards in accordance with §63.7500(e), which states: "Boilers and process heaters in the units designed to burn gas 1 fuels subcategory are not subject to the emission limits in Tables 1 and 2 or 11 through 13 to this subpart, or the operating limits in Table 4 to this subpart." Nevertheless, the unit is subject to the applicable testing, analysis, initial compliance, notification, reporting, and recordkeeping requirements as given under §§63.7500 through 63.7560 as a new source defined in §63.7490(b).

The Rental Boiler R200 has been added to the list of affected units in condition 4.1.10. for requirement §63.7500(a)(3).

Chlorine Recovery Boiler (Em. Unit: R881)

The Subpart DDDDD requirements applicable to the Chlorine Recovery Boiler were incorporated into the current operating permit as part of a significant modification (R30-05100002-2013 – SM02) issued on January 6, 2015. The unit is currently operating and continues to be an affected source under 40 C.F.R. 63 Subpart DDDDD. See conditions 8.1.8. through 8.1.10., 8.4.6., 8.4.7., and 8.5.6. The following changes have been made with respect to Subpart DDDDD for emission unit R881:

- The next to last paragraph in current permit condition 8.1.9. has been deleted since it pertained only to the initial tune-up to be completed no later than the compliance date. This language is no longer necessary for the permit; therefore, the language and its citation of §63.7510(e) have been excluded from the renewal permit.

- Current permit condition 8.1.10. included the requirements for the one-time energy assessment required by §63.7500(a)(1), Table 3, Item #4. According to 6/8/2018 technical correspondence from the permittee the one-time energy assessment for the Chlorine Recovery Boiler was completed in October 2015. Since this is a one-time requirement that has been fulfilled the condition has been removed for the renewal permit.
- Current permit conditions 8.4.7. and 8.4.8. were based upon recordkeeping specified in §§63.7555(i) and (j). However, these sections have been relocated to §§63.7555(d)(9) and (10), respectively. Since R881 is not subject to Subpart DDDDD emission limits, this recordkeeping is not applicable and the permit conditions containing these requirements have been excluded from the renewal permit.
- Current permit condition 8.5.6. included the requirements for the Notification of Compliance Status (NOCS), which is a single report to be submitted after completion of the initial compliance demonstration. According to 6/8/2018 technical correspondence from the permittee the NOCS was submitted on January 31, 2017. Since this is a one-time requirement that has been fulfilled the condition has been removed for the renewal permit.
- Current permit condition 8.5.7. based upon §63.7540(b) to report each instance of not meeting a work practice standard, has been excluded from the renewal permit. While it is true that Table 3 (work practices) is within the tables 1 through 4 specified in §63.7540(b), this section applies when a permittee does not meet an applicable emission limit or operating limit. The boiler R881 is not subject to a Subpart DDDDD emission limit or operating limit; therefore, this section §63.7540(b) is not applicable.
- The Compliance Report content specified in renewal permit condition 8.5.6. (current permit condition 8.5.8.) has been revised to exclude §63.7550(c)(5)(iv) since this is not required per §63.7550(c)(1) for units subject only to periodic tune-up requirements. In addition, items b. and c. have been excluded from renewal permit condition 8.5.6. since they pertain to deviations from work practice standards for *periods of startup and shutdown* in Table 3 to Subpart DDDDD. The emission unit R881 is not subject to the startup and shutdown work practices in Table 3; therefore, these corresponding reporting requirements in items b. and c. of Table 9 to Subpart DDDDD are not applicable. The citation of authority has been revised to reflect these changes.

Molten Salt Furnace (Em. Unit: R900)

The Subpart DDDDD requirements applicable to the Molten Salt Furnace were incorporated into the current operating permit as part of a significant modification (R30-05100002-2013 – SM02) issued on January 6, 2015. The unit is currently operating and continues to be an affected source under 40 C.F.R. 63 Subpart DDDDD. The renewal application Attachment E for R900 listed item 3 (i.e., annual tune-ups) in Table 3 to Subpart DDDDD as being applicable. Based upon this, R900 still does not utilize a continuous oxygen trim system; therefore, the note following permit conditions 11.1.8. and 11.5.1. are retained in the renewal permit. See conditions 11.1.7. through 11.1.9., 11.4.3., 11.4.4., and 11.5.1. Note that certain recordkeeping requirements have been removed for the reasons discussed below. The following changes have been made with respect to Subpart DDDDD for emission unit R900:

- The next to last paragraph in current permit condition 11.1.8. has been deleted since it pertained only to the initial tune-up to be completed no later than the compliance date. This language is no longer necessary for the permit; therefore, the language and its citation of §63.7510(e) have been excluded from the renewal permit.

- Current permit condition 11.1.9. included the requirements for the one-time energy assessment required by §63.7500(a)(1), Table 3, Item #4. According to 6/8/2018 technical correspondence from the permittee the one-time energy assessment for the Molten Salt Furnace was completed in October 2015. Since this is a one-time requirement that has been fulfilled the condition has been removed for the renewal permit.
- Current permit conditions 11.4.4., and 11.4.5. were based upon recordkeeping specified in §§63.7555(i) and (j). However, these sections have been relocated to §§63.7555(d)(9) and (10), respectively. Since R900 is not subject to Subpart DDDDD emission limits, this recordkeeping is not applicable and the permit conditions containing these requirements have been excluded from the renewal permit.
- Current permit condition 11.5.1. included the requirements for the Notification of Compliance Status (NOCS), which is a single report to be submitted after completion of the initial compliance demonstration. According to 6/8/2018 technical correspondence from the permittee the NOCS was submitted on January 31, 2017. Since this is a one-time requirement that has been fulfilled the condition has been removed for the renewal permit.
- Current permit condition 11.5.2. based upon §63.7540(b) to report each instance of not meeting a work practice standard, has been excluded from the renewal permit. While it is true that Table 3 (work practices) is within the tables 1 through 4 specified in §63.7540(b), this section applies when a permittee does not meet an applicable emission limit or operating limit. The boiler R900 is not subject to a Subpart DDDDD emission limit or operating limit; therefore, this section §63.7540(b) is not applicable.
- The Compliance Report content specified in renewal permit condition 11.5.1. (current permit condition 11.5.3.) has been revised to exclude §63.7550(c)(5)(iv) since this is not required per §63.7550(c)(1) for units subject only to periodic tune-up requirements. In addition, items b. and c. have been excluded from renewal permit condition 11.5.1. since they pertain to deviations from work practice standards for *periods of startup and shutdown* in Table 3 to Subpart DDDDD. The emission unit R900 is not subject to the startup and shutdown work practices in Table 3; therefore, these corresponding reporting requirements in items b. and c. of Table 9 to Subpart DDDDD are not applicable. The citation of authority has been revised to reflect these changes.

Incorporation of Applicable Requirements

The applicable substantive requirements for No. 4 Boiler were included in PSD permit R14-0027F, which have been incorporated into the renewal permit as discussed above concerning the underlying permit. However, applicable requirements (e.g., recordkeeping and reporting) not included in the PSD permit have been incorporated into this renewal permit by either writing it in the permit or adding No. 4 Boiler to a parenthetical list of affected emissions units after an existing condition's citation of authority.

As stated above, the applicable requirements for both No. 5 Boiler and No. 6 Boiler were incorporated into the current operating permit as part of a significant modification (R30-05100002-2013 – SM02). There are no changes to the Subpart DDDDD requirements for these boilers in this renewal.

Applicable requirements for the Rental Boiler R200 were not explicitly included in R14-0027F. They are implicitly included by the boiler being in Section 4.0 of the PSD permit and stating Subpart DDDDD requirements without limiting the applicability. Requirements applicable to R200 may have not been specified in the PSD permit since R200 is to be removed from service within 180 days after restarting No. 4 Boiler per requirement 4.1.8.d. of R14-0027F. All requirements applicable to R200 have been incorporated into the renewal permit.

The applicable requirements for both the Chlorine Recovery Boiler (Em. Unit: R881) and Molten Salt Furnace (Em. Unit: R900) were incorporated into the current operating permit as part of a significant modification (R30-05100002-2013 – SM02). The specific changes with respect to these emission units have been discussed above.

Based upon the foregoing facts, Table DDDDD below will analyze the requirements with respect to No. 4 Boiler and the Rental Boiler R200. However, other boilers at the facility may also be subject to the same requirement. For example, No. 6 Boiler is subject to certain fuel analyses requirements in §63.7521, most of which were already included in the current operating permit. Though No. 6 Boiler is not examined in Table DDDDD, this does not indicate that it is not also subject to the same requirement.

Table DDDDD

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
§63.7490(b)	R200	None	R200 boiler is new since it commenced construction after June 4, 2010. However, no permit condition from this section of Subpart DDDDD is required based upon this fact.
§63.7490(d)	No. 4	None	No. 4 Boiler is existing since it is neither new nor reconstructed. However, no permit condition from this section of Subpart DDDDD is required based upon this fact.
§63.7495(a)	R200	None	R200 is new and already in operation; therefore, its compliance date was upon startup. Since startup has passed and R200 will be removed from service after No. 4 is operational, no permit condition is warranted.
§63.7495(b)	No. 4	None	No. 4 Boiler remains an existing boiler, and its compliance date has passed. No permit condition has been written for the compliance date.
§63.7495(d)	No. 4 R200	4.5.3.	This section requires the permittee to meet the notification requirements in §63.7545; therefore, §63.7495(d) has been cited after any permit condition with an applicable notification requirement.
§63.7495(h)	No. 4	4.1.7.a.	This requirement has been cited in underlying PSD permit requirement 4.1.7.a. However, it is §63.7510(j) that provides the requirement to complete the initial tune-up no later than 30 calendar days after initial startup. §63.7495(h) requires that an existing source that switches fuels that results in a change of subcategory be in compliance with the applicable existing source provisions on the effective date of the fuel switch. The expected startup of No. 4 Boiler is January 31, 2019 according to 6/8/2018 technical correspondence.
Emission Limitations, Work Practice Standards, and Operating Limits			
§63.7500(a)(1)	No. 4 R200	4.1.7.	This requirement has been incorporated into the renewal permit via underlying PSD permit requirement 4.1.7.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
			None of the emission limitations in Tables 1 and 2 of Subpart DDDDD are applicable; however, Item #1 in Table 3 is applicable to both units since they are equipped with a continuous oxygen trim system. Therefore, this specific requirement in Table 3 has been added to the citation of authority.
§63.7500(a)(2)	None	None	This section requires an affected source to meet each operating limit in Table 4 to Subpart DDDDD. Neither No. 4 Boiler nor the Rental Boiler R200 are required by Subpart DDDDD to utilize any of the control devices, performance testing, oxygen analyzer system, or SO ₂ CEMS specified in Table 4; therefore, this section is not applicable to the units.
§63.7500(a)(3)	No. 4 R200	4.1.10.	No. 4 Boiler and the Rental Boiler R200 have been added to the list of affected emission units after the citation of authority for this general duty requirement in the current operating permit.
§63.7500(b)	None	None	The permittee has not requested of EPA the use of an alternative to the work practice standards in §63.7500; therefore, no permit condition is warranted.
§63.7500(c)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are limited-use boilers as defined in Subpart DDDDD; therefore, this section is not applicable.
§63.7500(d)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are rated less than 5 MMBtu/hr in the units designed to burn gas 2 fuels subcategory or units designed to burn light liquid fuels subcategory; therefore, this section is not applicable.
§63.7500(e)	None	None	While both No. 4 Boiler and Rental Boiler R200 are in the units designed to burn gas 1 fuels subcategory, neither unit is rated less than 10 MMBtu/hr; therefore, this section is not applicable.
§63.7500(f)	None	None	This paragraph does not apply to the work practice standards to which both No. 4 Boiler and Rental Boiler R200 are subject; therefore, this section is not applicable.
General Requirements for Compliance			
§63.7505(a)	No. 4 R200	4.1.7.	This requirement has been incorporated into the renewal permit via underlying PSD permit requirement 4.1.7.
§63.7505(b)	None	None	This section is reserved in the regulation; therefore, no permit condition is warranted.
§§63.7505(c), (d), and (e)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, these sections are not applicable.
Initial Compliance Requirements			
§§63.7510(a) through (d)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, these sections are not applicable.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
§63.7510(e)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to the initial compliance demonstrations as specified in §§63.7510(a) through (d); therefore, this section is not applicable. Consequently, the current permit condition 4.3.5. that was based upon §63.7510(e) has been removed for the renewal permit.
§63.7510(f)	None	None	While the Rental Boiler R200 is a new source, it is not subject to Subpart DDDDD emission limits; therefore, this section is not applicable.
§63.7510(g)	R200	4.1.11.	Rental Boiler R200 is subject to this requirement since it is new.
§63.7510(h)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 burned solid waste; therefore, this section is not applicable.
§63.7510(i)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are an existing EGU that became subject to Subpart DDDDD after January 31, 2016; therefore, this section is not applicable.
§63.7510(j)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to the emission limits in Table 2 to Subpart DDDDD and the initial compliance demonstration in §§63.7510(a) through (d); therefore, this section is not applicable.
§63.7510(k)	No. 4	4.1.12.	No. 4 Boiler has been permitted to switch from being coal-fired to natural gas-fired after the existing source compliance date of January 31, 2016 and is not expected to go through initial startup (i.e., the anticipated effective date of the switch) until January 31, 2019 according to 6/8/2018 technical correspondence. For both reasons this requirement has been incorporated into the renewal permit.
Subsequent Performance Tests, Fuel Analyses, and Tune-ups			
§§63.7515(a) through (c)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD performance testing; therefore, these sections are not applicable.
§63.7515(d)	No. 4 R200	4.1.7.	This requirement has been incorporated into the renewal permit via underlying PSD permit requirement 4.1.7.
§63.7515(e)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to mercury, HCl, or TSM emission limits in Subpart DDDDD; therefore, this section is not applicable.
§63.7515(f)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD performance testing; therefore, this section is not applicable.
§63.7515(g)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, this section is not applicable.
§63.7515(h)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are in the unit designed to burn light liquid subcategory; therefore, this section is not applicable.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
§63.7515(i)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 operate with a CO CEMS; therefore, this section is not applicable.
Stack Tests and Procedures			
§§63.7520(a) through (f)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD performance testing; therefore, these sections are not applicable.
Fuel Analyses, Fuel Specification, and Procedures			
§63.7521(a)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 combust solid fuel, liquid fuel, or gas 2 (other) fuels; therefore, this section is not applicable.
§63.7521(b)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are required to conduct fuel analyses as specified in §63.7510; therefore, this requirement to develop a site-specific fuel monitoring plan is not applicable.
§63.7521(c)	None	None	The fuel sampling specified in this section is from belts (or screw) feeders, stock piles, and trucks. None of these are applicable to either the other gas 1 fuel being combusted by No. 4 Boiler, or the gas 1 fuel (i.e., natural gas) combusted by the Rental Boiler R200. For this reason, this section is not applicable.
§63.7521(d)	None	None	This section pertains to the preparation of composite samples of fuel, which are required under §63.7521(c), which is not applicable. Since the requirement to obtain composite samples does not apply, this section also does not apply.
§63.7521(e)	None	None	This section pertains to determining the concentration of pollutants in composite samples of fuel, which are required under §63.7521(c), which is not applicable. Since the requirement to obtain composite samples does not apply, this section also does not apply.
§63.7521(f)	No. 4	4.3.4.	This section is applicable since the permittee will demonstrate that the hydrogen gas to be co-fired in No. 4 Boiler meets the definition of “other gas 1 fuel”. Since the permittee stated in 6/8/2018 technical correspondence that the alternative where fuel specification analysis is not practical and mercury concentration is measured will not be utilized, this alternative has been excluded. The permittee stated that it will utilize Method 30B as specified in Table 6, Item 3.a. Note that this requirement also applies to No. 6 Boiler since it combusts the hydrogen gas that must qualify as an other gas 1 fuel.
§63.7521(g)	No. 4	4.3.2.	This requirement had been current permit reporting condition 4.5.12. since the regulation required the plan to be submitted. The regulation states that the plan must be developed but there is no requirement for it to be submitted. Therefore, this applicable requirement to develop a site-specific fuel analysis plan for other gas 1

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
			fuels has been moved to the testing subsection. Note that this requirement also applies to No. 6 Boiler since it combusts the hydrogen gas that must qualify as an other gas 1 fuel.
§63.7521(h)	No. 4	4.3.3.	This requirement to obtain a single fuel sample has been incorporated into the renewal permit. Note that this requirement also applies to No. 6 Boiler since it combusts the hydrogen gas that must qualify as an other gas 1 fuel.
§63.7521(i)	No. 4	4.3.4.	This requirement to determine the concentration of mercury in units of microgram per cubic meter, dry basis, of each sample has been incorporated into the renewal permit. Note that this requirement also applies to No. 6 Boiler since it combusts the hydrogen gas that must qualify as an other gas 1 fuel.
Emissions Averaging			
§§63.7522(a) through (k)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, these sections are not applicable.
Monitoring, Installation, Operation, and Maintenance Requirements			
§63.7525(a)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD carbon monoxide (CO) emission limit; therefore, this section is not applicable.
§63.7525(b)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are in the unit designed to burn coal/solid fossil fuel subcategory or the unit designed to burn heavy liquid subcategory and are not subject to a Subpart DDDDD particulate matter (PM) emission limit; therefore, this section is not applicable.
§63.7525(c)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD opacity standard; therefore, this section is not applicable.
§§63.7525(d) through (i)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD operating limit; therefore, these sections are not applicable.
§63.7525(j)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are utilizing a fabric filter bag leak detection system since they are not subject to a Subpart DDDDD particulate matter (PM) emission limit; therefore, this section is not applicable.
§63.7525(k)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 meet the definition of a limited-use boiler in §63.7575; therefore, this section is not applicable.
§63.7525(l)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD mercury or HCl emissions limit; therefore, this section is not applicable.
§63.7525(m)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD HCl emission limit; therefore, this section is not applicable.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
Demonstrating Initial Compliance			
§63.7530(a)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD emission limit; therefore, this section is not applicable. It should be noted that complying with an applicable emission limit by fuel analyses, is not the same as performing fuel analyses per §63.7521 to demonstrate that the gas combusted is an other gas 1 fuel. In the former, the boiler is subject to an emission limit (e.g., Hg, HCl, or TSM) and elects to demonstrate compliance by fuel analyses per §63.7521(a). In the latter (which is the case for No. 4 Boiler), the emission unit is subject to work practices only but must demonstrate that the fuel is an “other gas 1 fuel” by testing for mercury per §63.7521(f).
§63.7530(b)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD performance testing and any fuel analyses directly related to performance testing; therefore, this section is not applicable.
§63.7530(c)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, this section is not applicable.
§63.7530(d)	None	None	This section of Subpart DDDDD is reserved.
§63.7530(e)	No. 4 R200	4.5.3.	This section requires that the Notification of Compliance Status (NOCS) include a signed certification that the energy assessment was completed per the requirements specified in Subpart DDDDD. This is applicable to both No. 4 Boiler and the Rental Boiler R200 and has been incorporated into the renewal permit via underlying permit R14-0027F, requirement 4.5.3. Since the underlying permit requirement specifies its applicability to the No. 4 Boiler and does not specify R200, a separate citation of authority for R200 has been written for only those requirements that are applicable to it.
§63.7530(f)	No. 4 R200	4.5.3.	This section requires the permittee submit a Notification of Compliance Status (NOCS) containing the results of the initial compliance demonstration according to the requirements of §63.7545(e). Therefore, this section has been cited with the condition containing the NOCS requirement.
§63.7530(g)	No. 4	4.3.5. 4.5.3.	This section generally sets forth requirements for demonstrating that a gaseous fuel meets the specifications of another gas 1 fuel as defined in §63.7575. Since this requirement revolves around testing, though it includes recordkeeping, it has been included in subsection 4.3. of the renewal permit.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
			This section also requires that the Notification of Compliance Status (NOCS) include a signed certification that the initial fuel specification test meets the gas specification outlined in the definition of other gas 1 fuels. Therefore, this section has been cited in the NOCS condition for No. 4 Boiler.
§63.7530(h)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, this section is not applicable.
§63.7530(i)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD operating limits; therefore, this section is not applicable.
Efficiency Credits			
§§63.7533(a) through (g)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, these sections are not applicable.
Minimum Amount of Monitoring Data			
§§63.7535(a) through (d)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD site-specific monitoring plan; therefore, these sections are not applicable.
Demonstrating Continuous Compliance with Emission Limitations, Fuel Specifications, and Work Practice Standards			
§63.7540(a)	No. 4 R200	4.1.7.	No. 4 Boiler and the Rental Boiler R200 are subject to work practice standards in Table 3 to Subpart DDDD; therefore, the applicable sections in §§63.7540(a)(1) through (19) have been incorporated into the renewal permit as discussed below.
§63.7540(a)(1)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, this section is not applicable.
§63.7540(a)(2)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, this section is not applicable.
§63.7540(a)(3)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD HCl limit; therefore, this section is not applicable.
§63.7540(a)(4)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD HCl limit; therefore, this section is not applicable.
§63.7540(a)(5)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD mercury limit; therefore, this section is not applicable.
§63.7540(a)(6)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD mercury limit; therefore, this section is not applicable.
§63.7540(a)(7)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD requirement to utilize a fabric filter control device; therefore, this section is not applicable.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
§63.7540(a)(8)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD CO CEMS emission limit; therefore, this section is not applicable.
§63.7540(a)(9)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD requirement to utilize a PM CPMS or a PM CEMS; therefore, this section is not applicable.
§63.7540(a)(10)	No. 4 R200	4.1.7.	<p>This section establishes three provisions:</p> <ol style="list-style-type: none"> 1. Units greater than 10 MMBtu/hr heat input must conduct tune-ups annually. 2. The required elements for a tune-up in §63.7540(a)(10)(i) through (vi). 3. The annual frequency does not apply to units with continuous oxygen trim systems that maintain an optimum air to fuel ratio. <p>As such, the No. 4 Boiler and Rental Boiler R200 are not subject to the annual frequency, but are, however, subject to the tune-up elements. Consequently, §63.7540(a)(10)(i) through (vi) have been cited in permit condition 4.1.7. The applicable frequency for tune-ups is in §63.7540(a)(12), which has been discussed below.</p>
§63.7540(a)(11)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are rated less than 10 MMBtu/hr heat input; therefore, this section requiring a biennial tune-up frequency is not applicable.
§63.7540(a)(12)	No. 4 R200	4.1.7.	<p>This section specifies several applicable requirements, which are:</p> <ol style="list-style-type: none"> 1. A boiler utilizing a continuous oxygen trim system is required to receive a tune-up every five (5) years as specified in §§63.7540(a)(10)(i) through (vi) to demonstrate continuous compliance. 2. The burner inspection in §63.7540(a)(10)(i) may be delayed until the next boiler shutdown, but the burner must be inspected at least once every 72 months. 3. Since in the cases of both No. 4 Boiler and Rental Boiler R200 an oxygen trim system is utilized, and these units are not subject to Subpart DDDDD emission standards but are subject to the 5-year tune-up frequency, then the requirement to set the oxygen level determined during the last tune-up is applicable.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
			Requirement 4.1.7.b. of the underlying PSD permit cites §63.7540(a)(12) as authority. However, none of the requirements in §63.7540(a)(12) are in 4.1.7.b. For this reason, Title V sub-condition 4.1.7.b. does not cite §63.7540(a)(12). The requirements of this section have been incorporated with the PSD permit requirement as sub-conditions d., e., and f. of condition 4.1.7. Non-applicable language has been excluded from 4.1.7.d.
§63.7540(a)(13)	No. 4 R200	4.1.7.	Requirement 4.1.7.b. of the underlying PSD permit incorporates this requirement.
§63.7540(a)(14)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD mercury emission limit or a corresponding requirement to utilize a CEMS measuring mercury emissions; therefore, this section is not applicable.
§63.7540(a)(15)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD HCl emission limit or a corresponding requirement to utilize a CEMS measuring HCl emissions; therefore, this section is not applicable.
§63.7540(a)(16)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD TSM emission limit; therefore, this section is not applicable.
§63.7540(a)(17)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD TSM emission limit; therefore, this section is not applicable.
§63.7540(a)(18)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD PM emissions limit or a corresponding requirement to utilize a PM CPMS; therefore, this section is not applicable.
§63.7540(a)(19)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD PM filterable emissions limit or a corresponding requirement to utilize a PM CEMS; therefore, this section is not applicable.
§63.7540(b)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits or operating limits; therefore, this section is not applicable.
§63.7540(c)	No. 4	4.1.4.	This section provides for demonstrating that the fuel combusted by the unit meets the specification for mercury for the unit designed to burn gas 1 subcategory. §63.7540(c)(1) is cited with PSD Permit requirement 4.1.4. This paragraph provides that if the initial mercury constituents in the gaseous fuels are measured to be equal to or less than half of the mercury specification as defined in §63.7575, the permittee does not need to conduct further sampling. It would appear, then, that the permittee's intent is to meet this requirement, and so §§63.7540(c)(2) through (4) do not need to be included in the renewal permit.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
§63.7540(d)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD emissions limit as specified in items 5 and 6 of Table 3 to Subpart DDDDD; therefore, this section is not applicable.
Demonstrating Continuous Compliance under the Emissions Averaging Provision			
§§63.7541(a) and (b)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, these sections are not applicable.
Notifications			
§63.7545(a)	No. 4 R200	4.5.3.	<p>This section requires submittal of the following notifications, which have been reviewed for applicability:</p> <p>§§63.7(b) and (c) are not applicable since the boilers are not subject to Subpart DDDDD performance testing.</p> <p>§63.8(e) is not applicable since no CMS is utilized.</p> <p>§§63.8(f)(4) and (6) are not applicable since neither an alternative monitoring method, nor an alternative to the relative accuracy test is utilized.</p> <p>Among §§63.9(b) through (h), only the NOCS requirement of §63.9(h) is applicable. Therefore, this section is cited in condition 4.5.3.</p> <p>Since §63.7495(d) requires the submittal of all applicable notifications in §63.7545, it also has been added to the citation of authority in permit condition 4.5.3.</p>
§63.7545(b)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 went through startup in their current operating scenarios before January 31, 2013; therefore, this section is not applicable.
§63.7545(c)	R200	None	This requirement to submit an Initial Notification is applicable to R200 since it is a new boiler. According to 6/8/2018 technical correspondence the notification was submitted on August 4, 2017.
§63.7545(d)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD performance testing; therefore, this section is not applicable.
§63.7545(e)	No. 4 R200	4.5.3.	Since both units are subject to initial compliance demonstration requirements in 63.7530, this requirement to submit a Notification of Compliance Status (NOCS) is applicable. This requirement has been incorporated into the renewal permit via underlying PSD permit requirement 4.5.3. for No. 4 Boiler only. The Subpart DDDDD requirement also applies to R200; therefore, R200 has been included with the citations of authority for the permit condition.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
§63.7545(f)	None	None	The renewal application does not mention any intent to combust a fuel other than natural gas or other gas 1 fuel; therefore, no permit condition is warranted for this requirement. If the permittee decided to burn another fuel, it will nevertheless be subject to this notification requirement.
§63.7545(g)	None	None	The renewal application does not mention any intent to combust solid waste; therefore, no permit condition is warranted for this requirement. If the permittee decided to combust solid waste, it will nevertheless be subject to this notification requirement.
§63.7545(h)	None	None	This requirement to submit a notification when switching fuels that results in the applicability of a different subcategory is applicable to No. 4 Boiler since it is being converted from coal to natural gas (and hydrogen) fuel. According to 6/8/2018 technical correspondence the notification was discussed in the permittee's letter dated 10/30/2017 which accompanied the application for R14-0027F to convert No. 4 Boiler to fire natural gas and hydrogen gas. Since this requirement has been fulfilled and does not contain any ongoing requirements, a renewal permit condition is not warranted.
Reports			
§63.7550(a)	No. 4 R200	4.5.4.	<p>This section requires the permittee to submit every report in Table 9 that is applicable. Table 9 sets forth the content of a Compliance Report. Since the boilers are subject to tune-ups every five years, the reporting is on the same schedule. For this renewal it has been determined that items 1.b. and 1.c. in Table 9 are not applicable because the work practice standards affected by these requirements are those “for periods of startup and shutdown in Table 3 to this subpart”. Since neither boiler is subject to the work practices for startup and shutdown in Table 3, this corresponding reporting of deviations from them is not applicable. Item 1.d. in Table 9 is not applicable since no CMS is utilized.</p> <p>Item 1.a. in Table 9 requires information in §63.7550(c)(1) through (5), which is discussed in detail below. Additionally, the third column in Table 9 specifies the frequency for submitting the Compliance Reports, which also is discussed below.</p>
§63.7550(b)	No. 4 R200	4.5.4.	This section is referenced by the third column of item 1 in Table 9 as required in §63.7550(a). This section specifies the frequency of reporting, which in this case is every five (5) years based upon the applicable tune-up frequency.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
§63.7550(c)	No. 4 R200	4.5.4.	<p>This section is referenced by the second column of item 1.a. in Table 9 as required in §63.7550(a). This section specifies the content of the Compliance Report based upon how the facility chooses or is required to comply with the applicable substantive requirements.</p> <p>In this case, §63.7550(c)(1) is applicable since both units are subject to the tune-up requirement. Consequently, the required content for the report is in paragraphs (c)(5)(i) through (iii), (xiv) and (xvii) of §63.7550.</p> <p>§63.7550(c)(2) is applicable if complying with the fuel analysis. While the permittee is not utilizing fuel analysis to demonstrate compliance with an emission limit because it is not subject to Subpart DDDDD emission limits, the permittee is subject to the fuel analyses requirements to demonstrate that the hydrogen gas fuel combusted in No. 4 Boiler meets the Subpart DDDDD definition of an other gas 1 fuel. Among the required information listed in §63.7550(c)(2), only §63.7550(c)(5)(x) is additional to the applicable items already required under §63.7550(c)(1).</p> <p>All the compliance report content that has been specified in requirement 4.5.4. of permit R14-0027F has been accounted by the incorporation of the applicable Subpart DDDDD requirements into the operating permit. Therefore, the language from Subpart DDDDD has been included and only the citation of the PSD permit requirement has been included in the citation of authority.</p>
§63.7550(d)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, this section is not applicable.
§63.7550(e)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits, operating limits, or monitoring requirements; therefore, this section is not applicable.
§§63.7550(f) and (g)	None	None	These sections are reserved in the regulation; therefore, no permit condition is warranted.
§63.7550(h)(1)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD performance testing; therefore, this section is not applicable.
§63.7550(h)(2)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD requirement to utilize a CEMS; therefore, this section regarding a CEMS performance evaluation is not applicable.

Subpart DDDDD	Affected Em. Unit	Title V	Discussion
§63.7550(h)(3)	No. 4 R200	4.5.4.	This section is applicable since it pertains to all reports required by Table 9, which is the Compliance Report.
Records			
§63.7555(a)	No. 4 R200	4.4.6.	This applicable recordkeeping has been retained in the renewal permit and the emission units subject to it updated in the parenthetical list after the citation of authority.
§63.7555(b)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD requirement to utilize a CEMS, COMS, or a continuous monitoring system; therefore, this section is not applicable.
§63.7555(c)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to a Subpart DDDDD operating limit or work practice listed in Table 8 to this subpart; therefore, this section is not applicable.
§63.7555(d)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits; therefore, this section is not applicable. Current permit conditions 4.4.8. and 4.4.9. were based upon recordkeeping specified in §§63.7555(i) and (j), respectively. However, these sections have been relocated to §§63.7555(d)(9) and (10), respectively. Since neither unit is subject to Subpart DDDDD emission limits, this recordkeeping is not applicable.
§63.7555(e)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 are subject to Subpart DDDDD emission limits and do not elect to average emissions consistent with §63.7522; therefore, this section is not applicable.
§63.7555(f)	None	None	Neither No. 4 Boiler nor the Rental Boiler R200 elect to utilize efficiency credits from energy conservation measures to demonstrate compliance with §63.7533; therefore, this section is not applicable.
§63.7555(g)	No. 4	4.4.7.	This applicable recordkeeping has been retained in the renewal permit and No. 4 Boiler has been added to the parenthetical list after the citation of authority.
§63.7555(h)	None	None	The renewal application does not mention any intent to combust a fuel other than natural gas or other gas 1 fuel; therefore, no permit condition is warranted for this requirement. If the permittee decided to burn another fuel, it will nevertheless be subject to this recordkeeping requirement.
Format and Retention of Records			
§§63.7560(a) through (c)	No. 4 R200	4.4.8.	This recordkeeping requirement has been retained in the renewal permit and the emission units subject to it updated in the parenthetical list after the citation of authority.

- X. **40 C.F.R. 63 Subpart IIII – National Emission Standards for Hazardous Air Pollutants: Mercury Emissions from Mercury Cell Chlor-Alkali Plants.** The applicable requirements of this subpart are included in the current operating permit. However, in condition 8.1.6.1. the language has been revised to reflect the content of §63.8248(b)(1) more accurately.
- XI. **40 C.F.R. Part 64 – Compliance Assurance Monitoring (CAM).** The applicability of this regulation to the No. 3, No. 4, and No. 5 Boilers has been updated for this renewal. Since No. 3 Boiler and its fabric filter FF001 have been permanently shut down all CAM requirements pertaining to them have been removed for the renewal permit. When the 2013 renewal was issued, both the No. 4 and No. 5 Boilers fired coal and were subject to CAM for particulate matter and utilized ESPs (ES002 and ES001, respectively) to meet their emission limits. Now, both boilers combust only natural gas and are not required to be equipped with a control device for any pollutant. Moreover, a “control device” as defined in 40 C.F.R. §64.1 “does not include passive control measures that act to prevent pollutants from forming, such as ... the use of combustion or other process design features or characteristics.” Such exempt control measures include low-NO_x burner technology as specified in the preamble³ to the final regulation. Since the boilers no longer meet the applicability criterion in §64.2(a)(2), CAM is not applicable to the No. 4 and No. 5 Boilers. This rationale for non-applicability remains current for the natural gas-fired No. 6 Boiler. The following changes have been made in the permit with regard to the boilers and their control devices.
- a. For the CAM boilerplate conditions (3.2.1., 3.2.2., 3.2.3., 3.2.4., 3.2.5., 3.4.4., 3.4.5., and 3.5.10.), the following changes have been made:
 - i. ES001, ES002, and FF001 have been removed from the parenthetical list of affected control devices.
 - ii. The note at the end of the condition specifying the circumstances under which the requirement becomes ineffective has been deleted.
 - iii. Wet Scrubber SC080 has been added to the parenthetical list of affected control devices based upon the applicability determination discussed below regarding sources permitted in NSR Permit No. R13-3328.
 - b. Current permit conditions 4.2.9. and 4.2.10. which specified monitoring parameter ranges for ES002 and ES001, respectively, have been deleted.
 - c. Current permit condition 4.2.11. which defined excursions for ES001 and ES002 has been deleted.
 - d. Current permit condition 4.2.12. which specified monitoring parameter ranges for FF001 has been deleted.
 - e. Current permit condition 4.2.13. which defined excursions for FF001 has been deleted.
 - f. Current permit condition 4.3.2. is a CAM requirement to perform an annual proof-test to confirm the primary AC voltage reading for the modules on ESPs ES001 and ES002. Since these control devices are no longer utilized, and CAM is not applicable to No. 4 and No. 5 Boilers, this requirement has been deleted for the renewal permit.

³ Refer to the Federal Register, Vol. 62, No. 204, dated Wednesday, October 22, 1997, page 54913, third column, third paragraph, located at <https://www.gpo.gov/fdsys/pkg/FR-1997-10-22/pdf/97-27264.pdf> and was accessed by the writer on 6/12/2018.

- g. Current permit condition 4.3.3. is a CAM requirement to perform an annual proof-test to confirm the differential pressure reading for the fabric filter FF0001 controlling No. 3 Boiler. Since this unit has been decommissioned, this requirement has been deleted for the renewal permit.

Evaluation of Emission Sources Permitted in NSR Permit No. R13-3328

The Air Stripper (SP017) emissions of H₂S controlled by the Wet Scrubber SC080 (E427) were permitted in R13-3328. In addition, the Zero Discharge Collection Tank (V273) that is equipped with the Flare FL002 (E418) must be reviewed for the pollutants PM and SO₂.

Air Stripper SP017

The requirements pertaining to the Wet Scrubber SC080 (E427) controlling the Air Stripper (SP017) have been included in the Cal-Hypo Department Section 9.0. According to U.S. EPA guidance⁴, hydrogen sulfide (H₂S) is a regulated air pollutant since it is affected by an NSPS. The emission unit meets the CAM applicability criteria in §§64.2(a)(1) through (3):

- The unit is subject to an H₂S limit of 0.31 lb/hr and 1.36 tpy (requirement 4.1.9. of R13-3328; Title V renewal permit condition 9.1.6.);
- The unit uses a control device (Wet Scrubber SC080) to meet the emission limits; and
- The pre-control potential emissions of H₂S is 556.902 tpy.

Moreover, the emission limitations do not meet any of the exemptions in §§64.2(b)(1)(i) through (vi). Note that the exemption in §64.2(b)(1)(vi) could not be met since the monitoring requirements associated with the H₂S limit are being initially incorporated into the Title V permit with this renewal permitting action.

System Operation and Parameter Selection

According to the Engineering Evaluation for permit R13-3328, the absorbent feed to the scrubber will be a variable flow of sodium hydroxide (NaOH) solution, based on the removal of H₂S and corresponding production of sodium hydrosulfide (NaHS). This diluted sodium hydroxide is fed to the top stage of the scrubber, which acts as a polishing section absorbing hydrogen sulfide in the vapor stream from bottom stage. Liquid out of the top stage of the scrubber is sent to a recirculation pump, which recirculates most of the solution back to the top of the section, with a side stream being sent to the bottom stage of the scrubber. The vapor stream out of this top stage is vented to atmosphere and contains no more than 0.31 lb/hr hydrogen sulfide, per Aspen simulation modeling.

In the bottom scrubber stage, most of the hydrogen sulfide (H₂S) from the vapor stream out of the stripper is absorbed and reacted to produce sodium hydrosulfide (NaHS), and the vapor out of this stage is sent to the top stage. Liquid out of the bottom stage is sent to another recirculation pump, which recirculates most of the solution back to the bottom stage, while pumping a side stream to one of several existing sodium hydrosulfide (NaHS) storage tanks.

The pH of the liquid out of the bottom stage of the scrubber is measured and controlled at a minimum pH of 11 to manipulate the flow rate of diluted caustic to the top stage of the scrubber. Control of pH of this stream ensures that sufficient sodium hydroxide (NaOH) is being added to the column to react with varying levels of hydrogen sulfide (H₂S) stripped from the raw brine, therefore limiting the amount of hydrogen sulfide (H₂S) vented to atmosphere from the scrubber at the top of the stack to a maximum of 0.31 lb/hr (25 ppmv).

Based upon this operation, the permittee has chosen two indicators to comply with §64.3(a)(1), which are caustic flow from the top stage of the scrubber and pH from the bottom stage. The CAM Plan for the affected emission unit and its control device is summarized in the following table.

⁴ Refer to <https://www.epa.gov/sites/production/files/2015-08/documents/rapdef.pdf> accessed by the writer on April 10, 2018.

Table 64 – CAM Plan for Wet Scrubber SC080 Controlling H₂S from the Air Stripper SP017

	Indicator No. 1 of 2	Indicator No. 2 of 2
I. Indicator	Caustic (NaOH) Flow	Scrubber Bottom Stage pH
Measurement Approach	Flow meter	pH probe
II. Indicator Range	A minimum daily average flow rate of 3.0 gpm must be maintained while operating. An excursion is defined in 9.2.5.(a).	The pH must be maintained at a minimum of 11.0. An excursion is defined in 9.2.5.(b).
QIP threshold	Excursions trigger an inspection and evaluation, corrective action, recordkeeping and a reporting requirement (permit conditions 3.4.4., 3.4.5., and 3.5.10.). A QIP threshold has not been requested by the permittee for this renewal, and the Director does not require it at this time.	Excursions trigger an inspection and evaluation, corrective action, recordkeeping and a reporting requirement (permit conditions 3.4.4., 3.4.5., and 3.5.10.). A QIP threshold has not been requested by the permittee for this renewal, and the Director does not require it at this time.
III. Performance Criteria		
- Data Representativeness	The flow meter is located on the line exiting the scrubber top stage.	The pH probe is located on the effluent line of the scrubber.
- Verification of Operational Status	The equipment has been through startup and the manufacturer requirements for installation were followed and verification checks made on all equipment prior to startup. Therefore, no permit condition is warranted.	The equipment has been through startup and the manufacturer requirements for installation were followed and verification checks made on all equipment prior to startup. Therefore, no permit condition is warranted.
- QA/QC Practices and Criteria	The flow meter will be calibrated on an annual basis (9.3.4.).	The pH probe will be calibrated on a quarterly basis (9.3.4.).
- Monitoring frequency	At least every fifteen (15) minutes to compute hourly averages (9.2.3.)	At least every fifteen (15) minutes to compute hourly averages (9.2.4.)
- Data Collection Procedure	Data is collected through the Foxboro (or equivalent) process control system (9.2.3.)	Data is collected through the Foxboro (or equivalent) process control system (9.2.4.)
- Averaging Period	Daily per calendar day while operating. At a minimum, a daily average must be determined with at least 18 hours of valid data (9.2.3.).	Daily per calendar day while operating. At a minimum, a daily average must be determined with at least 18 hours of valid data (9.2.4.).

Zero Discharge Collection Tank V273

The requirements of NSR permit R13-3328 pertaining to the Flare FL002 (E418) and the Zero Discharge Collection Tank (V273) have been included in the Brine Department Section 6.0. There is a PM limit and an SO₂ limit applicable to V273 that must be evaluated since CAM applies on a pollutant-specific basis. The PM limit is 0.12 lb/hr (NSR requirement 4.1.1.; Title V condition 6.1.1.). However, the control device does not control emissions of PM; therefore, it does not meet the criterion in §64.2(a)(2). In addition, there are SO₂ limits of 4.5 lb/hr and 766 lb/yr on the flare FL002 (NSR requirement 4.1.4.; Title V condition 6.1.4.). However, according to 6/8/2018 technical correspondence, the permittee stated that the flare is not utilized to control SO₂ from the tank V273. It is used to combust sulfur containing compounds emitted from the tank. As such, uncontrolled potential emissions of SO₂ are the same as the controlled PTE. Since the applicability criterion in §64.2(a)(2) is not met, CAM is not applicable to the SO₂ limitations on the Zero Discharge Collection Tank (V273). In summary, CAM is not applicable to the Zero Discharge Collection Tank (V273).

XII. Miscellaneous Changes

- a. **Facility-wide Reporting Revisions.** The following changes involving electronic reporting have been made in the facility-wide requirements:
- i. Condition 3.5.3. – The paragraph has been updated and the DAQ C&E e-mail address has been added.
 - ii. Condition 3.5.5. (Compliance Certification) – The paragraph has been updated, and the DAQ and US EPA e-mail addresses have been added.
 - iii. Condition 3.5.6. (Semi-annual monitoring reports) – The last statement in the paragraph and the DAQ e-mail address have been added.
- b. **Permit Shield Revisions.** The following changes have been made in permit section 3.7.2.:
- i. The determination regarding 45CSR5 has been removed from the permit shield section since the facility no longer utilizes coal handling equipment due to conversion of the coal-fired boilers to natural gas.
 - ii. The determination regarding 45CSR29 has been removed from the permit shield section since the rule has been repealed.
 - iii. The determination regarding 40 C.F.R. 60 Subpart D has been revised to account for the decommissioning of No. 3 Boiler and the fuel conversions of No. 4 and No. 5 Boilers.
 - iv. The determination regarding 40 C.F.R. 60 Subpart Da has been revised to account for the decommissioning of No. 3 Boiler and the fuel conversions of No. 4 and No. 5 Boilers.
 - v. The determination regarding 40 C.F.R. 60 Subpart Db has been removed from the permit shield section since upon its conversion to fire natural gas in addition to hydrogen gas, No. 6 Boiler became subject to the 0.20 lb/MMBtu NO_x limit in §60.44b.
 - vi. The determination regarding 40 C.F.R. 60 Subpart Dc has been removed from the permit shield section since the Rental Boiler R200 is subject to this regulation.
 - vii. The determination regarding 40 C.F.R. 60 Subpart Y has been removed from the permit shield section since the facility no longer utilizes coal handling equipment due to conversion of the coal-fired boilers to natural gas.
 - viii. 40 C.F.R. Part 97, Subparts AAAAA, BBBBB, and CCCCC specifying CSAPR requirements have been added to the permit shield.
- c. **Clean Air Interstate Rule (CAIR).** The CAIR NO_x Ozone Season Trading Program requirements in current permit condition 3.1.10. have been deleted for No. 3 Boiler (which also was decommissioned), No. 4 Boiler, and No. 5 Boiler. The CAIR Permit Application in Appendix C of the current permit has been excluded from the renewal operating permit. State rules 45CSR39 and 45CSR41 for CAIR were repealed by H.B. 117, effective July 1, 2016. The current State rule 45CSR40 (Control of Ozone Season Nitrogen Oxides Emissions) requirements have been incorporated into the operating permit via underlying PSD permit R14-0027F, requirements 4.2.1. and 4.2.2. which are in renewal Title V conditions 4.2.1. and 4.2.2.

- d. **45CSR13 Revision.** The citations of authority in conditions 4.1.9., 4.2.3., and 10.1.8. have been changed from 45CSR§13-5.11. to 45CSR§13-5.10. as a result of removing section 5.8 of 45CSR13, effective June 1, 2017.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

- a. **45CSR3 – To Prevent and Control Air Pollution from the Operation of Hot Mix Asphalt Plants:** This regulation is not applicable to this facility because the facility is not a hot mix asphalt plant.
- b. **45CSR17 – To Prevent and Control Particulate Air Matter Pollution from Materials Handling, Preparation, Storage and Other Sources of Fugitive Particulate Matter:** The facility is subject to 45CSR2 and 45CSR7 in lieu of 45CSR17.
- c. **45CSR21 – Regulation to Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds:** This regulation is not applicable to this facility because the facility is not located in Putnam, Kanawha, Cabell, Wayne, or Wood counties.
- d. **40 C.F.R. 60, Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971:** The maximum design heat inputs of Boilers No. 4 and 5 are 540 and 999 mmBtu/hr, respectively, which exceed this subpart's applicability threshold of 250 mmBtu/hr. However, they are not subject to this subpart because they were constructed prior to August 17, 1971 and have not been modified or undergone "reconstruction" (as defined in 40 C.F.R. §60.15(b)) since. The maximum design heat input of Boiler No. 6 is 181 mmBtu/hr which is less than the applicable threshold of 250 mmBtu/hr; therefore, No. 6 Boiler is not subject to this subpart.
- e. **40 C.F.R. 60, Subpart Da – Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978:** This subpart applies to Electric Utility Steam Generating Units only. Boilers No. 4 and 5 were constructed prior to September 18, 1978 and have not been modified or undergone "reconstruction" (as defined in 40 C.F.R. §60.15(b)) since. The maximum design heat input of Boiler No. 6 is 181 mmBtu/hr which is less than the applicable threshold of 250 mmBtu/hr; therefore, No. 6 Boiler is not subject to this subpart.
- f. **40 C.F.R. 60, Subpart VV – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry:** Hydrochloric Acid (HCl) is the only remaining Hazardous Air Pollutant emitted from the former MCB Process Area (re-named the HCl Production Area). HCl is not on the list of chemicals to which this Subpart applies (40 CFR §60.489); therefore references to this Subpart have been removed.
- g. **40 C.F.R. 60, Subpart NNN – Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations.** A continuous flow to the atmosphere from a pressure relief valve on the Benzene Emissions/Vent Scrubber (emission point 017) originally triggered Subpart NNN. A process change involving the replacement of a nitrogen regulator with a new, improved regulator results in a good seal for the pressure relief valve and eliminated the continuous flow through the pressure relief valve (i.e., emissions only occur during startups, shutdowns, and process upsets). According to 40 C.F.R. §60.661, relief valve discharges are exempted from complying with the requirements of Subpart NNN. The permittee's request to modify R13-2046R to remove the compliance requirement for Subpart NNN (B.6. in the permit) and remove emission point E017 and its limits in Section A of the permit was granted on September 22, 1997 with the issuance of R13-2046R2.

- h. **40 C.F.R. 61, Subpart J** – *National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene*. This regulation is not applicable to the facility because benzene is no longer utilized at this facility.
- i. **40 C.F.R. 61, Subpart V** – *National Emission Standard for Equipment Leaks (Fugitive Emission Sources)*. No equipment covered by this Subpart is in use at this facility.
- j. **40 C.F.R. Part 61, Subpart Y** – *National Emission Standard for Benzene Emissions From Benzene Storage Vessels*. This regulation is not applicable to the facility because benzene is no longer utilized at this facility.
- k. **40 C.F.R. Part 61, Subpart FF** – *National Emission Standard for Benzene Waste Operations*. This regulation is not applicable to the facility because benzene is no longer utilized at this facility.
- l. **40 C.F.R. 63, Subpart Q** – *National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers*: This regulation is not applicable to the facility because no chromium-based water treatment chemicals are used to condition the recirculation water in the cooling tower.
- m. The facility is not subject to Title IV of the Clean Air Act, therefore requirements of Section 2.25., “Acid Deposition Control” are not applicable and the permittee is not required to certify compliance with them.
- n. **40 C.F.R. Part 63, Subpart NNNNN**- *National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production*. The permittee does have a hydrochloric acid production area. However, #1 and #2 HCl Synthesis Unit (SU004) and the associated equipment installed for the unit are not subject to the MACT. This process is exempted in 40 CFR 63.8985(d) as it produces HCl through the Direct synthesis of hydrogen and chlorine and is part of a chlor-alkali facility.
- o. **40 C.F.R. Part 97, Subparts AAAAA, BBBBB, and CCCCC** – *CSAPR NO_x Annual Trading Program, CSAPR NO_x Ozone Season Group 1 Trading Program, and CSAPR SO₂ Group 1 Trading Program*. The electricity produced by the boilers at the facility is not for sale; therefore, these regulations are not applicable since the criteria in 40 C.F.R. §§ 97.404(a)(1), 97.504(a)(1), and 97.604(a)(1) are not met.

Request for Variances or Alternatives

None.

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application. In particular, the Package Sewage Treatment Plant (Em. Unit ID# WW001) was included in Attachment D of the renewal application. However, since there are no applicable requirements for WW001, and its Attachment E of the application states that it is an insignificant source, it will not be included in the renewal operating permit.

Comment Period

Beginning Date: Friday, August 24, 2018
Ending Date: Monday, September 24, 2018

All written comments should be addressed to the following individual and office:

Denton B. McDerment, PE
Title V Permit Writer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Point of Contact

Denton B. McDerment, PE
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1221 • Fax: 304/926-0478

Response to Comments (Statement of Basis)

No comments were received from either the public or U.S. EPA.