



State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

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Governor

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Lieutenant Governor

DAQE-AN0238012-05

April 6, 2005

Eugene Marshall
PacifiCorp
1407 West North Temple
Salt Lake City, Utah 84140

Dear Mr. Marshall:

Re: Approval Order: Installation of a Wet-Lime FGD, Baghouse and Low-NOx Combustion Controls at Huntington Unit 2, Emery County, CDS-A, ATT, Title V, Baghouse & LNBS
Project Code: N0238-012

The attached document is the Approval Order (AO) for the above-referenced project.

Future correspondence on this AO should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Mr. John D. Jenks. He may be reached at (801) 536-4459.

Sincerely,

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

RWS:JJ:re

cc: Southeastern Utah District Health Department
Mike Owens, EPA Region VIII

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

**APPROVAL ORDER: INSTALLATION OF A WET-LIME
FGD, BAGHOUSE AND LOW-NO_x COMBUSTION
CONTROLS AT HUNTINGTON UNIT 2**

Prepared By: John D. Jenks, Engineer
(801) 536-4459
Email: jjenks@utah.gov

APPROVAL ORDER NUMBER

DAQE-AN0238012-05

Date: April 6, 2005

**PacifiCorp
Source Contact
Dave Sharp
(435) 687-4306**

**Richard W. Sprott
Executive Secretary
Utah Air Quality Board**

Abstract

PacifiCorp is installing new emissions control equipment at Unit number 2 of the Huntington Power Plant in order to substantially reduce SO₂, particulate matter (PM) and NO_x emissions. The plant will install a NO_x reduction system consisting of two general components: (1) two levels of separated overfire air; and (2) new low-NO_x burners. The plant will also replace the existing electrostatic precipitator (ESP) with a new fabric filter (baghouse) system, which will use the old ESP box housing. This will result in a reduction of PM emissions. Finally, the plant will install a new wet-lime, flue gas desulfurization system (FGD), which will significantly reduce the amount of SO₂ emissions. As a result of adding this new emissions reduction equipment, Huntington Unit 2 will become a Prevention of Significant Deterioration (PSD) major source, but the source is not subject to PSD review at this time as all emission changes are reductions. The source is subject to New Source Performance Standards, but no additional conditions or limitations are expected as a result of the modification. In addition, these changes are not considered a reconstruction under the NSPS rules, so Huntington Unit 2 will remain a non-NSPS unit. The Title V Operating Permit will be updated prior to operating the modified equipment. The source is located in Emery County, which is an attainment area of the National Ambient Air Quality Standards (NAAQS) for all pollutants. The emissions, in tons per year, will change as follows: PM₁₀ -1,432.0, NO_x -2,781.0, SO₂ -17,479.0.

The project has been evaluated and found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). A public comment period was held in accordance with UAC R307-401-4 and comments were received. The comments were evaluated and no comment was found to be adverse to the proposed AO. This air quality Approval Order (AO) authorizes the project with the following conditions, and failure to comply with any of the conditions may constitute a violation of this order.

General Conditions:

1. This Approval Order (AO) applies to the following company:

<u>Site Office</u>	<u>Corporate Office Location</u>
Huntington Power Plant P. O. Box 680 Huntington, UT 84528	PacifiCorp 1407 W. North Temple Salt Lake City, UT 84140
Phone Number (435) 687-4211	(801) 220-2235
Fax Number (435) 687-4201	(801) 220-4307

The equipment listed in this AO shall be operated at the following location:

The Huntington plant is located on State Highway 31, 10 miles west of Huntington, Emery County, Utah

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,358.8 kilometers Northing, 493.1 kilometers Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307) and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.
3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.
4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401-1.
5. All records referenced in this AO or in applicable NSPS, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request. All records shall be kept for the minimum period of five years.
6. PacifiCorp shall install and operate the new low-NO_x burners, overfire air system, wet-lime FGD and fabric filter baghouse and shall conduct its operations of the Huntington power plant in accordance with the terms and conditions of this AO, which was written pursuant to PacifiCorp's Notice of Intent submitted to the Division of Air Quality (DAQ) on October 28, 2004, and additional information submitted on February 2, 2005, February 15, 2005 and February 17, 2005.
7. This AO shall replace the AO (DAQE-AN0238009-04) dated May 26, 2004.
8. The approved installations shall consist of the following equipment or equivalent*:
 - A. Boiler Unit #1
Unit Description: Nominal 480 MW gross capacity dry bottom, tangentially fired utility boiler fired on sub bituminous and bituminous coal using fuel oil during startup & flame stabilization. System is equipped with electrostatic precipitator and SO₂ FGD scrubber system.
 - B. Boiler Unit #2
Unit Description: Nominal 480 MW gross capacity dry bottom tangentially fired utility boiler fired on sub bituminous and bituminous coal using fuel oil during startup & flame stabilization. System is equipped with new low-NO_x burners, separated overfire air system, new SO₂ FGD scrubber system and new pulse jet fabric filter (baghouse).
 - C. Coal Storage
Unit Description: Existing covered coal storage facility and open coal pile. No unit specific applicable requirements.
 - D. Ash Landfill
Unit Description: Ash and sludge disposal. No unit specific applicable requirements.

- E. Unit #1 Cooling Towers
Unit Description: Unit #1 cooling towers for the circulating water system. No unit specific applicable requirements.
- F. Unit #2 Cooling Towers
Unit Description: Unit #2 cooling towers for the circulating water system. No unit specific applicable requirements.
- G. Coal Conveyors
Unit Description: Coal transfer on plant site
- H. Ash Haul Road (dirt)
Unit Description: Unpaved ash haul road. No unit specific applicable requirements.
- I. Ash Haul Road (paved)
Unit Description: Paved ash haul road. No unit specific applicable requirements.
- J. Unit #1 Emergency Generator (diesel engine)
Unit Description: Emergency generator (diesel engine) for Unit #1. No unit specific applicable requirements.
- K. Unit #2 Emergency Generator (diesel engine)
Unit Description: Emergency generator (diesel engine) for Unit #2. No unit specific applicable requirements.
- L. Emergency Fire Pump (diesel engine)
Unit Description: Emergency fire pump (diesel engine). No unit specific applicable requirements.
- M. Coal Silo System Exhauster for Unit #1
Unit Description: Coal silos for Unit #1 equipped with exhausters and dust collectors. No unit specific applicable requirements.
- N. Coal Silo System Exhauster for Unit #2
Unit Description: Coal silos for Unit #2 equipped with exhausters and dust collectors. No unit specific applicable requirements.
- O. Lime Silo Bin Vent
Unit Description: Fabric filter baghouse on lime storage silo. No unit specific applicable requirements.
- P. Distillate Fuel Oil Tanks
Unit Description: Three 70,000-gallon tanks (1973) and day tanks for the emergency diesel generators and fire pumps. No unit specific applicable requirements.

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- Q. Lube Oil Storage Tanks
Unit Description: Four 10,000-gallon tanks that store lubricating oil including vents and associated equipment; two each constructed in 1973 and 1975. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- R. Oil Storage Area
Unit Description: Storage area for oil contained in closed 55-gallon drums. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- S. Paved Access Road and Parking Area
Unit Description: Paved access road from the plant entrance to the administration building and parking area. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- T. Cold Solvent Degreasing Operations
Unit Description: Bench top cold degreasing units using Safety Kleen, Simple Green, or other comparable degreasing agents. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- U. Miscellaneous Electrical Equipment
Unit Description: Fugitive emission units including transformer insulating oil. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- V. Diesel Refueling Stations and Storage Tanks (designated as Emission unit #26)
Unit Description: One 5,000 and one 1,500-gallon aboveground diesel fuel tank and dispensing pumps to refuel fleet vehicles and mobile equipment. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- W. Gasoline Vehicle Refueling Station and Tanks
Unit Description: Gasoline refueling for fleet vehicles from two 1,500-gallon aboveground tanks constructed in December 1991. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- X. Unit #1 Generator Seal Oil Air Detraining Tanks
Unit Description: Atmospheric vents from the seal oil air detraining tanks for Boiler Unit #1. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- Y. Unit #2 Generator Seal Oil Air Detraining Tanks
Unit Description: Atmospheric vents from the seal oil air detraining tanks for Boiler Unit #2. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- Z. Unit #1 Lube Oil Reservoirs
Unit Description: Lube oil reservoirs with vapor extractors for Boiler Unit #1. No unit specific applicable requirements. **Formatted: Bullets and Numbering**
- AA. Unit #2 Lube Oil Reservoirs
Unit Description: Lube oil reservoirs with vapor extractors for Boiler Unit #2. No unit specific applicable requirements. **Formatted: Bullets and Numbering**

- BB. Truck Mounted Vacuum System
Unit Description: Mobile truck mounted vacuum to clean up spilled material such as ash. No unit specific applicable requirements.

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- CC. Ash Unloader for Unit #1
Unit Description: Equipment for unloading ash from silos and into trucks for transport to the ash landfill. No unit specific applicable requirements.

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- DD. Ash Unloader for Unit #2
Unit Description: Equipment for unloading ash from silos and into trucks for transport to the ash landfill. No unit specific applicable requirements.

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- EE. Emission Units Subject to 40% Opacity Limit
Unit Description: Units constructed prior to April 25, 1971 consisting of Boiler Unit #2 coal silo system exhauster, Unit #2 ash unloader, Unit #2 Generator Seal Oil Air Detraining Tanks, Unit #2 Lube Oil Reservoirs.

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- FF. Coal Reject Handling System
Unit Description: Material handling system that separates reject materials from the coal prior to pulverizing. No unit specific applicable requirements.

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- GG. Hazardous Waste Storage Area
Unit Description: Area where hazardous waste is stored temporarily awaiting disposal. No unit specific applicable requirements.

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- HH. Electro hydraulic Control Reservoirs
Unit Description: Three 400-gallon tanks that store lubricating oil. No unit specific applicable requirements.

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- II. Water Treatment Chemical Tanks
Unit Description: Tank storage including: lime, sodium sulfite, hydrochloric acid, sodium hydroxide, sulfuric acid, anti scale, aqueous ammonia. No unit specific applicable requirements.

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- JJ. Paint Storage Areas
Unit Description: Various storage areas for sealed paint containers. No unit specific applicable requirements.

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- KK. Coal Handling and Blending Equipment.
Unit Description: Truck unloading hopper enclosed on the sides with water sprays, covered conveyor belts with enclosed transfer stations, radial stacker, Stamler feeder with water sprays, and screens.

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- LL. Real Time Coal Analyzer
Unit Description: Thermo Electron CQM coal analyzer with hopper and associated covered conveyor belts with enclosed transfer stations equipped with dust closure seals and curtains at all loading points.

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* Equivalency shall be determined by the Executive Secretary.

Limitations and Tests Procedures

9. Boiler Unit #1

- A. Emissions of SO₂ from Boiler Unit #1 shall be no greater than 1.2 lb SO₂/MMBtu heat input for any 3 hour period as determined by the arithmetic average of three contiguous one hour periods except during periods of startup, shutdown, maintenance/planned outage, or malfunction.

PacifiCorp shall install, calibrate, maintain, and operate a continuous monitoring system for measuring sulfur dioxide emissions. PacifiCorp shall determine compliance by periodic monitoring using procedures in 40 CFR Part 60.45, Emission and fuel monitoring (subparagraphs (a), (e), and (f)) and 60.13(e).

- B. Emissions of SO₂ from Boiler Unit #1 shall be no greater than 20 percent of the potential combustion concentration based on the average inlet and average outlet SO₂ emissions determined as the arithmetic average of all hourly emission rates for the 30 successive boiler operating days.

PacifiCorp shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring sulfur dioxide emissions. PacifiCorp shall determine compliance with the SO₂ reduction limit by periodic monitoring using procedures in 40 CFR Part 60.46a, Compliance provision (subparagraph (c), (d), (e), (g) and (h)), 60.47a, Emission monitoring (subparagraph (b), (d), (e), (f), (g), (h), (i) and (j)), and 60.48a, Compliance determination procedures and methods (subparagraph (c)).

- C. Emissions of particulate matter (PM) from Boiler Unit #1 shall not be greater than 0.10 lb/MMBtu heat input except during periods of startup, shutdown, maintenance/planned outage or malfunction.

- D. Emissions of NO_x from Boiler Unit #1 shall be no greater than 0.70 lb/MMBtu heat input for any 3 hour period as determined by the arithmetic average of three contiguous one hour periods except during periods of startup, shutdown, maintenance/planned outage or malfunction.

PacifiCorp shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides emissions. PacifiCorp shall determine compliance by periodic monitoring using procedures in 40 CFR Part 60.45, Emission and fuel monitoring (subparagraphs (a), (e), and (f)) and 60.13(e).

- E. Visible emissions shall be no greater than 20 percent opacity (six minute average) except for one six minute period per hour of not more than 27 percent opacity and except during periods of start up, shutdown, maintenance/planned outage, or malfunction.

PacifiCorp shall determine compliance with the visible emission limit by periodic monitoring using a continuous opacity monitoring (COM) system installed and

operated in accordance with 40 CFR 60.45, Emission and fuel monitoring (subparagraphs (a) and (g)) and 60.13(e).

10. Boiler Unit #2

A. Sulfur content of any mixture of coal burned in Boiler Unit #2 shall be no greater than 1 lb/MMBtu gross heat input. Once installation and operation of the wet-lime flue gas desulfurization system as shown in Condition #8.B has been completed, this condition shall no longer apply, as Condition #10.C will cover emissions of SO₂ as allowed under R307-203-1 (2).

B. Visible emissions from Boiler Unit #2 shall be no greater than 40 percent opacity (six minute average) except for one three minute period per hour as a result of unavoidable combustion irregularities and except during periods of start up, shutdown, maintenance/planned outage, or malfunction.

Once installation of the fabric filter system as shown in Condition #8.B has been completed, emissions of particulate matter (PM) from Boiler Unit #2 shall not be greater than 70 lb/hr, except during periods of startup, shutdown, maintenance/planned outage or malfunction. Additionally, following installation of the fabric filter system visible emissions from Boiler Unit #2 shall be no greater than 20 percent opacity (six minute average) except for one six minute period per hour of not more than 27 percent opacity and except during periods of start up, shutdown, maintenance/planned outage, or malfunction.

C. Once installation of the wet-lime flue gas desulfurization system as shown in Condition #8.B has been completed, emissions of SO₂ from Boiler Unit #2 shall be no greater than 0.12 lb SO₂/MMBtu heat input for any 24 hour block average except during periods of startup, shutdown, maintenance/planned outage, or malfunction.

D. Once installation of the low-NO_x burners and overfire air system as shown in Condition #8.B has been completed, emissions of NO_x from Boiler Unit #2 shall be no greater than 0.26 lb/MMBtu heat input for any 30 day rolling average except during periods of startup, shutdown, maintenance/planned outage or malfunction. PacifiCorp shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides emissions.

E. PacifiCorp shall notify the Executive Secretary in writing when the installation of each new system (fabric filter, flue gas desulfurization, burners and overfire air) as listed in Condition #8.B and outlined in Conditions #10.B, 10.C and 10.D has been completed and is operational, as an initial compliance inspection is required for each system. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If installation has not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the installation. At that time, the Executive Secretary shall require documentation of

the continuous installation of the operation and may revoke the AO in accordance with R307-401-11.

11. All coal conveyors and drop points shall be enclosed.
12. Visible emissions from the coal reject handling system shall be no greater than 40 percent opacity.
13. Visible emissions shall be no greater than 5 percent opacity at all conveyor transfer points and conveyor drop points for the coal blending equipment.
14. Visible emissions shall be no greater than 10 percent opacity for the truck unloading hopper, radial stacker and all screens.
15. There shall be no visible emissions at the Real-Time coal analyzer and all conveyor transfer points and conveyor drop points associated for the Real-Time coal analyzer equipment.

Monitoring A visual observation of the site shall be made at least once each month.

Record Keeping A log of the visual inspections shall be maintained including the date and time of each inspection and the name of the person making the inspection.

Reporting Any visible emissions observed, shall be reported as a deviation.

16. Visible emissions shall be no greater than 20 percent opacity except as listed in this AO or diesel engines as described in R307-201-1.
17. Visible emissions from any stationary point or fugitive emission source associated with the source or with the control facilities shall not exceed 20% opacity. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9.

For sources that are subject to New Source Performance Standards (NSPS), opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9.

Roads and Fugitive Dust

18. PacifiCorp shall abide by a fugitive dust control plan acceptable to the Executive Secretary for control of all dust sources associated with the Huntington power Plant. PacifiCorp shall abide by the most current fugitive dust control plan approved by the Executive Secretary.

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19. The facility shall abide by all applicable requirements of R307-205 for Fugitive Emission and Fugitive Dust sources.

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- | 20. The facility shall abide by all applicable requirements of R307-206 for Abrasive Blasting Emission Standards. Formatted: Bullets and Numbering

Fuels

- | 21. The sulfur content of any fuel oil shall not exceed 0.85 lbs/MMBtu heat input. The sulfur content shall be determined by ASTM Methods D2015-77 or D3286-85 or approved equivalent. Formatted: Bullets and Numbering

Federal Limitations and Requirements

22. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, New Source Performance Standards (NSPS) Subpart A, 40 CFR 60.1 to 60.18 and Subpart D, 40 CFR 60.40 to 60.49 (Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971) applies to the Boiler Unit #1. NSPS Subpart Y (NSPS for Coal Preparation Plants) applies to the coal preparation equipment.
23. In addition to the requirements of this AO, all applicable provisions of 40 CFR Part 72, 73, 75, 76, 77, and 78 - Federal regulations for the Acid Rain Program under Clean Air Act Title IV apply to this installation.

Records & Miscellaneous

- | 24. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. Formatted: Bullets and Numbering

- | 25. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring. Formatted: Bullets and Numbering

- | 26. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns. Formatted: Bullets and Numbering

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the Division of Air Quality. The Utah Administrative Code R307 rules used by DAQ, the Notice of Intent (NOI) guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:

<http://www.airquality.utah.gov/>

The annual emission estimations below include point source, fugitive emissions, fugitive dust and grandfathered emissions, and do not include road dust and tail pipe emissions. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment area, maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The Potential To Emit (PTE) emissions for the PacifiCorp Huntington power plant are currently calculated at the following values:

	<u>Pollutant</u>	<u>Tons/yr</u>
A.	PM ₁₀	2,138.0
B.	SO ₂	26,714.0
C.	NO _x	13,274.0
D.	CO	796.0

(The following values are estimates of actual emissions – there are no limitations on these values, which are simply estimates as submitted in the emission inventory)

E.	VOC	90.31
F.	Sulfuric Acid	25.08
G.	HAPs	
	Acetaldehyde	0.86
	Benzene	1.97
	Benzyl Chloride	1.06
	Cyanide Compounds	3.78
	HCL	317.23
	Hydrogen Fluoride	183.55
	Isophorone	0.88
	Methyl Chloride (Chloromethane)	0.80
	Methyl Ethyl Ketone (2-Butanone) ...	0.59
	Propionaldehyde	0.57
	Selenium Compounds	1.97
	Misc HAPs <0.5 tpy each	4.33
H.	Total HAPs	517.59

Approved By:

Richard W. Sprott, Executive Secretary
Utah Air Quality Board