



State of Utah
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY

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DAQE-403-95

May 8, 1995

W. Robert James
OO-ALC/EM
7274 Wardleigh Road
Hill Air Force Base, Utah 84056-5137

Re: Approval Order for Construction of Two Boilers Each in Buildings 1590 and 1703
Davis County CDS B NA NSPS

Dear Mr. James:

The attached document is an Approval Order for the above referenced project.

Future correspondence on this Approval Order 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. Arjun Ram. He may be reached at (801) 536-4066.

Sincerely,



Russell A. Roberts, Executive Secretary
Utah Air Quality Board

RAR:AR:dn

cc: Davis County Health Department



STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER FOR CONSTRUCTION OF TWO BOILERS EACH IN BUILDINGS 1590 & 1703

PREPARED BY: Arjun Ram, Engineer

APPROVAL ORDER NUMBER
DAQE-403-95

Date: May 8, 1995

Source

HILL AIR FORCE BASE

Russell A. Roberts
Executive Secretary
Utah Air Quality Board

4.2.4-175

Abstract

This Review/Approval Order is for the installation of two natural gas fired, low-NO_x, watertube, steam boilers rated at 27.6 MMBTU/HR in Building 1590 and the installation of two natural gas fired, low NO_x, firetube steam boilers, rated at 11.25 MMBTU/HR in Building 1703. These boilers would replace existing boilers in the buildings, which do not have low-NO_x burners. This project does not result in an increase in actual emissions from the boilers; therefore, a 30-day public comment period is not required for this project. All the four boilers are capable of using #2 fuel oil as backup fuel. Emissions from the four boilers with a maximum of 720 hours of burning fuel oil per 12-month period are 4.48 tons per year PM₁₀, 15.96 tons per year SO_x, 18.98 tons per year NO_x, 20.05 tons per year CO, and 1.86 tons per year VOC. Low-NO_x technology in conjunction with a 10% opacity limitation and the use of natural gas as primary fuel are considered Best Available Control Technology (BACT) for this project.

The Notice of Intent for the above-referenced project has been evaluated and has been found to be consistent with the requirements of the Utah Air Conservation Rules (UACR) and the Utah Air Conservation Act. However, air pollution producing sources and/or their air control facilities may not be constructed, installed, established, or modified prior to the issuance of an Approval Order (AO) by the Executive Secretary of the Utah Air Quality Board.

Unless you have comments which would require changes, the AO for this project will be based upon the following conditions:

General Conditions:

1. This AO applies to the following company:

Department Of The Air Force
 OO-ALC/EM
 7274 Wardleigh Road
 Hill Air Force Base, Utah 84056-5137
 Phone Number: (801) 777-0359
 Fax Number: (801) 777-4306

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

LOCATION

UTM COORDINATES:

Building 1590: 4,553,750 m. Northing; 415,290 m. Easting
 Building 1703: 4,554,870 m. Northing; 414,210 m. Easting

2. Definitions of terms, abbreviations, and references used in this AO conform to those used in the UACR, Utah Administrative Codes (UAC), and Series 40 of the Code of Federal Regulations (40 CFR). These definitions take precedence unless specifically defined otherwise herein.

3. Hill Air Force Base shall install and operate the natural gas fired boiler according to the information submitted in the Notice of Intent dated December 22, 1994.
4. A copy of this AO shall be posted on site. The AO shall be available to the employees who operate the air emission producing equipment. These employees shall receive instruction as to their responsibilities in operating the equipment according to all of the relevant conditions listed below.
5. The approved installations shall consist of the following equipment (MMBTU/HR stands for million BTUs per hour):
 - A. Two boilers (rated at 27.60 MMBTU/HR) and associated equipment in Building 1590
 - B. Two boilers (rated at 11.25 MMBTU/HR) and associated equipment in Building 1703

Hill Air Force Base shall submit to the Division of Air Quality (DAQ), the Manufacturer's name, Boiler's Model and Serial Number (or equivalent information that will enable proper identification of the boilers), for each of the boilers approved by this condition before commencing the operation of the boilers.

6. Hill Air Force Base shall permanently shut down the operation of two boilers in Building 1590 and two boilers in Building 1703 before commencing the operation of the boilers approved in Condition #5.
7. The Executive Secretary shall be notified in writing upon start-up of the installation as an initial compliance inspection is required. Eighteen months from the date of this AO the Executive Secretary shall be notified in writing of the status of installation if construction/installation is not completed. At that time the Executive Secretary shall require documentation of the continuous installation of the operation and may revoke the AO in accordance with R307-1-3.1.5, UAC.

Limitations and Tests Procedures

8. Emissions to the atmosphere from the stacks of the boilers approved in Condition #5 shall not exceed the following rates and concentrations (the lbs/hr and ppm_{dv} values are equivalent and the source has the option of demonstrating compliance with values in either of the units):

Source: Stacks of Boilers in Building 1590		
Pollutant	lbs/hr	ppm _{dv} (3% O ₂ , dry)
NO _x	1.33	40
CO	1.21	60

Source: Stacks of Boilers in Building 1703		
Pollutant	lbs/hr	ppmdv (3% O ₂ , dry)
NO _x	0.54	40
CO	0.49	60

9. Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below for each of the boilers specified in Condition #5:

A.	<u>Emission Point</u>	<u>Pollutant</u>	<u>Testing Status</u>	<u>Test Frequency</u>
	Boiler Stack	NO _x	*	@
		CO	*	@

B. Testing Status (To be applied above)

* No initial testing is required. However, the Executive Secretary may require testing at any time in accordance with R307-1-3.4.1, UAC. The source shall be tested if directed by the Executive Secretary.

** Initial compliance testing is required. The initial test date shall be within 180 days after the start up of a new emission source, or the granting of the AO for an existing emission source.

@ Test if directed by the Executive Secretary. Tests may be required if the source is suspected to be in violation with other conditions of this AO.

C. Notification

The applicant shall provide a notification of the test date at least 45 days before the test. A pretest conference shall be held if directed by the Executive Secretary. It shall be held at least 30 days before the test between the owner/operator, the tester, and the Executive Secretary. The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approvable access shall be provided to the test location.

D. Sample Location

40 CFR 60. Appendix A, Method 1

E. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2

F. Nitrogen Oxides (NO_x)

40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D or 7E or an alternative method to be approved by the Executive Secretary. The test protocol shall be submitted for review at the time of notification of the test.

G. Carbon Monoxide (CO)

40 CFR 60, Appendix A, Method 10

H. Calculations

To determine mass emission rates (lbs/hr. etc.), the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

I. Source Operation

The heat (gas) input rate during all compliance testing shall be no less than 90% of the rates listed in MMBTU/HR in Condition #5 of this AO.

10. Visible emissions from any point or fugitive emission source associated with the installation or control facilities shall not exceed 10% opacity. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. Visible emissions from mobile sources and intermittent sources shall use procedures similar to Method 9, but the requirement for observations to be made at 15-second intervals over a six-minute period shall not apply. Any time interval with no visible emissions shall not be included.

11. The following consumption limits shall not be exceeded without prior approval in accordance with R307-1-3.1, UAC:

For each boiler in building 1590 (rated at 27.6 MMBTU/hr):

- A. 242,000 decatherms (242 million cubic feet) of natural gas per 12-month period (1 decatherm = 1,000,000 BTU)
- B. 141,000 gallons of fuel oil to be burned per 12-month period
- C. 720 hours of operation burning fuel oil per 12-month period

For each boiler in building 1703 (rated at 11.25 MMBTU/hr):

- A. 98,550 decatherms (99 million cubic feet) of natural gas per 12-month period
- B. 57,500 gallons of fuel oil to be burned per 12-month period
- C. 720 hours of operation burning fuel oil per 12-month period

Compliance with the annual limitations shall be determined on a rolling 12-month total. Before the fifteenth day of each month, a new 12-month total shall be calculated using data from the previous 12 calendar months. Records of oil consumption shall be kept for all periods when the plant is in operation. Records of oil consumption shall be made available to the Executive Secretary or his representative upon request and shall include a period of two years ending with the date of the request. Consumption shall be determined by operating logs or vendor receipts. The records shall be kept on a daily basis. Hours of operation shall be determined by supervisor monitoring and maintaining of an operations log.

Fuels

- 12. The owner/operator shall use only natural gas or liquid petroleum gas as a primary fuel and #2 fuel oil or light grade as a backup fuel in the boiler. If any other fuel is to be used, an AO shall be required in accordance with R307-1-3.1, UAC. Number two (#2) fuel oil may be used only when natural gas supply has been interrupted.
- 13. The sulfur content of any fuel oil burned shall not exceed 0.5 percent by weight. Sulfur content shall be decided by ASTM Method D-4294-89, or approved equivalent. The sulfur content shall be tested if directed by the Executive Secretary.

Federal Limitations and Requirements

- 14. In addition to the requirements of this AO, all provisions of 40 CFR 60, NSPS Subparts A and Dc, 40 CFR 60.40c to 60.48c (Standards of Performance for Small Industrial - Commercial - Institutional Steam Generating Units) apply to this installation.

The owner or operator shall record and maintain records of the amount of fuel combusted during each day. Each boiler must have an individual fuel use meter which cannot be reset, to determine how much fuel that boiler used each day.

Records & Miscellaneous

- 15. All records referenced in this AO or in an applicable new source performance standard (NSPS), which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or his representative upon request.

Examples of records to be kept at this source shall include the following as applicable:

- A. Fuel consumption
 - B. Test results
16. All installations and facilities authorized by this AO shall be adequately and properly maintained. All pollution control vendor recommended equipment shall be installed, maintained, and operated. Instructions from the vendor or established maintenance practices that maximize pollution control shall be used. All necessary equipment control and operating devices, such as pressure gauges, amp meters, volt meters, flow rate indicators, temperature gauges, continuous emission monitors (CEMs), etc., shall be installed and operated properly and easily accessible to compliance inspectors.
17. The owner/operator shall comply with R307-1-3.5, UAC. This rule addresses emission inventory reporting requirements.
18. The owner/operator shall comply with R307-1-4.7, UAC. This rule addresses unavoidable breakdown reporting requirements. The owner/operator shall calculate/estimate the excess emissions whenever a breakdown occurs. The total of excess emissions shall be reported to the Executive Secretary as directed for each calendar year.
19. This source is required to pay an annual emission fee upon start-up. The fee will be based on calculated annual emissions listed at the end of this AO. This fee is valid until inventory data for one year are available for the source. The owner or operator of this source will be billed upon start-up for all emissions that are considered "chargeable" as of that date.

Any future modifications to the equipment approved by this order must also be approved in accordance with R307-1-3.1.1, UAC.

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 the UACR.

Annual emissions for this source (four boilers in Condition #5) are currently calculated at the following values:

	<u>Pollutant</u>	<u>Tons/yr</u>
A.	PM ₁₀	4.48
B.	SO ₂	15.96
C.	NO _x	18.98
D.	CO	20.05
E.	VOC	1.86

These calculations are for the purposes of determining the applicability of prevention of significant deterioration (PSD) and nonattainment area major source requirements of the UACR. They are not to be used for purposes of determining compliance.

In accordance with the requirements of Title V of the 1990 Clean Air Act, the following pollutants may be subject to an operating permit fee. Both the fees rate and the class of pollutants are subject to change by State, the Federal agencies, or both.

	<u>Pollutant</u>	<u>Tons/yr</u>
A.	Particulate	4.48
B.	SO ₂	15.96
C.	NO _x	18.98
D.	VOC	1.86

Approved By:



Russell A. Roberts, Executive Secretary
Utah Air Quality Board