



Mark Parkinson, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

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Division of Environment

AIR EMISSION SOURCE CONSTRUCTION PERMIT

Source ID No.: 0550023

Effective Date: Draft Permit

Source Name: Holcomb Station

NAICS: 221112, Fossil fuel power generation (SIC 4911)

Site Location: S32, T24S, R33W, Holcomb, KS

Site Owner/Operator Name: Owners (as described below):
Holcomb 2, LLC (f/k/a/ Sand Sage Power, LLC)
Operator:
Sunflower Electric Power Corporation (Sunflower)

Site Owners/Operators Sunflower Electric Power Corporation
Mailing Address: 301 West 13th Street
Hays, KS 67601

Contact Person: Mr. Wayne Penrod
Executive Manager, Environmental Policy
Telephone Number (785)-623-3313

This permit is issued pursuant to K.S.A. 65-3008 as amended.

Description of Activity Subject to Air Pollution Control Regulations

The operator, Sunflower Electric Power Corporation (Sunflower), on behalf of the owners seeks authorization to construct and operate one new 895 (nominal¹) megawatt (895 MW) coal-fired generating unit and associated equipment, including one steam generator (H2), one companion cooling tower, one auxiliary boiler, one emergency diesel power generator, one replacement diesel fire pump (DFP) to replace an existing emergency diesel fire pump at Holcomb 1, one emergency DFP booster pump and coal, lime, powdered activated carbon (PAC), and waste powder handling equipment, collectively known as the Holcomb Expansion Project (Project) or Holcomb 2, to be located at the site of the existing Holcomb 1 generating unit and associated equipment at Sunflower's Holcomb Generating Station.

During construction, the operator or the owner's constructor is authorized to bring on site and operate such temporary engines as are necessary to support construction activities. All engines will be certified pursuant to the applicable stationary engine standards and will be removed at the completion of construction activities. During construction the auxiliary boiler is authorized to be utilized without the fuel consumption limitation that otherwise applies in this permit. Temporary certified continuous emission monitoring systems (CEMs) will be used to monitor auxiliary boiler emissions during the construction period. The construction period expires when H2 commences commercial operation.

Sunflower will operate the H2 and the auxiliary and ancillary facilities and equipment to be constructed under this permit. Sunflower will operate, or will otherwise be responsible for the operation of any temporary equipment when Holcomb 2 is under construction.

Holcomb 2 will utilize most of the material handling equipment that was installed with Holcomb 1. A new coal conveyor and crusher system will be installed which will serve Holcomb 2. Some cross connection with the existing coal handling systems is anticipated. A new waste powder (flyash and scrubber reactants) storage system will be installed for Holcomb 2. All new auxiliary equipment will be designed and installed in accordance with appropriate New Source Performance Standard (NSPS) regulations. New material handling equipment associated with this permit will likewise be designed and installed in accordance with NSPS standards.

Holcomb 2 will be subject to the requirements of 40 CFR 52.21, Prevention of Significant Deterioration (PSD) as adopted under K.A.R. 28-19-350. The project consists of one new unit at an existing source for which at least one regulated pollutant is emitted in excess of the PSD significant emission levels. The coal-fired steam generator will be subject to the requirements of 40 CFR Part 60, Subpart Da, Standards of Performance for Electric Utility Steam Generating Units for which Construction Commenced after September 18, 1978; to such revisions promulgated on May 18, 2005 when construction commences after January 30, 2004; and to such final revisions for PM, SO₂, and NO_x where construction commences after February 27, 2006. The coal handling system additions will be subject to the requirements of 40 CFR Part 60, Subpart Y, Standards of Performance for Coal Preparation Plants. The auxiliary boiler will be subject to the requirements of 40 CFR Part 60, Subpart Db, Standards of Performance for

¹ Approximate size of the generating unit, not a reference to gross or net capacity.

Industrial-Commercial-Institutional Steam Generating Units. The replacement emergency DFP, the emergency DFP booster pump, and the emergency diesel power generator are subject to 40 CFR 60 Subpart IIII Standards of Performance for Stationary Compression Ignition Reciprocating Ignition Internal Combustion Engines, and to the area source requirements at 40 CFR 63 Subpart ZZZZ National Emission Standards of Performance (NESHAPS) for Stationary Reciprocating Internal Combustion Engines (RICE). The Holcomb 2 is an affected source subject to Title IV of the federal Clean Air Act.

The monitoring systems, as required by Title IV and other applicable regulations, may be used to satisfy some of the monitoring requirements of 40 CFR Part 60, Subpart Da as specified therein.

Emissions of oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), volatile organic compounds (VOC), particulate matter (PM), particulate matter less than 10 microns in diameter (PM₁₀), particulate matter less than 2.5 microns in diameter (PM_{2.5}), and sulfuric acid mist (H₂SO₄) were evaluated for this permit review. This project is subject to the provisions of K.A.R. 28-19-300 (Construction permits and approvals; applicability) because the H2 has the potential-to-emit NO_x, CO, SO₂, VOC, PM, PM₁₀, PM_{2.5}, and H₂SO₄ in excess of 40, 100, 40, 40, 25, 15, 10, and 7 tons per year, respectively. The total emission of lead and fluorides from H2 is estimated to be below the annual significance thresholds.

The application of SO₂ and particulate matter BACT control technology on H2 also reduces the level of emissions of hazardous air pollutants (HAPs). Based upon testing on the similarly-equipped H1 source, there is no potential that H2, controls considered, will emit any single HAP in an amount equal to or greater than 10 tons annually, and there is no potential that H2, controls considered, will emit HAPs in any combination in an amount equal to or greater than 25 tons annually. Compliance with the HAPs requirements in this permit will verify H2 is not a major source of HAPs and the provisions of Section 112(g)(2)(B) of the Clean Air Act do not apply.

Mercury is not regulated under 40 CFR Part 52, and therefore was not included in the PSD review. Emission of mercury is limited by state-only conditions in this permit. Emission limits will be met by blending various coals, or by the injection of powdered activated carbon (PAC) or other sorbent or both. PAC or sorbent injection equipment will be installed for the H2 steam generator.

An air dispersion modeling impact analysis, an additional impact analysis, and a Best Available Control Technology (BACT) determination were conducted as a part of the construction permit application process.

Significant Applicable Air Pollution Control Regulations

The main steam generator (H2), the auxiliary boiler, the coal handling equipment, the lime storage/handling systems, the waste powder handling systems, the PAC handling systems, the emergency power generator, H1 DFP pump, and the DFP booster pump, as permitted, and all temporary engines for construction purposes are subject to Kansas Administrative Regulations relating to air pollution control. The following significant air quality regulations were determined to be applicable to this source:

K.A.R. 28-19-11 Exceptions Due to Breakdown or Scheduled Maintenance – as applied to State regulations K.A.R. 28-19-30 through K.A.R. 28-19-32 and K.A.R. 28-19-650

K.A.R. 28-19-31 Emissions Limitations

K.A.R. 28-19-650 Opacity Requirements

K.A.R. 28-19-275 Special Provisions; Acid Rain Deposition

K.A.R. 28-19-300 Construction permits and approvals; applicability

K.A.R. 28-19-720 New Source Performance Standards, which adopts 40 CFR Part 60 Subpart III

40 CFR Part 60 Subpart Da-“Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978” as amended January 28, 2009

40 CFR Part 60 Subpart Y-“Standards of Performance for Coal Preparation Plants” as amended October 8, 2009

40 CFR Part 63 Subpart ZZZZ – “National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines” as amended March 3, 2010

40 CFR Part 60 Subpart Db – “Standards of Performance for Industrial-Commercial-Institutional Steam Generating Unit” as amended January 28, 2009

Air Emission Unit Technical Specifications

The following equipment or equivalent is approved:

1. One coal-fired steam generator, equipped with low-NO_x burners, a separated over-fire air system (OFA) and a selective catalytic reduction (SCR) process to control NO_x emissions, dry flue gas desulfurization (dry FGD) to control SO₂, H₂SO₄, HCl, and HF emissions, and a dry fabric-filter system to control particulate emissions (PM, PM₁₀, and PM_{2.5}), lead, and H₂SO₄ emissions. Activated carbon or sorbent injection, other technology, or fuel blending that achieves similar reduction effectiveness is to be used to control mercury emissions. Maximum design fuel input for the steam generator shall be 8,700 million BTUs per hour (mmBtu/hr) on an average annual basis. Maximum fuel sulfur content is to be 0.50 percent on an average annual basis. Fuel is to be Powder River Basin (PRB) sub-bituminous coal or other western coal.

2. Additions and improvements to the existing coal unloading, storage, handling, and feed system, if any, to be designed to meet the requirements of 40 CFR Part 60 Subpart Y. All coal conveyors, except any unloading conveyors to storage pile drop points, will be enclosed to minimize the release of PM emissions. PM emissions from all drop points, including the primary coal crusher but excluding unloading conveyors to storage piles, will be captured and controlled by baghouse dust collectors. Wetting agents will be used on the coal pile and other locations, as necessary, to limit the release of fugitive emissions.
3. Additions and improvements to the existing ash transport, loading, storage, and handling systems, if any, are to be designed to meet the requirements of K.A.R. 28-19-650.
4. Additions and improvements to the lime unloading, storage, transfer, and preparation systems, if any, are to be designed to meet the requirements of K.A.R 28-19-650.
5. One auxiliary boiler sufficient to service Holcomb 2 shall be equipped with low-NO_x burners and flue gas recirculation (FGR). Maximum design heat input for auxiliary boiler is to be 200 mmBtu/hr. Fuel shall be pipeline quality natural gas.
6. One cooling tower sufficient to service the H2 unit to be designed with efficient commercially available drift eliminators to reduce aerosol and particulate emissions from the tower.
7. One 1200 kW emergency generator (approximately 1709 horsepower) to be equipped with a catalytic converter designed to meet the requirements of 40 CFR Part 60 Subpart III Tier 2.
8. One 350 BHP diesel fire pump (DFP) booster pump for the H2 unit to meet the requirements of 40 CFR Part 60 Subpart III Tier 3.
9. One replacement 350 BHP DFP for the existing fire protection system to meet the requirements of 40 CFR Part 60 Subpart III Tier 3.

Air Emissions Estimates from the Proposed Holcomb Expansion Project

Pollutant Type	Post Permit Potential-To-Emit (Tons per Year) ²
Nitrogen Oxides (NO _x)	1,914
Carbon Monoxide (CO)	4,579

² Potential-to-emit estimates are based on operation at full capacity for 8760 hours per year while in compliance with all conditions of this permit.

Pollutant Type	Post Permit Potential-To-Emit (Tons per Year) ²
Sulfur Dioxide (SO ₂)	3,240
Volatile Organic Compounds (VOC)	119.4
Particulate Matter (PM)	512
Particulate Matter < 10 μ (PM ₁₀)	748
Particulate Matter < 2.5 μ (PM _{2.5})	727
Elemental Lead	0.53
Sulfuric Acid Mist (H ₂ SO ₄)	141
Mercury (Hg)	0.078
Any Single Hazardous Air Pollutant (HAP)	< 10
Total HAPs	< 25

Air Emission Limitations

1. Opacity limits
 - a. The requirement to continuously monitor the opacity of visible emissions from H2 does not apply because a continuous monitoring system (CMS) for PM is to be installed, calibrated, maintained, and operated to demonstrate compliance with filterable particulate matter emission limitation(s) in Air Emission limitation 2(c) below. This is "an other applicable regulation" provided in K.A.R. 28-19-650(a) and the exemption from opacity monitoring requirements is allowable at 40 CFR 60.42Da(b). (40 CFR 60.48Da(p))
 - b. The owner or operator shall not cause the opacity of visible emissions from any new or modified coal handling emissions unit after control, if any, to exceed 10 percent on a 6-minute average basis.
 - c. The owner or operator shall, prior to startup of the affected facility, submit a fugitive coal dust emission control plan in accordance with 40 CFR 60.254(c) for the control of the opacity of visible emissions from each new unloading conveyor drop point to any storage pile, the storage piles proper, from any storage pile, and from recovery operation to the reclaim systems, for which equipment and operations the opacity limitation of 40 CFR 60.254(b)(1) does not apply.

2. H2 steam generator:

On and after the required performance tests referenced in 40 CFR Part 60 and K.A.R. 28-19-212, the emission of each pollutant expressed as lbs/mmBtu or as lbs/MWh shall not exceed the limit referenced hereunder. Test requirements and compliance with this standard is described in the section entitled Compliance and other Performance Testing.

NSPS standards referenced in 40 CFR Part 60, Subpart Da specify limitations to the emission of SO₂, NO_x, and PM from the steam generator. Because the limitations expressed in Conditions 2a, 2b, and 2c, are more restrictive than the NSPS requirements, those NSPS emission limitations are subsumed into the BACT emission limitations in this permit.

“Day” in the 30-day rolling average limits for NO_x, SO₂, CO and PM shall have the same meaning as “boiler operating day” as defined in 40 CFR 60.41Da for units constructed after February 28, 2005.

Specific definitions for startup and shutdown are defined within the context of the applied control technology. The owner or operator shall use good air pollution control practices to minimize emissions during startup and shutdown. Work practices shall include the use of natural gas as an ignition and flame-stabilization fuel, low sulfur solid fuels, combustion NO_x control technology, and placing in service of the specific control technologies in accordance with the respective manufacturers’ recommendations.

- a. The owner or operator shall not emit or cause to be emitted NO_x emissions exceeding 0.05 pounds per million BTU heat input (lb/mmBtu) on a 30-day rolling average basis, excluding periods of startup and shutdown.

NO_x emissions during startup and shutdown shall be controlled by the use of low-NO_x burners and a separated over-fire air system. Emissions during startup and shutdown shall be limited to an average of 1740 lb/hr as determined on an individual event basis.

For NO_x only, startup is concluded 2 hours after the SCR inlet temperature is consistently above 650°F.

For NO_x only, shutdown begins when SCR inlet temperature decreases below 650°F in the course of removing the unit from service and ends when all fires are removed.

If the equipment vendor specifies a design temperature greater than 650°F, then the temperature shall be subject to revision in coordination with KDHE.

- b. The owner or operator shall not emit or cause to be emitted SO₂ emissions, as determined on a 30-day rolling average basis, in excess of the emission limitations over a 30 day period which is the rolling average of the following emission limitations.

- i. 0.085 lb/mmBtu when scrubber inlet SO₂ is equal to or greater than 0.9 lb/mmBtu,
- ii. 0.060 lb/mmBtu when scrubber inlet SO₂ is less than 0.9 lb/mmBtu,
- iii. For each day in the 30-day rolling average computation, the emission limitation shall be established as the average of the applicable emission limitations, determined by the number of operating hours in each tier (defined by the scrubber inlet SO₂ concentration in pounds per million Btu).

Such limitations shall not apply during periods of startup and shutdown. Emissions during startup, shutdown and malfunction shall be limited such that the total annual emissions of SO₂ will not exceed 3239 tons.

For SO₂ only, startup begins with the establishment of coal fires and ends when fabric filter inlet temperature increases to 225 °F. In no case shall scrubber operations commence before the fabric filter is placed in service.

For SO₂ only, shutdown begins when, in the course of removing the unit from service, the fabric filter inlet temperature decreases below 225°F and ends with the removal of fuel from the furnace.

If the equipment vendor specifies a design temperature different than 225°F, then the temperature shall be subject to revision in coordination with KDHE.

- c. The owner or operator shall not emit or cause to be emitted filterable particulate matter (PM, filterable PM₁₀ and filterable PM_{2.5}) emissions exceeding 0.012 lb/mmBtu on a 30-day rolling average basis, including periods of startup and shutdown.

Filterable particulate matter (PM³) emissions shall be controlled by the use of a fabric filter.

The owner or operator shall use good air pollution control practices to minimize filterable particulate matter emissions during startup and shutdown of the steam generator. These practices shall apply to the fabric filter and shall include the use of natural gas as an ignition fuel and the placement in service and removal from service of the fabric filter in accordance with the manufacturers' recommendations consistent with long-term sustainable operation of the steam generator and the fabric filter.

³ The term "PM" as used in this permit means that particulate matter (existing as solid) emitted by a steam generator that can be quantified by analysis using USEPA-approved Reference Method 5.

For particulate matter only, startup commences with operation of induced draft and forced draft fans and ends when the fabric filter inlet temperature of 150°F is achieved. Shutdown commences when coal fires have been removed from the steam generator and the fabric filter inlet temperature drops below 150°F, and ends when all induced draft and forced draft fans have ceased operation. Fabric filters shall be in service whenever coal fires are present in the steam generators.

The owner or operator shall not emit or cause to be emitted total PM₁₀⁴ emissions and total PM_{2.5}⁵ emissions exceeding 0.018 lb/mmBtu unit, averaged over six (6) runs of at least 120 minutes in duration. If the initial performance test demonstrates that the PM₁₀ and/or PM_{2.5} emissions limitation of 0.018 lb/mmBtu is not consistently achievable, the total PM₁₀ and/or the total PM_{2.5} emission limitation shall be 0.025 lb/mmBtu with such limitation being deemed to have applied since initial operations were commenced. Such limitation shall continue to apply until such time as the procedures identified in the paragraph below have been fully concluded.

If the initial performance test does not indicate that a total PM₁₀ and/or PM_{2.5} emission limitation of 0.018 lb/mmBtu is consistently achievable, then either the emission limitation indicated by the initial performance test, contingent upon approval by KDHE, shall be incorporated into a revised permit, or additional testing shall be accomplished (in accordance with "Compliance and other Performance Testing" Paragraphs 9 and 10 below) to determine the revised emissions limitation. Additional testing, if done, shall be accomplished within 12 months from the date of completion of the initial performance test. Thereafter a new total PM₁₀ and/or PM_{2.5} emissions limitation shall be determined by KDHE and incorporated into a revised permit, with such new emissions limitation to be deemed effective as of the date of the initial performance test. All emissions limitation determinations made by KDHE pursuant to this paragraph shall be subject to public notice and comment.

- d. The owner or operator of the unit shall not emit or cause to be emitted from any unit Volatile Organic Compounds (VOC) emissions exceeding 0.003 lb/mmBtu, averaged over the period specified in the test protocol approved by KDHE.

⁴The term "PM₁₀" as used in this permit means that particulate matter (existing as solid, liquid, and gaseous form) emitted by a steam generator that can be quantified by analysis using EPA Reference Methods 5 and 202 or by Methods 201A and 202 or by Other Test Method (OTM) 27 (with cyclone sizing devices appropriate for the quantification of PM₁₀) and /OTM28 or other such USEPA-approved methods.

⁵ The term "PM_{2.5}" as used in this permit means that particulate matter (existing as solid, liquid, and gaseous form) emitted by a steam generator that can be quantified by analysis using EPA Reference Methods 5 and 202 or by Methods 201 (or 201A) and 202 or by Other Test Method (OTM) 27 (with appropriate cyclone sizing devices appropriate for the quantification of PM_{2.5}) and OTM28 or other such USEPA-approved methods.

- e. The owner or operator of the unit shall not emit or cause to be emitted Carbon Monoxide (CO) emissions exceeding 0.12 lb/mmBtu, on a 30-day rolling average basis, including periods of startup and shutdown.
- f. The owner or operator of the unit shall not emit or cause to be emitted total elemental Lead (Pb) emissions exceeding 14 lb/TBtu averaged over the period specified in the test protocol approved by KDHE.
- g. The owner or operator of the unit shall not emit or cause to be emitted total sulfuric acid mist (H₂SO₄) emissions exceeding 0.0037 lb/mmBtu averaged over the period specified in the test protocol approved by KDHE.
- h. Regardless of fuel type fired, emissions of mercury for the unit shall not exceed 0.020 lb/GWh as determined on a 12-month rolling average basis.
- i. Emissions from Holcomb 2 shall not exceed 10 tons per year for any single Hazardous Air Pollutant (HAP), or 25 tons per year of any combination of HAPs that are listed in Section 112(b) of the federal Clean Air Act.

3. Coal System:

40 CFR Part 60, Subpart Y limits visible emissions from any new or modified coal handling equipment to 10 percent opacity. 40 CFR Part 60, Subpart Y limits visible emissions for any existing conveying equipment to or from any new or modified coal handling equipment, including the storage pile, to 20 percent opacity.

4. Ash System:

K.A.R. 28-19-650 limits visible emissions from any new or modified ash system equipment to 20 percent opacity.

5. Lime System:

K.A.R. 28-19-650 limits visible emissions from any new or modified lime system equipment to 20 percent opacity.

6. PAC System:

K.A.R. 28-19-650 limits visible emissions from any new PAC system equipment to 20 percent opacity.

7. Cooling Tower:

The cooling tower for Holcomb 2 shall be equipped with commercially available high efficiency drift eliminators with a maximum total liquid drift not to exceed 0.0005 percent of circulating water flow rate. Compliance with this requirement is demonstrated by maintaining records of the vendor-guaranteed maximum total liquid drift. No

chromium-based water treatment chemicals will be used in the circulating water system and thus the requirements of 40 CFR Part 63, Subpart Q shall not apply.

PM/PM₁₀ emissions from each cooling tower shall not exceed 6.83 lb/hour. Total dissolved solids (TDS) in the circulating water shall not exceed 9,000 ppm by volume. The method of demonstrating compliance with the PM emission limit is limiting the TDS content of the cooling water.

PM_{2.5} emissions from the cooling tower shall not exceed 4.1 lb/hour. Total dissolved solids (TDS) in the circulating water shall not exceed 9,000 ppm by volume. The method of demonstrating compliance with the PM emission limit is limiting the TDS content of the cooling water.

Permit Conditions

1. The pre-controlled emission rate of sulfur dioxide (SO₂), as measured at the scrubber inlet shall not exceed 1.23 lbs SO₂/mmBtu on an average annual basis.
2. Coal handling equipment is subject to regulation under 40 CFR Part 60 Subpart Y, namely: coal processing and conveying equipment (including breakers and crushers), and coal storage systems (except for open storage piles). New coal handling equipment includes conveyors, a new crusher house, new transfer points and a new stacker/reclaimer system. The equipment, either newly constructed, or modified (if any), shall be enclosed and vented to a baghouse with a manufacturers' guarantee of 99% control efficiency. Emissions shall not exceed 0.005 gr/dscf from baghouses.

New open storage piles, which are subject to regulation under 40 CFR Part 60, Subpart Y, including the equipment used in the loading, unloading, and conveying operations, are to be operated in accordance with a fugitive dust control plan prepared in accordance with 40 CFR Part 60.254(c).

3. Newly constructed or modified equipment for fly ash and lime systems, if any, shall be enclosed and vented to a baghouse or bin vent filter with a manufacturers' guarantee of 99% control efficiency. Emissions shall not exceed 0.005 gr/dscf from baghouses or bin vent filters.
4. Newly constructed or modified equipment for PAC systems shall be enclosed and vented to a baghouse or bin vent filter with a manufacturers' guaranteed of 99% control efficiency. Emissions shall not exceed 0.005 gr/dscf from baghouses or bin vent filters.
5. Baghouses and bin vent filters for the newly constructed or modified material handling equipment shall be in place and continuously operated, except during periods of malfunction, breakdown, or necessary repairs, to control emissions of PM and PM₁₀, and PM_{2.5} whenever the associated material handling equipment is in operation. Maintenance and repair of the baghouses and bin vent filters shall be conducted in a manner to minimize emissions.

6. The total fuel consumed in the auxiliary boiler shall not exceed 175,000 MCF/calendar-year. NSPS emission standard for NO_x referenced in 40 CFR Part 60, Subpart Db does not apply for boilers of less than 250 mmBtu/hr operated at an annual capacity factor of less than 10% (40 CFR 60.44b(k)) while firing natural gas. Should the owner or operator ever exceed the 10% annual capacity factor (uses more than 175,000 MCF/calendar year), the schedule for starting the initial performance test would commence as soon as the exceedance has occurred. BACT limits for the auxiliary boilers are as follows:

Pollutant	Limit (lb/mmBtu)
NO _x	0.036
CO	0.04
PM ₁₀ /PM _{2.5}	7.6 lb/10 ⁶ scf
VOC	0.005
SO ₂	0.6lb/10 ⁶ scf

7. The emergency diesel generator shall not be operated for more than 100 hours per year for testing and maintenance. Maintenance and testing hours of operation, except for necessary operational demonstrations to prove completion of maintenance, shall occur between 9:00 AM and 6:00 PM. Hours of use shall be verified by the use of non-resettable run time meters (RTM). Emergency operation is unrestricted. BACT limits for the emergency diesel generator are NSPS 40 CFR 60 Subpart IIII Tier 2, as follows:

Pollutant	Limit (g/HP-hr)
NO _x	4.8
CO	2.6
PM ₁₀ /PM _{2.5}	0.15
VOC	0.5
SO ₂	ULSD

8. The replacement diesel fire pump shall not be operated for more than 100 hours per year for testing and maintenance. The DFP booster pump shall not be operated for more than 100 hours per year for testing and maintenance. The replacement diesel fire pump and the DFP booster pump may be operated for up to 50 hours per year for maintenance operations other than DFP maintenance and such hours will be included in the total 100 hours limitation. Maintenance and testing hours of operation, except for necessary operational demonstrations to prove completion of maintenance, shall occur between 9:00 AM and 6:00 PM. Hours of use shall be verified by the use of non-resettable run time meters (RTM). Emergency operation for either the replacement diesel fire pump or the DFP booster pump is unrestricted. BACT limitations for both the replacement diesel

fire pump or the DFP booster pump are NSPS 40 CFR Part 60 Subpart IIII Tier 3, as follows:

Pollutant	Limit (g/HP-hr)
NO _x	3.0
CO	2.6
PM ₁₀ /PM _{2.5}	0.15
VOC	0.3
SO ₂	ULSD

Compliance and Other Performance Testing

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after initial start-up of the steam generator, the owner or operator shall conduct performance tests to demonstrate compliance with the applicable conditions and limitations set forth in this permit for SO₂, NO_x, CO, and PM, and furnish KDHE a written report of the results of such performance test(s) within 60 days of said test. CEMS shall be utilized to demonstrate compliance with the emission limitations for these pollutants following the initial performance test.
2. Compliance with the more stringent BACT limit(s) or other limits established in this permit shall be considered compliance with any companion NSPS requirement. Failure to demonstrate compliance with a BACT limit is not a violation of NSPS limits unless the NSPS limit is exceeded.
3. Within 60 days after achieving the maximum production rate, but not later than 180 days after initial start-up, the owner or operator shall conduct Method 9 performance test(s) to demonstrate compliance with the opacity limitations set forth for the new or modified coal, lime, PAC and ash handling equipment and shall furnish KDHE a written report of the results of such performance test(s) within 60 days of said test.
4. Within 60 days after achieving the maximum production rate, but not later than 180 days after initial start-up of the steam generator, the owner or operator shall conduct performance test(s) to demonstrate compliance with the applicable conditions and limitations set forth in this permit for VOC, lead and H₂SO₄, and shall furnish to KDHE a written report of the results of such performance test(s) within 60 days of said test.
5. Within 180 days after initial start-up of the material handling equipment, an initial performance test is required for one bag house (or bin filter) in each of the four material handling systems (coal, ash, PAC and lime) so equipped. On-going compliance for these control devices can be assured by utilizing broken bag detectors and/or particulate monitors, by observing or annunciating pressure drop, or by periodic quantitative and qualitative observation, or by individual methods, or a combination thereof, as is appropriate for each type of material being handled and for the location in which it is installed. The owner or operator shall furnish to KDHE a written report of the results of

the four (4) performance tests within 60 days of said tests and shall submit for KDHE approval the method of verifying on-going compliance for all the control devices in the material handling equipment.

6. Within 60 days after achieving the maximum production rate for the steam generator, but not later than 180 days after initial start-up, the owner or operator shall verify compliance with the cooling tower total dissolved solids concentration limit and shall furnish KDHE a written report of the results of the verification within 60 days of said test. For the six (6) months thereafter, the owner or operator shall perform monthly analyses to verify the limitation is not exceeded. Once this has been verified, the analyses shall be performed semiannually.
7. Continuous monitoring systems and monitoring devices required for the steam generator shall be installed and operational prior to conducting compliance performance tests under 40 CFR 60.8. Verification of operational status, at a minimum, shall include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the devices as required by 40 CFR 60.13.
8. In conducting the compliance performance tests required by this permit, the reference test methods and procedures outlined in K.A.R. 28-19-212 and 40 CFR 60.48Da shall be used to demonstrate compliance with the limitations and conditions set forth in this permit.
9. Within 180 days after commencing commercial operation of the steam generator, the owner or operator shall conduct a performance test of PM₁₀ and PM_{2.5} emissions and shall furnish KDHE a written report of the results of such test within 60 days of said test. If, after evaluating the test data, the report reasonably concludes that the emission limitation of 0.018 lb/mmBtu for PM₁₀ and/or PM_{2.5} in Condition 2.c. of the Air Emissions Limitations section above may not be achievable, then the owner or operator may perform additional testing to determine an emission limitation for PM₁₀ and/or PM_{2.5} with which the steam generator can consistently comply while operating in a manner of good operating practices and regularly scheduled maintenance of the steam generator, pollution control equipment and ancillary equipment.
10. If the owner or operator requests that the PM₁₀ and/or PM_{2.5} emissions limitation be adjusted through additional testing, it shall include within the report required by Paragraph 9, a complete plan for establishing a PM₁₀ and/or PM_{2.5} measurement protocol, including the method(s), number of test runs, and a tentative timeline, not to exceed 12 months, necessary to establish by appropriate statistical methods, a new PM₁₀ and/or PM_{2.5} emissions limitation under the range of normal operating conditions. Such plan shall include a requirement for quarterly reporting; to include an analysis of test results, unit operating parameters, air pollution control device operating parameters, fuel conditions, and other such matters as might influence the test results.

KDHE shall take measures to adjust the PM₁₀ and/or PM_{2.5} emissions limitation to that which is determined by the test results, as follows: KDHE shall establish a revision to the PM₁₀ and/or PM_{2.5} emissions limitation which:

(i) insures that there will be no exceedance of either the NAAQS or the PSD increment consumption allowance for PM₁₀ and/or PM_{2.5},

(ii) is based upon an appropriate statistical analysis, and

(iii) is consistently achievable on a sustained and long-term basis with the exercise of due care and good operating practices. All emissions limitation determinations made by KDHE pursuant to this paragraph shall be subject to public notice and comment.

11. a. The owner or operator shall perform tests for HCl and HF at the FGD inlet and the steam generator stack in accordance with the conditions indicated below. During each stack test series, coal samples conforming to ASTM D2234 shall be gathered for analysis. To the degree practicable the coal samples shall represent the coal combusted during the testing. Subsequent determination of chlorine and fluorine in the samples shall be made using methods identified in paragraph 4 of the Monitoring Requirements section of this permit.
 - b. The owner or operator shall perform tests for trace metals⁶, cyanide (HCN), aromatic hydrocarbons⁷, aldehydes⁸, and dioxins/furans⁹ at the stack in accordance with EPA-approved methods and with the provisions set forth below. During each stack test series, coal samples conforming to ASTM D2234 shall be gathered for analysis. To the degree practicable the coal samples shall represent the coal combusted during the testing. Because of the various methods to be utilized, these tests need not be concurrent, nor need they be concurrent with the HCl and HF testing.
12. HAPs testing shall be conducted at loads greater than 90% of the maximum production rate. Test results shall be the average of three valid test runs. No less than 45 days prior to testing, the owner or operator shall submit to KDHE a complete written test plan, including the identification of those EPA-approved methods proposed, which plan shall be implemented unless disapproved by KDHE no later than 15 days prior to the commencement of testing. Test reports for HAPs shall be submitted to KDHE no later than 45 days following the completion of the testing.
 - a. The owner or operator shall conduct the first HCl and HF performance test within 90 days after achieving 90% of the maximum production rate.

⁶ Defined for purposes of this permit as antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, and selenium, as determined by Method 26.

⁷ Defined for purposes of this permit as benzene, toluene, ethyl benzene, xylenes utilizing a volatile organic sample train (VOST), with appropriate EPA-approved analytical methods.

⁸ Defined for purposes of this permit as acetaldehyde, propionaldehyde, acrolien and formaldehyde as determined by CARB Method 430.

⁹ Defined for purposes are those compounds that can be determined by EPA Method 23

- b. The owner or operator shall conduct each subsequent HCl and HF performance test within 6 months following the previous performance test, except as such requirement is modified below.
- c. If the results of four consecutive tests indicate that HCl and HF emissions are below 1.83 lb/hr (209 lb/TBtu), then the subsequent testing frequency shall be within one year of the previous test.
- d. If test results from the annual testing show HCl and/or HF emissions are greater than 1.83 lb/hr, then the six-month testing frequency shall resume.
- e. If test results show stack HCl and/or HF emissions are greater than 1.83 lb/hr for any two tests in a rolling 24-month period, the owner or operator shall submit, as soon as practicable, a plan to KDHE for approval to install, calibrate, maintain and operate a continuous emission monitor (CEM) for HCl and/or HF.
- f. The owner or operator shall conduct the stack tests for trace metals, cyanide, aromatic hydrocarbons, and aldehydes within 90 days after achieving 90% of the maximum production rate.
- g. The owner or operator shall conduct subsequent stack tests for trace metals, cyanide, aromatic hydrocarbons, aldehydes and dioxin/furans within five years following the previous performance test.
- h. Within 180 days of commercial operation the owner or operator shall perform such functions as necessary to begin the demonstration of compliance with the limitations set forth in this permit for mercury. Such methods of compliance demonstration will include the EPA-approved sorbent trap method as identified at 40 CFR Part60 Appendix A Performance Specification 12A or a CEMS system installed, maintained, calibrated, and operated in accordance with Performance Specification 12B, and/or with other EPA-approved methods as may be established.

Monitoring Requirements

1. Within 60 days after achieving the maximum production rate at which the steam generator will be operated, but not later than 180 days after initial start-up of the steam generator, the owner or operator shall install and operate a continuous monitoring system to monitor and record emissions of SO₂, NO_x, PM, and CO as required by 40 CFR 60.49Da and this permit.
2. All continuous monitoring systems required by 40 CFR Part 60 and this permit shall meet the applicable requirements of 40 CFR 60.13, Appendix B, and Appendix F for certifying, maintaining, operating and assuring quality of the systems, and, where applicable, with the requirements of 40 CFR Part 75.

3. Within 180 days after initial full-load operation of the steam generator, the owner or operator shall install and operate a continuous monitoring system, either a CEMs or sorbent trap, to monitor and record emissions of mercury as required by this permit.
4. The owner or operator shall sample, analyze, and record the chlorine and fluorine concentration in the coal burned in H2 once each calendar quarter, including any sampling and analysis associated with stack testing. Such information recorded shall include the name of the coal supplier and a statement verifying that the methods used to sample and analyze the coal were performed in accordance with the following methods (or successor methods established by ASTM):
 - a. sampling – ASTM Method D 2234
 - b. preparation – ASTM Method D 2013
 - c. chlorine content – ADTM Method D 6721
 - d. fluorine content - ADTM Method D 5987

Recordkeeping

1. The owner or operator shall maintain records of the occurrence and duration of any startup, shut-down, or malfunction in the operation of each unit subject to 40 CFR Part 60; any malfunction of any air pollution control equipment; and all periods during which a continuous monitoring system or monitoring device is inoperative. These requirements are described in 40 CFR 60.7(b).
2. To determine compliance with the emission limitations for HAPs set forth in the Air Emissions Limitations Section of this permit, the owner or operator shall on a monthly basis perform a calculation of emissions using emission rates from the latest performance tests (or CEMs) for each specified period of operation or emission factors for those HAPs not required to be tested using the formula:

$$\begin{aligned} & \text{ER (in lb/hr) x hours/period x 1 ton/2000 lb, or} \\ & \text{ER (in lb/mmBtu) x mmBtu/period x 1 ton/2000 lb, where:} \end{aligned}$$

ER	=	the hourly emission rate, FGD inlet or stack as appropriate (expressed in pounds per hour, or lb/mmBtu) measured during a performance test averaged over the period of the performance test.
hours/period	=	Actual number of hours per period assessed.
mmBtu/period	=	Actual mmBtu heat input per period assessed.
1/2000	=	Ton per pounds.

3. For normal operation the HCl and HF stack emission test results (in lbs/mmBtu) shall be used. For FGD maintenance activities the average emission rate shall be determined based on one-third of the FGD inlet emission rate and two-thirds of the stack emission rate (or the stack CEMs), or other appropriate performance ratio, for the duration of the

activity. For startup, shutdown, and malfunction periods, the FGD inlet emission test results (in lb/mmBtu) will be the assumed emission rate for the duration of the activity.

4. The owner or operator shall maintain a 12-month rolling average calculation of the emissions of HCl and HF.
5. The owner or operator shall maintain a monthly calculation of the emissions of the HAPs identified to be tested at Compliance and Other Performance Testing, paragraph 11.
6. The owner or operator shall maintain a monthly calculation of the emissions of any remaining untested HAPs, using EPA-AP-42 emission factors¹⁰.
7. The owner or operator shall maintain records of the occurrence and duration of any periods during which a continuous monitoring system or monitoring device is inoperative. These requirements are described in 40 CFR Part 75.
8. The owner or operator shall maintain records of the reports, notifications, and performance tests required by this permit.
9. All of the above records shall be maintained on site for a period of 5 years.

Reporting

Reports demonstrating compliance shall be submitted to the KDHE in the same physical units as stated in the applicable requirements.

1. Items that are required to be reported quarterly shall be submitted to KDHE and postmarked by the 30th day following the end of each calendar quarter.
2. Items that are required to be reported semiannually (NO_x and SO₂ per 40 CFR 60.51Da(b)) shall be submitted to KDHE and postmarked by the 30th day following the end of each calendar half or, upon agreement by KDHE and proper certification, submitted electronically per 40 CFR 60.51Da(k) by the 30th day following the end of each calendar quarter.
3. Items that are required to be reported annually (natural gas consumption of the auxiliary boiler and average annual scrubber inlet SO₂ concentration, SO₂ annual limit, mercury 12-month rolling average) shall be submitted to KDHE and postmarked by the 30th day following the end of each calendar year.
4. Within 60 days after completion of the PM₁₀ or PM_{2.5} performance test, the owner or operator shall furnish KDHE a written report of the results of such test. If the owner or operator requests emission limitation adjustment for PM₁₀ or PM_{2.5} in accordance with this permit, the owner or operator shall continue to furnish quarterly reports on progress

¹⁰ AP-42 Emission Factors Chapter 1: Table 1.1-14 Emission Factors for Various Organic Compounds from Controlled Coal Combustion.

towards developing data sufficient to establish such new limitation until the conclusion of the process defined in this permit.

5. The excess emissions and monitoring systems performance report per 40 CFR 60.258(b)(3) shall be submitted to the KDHE as required by 40 CFR 60.7(c). The summary report form shall contain the information and be in the format as specified in 40 CFR 60.7(d). Written reports of excess emissions shall include the following information:
 - a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, the date and time of commencement and completion of each time period of excess emissions, and the process operating time during the reporting period.
 - b. Specific identification of each period of excess emissions that occurs during start-ups, shut-downs, and malfunctions, the nature and cause of any malfunction (if known), the corrective action taken or preventive measures adopted. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero span checks and the nature of the system repairs and adjustments.
 - c. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
6. Reports shall be submitted semi-annually to KDHE to demonstrate compliance with following Air Emission Limitations: Items 2a, b, c, e and h. These reports shall be submitted within 30 days following the end of each calendar half.
7. The owner or operator shall submit the following information by January 30 and July 30 of each calendar year:
 - a. The individual calculated or measured 12-month rolling average emissions of mercury, HCl and HF emissions for each of the previous six months.
 - b. The calculated 12-month rolling average emissions of all other tested HAPs for each of the previous six months.
 - c. The calculated 12-month rolling average emissions of all untested HAPS for each of the previous six months.

The calculated HAP emissions for each month of the reporting period shall be presented in a fashion to demonstrate that the 10 ton individual and the 25 ton total HAP emission limitations have not been exceeded.

8. Malfunction

The Owner or Operator must notify KDHE by telephone, facsimile, or electronic mail transmission within two (2) working days following the discovery of any failure of air pollution control equipment, process equipment, or of the failure of any process to operate in a normal manner which results in an increase in emissions above any allowable emission limit stated in the "Air Emission Limitations" in this permit. In addition, the

Owner or Operator must notify KDHE in writing within ten (10) days of any such failure. The written notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in "Air Emission Limitations", and the methods utilized to mitigate emissions and restore normal operations.

Compliance with this malfunction notification shall not automatically absolve the owner or operator of liability for the excess emissions resulting from such event.

Notification

1. The Bureau of Air shall be notified when installation of the equipment is complete so an evaluation may be conducted to verify compliance with applicable regulations.
2. The owner or operator shall make written notifications of the following to KDHE:
 - a. The date construction of each affected facility under 40 CFR Part 60 is commenced. The notification is to be postmarked no later than 30 days after such date.
 - b. The actual date of initial startup of each affected facility under 40 CFR Part 60. The notification is to be postmarked within 15 days after such date.
 - c. The date when the initial performance testing of each affected facility under 40 CFR Part 60 is to commence. The notification is to be postmarked no less than 30 days prior to such date.

The attached NSPS notification form will be used to submit the above required notifications.

3. The owner or operator shall make such initial notifications relating to the emergency generator and diesel fire pumps as are required at 40 CFR 63.9 and 40 CFR 63.6645(f) to KDHE.

Title IV and Acid Rain Requirements

The steam generator is subject to certain Title IV and Acid Rain requirements. A complete Acid Rain permit application shall be submitted in accordance with the deadlines specified in 40 CFR Part 72. Notification regarding applicable monitoring equipment will be made as required. The owner or operator will submit the applicable equipment monitoring plan and will notify KDHE and EPA when the CEMS certification tests are to be performed.

Title V Requirements

An application for significant modification to the current Title V permit, shall be submitted within one year of the initial startup of the steam generator.

General Provisions

1. Except as the term of this permit might be extended in accordance with applicable law, the permit will expire 18 months from the effective date of its issuance unless construction of the steam generator is commenced within 18 months of the effective date of this permit. If construction of the steam generator approved in this permit is commenced within the specified period following the effective date of this permit, construction can continue on such unit in accordance with the provisions of 40 C.F.R. 52.21(r)(2) and K.A.R. 28-19-301(c).
2. A construction permit or approval must be issued by KDHE prior to commencing any construction or modification of equipment or processes which result in an increase in potential-to-emit equal to or greater than the thresholds specified at K.A.R. 28-19-300.
3. Upon presentation of credentials and other documents as may be required by law, the owner or operator shall allow a representative of the KDHE (including authorized contractors of the KDHE) to:
 - a. enter upon the owner or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under conditions of this permit ;
 - b. have access to and copy, at reasonable times, any records that must be kept under conditions of this permit;
 - c. inspect at reasonable times, any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and
 - d. sample or monitor, at reasonable times, for the purposes of assuring compliance with this permit or as otherwise authorized by the Secretary of the KDHE, any substances or parameters at any location.
4. The emission units or stationary sources that are the subject of this permit shall be operated in compliance with all applicable requirements of the Kansas Air Quality Act and the federal Clean Air Act.
5. This permit does not relieve the owner or operator of the obligation to obtain other approvals, permits, licenses or documents of sanction that may be required by other federal, state or local government agencies.
6. Issuance of this permit does not relieve the owner or operator of any requirement to obtain an air quality operating permit under any applicable provision of K.A.R. 28-19-500.

Permit Engineer

Rick Bolfig, P.E.
Professional Environmental Engineer
Air Permitting Section

Date Signed

RJB:saw
c: SWDO
C-8849