



Air Quality Permitting Statement of Basis

Permit to Construct No. P-030505
Department of Energy, INTEC, INEEL
Facility ID No. 023-00001

Prepared by:

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Final Permit

1. 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.

2. PROJECT DESCRIPTION

Department of Energy, INEEL - INTEC is proposing to modify PTC No. 023-00001 issued on June 26, 2000 to remove the distillate oil-fired portable boiler from the permit and modify the daily fuel throughput limit for the CPP-606 distillate oil-fired boilers.

This permit supercedes PTC No. 023-00001 issued June 26, 2000. The technical memorandum written for the June 26, 2000 PTC No. 023-00001 contains information applicable to this modified PTC, No. P-030505, which incorporates most of the permit conditions as written in the 6/26/00 PTC.

The portable boiler has been removed from service.

A boiler particulate matter performance test was conducted by the INEEL in March 2001 and was approved by DEQ in a letter dated August 24, 2001 which also modified the maximum allowable operating rate (daily fuel consumption).

The permitted throughput has been changed to limit only the remaining boilers, and emission limits are modified to reflect the reduced throughput and the removal of the portable boiler.

Emission Estimates

From the August 24, 2001 Compliance Evaluation letter from DEQ to INEEL, the boiler tested was operated at 3.0 gallons per minute during the test. To establish daily estimates, the daily tested rate is calculated to be 4320 gallons per hour (not the rated capacity). This limit is increased by 120% per General Provision F in PTC No. 023-00001 issued 6/26/00 and as written in the 8/24/01 letter from DEQ to INEEL.

Example calculations:

$$PM_{10} = 4320 \text{ gal/day} \times 120\% \times 2 \text{ lb } PM_{10}/1,000 \text{ gal} \times 4 \text{ boilers} = 41.5 \text{ lb } PM_{10}/\text{day}$$

Because the HAP/TAP calculations were based on a Btu rating and that has not changed, those emission estimates were changed by calculating emissions for the four remaining boilers and no longer including the emissions from the portable boiler.

$$Pb = 36.4 \text{ MMBtu/hr} \times 9 \text{ lb Pb}/1E12 \text{ Btu} \times 4 \text{ boilers} \times 24 \text{ hrs} = 0.0314 \text{ lb Pb/day}$$

Table 2.1 EMISSION ESTIMATES

Pollutant	lb/day	T/yr	Pollutant	lb/day	T/yr
PM ₁₀	4.15E+01	7.56E+00	Se	5.25E-02	9.57E-03
SO _x	8.95E+02	1.63E+02	Zn	1.40E-02	2.55E-03
NO _x	4.15E+02	7.56E+01	Benzene	4.84E-03	8.82E-04
CO	1.03E+02	1.92E+01	Ethylbenzene	1.43E-03	2.61E-04
VOC	6.96E+00	1.32E+00	Toluene	1.40E-01	2.55E-02
As	1.40E-02	2.55E-03	Xylene	1.99E-03	3.64E-04
Cd	1.05E-02	1.91E-03	Formaldehyde	7.44E-01	1.36E-01
Cr	1.05E-02	1.91E-03	Naphthalene	2.54E-02	4.64E-03
Mn	2.10E-02	3.83E-03	Hg	1.05E-02	1.91E-03
Ni	1.05E-02	1.91E-03	Be	1.05E-02	1.91E-03
Cu	2.10E-02	3.83E-03	Pb	3.14E-02	5.74E-03

No modeling is required because this permit is for an emissions reduction for the boilers, and the boilers' emissions were modeled at a higher rate in the permitting process for the previous permit (PTC 023-00001, 6/26/00) for these boilers.

Only the permit conditions which have been modified from the previous permit (PTC No. 023-00001, 6/26/00) are addressed here. Refer to the May 15, 2000 technical memorandum from Bill Rogers to Jim Johnston for a discussion of the permit conditions incorporated from the 6/26/00 PTC.

All references to the INTEC portable boiler have been removed.

Because the boilers have been constructed and operated, the permit condition requiring notification of construction and start-up was removed.

The opacity performance test requirement was removed because the required test was completed in December 2000 and results were transmitted to DEQ in a letter dated January 11, 2001.

The boiler particulate matter test requirement was removed because the required test was completed in March 2001 and the results were transmitted to DEQ in a letter dated April 26, 2001.

The emission testing protocol requirement was removed because no other emission testing is required in the permit.

2.1 SO₂, NO_x, and Beryllium Emissions Limits

The SO₂, NO_x, and beryllium emissions from the CPP-606 boiler stacks had significant net emissions increases for the original 6/26/00 PSD PTC analysis. The limits have been reduced as documented in the *Emissions Estimates* section of this technical memorandum.

2.2 Compliance Demonstration

The fuel throughput is limited, and tracking required daily, such that the calculated emissions will not exceed the daily limit. If the daily limit is not exceeded, then the annual limit will not be exceeded as the annual limit was calculated using the daily limit times 365 days. If a daily limit is exceeded, then annual compliance would be determined using a compilation of the daily fuel times the emission factor for each pollutant. The sulfur content of the fuel is limited and the permit contains a requirement to obtain the fuel supplier's sulfur content certification for the fuel.

2.3 Permit Condition 2.9 Boiler Fuel Throughput

The total fuel throughput for the four boilers combined was changed to 120% of the tested rate times four boilers (all boilers are the same size), as follows:

120% x 4320 gallons per day x 4 boilers = 20,736 gallons per day

2.4 Compliance Demonstration

The fuel throughput is required to be tracked daily.

3. PROJECT SUMMARY OF EVENTS

- 6/26/00 PSD PTC No. 023-00001 issued for CPP-606 distillate oil-fired boilers and the INTEC distillate oil-fired portable boiler.
- 1/11/01 Letter from INEEL to the DEQ transmitting a "Performance Report for December 13-18, 2000 Opacity Performance Test for the INTEC CPP-606 Boilers."
- 3/13/01 Compliance test conducted for the Building CPP-606 distillate oil-fired boiler.
- 4/26/01 Letter from INEEL to the DEQ transmitting a "INTEC CPP-606 Sampling Final Report."
- 8/24/01 Letter from DEQ to INEEL accepting the tests and modifying the fuel throughput for the boilers.
- 2/27/03 DEQ received application for permit modification.
- 4/8/03 Application declared complete.
- 4/25/03 DEQ received a letter requesting a facility draft review period from INTEC.
- 8/27/03 Facility draft permit issued.
- 11/12/03 Comments received from facility.
- 11/20/03 Permit processing fee received.

4. FEES

INEEL paid the \$1,000 application fee as required in IDAPA 58.01.01.224 on March 3, 2003. INEEL paid the \$250 permit processing fee on November 20, 2003. The INEEL 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 58.01.01.387. The facility is current with its registration fees.

5. RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that INEEL be issued modified PTC No. P-030505 for the CPP-606 boilers. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

CZ/sd Permit No. P-030505

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