State of Utah

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY

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- M. Owens

DAQE-186-98

March 16, 1998

Howard L. Vickers
Deseret Generation & Transmission
12500 E. 25500 S.
Vernal, Utah 84078

Dear Mr. Vickers:

Re: Approval Order for Modification of Bonanza One Power Plant Emission Limits
Change in Coal Pile Parameters, and Ruggedized Rotor Project
Uintah County, CDS-A1, NSPS, NESHAP, Title V

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. Tim Blanchard. He may be reached at (801) 536-4057.

Sincerely,

Ursula K. Trueman

Ursula K. Trueman, Executive Secretary
Utah Air Quality Board

UKT:JTB:dn

cc: Uintah Basin District Health Department
Mike Owens, EPA Region VIII

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER FOR MODIFICATION OF BONANZA ONE POWER PLANT EMISSION LIMITS, CHANGE IN COAL PILE PARAMETERS, AND RUGGEDIZED ROTOR PROJECT

Prepared By: Tim Blanchard, Engineer

APPROVAL ORDER NUMBER

DAQE-186-98

Date: March 16, 1998

Source

Deseret Generation & Transmission

Ursula K. Trueman
Executive Secretary
Utah Air Quality Board

EPA8PER017965

Abstract

Deseret Generation & Transmission Co-operative. (DG&T) is proposing to modify Approval Order (AO) DAQE-706-97 (dated August 4, 1997) by modifying certain emission limits, modifying the Coal Pile parameters, and installing a ruggedized rotor at the Bonanza Power Plant Unit One (1) located in Uintah County. Uintah County is an attainment area for all pollutants. New Source Performance Standards (NSPS) Subparts A and Da apply to this source. National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations do not apply to this source. DG&T is requesting a modification in federally enforceable emission limits which will limit the potential to emit (PTE) for this source. These emission limits are being imposed to demonstrate that any net increase in emissions from the approved facilities will not exceed the threshold emission levels which trigger additional review under state New Source Review (NSR) and Prevention of Significant Deterioration (PSD) programs. Because of the increased capacity of the Turbine Generator to handle steam flow, there will be a net increase in certain emissions resulting from an overall increase in the heat input to the boiler from 4381 MMBtu's/Hr to 4578 MMBtu's/Hr. DG&T also proposes to increase the total area of the coal pile to 22 acres and the active reclaim area to 11 acres. The net effect of these projects will be an overall reduction of Bonanza 1's potential emissions, with a significant reduction in NO_x emissions and relatively minor increases in other emissions. DG&T proposes to reduce its potential NO_x emissions by 528.17 TPY and increase the following emissions: particulate emissions 22.60 TPY, PM_{10} 14.11 TPY, SO_2 38.21 TPY, CO 91.60 TPY, VOC 10.68 TPY. A 30-day public comment period was required for DG&T's proposal.

The project has been evaluated and found to be consistent with the requirements of the Utah Air Quality Rules (UAQR) and the Utah Air Conservation Act. A 30-day public comment period was held and all comments received were evaluated. The conditions of this AO reflect any changes to the proposed conditions which resulted from the evaluation of the comments received. This air quality 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 AO applies to the following company:

   HOME OFFICE:

   Deseret Generation & Transmission Co-Operative
   5295 South 300 West, Suite 500
   Murray, Utah 84107
   PHONE NUMBER: 801-892-6500
   FAX NUMBER: 801-892-6599

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

   PLANT LOCATION:

   Bonanza Power Station Unit 1
   12 kilometers northwest of Bonanza, Utah
   Uintah County

   Universal Transverse Mercator (UTM) Coordinate System:
   4,438,606 meters Northing, 646,206 meters Easting

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

3. Deseret Generation & Transmission (DG&T) shall operate the 500 est. Megawatt (MW) gross Bonanza Power Station Unit 1 according to the terms and conditions of this AO as requested in the Notice of Intent (NOI) dated December 24, 1997. and additional information submitted January 5, 1998.

4. At least once per calendar year, all employees who operate equipment (operator) that produces and/or controls emissions to the air shall receive proper training as to their responsibilities in operating that equipment according to all relevant conditions of this AO. The training for each operator shall be for all equipment that operator operates. The equipment shall include all of the associated equipment listed in Conditions # 7, 8, and 9. Within 60 days of every time this AO is modified or reissued, those employees who operate equipment that produces and/or controls emissions to the air that is affected by the AO changes shall receive proper training as to their responsibilities in operating equipment according to all relevant conditions of this AO. Within 60 days of a new operator being employed or assigned with the job responsibility to operate any of the equipment that produces and/or controls emissions to the air, the new operator shall receive proper training as to their responsibilities in operating the equipment according to all relevant conditions of this AO. Records of operator training 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. This AO shall be made available to all employees who operate the equipment listed in this AO.

5. The approved installations shall consist of a 500 est. MW coal fired steam electric generating station and associated equipment.

6. This AO shall replace the AO DAQE-706-97 dated August 4, 1997.

Limitations and Tests Procedures

7. Sulfur Emission Control

   A. Bonanza 1 shall not discharge to the atmosphere sulfur as SO_2 at a rate exceeding 0.0976 lb/MMBTU heat input over a rolling 12-month average. Compliance with this emission limitation shall be based on CEM data and fuel heat input. Compliance shall be determined by calculating the rolling 12-month average. On the first day of each month a new 12-month average shall be calculated using data from the previous 12 months.

   B. Bonanza 1 shall achieve at least 90% SO_2 removal efficiency based on a 30-day rolling average.

   C. Bonanza 1 SO_2 emissions shall not exceed 0.15 lb/MMBTU heat input as averaged over 30 successive boiler operating days.

D. To achieve the limits above, DG&T may use scrubber slurry additives (such as adipic acid etc.) to increase the dissolved alkalinity of the slurry reagent used in the FGD scrubber.

E. Compliance with the SO_2 removal requirements shall be based on data from outlet SO_2 continuous emissions monitors (CEM), and either inlet SO_2 data from CEM or coal analysis data, over a 30-day rolling average. The total percent removal may be computed using the total available sulfur from the coal analysis and overall sulfur removal. Compliance shall be determined by calculating the arithmetic average for all valid hourly emissions rates for SO_2 for the 30 successive boiler operating days.

8. Nitrogen Oxides Emission Control

A. Bonanza 1 shall not discharge to the atmosphere nitrogen oxide (NO_x) at a rate exceeding 0.50 lb/MMBTU heat input on an annual average. Compliance with this emission limitation shall be determined in accordance with 40 CFR 76.5(b).

B. Bonanza 1 shall not discharge to the atmosphere nitrogen oxide (NO_x) at a rate exceeding 0.55 lb NO_x/MMBTU heat input as a 30-day rolling average value averaged over 30 successive boiler operating days. Compliance with this emission limitation shall be based on CEM data and fuel heat input. Compliance shall be determined by calculating the arithmetic average of all valid hourly emission rates (at least two values each hour are required) for NO_x for 30 successive boiler operating days.

9. Particulate and PM_{10} Emission Control

A. Unit No. 1 shall not discharge to the atmosphere particulate matter at a rate exceeding 0.0297 lbs/MMBTU BTU heat input as determined by 40 CFR 60, Appendix A, Methods 1-5 and 19.

B. Unit No. 1 shall not discharge to the atmosphere PM_{10} particulate matter at a rate exceeding 0.0286 lbs/MMBTU heat input as determined by 40 CFR 60, Appendix A, Methods 1, 2, 4, 5-5e and 19.

C. Visible emissions from any source shall not exceed 20% opacity as determined primarily by CEM equipment, except for one six-minute period per hour of not more than 27% opacity for the tall stack, as determined by CEM equipment. However, EPA Method 9 may be used when the opacity CEM equipment is not operating.

D. Dust collectors DC-1 through 5, LDC 1 and 2, and the fly ash silo dust collector shall be maintained and operated per manufacturer's recommendations.

10. Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below:

A.

Emission Point	Pollutant	Testing Status	Test Frequency
Unit No. 1 600 foot stack	TSP	*	@

	PM_{10}	*	@
	SO_2	*	@
	NO_x	*	@
DC-4 and DC-5	PM_{10}	**	#

B. Testing Status (To be applied above)

* Compliance testing is required. The initial testing shall be done in 1995. Alternatively, data from testing done in conjunction with the installation, calibration and certification of the new CEM system in 1994 may be used.

** 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.

\# 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.

@ Test every five (5) years

C. Notification

The applicant shall provide a notification of the test date at least 30 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. TSP

40 CFR 60. Appendix A, Method 5

E. PM_{10}

For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5A, 5D, or 5E as appropriate. The back half condensibles shall also be tested using the method specified by the executive secretary. The portion of the front half of the catch considered PM_{10} shall be based on information in AP-42, Appendix C or other data acceptable to the executive secretary.

The back half condensibles shall not be used for compliance demonstration but shall be used for inventory purposes.

F. Sample Location

40 CFR 60. Appendix A, Method 1

G. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2 or any alternative method that has the approval of UDAQ or EPA.

H. Sulfur Dioxide (SO_2)

40 CFR 60, Appendix A, Method 6, 6A, 6B or 6C

I. Nitrogen Oxides (NO_x)

40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D or 7E

J. Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide and Nitrogen Oxides Emissions Rates

40 CFR 60, Appendix A, Method 19

K. 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.

L. Existing Source Operation

For an existing source/emission point, the production rate during all compliance testing shall be no less than 90% of the maximum capacity unless approved by the executive secretary.

Roads and Fugitives

11. Coal and limestone conveyors shall be enclosed and all drop points shall be vented to fabric dust collectors.

12. The track hopper for bottom dump coal cars shall have water sprays in place. The water spray shall be used during dumping when conditions warrant. Conditions which warrant operation of the sprays are defined as any time the 20% opacity limitation is in jeopardy of being violated. To ensure that the sprays are always operative, the equipment shall be tested at least once per month, except when whether conditions prohibit. A log of testing and operation shall be kept. The log shall include:

A. Times of testing.
B. Times of coal deliveries
C. Times of spray operation

D. Weather conditions at time of coal deliveries
E. Coal conditions (washed, unwashed, dry, moist, etc.)

13. The coal pile shall not exceed 22 acres in total area. The active reclaim area shall not exceed 11 acres at any one time. The reclaim area may be moved to any location on the coal pile. The remainder of the coal pile shall be the long-term storage area. Emissions of particulate from the long-term storage area shall be controlled by compaction of the coal pile surface and sealing with a surfactant initially and by subsequent application of sealing agent as warranted. A surfactant and spray mechanism to apply it shall be available and operative at all times. Conditions which warrant application of the surfactant are defined as any time the 20% opacity limitation is in jeopardy of being violated. A log of operation shall be kept. The log shall include:

A. Times of spray operation
B. Compaction operation
C. Weather conditions
D. Surface conditions (dry, crumbled, moist, etc.)

14. The long term limestone storage shall be sealed with a surfactant as dry conditions warrant or as determined necessary by the executive secretary.

15. The limestone receiving hopper shall be partly enclosed with a wind break.

16. The fly ash/FGD sludge mixture at the end of the conveyor and prior to being completely covered in accordance with landfill procedures, shall be water sprayed to minimize fugitive emissions as conditions warrant.

A record/log of stabilizing done shall be kept which includes dates, type of stabilizing agent, amount applied, and area of application.

17. All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition. The opacity shall not exceed 20% during all times the areas are in use or unless it is below freezing. If chemical treatment is to be used, the plan must be approved by the executive secretary. Records of water treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:

A. Date
B. Number of treatments made, dilution ratio, and quantity
C. Rainfall received, if any, and approximate amount
D. Time of day treatments were made

Records of treatment shall be made available to the executive secretary upon request and shall include a period of two years ending with the date of the request.

18. Visible emissions from haul-road traffic and mobile equipment in operational areas shall be controlled by use of a dust control plan.

Fuels

19. DG&T shall use only coal and/or natural gas as a primary fuel and fuel oil and/or natural gas during startup, shut down, upset conditions and flame stabilization. DG&T may burn on-spec used oil, off-spec used oil and small quantities of self generated hazardous waste (<850 gallons/month) as specified in State and Federal regulations. If any other fuel is to be used, an AO shall be required in accordance with R307-1-3.1, UAC.

20. The sulfur content of any fuel oil or diesel 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.

21. Boilers burning used oil for energy recovery shall comply with the following:

    A. The concentration/parameters of contaminants in the used oil shall not exceed the following levels:

1.	Arsenic	5	ppm by weight
2.	Cadmium	2	ppm by weight
3.	Chromium	10	ppm by weight
4.	Lead	100	ppm by weight
5.	Total halogens	1,000	ppm by weight
6.	Sulfur	0.5	percent by weight

    B. The flash point of all used oil to be burned shall not be less than 100 °F.

    C. The owner/operator shall provide test certification for each load of used oil received. Certification shall be either by their own testing or test reports from the used oil fuel marketer. Records of used oil fuel consumption and the test reports shall be kept for all periods when the plant is in operation. Records shall be made available to the executive secretary or her representative upon request. The records shall include a period of three years ending with the date of the request.

    D. Used oil (off-spec) that does exceed any of the listed contaminants content may be burned, but owner/operator shall notify the Division of Solid and Hazardous Waste and EPA. The owner/operator shall record the quantities of used oil burned on a daily basis.

    E. Used oil that contains more than 1000 ppm by weight of total halogens shall be considered a hazardous waste and can be burned at a maximum rate of 850 gallons/month. The used oil shall be tested for halogen content by ASTM Method D-808-81, EPA Method 8240 or Method 8260 before used oil fuel is transferred to the boiler fuel tank and burned. Small quantities self generated hazardous used fuels are regulated by 40 CFR 266.108(a) "Small Quantity On-site Burner Exemptions".

    F. Sources utilizing used oil as a fuel shall comply with the State Division of Solid and Hazardous Waste in accordance with R315-15, UAC "Used Oil Management Rule".

Federal Limitations and Requirements

22. In addition to the requirements of this AO, all provisions of 40 CFR 60, NSPS Subparts A and Da, 40 CFR 60.40a to 60.49a (Standards of Performance for opacity, SO_2, and NO_x) apply to this installation.

Monitoring - General Process

23. All air quality monitoring must conform to the requirements of 40 CFR, Part 58. As part of the air quality monitoring program, a quality control program shall be used and it shall consist of policies, procedures, specifications, standards, and documentation necessary to:

    A. Meet the monitoring objective and quality assurance requirements of the executive secretary.

    B. Minimize loss of air quality data due to malfunction or out of control conditions.

24. The owner/operator shall install, calibrate, maintain, and operate a continuous emissions monitoring (CEM) system on the 600 foot stack. The owner/operator shall record the output of the system, for measuring the opacity of emissions, the SO_2 emissions, the NO_x emissions, and diluent. Procedures to be followed for (1) testing, monitoring, and reporting of excess emissions of particulates, opacity, sulfur dioxide and nitrogen oxides, and for (2) the purpose of demonstrating compliance with the emission limitations of Conditions (7), (8), and (9) are specified in the applicable section of 40 CFR 60.7, 60.8, 60.11, 60.13, Subpart Da, Appendix A, Methods 1-7, Appendix B, Performance Specifications 1, 2, and 3, Appendix F, and the state CEM policy document (all applicable sections of R307-1-4.6, UAC).

25. A quality control/assurance plan/manual for the continuous monitoring system shall be developed and implemented. As a minimum, the quality control program shall have written procedures for each of the following activities:

    A. Installation of CEM's
    B. Calibration of CEM's
    C. Zero and calibration checks and adjustments for CEM's
    D. Preventive maintenance for CEM's (including parts inventory)
    E. Data recording and reporting
    F. Program of corrective action for inoperable CEM's
    G. Annual evaluation of CEM system

Records & Miscellaneous

26. 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, CEMs, etc., shall be installed and operated properly and easily accessible to

compliance inspectors. A copy of all manufacturers' operating instruction for pollution control equipment and pollution emitting equipment shall be kept on site. These instructions shall be available to all employees who operate the equipment and shall be made available to compliance inspectors upon their request.

27. The owner/operator shall comply with R307-1-3.5, UAC. This rule addresses emission inventory reporting requirements.

28. 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.

All records referenced in this AO or in applicable NSPS or NESHAP, which are required to be kept by the owner/operator, shall be made available to the executive secretary or her representative upon request and shall include a period of two years ending with the date of the request. All records shall be kept for a period of two years (used oil records are to be kept for a period of three years). Examples of records to be kept at this source shall include the following as applicable:

A.	Test results	Conditions 7,8 & 9
B.	Maintenance records	Condition 26
C.	Upset, breakdown episodes	Condition 28
D.	Fugitive emission control	Conditions 12, 13, 16 & 17
E.	CEM records	Condition 24
F.	Fuel consumption	Condition 21
G.	Training	Condition 4

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

The executive secretary shall be notified in writing if the company is sold or changes its name. The notification shall be submitted within 30 days of such action.

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 Utah Air Conservation Rules.

Annual emissions for this source the entire plant are currently calculated at the following values:

	Pollutant	Tons/yr
A.	Particulate	962.56
B.	PM_{10}	925.76
C.	SO_2	1,968.11
D.	NO_x	10,029.83
E.	CO	602.45
F.	VOC non methane	70.89
G.	Arsenic	0.34
H.	Beryllium	0.01
I.	Cadmium	0.07
J.	Chromium	4.00

K.	Lead	0.70
L.	Manganese	3.45
M.	Mercury	0.08
N.	Nickel	2.19

These calculations are for the purposes of determining the applicability of Prevention of Significant Deterioration, nonattainment area, and Title V source requirements of the UAC R307.

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. Emissions of the following pollutants from all sources, including pre-November 29, 1969 sources, may be subject to the operating permit fee. Both the fees rate and the class of pollutants are subject to change by State, the federal agencies, or both.

	Pollutant	Tons/yr
A.	PM_{10}	925.76
B.	SO_2	1,968.11
C.	NO_x	10,029.83
D.	VOC non methane	70.89
E.	HAPs	10.84

Approved By:

Ursula K. Trueman

Ursula K. Trueman, Executive Secretary
Utah Air Quality Board