

September 20, 2000

MEMORANDUM

TO: Mark Dietrich, Acting Administrator
Pocatello Regional Office

FROM: Gary Gates 
Air Quality Analyst
State Technical Services Office

SUBJECT: *PERMIT TO CONSTRUCT TECHNICAL ANALYSIS*
P-000319, J.R. Simplot, Pocatello
(Boiler Replacement, PTC No. 077-00006)

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

PROJECT DESCRIPTION

J.R. Simplot, Don Siding facility, in Pocatello is proposing to construct a new boiler. The new Babcock and Wilcox boiler will replace the Foster-Wheeler (FW) and Combustion Engineering (CE) boilers at the site. The steam capacity of the new boiler has been specified as 120,000 pounds per hour (@ 500 psig). This is approximately the same design steaming capacity as the two boilers that are being replaced. The new boiler will be an affected facility as defined under 40 CFR 60.40b.

SUMMARY OF EVENTS

On June 23, 2000, the Idaho Department of Environmental Quality received an application from J.R. Simplot for replacement of two old boilers with one new boiler. On July 14, 2000, the application was determined complete.

DISCUSSION

1. Process Description

The new steam boiler will replace two older boilers to maintain Simplot's steam needs at the Don Siding facility. The boiler will be equipped with LoNO_x burners to reduce NO_x emissions from the stack.

2. Equipment Listing

Boiler information:

Manufacturer:	Babcock and Wilcox
Model:	FM 106-97
Capacity:	120,000 lbs steam
Heat Input:	145,960,000 Btu (vendor specification)
Design Pressure:	550 PSIG
Fuel:	Natural Gas
Burner:	Coen Venturi Type - Delta NO _x

Simplot calculated a fuel input of approximately 175 MMBtu/hr based on the unit being 99% thermally efficient. The 175 MMBtu number was used in the emission calculations and will be considered the actual heat input capacity. This will provide a more conservative estimation of emissions.

3. Emission Estimates

Emission estimates were included in Simplot's PTC application for the replacement boiler and the two existing boilers that are to be replaced. All emission estimates were calculated using AP-42 emission factors with the exception of the NO_x and CO emission factors for the new boiler which were manufacturer guarantees. Simplot's emission estimates are attached as Appendix A.

The estimates showed that the new boiler would have maximum potential emissions that are just slightly higher than that of the two existing boilers, with the exception being NO_x which has a lower maximum potential. In comparing future potential emissions versus past actual emissions from 1999, there are only insignificant increases in all pollutants. The largest increase is found in CO which is 53 tons per year higher, but is still below the PSD significance level of 100 tons per year.

4. Modeling

No modeling was provided in the PTC application, so a Screen modeling analysis was performed. The results of the Screen model showed that PM₁₀ did not exceed the significance levels for a nonattainment area. All other pollutants were also found to meet the NAAQS. The Screen model output can be found as Appendix B of this technical memorandum.

5. Facility Classification

The J.R. Simplot facility is a major facility as defined in IDAPA 58.01.01.008.10. The facility manufactures nitrogen, phosphate, and sulfate fertilizer and related chemicals and has a SIC of 2874.

6. Area Classification

The J.R. Simplot Don Siding facility is located in Pocatello within Air Quality Control Region (AQCR) 61. The area is classified as nonattainment for PM₁₀ and attainment or unclassified for all other criteria pollutants.

7. Regulatory Review

IDAPA 58.01.01.201

Permit to Construct Required

This project is for construction of a new boiler, therefore a PTC is required.

IDAPA 58.01.01.210

Demonstration of Preconstruction Compliance with Toxic Standards

All emission estimates submitted by Simplot show emission rates below the screening emission levels with the exception of chromium. Chromium emissions model out to be below the acceptable ambient concentrations.

IDAPA 58.01.01.577

Ambient Air Quality Standards for Specific Air Pollutants

This rule applies to each affected source.

IDAPA 58.01.01.625

Visible Emissions

This rule applies to each affected source.

IDAPA 58.01.01.675

Fuel Burning Equipment - Particulate Matter

A boiler meets the definition of fuel burning equipment; therefore, this grain loading requirement is applicable.

40 CFR 52

Prevention of Significant Deterioration

PSD does not apply to this project as no emissions meet significance levels.

40 CFR 60.40b

New Source Performance Standards

The boiler meets the applicability requirements of the NSPS for Industrial Steam Generating Units as defined in Subpart Db.

8. Permit Requirements

8.1 Emission Limits

In the application it was stated that the boiler will probably be utilized at approximately twenty percent. The permit limits are the emission estimates for one hundred percent utilization. The pound per hour limit for No_x was calculated from the vendor guarantee of 0.04 pounds per million Btu multiplied by the estimated 175 million Btu capacity of the boiler. The limits allow Simplot some flexibility in the operation and utilization of the new boiler.

Generally applicable requirements have also been listed in the emission limits portion of the permit. They include opacity limit and grain loading limit for fuel burning sources.

8.2 Operating Requirements

The boiler natural gas usage will be limited to the design capacity of the boiler. The design capacity was stated as being 0.175 million cubic feet per hour. The boiler also will have a requirement that it may only fire natural gas. These limits are included to assure that the boiler is operating as it was originally designed to operate.

Another operating requirement is that the existing two boilers that are being replaced are completely dismantled and no longer operable at the site.

As described in 40 CFR 60.48b the permittee has the option of using a Continuous Emissions Monitoring System (CEMS) or an EPA approved Predictive Emissions Monitoring System (PEMS). Both options and requirements for each are listed in the permit.

The permittee must also reasonably control fugitive emissions. This should not be a problem for a source of this kind, but the requirement is still included in the permit as it may pertain during the construction of the new boiler.

A Continuous Emissions Monitor (CEM) must be installed, calibrated, maintained and operated as specified in 40 CFR 60.48b. The CEM will monitor NO_x emissions from the boiler stack.

9. Permit Coordination

Harbi Elshafei of the DEQ is the permitting engineer for Simplot's Title V Operating Permit (OP). This project and permit has been discussed with Mr. Elshafei so that he is aware of any possible impacts to their OP.

10. AIRS Information

The AIRS database will be updated to reflect the demolition of the two old boilers and the addition of the new boiler.

FEES

The J.R. Simplot facility is a major facility as defined in IDAPA 58.01.01.008.10 and is therefore subject to registration and registration fees in accordance with IDAPA 58.01.01.527.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that J.R. Simplot be issued PTC No. 077-00006 for the replacement boiler. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

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cc: DEQ State Office
 Pocatello Regional Office