Statement of Basis

Permit to Construct No. P-2011.0092
Project No. 60825

U.S. Department of Energy, Idaho Operations Office (DOE-ID)
Battelle Energy Alliance, LLC (BEA)
Idaho National Laboratory (INL)
Test Area North (TAN)
Specific Manufacturing Capability (SMC)
Scoville, Idaho

Facility ID No. 023-00001

FINAL

October 13, 2011
Ken Hanna
Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
Btu	British thermal units
CFR	Code of Federal Regulations
CNG	compressed natural gas
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
gr	grain (1 lb = 7,000 grains)
HAP	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
LNG	liquefied natural gas
LPG	liquefied petroleum gas
MACT	Maximum Achievable Control Technology
mg/m^3	milligrams per cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SO_2	sulfur dioxide
T/yr	tons per consecutive 12-calendar month period
TAP	toxic air pollutants
VOC	volatile organic compounds
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

For a detailed description of the emission units at this facility, refer to the Statement of Basis for PTC No. 023-00001 issued on July 28, 2000 (project 980128). Some of the equipment listed in the July 28, 2000 Statement of Basis no longer exists. The emissions sources that presently are operated includes the following:

- TAN 629: Phase I
- TAN 677: Metalworking, cutting, and welding operations
- TAN 679: Phase II (North and South Manufacturing Areas)
- TAN 681: Process Reclamation Facility
- Fuel Burning Equipment: Boilers and standby generators
- 2B Paint Process

Permitting History

See the current Tier I permit statement of basis for the permitting history.

Application Scope

This PTC is for a minor modification to a PTC at an existing Tier I facility. It has been updated to remove requirements that are no longer necessary to assure compliance with the NAAQS or other emission standards and are no longer necessary for purposes of limiting the PTE for certain small sources.

The applicant has proposed the following amendments to the existing PTC:

- Amendment 1: Delete PTC Section 6, Refuse Incinerator. Operation of the incinerator has been permanently discontinued and operation of this source is no longer permitted.
- Amendment 2: Add #2 diesel fuel to the type of fuel that can be combusted to PTC Sections 5.1.3 and 5.2.
- Amendment 3: Delete the requirement in PTC Section 9 Appendix B, Reporting Requirements, to submit a quarterly compliance statement to the Department of Environmental Quality (DEQ). Removal of this type of requirement was discussed with DEQ on February 20, 2008 (refer to the referenced letter). DEQ recommended removal of the requirement in an April 2, 2008 email response to Tim Safford, DOE-ID.

Application Chronology

November 30, 2010	DEQ received a PTC application and application fee.
December 2, 2010	DEQ received part of the PTC processing fee.
February 8, 2011	DEQ received the PTC application fee.
February 28, 2011	DEQ determined that the application was complete.
March 1-16, 2011	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
April 26, 2011	DEQ received request to add LPG and natural gas as allowable boiler fuels.
August 25, 2011	DEQ issued the draft permit and basis for peer and regional office review.
August 29, 2011	DEQ made available the draft permit and statement of basis for applicant review.
September 8, 2011	Comments received from facility on draft permit and statement of basis.

October 4, 2011	Draft permit provided to facility for review with LPG added as a fuel
October 12, 2011	Comments received from facility on draft permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Devices

Table 1 EMISSIONS UNIT AND CONTROL DEVICE INFORMATION [1]

Source Description	Control Equipment Description	Emissions Point ID No. and Description
TAN 629-013 Phase I Stack	HEPA filter	TAN 629-013 Phase I Stack
TAN 679-022, 023, 024; Phase II – North (3 stacks)	HEPA filter	TAN 679-022, 023, 024
TAN 679-025, 026, 027; Phase II – South (3 stacks)	HEPA filter	TAN 679-025, 026, 027
TAN 681-018 and TAN 681-020 – Process Reclamation Facility	HEPA filter	TAN 681-018 and TAN 681-020 Stacks
TAN 679-067a, 25 MMBtu/hr Boiler	Good combustion Control	TAN 679-067a Boiler Stack
TAN 679-067b, 60 Horsepower Boiler (2.0 MMBtu/hr)	Good combustion Control	TAN 679-067b Boiler Stack
TAN 679-068, 25 MMBtu/hr Boiler	Good combustion Control	TAN 679-068 Boiler Stack
TAN 629-012, 014 – 2B Paint Process	Paint booth pre-filters and HEPA filter	TAN 629-012 and TAN 629-014 Stacks

1. Refer to the Statement of Basis for PTC No. 023-00001 issued on July 28, 2000 (project 980128) for detailed stack information.

Emissions Inventories

With the exception of a small increase in potential CO and VOC emissions, emissions will decrease as a result of allowing compressed natural gas to be used for boiler fuel at the same annual firing rate. Emissions will also decrease because the refuse incinerator is no longer a source. The change in emission from the boilers resulting from the fuel change is shown below. For details, refer to the copy of emission estimates provided in Appendix A. Emissions estimates are based on a potential to emit (PTE) that results in maximum NO_x and SO_2 emissions that will not exceed the permit limits. Note that the permit limits are not changed as a result of this project.

Boiler Pre-Project Potential to Emit

The following table presents the pre-project potential to emit for criteria pollutants from the SMC boilers using only the allowable fuel, distillate oil. See Appendix A for a details.

Table 2 PRE-PROJECT PTE FOR CRITERIA POLLUTANTS FOR DISTILLATE OIL USE ONLY

Emissions Unit	PM_{10}		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
All boilers firing distillate oil	**0.29**	**1.1**	**19.8**	**79.3**	**5.5**	**22.1**	**1.4**	**5.5**	**0.094**	**0.38**
Pre-Project Totals	**0.37**	**1.10**	**19.80**	**79.30**	**5.50**	**22.10**	**1.90**	**5.50**	**0.13**	**0.38**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Post Project Potential to Emit if LPG or Natural Gas are Used for Boiler Fuel

The following table presents the post project potential to emit for criteria pollutants from the SMC boilers if LPG or natural gas are used for fuel instead of distillate oil. If distillate oil is used the PTC does not change. See Appendix A for details.

Table 3 POST PROJECT PTE FOR CRITERIA POLLUTANTS IF LPG OR NATURAL GAS ARE USED

Emissions Unit	PM_{10}		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
All boilers firing LPG or natural gas oil	**0.376**	**1.1**	**0.022**	**0.088**	**5.53**	**22.1**	**3.2**	**12.7**	**0.34**	**1.36**
Post Project Totals	**0.38**	**1.10**	**0.02**	**0.09**	**5.53**	**1.50**	**3.20**	**12.70**	**0.34**	**1.36**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Change in Potential to Emit if LPG or Natural Gas are Used

The change in facility-wide potential to emit is used to determine if a public comment period may be required or if emissions modeling may be required, and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 4 CHANGES IN PTE FOR CRITERIA POLLUTANTS IF LPG OR NATURAL GAS ARE USED

	PM_{10}		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	**0.29**	**1.1**	**19.8**	**79.3**	**5.50**	**22.1**	**1.4**	**5.5**	**0.094**	**0.38**
Post Project PTE if LPG or Natural Gas are used for Boiler Fuel[a]	**0.376**	**1.1**	**0.022**	**0.088**	**5.53**	**22.1**	**3.2**	**12.7**	**0.34**	**1.36**
Changes in Potential to Emit	**+0.086**	**0**	**- 19**	**-79**	**+0.03**	**0**	**+1.8**	**+7.2**	**+0.25**	**+0.98**

a) Only the highest value for either fuel is shown.

TAP Emissions

See appendix A for a detailed estimate of toxic air pollutant (TA)P emissions. For the switch to LPG or natural gas fuel and for the existing distillate oil fuel, the only TAPs which have a possibility of exceeding a screening emission level (EL) are formaldehyde, arsenic, cadmium and nickel. In all cases, the TAP emissions are less for the new fuel than for distillate oil, therefore, the change in emissions resulting from this modification will not exceed any TAP ELs. The results are shown in the table below.

Table 5 PRE- AND POST PROJECT TAP EMISSIONS SUMMARY

Non-Carcinogenic Toxic Air Pollutants	Pre-Project Emissions Rates (distillate oil) (lb/hr)	Post Project Emissions Rates (natural gas) (lb/hr)	Increase in Emissions Rates (lb/hr)	Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Formaldehyde	**1.78E-02**	**2.52E-03**	**0**	**5.1E-04**	**No**
Arsenic	**2.23E-04**	**6.73E-06**	**0**	**1.5E-06**	**No**
Cadmium	**1.48E-04**	**3.70E-05**	**0**	**3.7E-06**	**No**
Nickel	**1.48E-04**	**7.07E-05**	**0**	**2.7E-05**	**No**

Therefore, since no TAP ELs are exceeded, as identified in IDAPA 58.01.01.585-586., then no modeling is required for this permit modification.

Ambient Air Quality Impact Analyses

As presented in the emission estimates tables above, the estimated emission rates of CO and several TAPs will increase with the modification to allow natural gas to be combusted in the boilers. Potential emissions from other sources at this facility will not increase. Increases resulting from the fuel change are small and less than the applicable TAP screening emission levels (EL) and less than the published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Refer to the Emissions Inventories section for additional information concerning the emission inventories. No modeling is required for this permit modification. Pre-construction compliance has been demonstrated that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard.

[1] Criteria pollutant thresholds in Table 1, State of Idaho Air Quality Modeling Guideline, Doc ID AQ-011, rev. 1, December 31, 2002.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Butte County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the modified emissions source. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625 Visible Emissions

The sources of PM_{10} emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement continues to be included in the permit. Compliance is assured by performing the periodic visible emissions inspections as set forth in the INL Tier I operating permit.

Fuel Burning Equipment PM Standards (IDAPA 58.01.01.676)

IDAPA 58.01.01.676-677 Standards for New Sources

The fuel burning equipment located at this facility, with a maximum rated input of ten (10) million BTU per hour or more, are subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels, or 0.050 gr/dscf of effluent gas corrected to 3% oxygen by volume for liquid fuel. Fuel-Burning Equipment is defined as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. These requirements apply the two 25 MMBtu/hr boilers, TAN 679-067a and TAN 679-068, and they continue to be included in the permit. These requirements do not apply to the 60 HP (i.e., 2.0 MMBtu/hr) boiler, TAN 679-067b, because its rated capacity is less than 10 MMBtu/hr.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 Requirement to Obtain Tier I Operating Permit

The INL is classified as a major facility under the Title V program and has been issued a Tier I operating permit for this purpose. Refer to the Tier I permit Statement of Basis for details regarding the facility classification. This PTC modification is issued pursuant to Section 209.05 of the rules which covers PTC procedures for Tier I sources. This PTC is prepared under Section 209.05.a, and the changes made by this modified PTC will be included in the forthcoming Tier I renewal permit which is currently under review by DEQ.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 Prevention of Significant Deterioration of Air Quality

The INL is no longer classified as a major stationary source under the PSD program. Therefore, this PTC modification is a minor modification at a minor source, and a major source applicability determination is not required. Refer to the Statement of Basis for the INL renewal Tier I permit for details regarding the INL PSD classification.

NSPS Applicability (40 CFR 60)

The two 25 MMBtu/hr boilers, TAN 679-067a and TAN 679-068 and the 60 HP (i.e., 2.0 MMBtu/hr) boiler, TAN 679-067b, are not subject to the requirements of 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, and 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Intemal Combustion Engines.

There are no engines at the SMC facility, such as for emergency generators and fire pumps, that are subject to 40 CFR 60 Subpart IIII, Standards of Performance for New Stationary Compression Ignition Internal Combustion Engines.

NESHAP Applicability (40 CFR 61)

The SMC facility is subject to the NESHAP requirements in 40 CFR 61 Subpart H, National Emission Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities. Applicability of these requirements does not change as a result of this PTC modification.

It is noted that EPA has retained authority to administer Subpart H and has not delegated this authority to DEQ, therefore, any approvals or interpretations of this regulation will be managed by EPA.. The changes resulting from this permit modification does not trigger the requirement to apply for an "approval to construct" from the EPA in accordance with 40 CFR 61.96. The Tier I permit already contains site-wide requirements to meet the NESHAPS regulations under 40 CFR 61 Subpart H. Similar permit conditions are included in this permit also. The Tier I permit conditions for Subpart H are sufficient to address this modification and they don't require modification as a result of issuing this permit.

MACT Applicability (40 CFR 63)

For emergency generators and fire pumps located at the INL facility, applicability of 40 CFR 63 Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, is addressed under the pending renewal of the INL site-wide Tier I operating permit. Refer to the Tier I renewal permit and it's Statement of Basis for details.

For boilers located at the INL facility, applicability of 40 CFR 63 Subpart DDDDD, National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, is addressed under the pending renewal of the INL site-wide Tier I operating permit. Refer to the Tier I renewal permit and it's Statement of Basis for details.

Permit Conditions Review

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Revised Permit Conditions 7, 17 and 22, and Existing Permit Conditions 1.1, 3.1, 4.1, and 7.1

The permit requirements under 40 CFR 61 Subpart H, National Emission Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities, have been combined into a single set of permit conditions for the SMC. These conditions are not substantively changed. This was done to maintain consistency with other PTCs recently issued for the INL and for consistency with the INL facility-wide Tier I operating permit.

Existing Permit Conditions 1.1.2, 1.1.3, 1.1.4, and 1.1.5

For this modified permit, the purpose of certain small emissions limits was re-evaluated. Upon review of the historical files for these limits it has been determined that these annual emission limits are no longer necessary. With regard to the PM/PM_{10} limit for stack TAN 629-002, the limit is not necessary for purposes of assuring compliance with the NAAQS or for purposes of limiting PTE so that a regulatory threshold is not exceeded (e.g., Title V or PSD major source thresholds). In fact, it was previously documented in the Statement of Basis for PTC No. 023-00001 issued July 28, 2000 that the "hourly" emission limits for PM/PM_{10}, styrene, benzene and VOC were no longer found to be necessary and were removed from the PTC. With regard to the benzene and styrene

emission limits, detailed information is provided in the April 7, 1993 document entitled "SMC Stacks TAN 629-002 and TAN 606-005 Regulatory Analysis, State of Idaho Permit to Construct No. 0340-001 issued June 10, 1992. In this document it is shown that the hourly emission rate of styrene is only 0.011 lb/hr which is far below today's screening emission level of 6.67 lb/hr; also the modeled emission concentrations for benzene and styrene are shown to be 0.03 $\mu g/m^3$ and 0.07 $\mu g/m^3$ respectively which are less than the present day AAC/AACCs of 0.12 $\mu g/m^3$ and 1 mg/m3 respectively.

Existing Permit Conditions 2.1, 2.1.2, 3.1.2, 3.1.3, 3.2.1, 3.4.1, 7.1.3

Upon review of the historical permitting records for the existing PM/PM_{10} and VOC emission limits it has been determined that the annual emission limits are no longer necessary. The limits are not necessary for purposes of assuring compliance with the NAAQS, and they are not needed for purposes of limiting PTE so that a regulatory threshold is not exceeded (e.g., Title V or PSD major source thresholds). Previously it was documented in the Statement of Basis for PTC No. 023-00001 issued July 28, 2000 that the "hourly" emission limits for PM/PM_{10} and VOC were no longer necessary and, therefore, were removed from the PTC. Since the emission limit has been removed, the associated monitoring and recordkeeping requirements were also removed (e.g., production limits and records of weld material usage).

Revised Permit Condition 8

The boiler emission limits were changed to only include SO_2 and NO_x for purposes of assuring compliance with the NAAQS and for maintaining the PTE limits for these sources. Limits for the other pollutants are not necessary as they do not have a bearing on compliance with the NAAQS or with another standard, and these emissions will be inherently limited by the conditions established for compliance with the SO_2 and NO_x limits. The short term NO_x limit was changed from 5.5 to 5.53 lb/hr to more closely reflect the PTE and to minimize rounding errors for all fuels.

Permit Conditions 9 and 10: The requirements in these permit conditions were not substantively changed.

Revised Permit Condition 11

The permit condition for the fuel burning equipment PM standard was changed to be consistent with the same permit condition in the INL Tier I operating permit. Also, the reference to "No. 2 fuel oil" was removed since the boilers are allowed to burn "distillate fuel oil" and not just No. 2 fuel oil.

New Permit Condition 12

This is a standard permit condition that is included in all permits with emission limits at this time.

Revised Permit Conditions 13 and 16, and the existing Appendix for HEPA Filter General Requirements

The existing HEPA Filter system permit conditions and Appendix requirements were consolidated into a single set of permit conditions. These conditions are consistent with the most current version of HEPA filter permit conditions being used in INL air permits. The goal is to get the HEPA filter permit conditions more consistent between the different operating sites at the INL. It is noted that the current version of INL HEPA filter requirements no longer includes periodic reports. The current version of HEPA permit conditions combined with the periodic inspection of records during on-site inspections has proven to be effective for demonstrating on an on-going basis that the HEPA filter systems are installed, maintained and operated in a manner that is consistent with the compliance demonstrations provided in the permit applications.

The citation "State-only Permit Condition" was added at the end of these permit conditions to make it clear that these are "state-only" permit conditions. This designation is important to make since the state-only conditions are not required to be included in Tier I operating permits. A HEPA filter system is integral to this facility to capture radionuclides and prevent their release out of the stack. This system also controls emissions of any other PM and particulate TAPs. Since the HEPA filter system is used to control TAP emissions, and the TAP rules are not part of the EPA-approved State Implementation Plan (i.e., they are state-only rules), requirements for installation and operation of the HEPA system are referred to as "state-only requirements".

New Permit Condition 14

A requirement to specify exactly what fuels are allowed for use in the boilers was added to the permit so this issue is more clear. The existing permit indicated that "No 2 fuel oil" was the allowable fuel, however, the analyses performed for this fuel is based on emission estimates for "distillate oil" and not just No. 2 fuel oil. Distillate oil includes No. 1 fuel oil in addition to No. 2 fuel oil. Emissions for both No.1 and No.2 oil have already been accounted for, therefore, the boilers may use either fuel. Also, as requested by the facility, emission changes were estimated and a compliance review was conducted for combusting liquefied petroleum gas (LPG) or natural gas as an allowable boiler fuel. As documented in this statement of basis, it is demonstrated that all applicable requirements would continue to be met for the TAN SMC boilers if LPG or natural gas are used for fuel. Therefore, LPG and natural gas were added as allowable fuels in this permit condition. For purposes of interpreting compliance with this permit condition, "liquefied natural gas (LNG) or "compressed natural gas (CNG) are considered to be the same as natural gas.

Revised Permit Condition 15

The permit condition for the allowable sulfur content in fuel oil was changed to include more than just "No. 2 fuel oil" and to make it more consistent with the permit condition used in the INL Tier I permit.

New Permit Conditions 18, 19, 20 and 21

These conditions are new for the PTC, but they are not new for the facility since they already exist in the INL Tier I operating permit. Sufficient monitoring and recordkeeping to show compliance with the permit conditions is a requirement under the Title V program in accordance with IDAPA 58.01.01.209.05, 322.06, and 322.07, therefore, these requirements are added to the PTC at this time. Where the monitoring conditions are not consistent with other sections of the Tier I permit, additional changes were made to promote more consistency throughout the Tier I permit as well(e.g., requirements for actual emission records for NRF boilers). These revised monitoring and recordkeeping conditions will be rolled into the forthcoming "renewal Tier I permit" that is currently in the draft permit stage.

Existing Permit Section 6

Section 6 of the existing permit included requirements for a refuse incinerator. As described in the PTC application, operation of the incinerator has been permanently discontinued. Therefore all refuse incineration permit conditions were removed from the permit.

Initial Permit Condition 23

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Initial Permit Condition 24

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 25

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Initial Permit Condition 26

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Initial Permit Condition 27

The construction and operation notification provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 28

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Initial Permit Condition 29

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Initial Permit Condition 30

The performance test report provision requires that the permittee report any performance test results to DEQ within 30 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Initial Permit Condition 31

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 32

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130.

Initial Permit Condition 33

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Initial Permit Condition 34

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Initial Permit Condition 35

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Initial Permit Condition 36

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Initial Permit Condition 37

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

APPENDIX A – EMISSIONS INVENTORIES

INL TAN SMC BOILERS NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

Operating Assumptions: Equivalent Firing Rate = 3.69E-02 MMscf/hr; 24 hr/day; 7,990 hr/yr

Fuel Use: 0.886 MMscf/day; 294.831 MMscf/year

Criteria Air Pollutants	Emission Factor	Emissions		
	lb/MMscf	lb/hr	T/yr	
NO2	100	3.69E+00	1.47E+01	
CO	84	3.10E+00	1.24E+01	
PM10	7.6	2.80E-01	1.12E+00	
		2.80E-01	1.12E+00	
SOx	0.6	2.21E-02	8.84E-02	
		2.21E-02	8.84E-02	
VOC	5.5	2.03E-01	8.11E-01	
Lead	0.0005	1.85E-05	7.37E-05	
Lead, continued			5.37E-03	lb/quarter
		TOTAL	2.91E+01	T/yr

Note: 100 lb/mo Pb in guidance reduced by factor of 10 based on Pb NAAQS (reduced in 2008 from 1.5 ug/m3 to 0.15 ug/

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)				Exceeds EL/ Modeling Required?
	lb/MMscf	lb/hr	EL (lb/hr)	
PAH HAPs				
2-Methylnaphthalene	2.40E-05	8.08E-07	9.10E-05	No
3-Methylchloranthrene	1.80E-06	6.06E-08	2.50E-06	No
Acenaphthene	1.80E-06	6.06E-08	9.10E-05	No
Acenaphthylene	1.80E-06	6.06E-08	9.10E-05	No
Anthracene	2.40E-06	8.08E-08	9.10E-05	No
Benzo(a)anthracene	1.80E-06	6.06E-08	9.10E-05	See POM
Benzo(a)pyrene	1.20E-06	4.04E-08	2.00E-06	See POM
Benzo(b)fluoranthene	1.80E-06	6.06E-08		See POM
Benzo(g,h,i)perylene	1.20E-06	4.04E-08	9.10E-05	No
Benzo(k)fluoranthene	1.80E-06	6.06E-08		See POM
Chrysene	1.80E-06	6.06E-08		See POM
Dibenzo(a,h)anthracene	1.20E-06	4.04E-08		See POM
Dichlorobenzene	1.20E-03	4.04E-05	9.10E-05	No
Fluoranthene	3.00E-06	1.01E-07	9.10E-05	No
Fluorene	2.80E-06	9.42E-08	9.10E-05	No
Indeno(1,2,3-cd)pyrene	1.80E-06	6.06E-08		See POM
Naphthalene	6.10E-04	2.05E-05	3.33	No
Naphthalene	6.10E-04	2.05E-05	9.10E-05	No
Phenanathrene	1.70E-05	5.72E-07	9.10E-05	No
Pyrene	5.00E-06	1.68E-07	9.10E-05	No
Polycyclic Organic Matter (POM)	7-PAH G	3.84E-07	2.00E-06	No
Non-PAH HAPs				
Benzene	2.10E-03	7.07E-05	8.00E-04	No
Formaldehyde	7.50E-02	2.52E-03	5.10E-04	YES
Hexane	1.80E+00	6.64E-02	12	No
Toluene	3.40E-03	1.25E-04	26	No
Non-HAP Organic Compounds				
7,12-Dimethylbenz(a)anthrac	1.60E-05	5.90E-07		
Butane	2.10E+00	7.75E-02		
Ethane	3.10E+00	1.14E-01		
Pentane	2.60E+00	9.59E-02	118	No
Propane	1.60E+00	5.90E-02		
Metals (HAPs)				
Arsenic	2.00E-04	6.73E-06	1.50E-06	YES
Barium	4.40E-03	1.62E-04	0.033	No
Beryllium	1.20E-05	4.04E-07	2.60E-05	No
Cadmium	1.10E-03	3.70E-05	3.70E-06	YES
Chromium	1.40E-03	5.17E-05	0.033	No
Cobalt	8.40E-05	3.10E-06	0.0033	No
Copper	8.50E-04	3.14E-05	0.013	No
Manganese	3.80E-04	1.40E-05	0.067	No
Mercury	2.60E-04	9.59E-06	0.003	No
Molybdenum	1.10E-03	4.06E-05	0.333	No
Nickel	2.10E-03	7.07E-05	2.70E-05	YES
Selenium	2.40E-05	8.86E-07	0.013	No
Vanadium	2.30E-03	8.49E-05	0.003	No
Zinc	2.90E-02	1.07E-03	0.667	No

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

Case-by-Case Modeling Thresholds may be used Of with prior DEQ Approval

Equivalent / Permitted Firing Rate:

$$\left(\frac{277\,gal}{hr}\right)\left(\frac{0.14\,mmBtu}{gal}\right)=\left(\frac{1050\,mmBtu}{mmscf}\right)(x)$$

$$x=\left(\frac{277\,gal}{hr}\right)\left(\frac{0.14\,mmBtu}{gal}\right)\left(\frac{mmscf}{1050\,mmBtu}\right)$$

$x = 3.69E-02\ mmscf/hr$

Emission Estimates: INL TAN SMC BOILERS (Distillate Fuel Oil)

Date: 9/28/11
Reviewer: Ken Hanna, DEQ AQ Stationary Source Program
Distillate Fuel Oil Combustion < 100 MMBtu/hr
Rated Input Capcity = 5.20E+07 Btu/hr

*Fuel usage rate = 275 gal/hr
Sulfur Content = 0.5 % by weight
Annual hours of operation= 7990

Pollutant	Emission Factor[a] (lb/1000 gal)	Emission Rate (lb/hr)	Emission Rate (T/yr)
SO_2	142*S[e]	19.5	78
SO_3	2*S[e]	0.275	1.10
NO_x	20	5.50	22.0
CO	5	1.38	5.49
PM Total	2+1.3	0.908	3.63
PM-10	1	0.28	1.10
VOC[b]	0.34	0.094	0.37
Benzene		0.00E+00	0.00E+00
Ethylbenzene		0.00E+00	0.00E+00
Formaldehyde	4.80E-02	1.32E-02	5.27E-02
Naphthalene		0.00E+00	0.00E+00
1,1,1-Trichloroethane		0.00E+00	0.00E+00
Toluene		0.00E+00	0.00E+00
o-Xylene		0.00E+00	0.00E+00
Acenaphthene		0.00E+00	0.00E+00
Acenaphthylene		0.00E+00	0.00E+00
Anthracene		0.00E+00	0.00E+00
Benz(a)anthracene[c]		0.00E+00	0.00E+00
Benzo(b,k)fluoranthene		0.00E+00	0.00E+00
Benzo(g,h,I)perylene		0.00E+00	0.00E+00
Chrysene[c]		0.00E+00	0.00E+00
Dibenzo(a,h)anthracene[c]		0.00E+00	0.00E+00
Fluoranthene		0.00E+00	0.00E+00
Fluorene		0.00E+00	0.00E+00
Indo (1,2,3-cd)pyrene[c]		0.00E+00	0.00E+00
PAH[d]	0.00E+00	0.00E+00	0.00E+00
POM	0.00E+00	0.00E+00	0.00E+00
Phenanthrene		0.00E+00	0.00E+00
Pyrene		0.00E+00	0.00E+00
Antimony		0.00E+00	0.00E+00
Arsenic	6.00E-04	1.65E-04	6.59E-04
Barium		0.00E+00	0.00E+00
Beryllium	4.00E-04	1.10E-04	4.39E-04
Cadmium	4.00E-04	1.10E-04	4.39E-04
Chloride		0.00E+00	0.00E+00
Chromium	4.00E-04	1.10E-04	4.39E-04
Chromium VI		0.00E+00	0.00E+00
Cobalt		0.00E+00	0.00E+00
Copper	8.00E-04	2.20E-04	8.79E-04
Fluoride		0.00E+00	0.00E+00
Lead	1.30E-03	3.58E-04	1.43E-03
Manganese	8.00E-04	2.20E-04	8.79E-04
Mercury	4.00E-04	1.10E-04	4.39E-04
Molybdenum		0.00E+00	0.00E+00
Nickel	4.00E-04	1.10E-04	4.39E-04
Phosphorous		0.00E+00	0.00E+00
Selenium	2.10E-03	5.78E-04	2.31E-03
Vanadium		0.00E+00	0.00E+00
Zinc	6.00E-04	1.65E-04	6.59E-04

*This is the fuel useage rate that corresponds to the existing SO2 and NOx emission rate limits
a) AP-42 Emission Factors for distillate fuel oil combustion less than 100 MMBtu/hr, Section 1.3
b) Assume total organic compounds is equivalent VOC
c) Compounds which make up PAH
d) Polyaromatic Hydrocarbons
e) Sulfur content in %

Emission Estimates: INL TAN SMC BOILERS (LPG)

Date: 9/28/11
Reviewer: Ken Hanna. DEQ AQ Stationary Source Program
LPG Combustion
Rated Input Capcity = 5.20E+07 Btu/hr

*Fuel usage rate = 425 gal/hr
Sulfur Content = 0.54 grains per 100 cubic feet of gas
Annual hours of operation 7990

Pollutant	Emission Factor[a] (lb/1000 gal)	Emission Rate (lb/hr)	Emission Rate (T/yr)
SO_2	0.10*S[c]	0.0	0
NO_x	13	5.53	22.1
CO	7.5	3.19	12.73
PM Total	0.7	0.298	1.19
PM-10	0.7	0.30	1.19
VOC[b]	0.8	0.340	1.36

*This propane fuel useage rate corresponds to the distillate oil firing rate (i.e., 275 gal/hr) that corresponds to the existing SO2 and NOx emission rate limits
a) AP-42 Emission Factors for distillate fuel oil combustion less than 100 MMBtu/hr, Section 1.3
b) Assume total organic compounds is equivalent VOC
c) Sulfur content in gr/100 ft3

From the worksheet for distillate oil, the fuel firing rate that corresponds with the existing NO_x and SO_2 emission limits is 275 gallons of oil per hour. The equivalent firing rate for LPG is determined as follows:

$$\left(\frac{275\ gal}{hr}\right)\left(\frac{0.140\ MMBtu}{gal}\right) = \left(x\right)\left(\frac{0.0905\ MMBtu}{gal}\right)$$

$$x = \left(\frac{275\ gal}{hr}\right)\left(\frac{0.140\ MMBtu}{gal}\right)\left(\frac{gal}{0.0905\ MMBtu}\right)$$

$$x = 425\ gal/hr$$

APPENDIX B – FACILITY DRAFT COMMENTS

The following comments were received from the facility on September 8, 2011:

Facility Comment: Remove the following sources from Tables 1 and 2, and Permit Condition 10 since these sources no longer are subject to specific emissions limits: TAN 629-002 Phase I Stack, TAN 677-030 welding and cold machine shop stack, TAN679-099 maintenance welding shop hood, and the two standby generators. They continue to be applicable to the visible emissions rule, but since this rule applies to all point sources regardless of whether they are listed in the permit, and as specified in the INL Tier I operating permit, it is no longer necessary to include these sources in the PTC. It is noted that the two standby generators were previously determined to meet PTC exemption requirements, they have not previously been included in the SMC PTC, and for these reasons they should not be added to the PTC at this time.

DEQ Response: The request is consistent with current permitting practices and, therefore, the listing of these sources was removed from the PTC.

Facility Comment: TAN 629-013 Phase 2 Stack should be included in the list of sources subject to the visible emissions standard in Permit Condition 10.

DEQ Response: This source is included in the permit condition.

Facility Comment: Revise the following HEPA Appendix requirements to appear as follows:

2.4 The permittee shall develop written procedures that will be followed to assure compliance with the monitoring and operating requirements of this permit appendix.

2.5 Written procedures based on ASME N510 guidelines will be used to assure that quality and representative data are collected while performing in-place HEPA filter tests. (or replace with MFC PER-39 Section 7.4 language)

DEQ Response: In this permit and in other INL PTCs currently being modified, the HEPA permit requirements were changed to be more consistent across the entire INL facility. The HEPA requirements now are implemented similar to the approach used in the most recent Materials and Fuels Complex PTC as permit conditions instead of including them as a separate appendix. The revised permit conditions have been determined through past practice to be protective and sufficient to ensure that the HEPA filter systems will continue to be maintained and operated as presented in the compliance demonstrations in the PTC applications.

The following comments were received from the facility on October 12, 2011:

Facility Comment: Update facility contact person and responsible official information on permit cover page.

DEQ Response: The cover page information was corrected.

Facility Comment: In Permit Conditions 8, 18, and 19, the boiler TAN 679-607b should be TAN 679-067b.

DEQ Response: The references to this boiler were corrected.

Facility Comment: Update the acronym list in the Statement of Basis.

DEQ Response: The list we updated.

Facility Comment: Table 1 of the Statement of Basis contains sources that are no longer in the permit. Recommend revising this table to reflect the change in Table 1 of the PTC.

DEQ Response: The Statement of Basis table was updated.

Facility Comment: In the Statement of Basis Regulatory Analysis, under "NSPS Applicability (40 CFR 60)", this should be corrected to indicate that the SMC boilers are not subject to the requirements under Subparts Dc or IIII. Also, the diesel engines located at SMC are not subject to Subpart IIII.

DEQ Response: The NSPS applicability information for the SMC was corrected.

APPENDIX C - PTC Fee Calculation

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company:	**INL TAN SMC**
Address:	**INL TAN SMC**
City:	
State:	
Zip Code:	
Facility Contact:	**Tim Safford, Mark Verdoorn, Marty Edwards**
Title:	
AIRS No.:	**023-00001**

N	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
Y	Did this permit require engineering analysis? Y/N
N	Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	7.0	0	7.0
PM10	0.0	0	0.0
VOC	0.4	0	0.4
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**7.4**
Fee Due	**$ 2,500.00**		

Comments: Distillate oil may still be used for boiler fuel so the existing PTE still stands, plus the addition of any additional emissions caused by natural gas combustion. In this case, there are small additions of CO and VOC if the boilers are fired with natural gas at the same firing rates that are already permitted. It is only the additional CO and VOC above what was previously included inthe compliance demonstration that count toward the PTC fee determination. Also, DEQ already received $250.00 of the PTC Processing Fee on 12/2/10, therefore, $2250.00 is still due as of 8/25/11.