Statement of Basis

Permit to Construct No. P-2011.0113
Project No. 60891

U.S. Department of Energy, Idaho Operations Office (DOE-ID)
Battelle Energy Alliance, LLC (BEA)
Idaho National Laboratory (INL)
Materials and Fuels Complex (MFC)
Irradiated Materials Characterization Laboratory (IMCL)
Scoville, Idaho
Facility ID No. 011-00022

FINAL

January 27, 2012
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

AIRS	Aerometric Information Retrieval System
ANSI	American National Standards Institute
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
ASME	American Society of Mechanical Engineers
BEA	Battelle Energy Alliance, LLC
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
DOE-ID	U.S. Department of Energy, Idaho Operations Office
EBR-II	Experimental Breeder Reactor No. 2
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
HAP	hazardous air pollutants
HEU	Highly Enriched Uranium
hp	horsepower
hr/yr	hours per year
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
IMCL	Irradiated Materials Characterization Laboratory
lb/hr	pounds per hour
lb/qtr	pound per quarter
MACT	Maximum Achievable Control Technology
MFC	Materials and Fuels Complex
mrem/yr	millirem per year
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
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
TRU	transuranic
VOC	volatile organic compounds

FACILITY INFORMATION

Description

The primary function of the IMCL is to provide a state-of-the-art laboratory that is efficient and flexible for the analysis and characterization of irradiated and non-irradiated nuclear material samples. The facility will provide research areas to house future program-provided nuclear material scientific research instruments. Future programs will be responsible for procurement, design, and construction of the research instruments, the necessary shielding and confinement, and interface of the instruments with the facility-provided infrastructure. The IMCL will accommodate modular and reconfigurable enclosures, gloveboxes, and fume hoods to enable various characterization environment configurations as changes in demand occur. For more detail, refer to the process descriptions provided in the PTC application that is stored with this document in the TRIM database.

Permitting History

This is the initial PTC for the MFC IMCL, a new facility.

Application Scope

This permit is the initial PTC for the MFC IMCL. See the current Tier I permit statement of basis for the permitting history for the INL. This permit application seeks approval for the construction of a new building with enclosures, gloveboxes, and laboratory hoods. A radiological stack monitoring system is included to monitor emissions from the facility.

Application Chronology

June 21, 2011	DEQ received the PTC application fee.
July 1, 2011	DEQ received a PTC application.
July 7, 2010	DOE/BEA held an informational public meeting for the proposed project.
July 18, 2010	DEQ approved pre-permit construction and determined that the application is complete.
July 14-29, 2011	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action. During this time, a request for a full 30-day comment period was received.
September 30, 2011	DEQ made available the draft permit and statement of basis for peer and regional office review.
October 4, 2011	DEQ made available the draft permit and statement of basis for applicant review.
October 17, 2011	Comments received from the INL regarding the draft permit and basis
October 25 - December 12, 2011	DEQ provided a public comment period for the proposed permit
October 25, 2011	DEQ received the PTC processing fee.

TECHNICAL ANALYSIS

Emissions Units and Control Devices

Table 1 EMISSIONS UNIT AND CONTROL DEVICE INFORMATION

ID No.	Source Description	Control Equipment Description	Emissions Point ID No. and Description
IMCL Stack	Enclosures, Hoods and Gloveboxes in IMCL	HEPA Filter System Control efficiency: 99.97%	IMCL Stack
IMCL Standby Generator	250 hp Standby Generator	Emission controls as required by EPA for the make and model year	Generator stack

Emissions Inventories

An inventory of estimated criteria and TAP emissions was developed by the applicant for the proposed IMCL facility. Since very little material on a mass basis is handled in the facility, estimated emissions of criteria and TAP emissions are based only on the new diesel-fueled standby generator. It was provided as Tables A-1 and A-2 in the permit application and a copy is shown below. Because of the nature of the material processed at this facility, and the low volume/tonnage of material processed, and the ultra-stringent DOE regulations governing the control and emission of materials managed in the IMCL, the air criteria and TAP emissions associated with this new laboratory are very low.

Table A-1. IMCL diesel-fueled standby generator engine emission rates.

Pollutant	Manufacturer Emission Rate[a] (g/hp*hr)	Hourly Emission Rate[b] (lb/hr)	Modeling Threshold[c] (lb/hr)	Annual Emission Rate[d] (ton/yr)	Modeling Threshold[c] (ton/yr)
NO_x	3.00	1.65	NA	0.41	1
CO	1.33	0.73	14	0.18	NA
SO_2[e]	0.15	0.08	0.2	0.02	1
PM/PM_{10}[f]	0.12	0.07	0.2	0.02	1
Ozone (VOCs)[g]	0.13	0.07	NA	0.02	NA

a. Emission rate data are from manufacturer measured emissions for a single engine under laboratory test conditions (Cummins Model 150DSGAC, 250 brake hp).
b. Emission Rate (lb/hr) = Manufacturer Emission Rate (g/hp*hr) / 453.6 g/lb x 250 hp.
c. Modeling thresholds are given in Table 1 of the "State of Idaho Air Quality Modeling Guideline," Doc. ID AQ-011 (rev. 1 12/31/02).
d. Emission Rate (ton/yr) = [Emission Rate (lb/hr) / 2,000 lb/ton] x 500 hr/yr. Hours of operation are based on IDAPA 58.01.01.222.01.d limit of 500 hr/yr maximum for emergency engines.
e. For conservatism, all sulfur oxides are assumed to be sulfur dioxide.
f. For conservatism, all PM emissions are assumed released as PM_{10}. PM_{10} is particulate matter less than or equal to 10 µm aerodynamic diameter.
g. Per IDAPA 58.01.01.006.104.v, the ozone significant emission rate is as volatile organic compounds (VOCs). For conservatism, all manufacturer rated HC emissions are assumed to be VOCs.

Change in Potential to Emit

The change in 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 for the proposed project. Since this is a new facility, the table above presents the change in the potential to emit for criteria pollutants for this project.

TAP Emissions

A summary of the estimated emissions increase of toxic air pollutants (TAP) for the new laboratory is provided in Table A-2 of the permit application. A copy is provided below. All estimated emissions increases of TAP are below applicable emissions screening levels (EL) identified in IDAPA 58.01.01.585 and 586, therefore no additional analyses is necessary under Section 210.

Table A-2. Potential throughput of chemicals at IMCL compared to TAP screening EL (IDAPA 58.01.01.585 and 586).

Chemical Abstracts Service (CAS) #			Chemical Name	Quantity[a] (lb)	Physical State[b] (S,L,G)	Usage[c] (lb/hr)	Screening EL[d] (lb/hr)	Percent of Screening EL (%)
111	76	2	2-BUTOXYETHANOL	7.20E+00	L	2.77E-02	8.00E+00	0.35
67	64	1	ACETONE	6.97E+00	L	2.68E-02	1.19E+02	0.02
107	98	2	ARCOSOLVE PM	9.90E-03	L	3.81E-05	2.40E+01	0.00
94	36	0	BENZOYL PEROXIDE	3.60E-01	L	1.38E-03	3.30E-01	0.42
1333	86	4	CARBON BLACK	2.50E+00	S	9.62E-06	2.30E-01	0.00
111	40	0	DIETHYLENETRIAMINE	3.11E-03	L	1.20E-05	2.67E-01	0.00
64	17	5	ETHANOL	4.77E-01	L	1.83E-03	1.25E+02	0.00
141	78	6	ETHYL ACETATE	2.64E-03	L	1.02E-05	9.33E+01	0.00
107	21	1	ETHYLENE GLYCOL	2.50E+00	L	9.62E-03	8.46E-01	1.14
50	0	0	FORMALDEHYDE	1.36E-01	S	5.25E-07	5.10E-04	0.10
98	0	0	FURFURYL ALCOHOL	4.40E+00	L	1.69E-02	2.67E+00	0.63
107	41	5	HEXYLENE GLYCOL	1.54E-02	L	5.91E-05	8.06E-01	0.01
7664	38	2	HYDROCHLORIC ACID	1.23E+00	L	4.73E-03	5.00E-02	9.46
7722	84	1	HYDROGEN PEROXIDE	3.02E+00	L	1.16E-02	1.00E-01	11.62
1309	37	1	IRON OXIDE	1.48E-02	S	5.69E-08	3.33E-01	0.00
67	63	0	ISOPROPANOL	1.41E+01	L	5.42E-02	6.53E+01	0.08
1309	48	4	MAGNESIUM OXIDE	1.00E+00	S	3.85E-06	6.67E-01	0.00
67	56	1	METHYL ALCOHOL	5.23E+00	L	2.01E-02	1.73E+01	0.12
78	93	3	METHYL ETHYL KETONE	2.08E-02	L	8.00E-05	3.93E+01	0.00
12001	26	2	MICA	1.25E+01	S	4.81E-05	2.00E-01	0.02
2426	8	6	N-BUTYL GLYCIDYL ETHER	8.98E-03	L	3.45E-05	9.00E+00	0.00
7697	37	2	NITRIC ACID	2.02E+00	L	7.77E-03	3.33E-01	2.33
108	95	2	PHENOL	2.83E+01	L	1.09E-01	1.27E+00	8.57
7664	38	2	PHOSPHORIC ACID	2.20E+00	L	8.46E-06	6.70E-02	0.01
85	44	9	PHTHALIC ANHYDRIDE	6.93E-01	L	2.67E-03	4.00E-01	0.67
1310	58	3	POTASSIUM HYDROXIDE	1.70E+01	S	6.54E-05	1.33E-01	0.05
14808	60	7	SILICA	8.88E+00	S	3.42E-05	6.70E-03	0.51
409	21	2	SILICON CARBIDE	2.98E+00	S	1.15E-05	6.67E-01	0.00
7440	22	4	SILVER	3.96E-02	S	1.52E-07	1.00E-03	0.02
1303	96	4	SODIUM BORATE	3.13E-04	L	1.20E-06	6.70E-02	0.00
8052	41	3	STODDARD SOLVENT	6.25E-02	L	2.40E-04	3.50E+01	0.00
7664	93	9	SULFURIC ACID	1.00E+00	L	3.85E-03	6.70E-02	5.74
109	99	9	TETRAHYDROFURAN	5.96E-02	L	2.29E-04	3.93E+01	0.00
108	88	3	TOLUENE	2.74E+00	L	1.05E-02	2.50E+01	0.04
7647	1	0	TUNGSTEN POWDER	9.80E+00	S	3.77E-05	3.33E-01	0.01
8006	64	2	WHITE SPIRIT	2.83E-02	L	1.09E-04	3.73E+01	0.00
1330	20	7	XYLENE	6.25E-02	L	2.40E-04	2.90E+01	0.00

a. Represents estimated quantity used per year based on amount ordered through chemical tracking inventory.

b. Physical state used to determine potential release factor; i.e., solid (S), liquid (L), or gas (G). All substances that are solids are assumed to have a release factor of 0.001; all others have a release factor of 1.0.

c. Usage is assumed to be total quantity used in a year, released 5 days per week in a one-hour period each day.

d. Screening EL are from IDAPA 58.01.01.585 and 586.

Ambient Air Quality Impact Analyses

As presented in Tables A-1 and A-2 above, the estimated emission rate increases of all pollutants resulting from this project were below applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Therefore, modeling was not required for this project.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Bingham 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 proposed source has an estimated radionuclide dose that would exceed the PTC exemption criteria. Therefore, the permittee has requested that a PTC be issued. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

IDAPA 58.01.01.224-228 Permit to Construct Fees

The PTC application fee of $1000.00 applies per Section 224. In addition, the PTC processing fee of $1000.00 applies per Section 225 since this project will result in an emissions increase of less than one ton per year. Refer to the chronology for the fee receipt dates.

IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

The potential uncontrolled emissions of TAPs from the proposed facility are all less than the corresponding emission screening level (EL) listed in Sections 585 and 586 of the Rules. Refer to the Table A-2 above. No additional information is necessary to demonstrate compliance with the TAP standards per Section 210.05.

IDAPA 58.01.01.213 Pre-permit Construction

The permittee applied for and complied with the requirements for obtaining Pre-permit construction approval for the IMCL project. This included compliance with the requirements for providing notice and holding an informational meeting to inform the public of the proposed project. This meeting was held at the Idaho Falls Public Library on July 7, 2011. The application materials were reviewed and found to be complete and include information to describe how compliance will be achieved with applicable requirements for the proposed project. On this basis, pre-permit construction approval was issued by DEQ on July 18, 2011. With this approval the applicant may commence construction, at risk as described in Section 213.02, however, commencement of operations as described under the proposed project shall not occur until after the PTC is issued.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 Tier II Operating Permit

The procedures of IDAPA 58.01.01.400–410 for a Tier II Operating Permit do not apply.

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

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 is assured by conditions in the Tier I operating permit that set forth requirements for periodic visual emissions inspections at the facility.

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 a Tier I Operating Permit has been issued for this purpose. It is not necessary to modify the Tier I permit as a result of issuance of this PTC since it already contains site-wide requirements to meet the NESHAP regulations under 40 CFR 61 Subpart H, the renewal Tier I permit will address 40 CFR 63 Subpart ZZZZ for the emergency generator, and because the remaining conditions in this PTC are "State-only Requirements" that are not required to be included in the Tier I permit.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 Prevention of Significant Deterioration of Air Quality

The INL is classified as an existing major stationary source under the PSD program. It is noted that there is not a reasonable possibility that this project would be a major modification, since the increase in emissions is far below the significant thresholds. Also, no limitations were applied to this project to prevent it from being a major modification. The PSD requirements, including the recordkeeping requirements under 52.21(r)(6) do not apply to this project.

NSPS Applicability (40 CFR 60)

For the standby generator, the NSPS requirements under 40 CFR 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, apply. The detailed permit conditions for these requirements will be addressed in detail in the forthcoming Tier I renewal permit, therefore, only a broadly summarized permit condition to specify applicability of this Subparts A and IIII are included in this PTC. In the interim period until the renewal Tier I permit is issued, the permittee must still comply with all applicable requirements under Subparts A and IIII. As presented in section 6.2 of the PTC application, a more detailed breakdown of requirements that apply under Subpart IIII is provided below:

40 CFR 60.4200, Applicability of 40 CFR 60 Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The engine for the IMCL emergency generator is a stationary compression ignition (CI) ICE manufactured after April 1, 2006. Therefore, per 40 CFR 60.4200(a)(2)(i), 40 CFR 60 Subpart IIII is applicable to this facility.

40 CFR 60.4202, Stationary CI ICE Manufacturer Certification of Compliance with Emission Standards

Section (a)(2)of 40 CFR 60.4202 is applicable because the IMCL generator is a model year 2011 with maximum power of less than 3,000 hp, but greater than 50 hp, and a displacement of less than 10 liters per cylinder. The manufacturer must certify to the emission standards in 40 CFR 89.112 and 113.

40 CFR 60.4205, Stationary CI ICE Emission Standards

Section (b) of 40 CFR 60.4205 is applicable because the IMCL generator engine is a model year 2011 emergency stationary ICE with a displacement of less than 30 liters per cylinder.

40 CFR 60.4206, Length of Time CI ICE Emission Standards Applicable

This section is applicable for the IMCL generator. As such, the engine must be operated and maintained to the emissions standards over the entire life of the engine.

40 CFR 60.4207, Fuel Requirements for Stationary CI ICE

Section (b) of 40 CFR 60.4207 is applicable for the IMCL. Compliance with the fuel requirements is met by the INL diesel fuel subcontracts that require the sulfur in diesel fuel to meet the specification of40 CFR 80.510(b).

40 CFR 60.4209, Stationary CI ICE Monitoring Requirements

40 CFR 60.4209 is applicable for the IMCL. The manufacturer will be required to include a nonresettable hour meter on the IMCL standby diesel generator engine. If the IMCL generator engine requires a diesel particulate filter to meet emissions standards, it will be installed with a backpressure monitor for notification when the high backpressure limit of the engine is approached.

40 CFR 60.4211, Stationary CI ICE Compliance Requirements

Sections (a), (c), and (e) of 40 CFR 60.4211 regarding operating and maintenance compliance requirements are applicable to the IMCL generator engine, as it is a model year 2011 stationary CI ICE.

40 CFR 60.4214 Stationary CI ICE Notification, Reporting, and Recordkeeping Requirements

Sections (b) and (c) of 40 CFR 60.4214 regarding operations recordkeeping are applicable to the IMCL generator engine.

NESHAP Applicability (40 CFR 61)

The IMCL is subject to NESHAP regulations under 40 CFR 61 Subpart H, National Emission Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities. Under 40 CFR 61.93, this project will trigger additional stack monitoring requirements for the IMCL. To put his into perspective, the MFC Fuel Manufacturing Facility (FMF), stack monitoring system is categorized as a Potential Impact Category (PIC) 1 monitor (greater than 5 mrem/yr unmitigated). The IMCL is a PIC 2 monitor because the dose is less than 5 mrem/yr unmitigated. Here is the difference according to ANSI/HPS N13.1 1999 Table 2: PIC 1 " Continuous sampling for a record of emissions and in-line, realtime monitoring with alarm capability; consideration of separate accident monitoring system". A PIC 2 is "Continuous sampling for record of emissions, with retrospective, off-line periodic analysis".

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. This project for the IMCL triggers the requirement to apply for an "approval to construct" from the EPA in accordance with 40 CFR 61.96. This application was sent to EPA and approved on August 23, 2011. Refer to the copy attached in Appendix A for details. 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 project for the IMCL, and they do not require modification as a result of issuance of this permit.

MACT Applicability (40 CFR 63)

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. The IMCL emergency generator will use a diesel-fueled CI RICE with a site rating of 250 brake hp. The INL is a major source of HAP emissions and the IMCL generator engine is both an emergency stationary RICE with a site rating of less than or equal to 500 brake hp and a stationary CI RICE with a site rating of less than or equal to 500 brake hp. Per 40 CFR 63.6590(c), "stationary RICE subject to regulations under 40 CFR Part 60" must meet the requirements of 40 CFR 63 by meeting the requirements of 40 CFR part 60 subpart IIII, for CI engines. No further requirements apply for this engine under 40 CFR Part 63.

CAM Applicability (40 CFR 64)

The Compliance Assurance Monitoring (CAM) requirements under 40 CFR Part 64 do not apply to the HEPA filter system because the potential pre-control device emissions of PM/PM10 are less than 100 tons per year in accordance with 40 CFR 64.2(a)(3).

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.

Initial Permit Conditions 1-4

These are standard permit conditions that provide a description of the project.

Initial Permit Conditions 5, 6, 8 and 10

These permit conditions set forth the NESHAP regulations under 40 CFR 61 Subpart H as they apply to the IMCL. The NESHAP regulations include the following; emission standard/limit under 40 CFR 61.92 that applies to all sources at the INL, including the IMCL; detailed operating monitoring and recordkeeping requirements under 40 CFR 61.93, including requirements for the IMCL to install and operate an emission monitoring system to monitor radionuclide emissions; and recordkeeping and reporting to document radionuclide emissions and effective dose equivalent values in accordance with 40 CFR 61.94 and 61.95.

For consistency with the FMF permit issued for the MFC, with regard to permit conditions 6 and 8.1, it is recognized that radiological and nuclear material that is not being processed in IMCL is stored in a closed container. The term "primary container" is the verbiage used for this closed container.

Initial Permit Conditions 7 and 9

For consistency across the INL site, HEPA filter system permit conditions have been standardized in the most recently issued permits. The standard HEPA filter system permit conditions are included in this permit. 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 credit is taken for reduction of TAP emissions by the HEPA filter system, requirements for installation and operation of this system are included in the permit as "state-only requirements". The PTC conditions are included to assure that the filter system continues to operate in the manner described in the permit application, and for which compliance with applicable requirements was demonstrated in the permit application. Those specific requirements include the following: minimum filter efficiency; standards for installation and testing; procedures for operation and maintenance; and requirements for monitoring and recordkeeping of pressure drop measurements.

With regard to permit condition 9, the term "when facility is accessed for operation" was used instead of the typical permit language "in operation" to address instances where the facility may not be manned (i.e. weekends or periods of curtailment).

Initial Permit Condition 11

The standard permit condition that addresses the applicability of CFR requirements was added to this permit. This is consistent with the permit condition that is used in the facility-wide section of the INL Tier I renewal permit. It is important to note that whenever there is a conflict in the meaning between a PTC permit condition and a CFR requirement, the CFR will take precedence.

Initial Permit Condition 12

The requirements under 40 CFR 60 Subparts IIII and A apply the new 250 hp diesel-fired compression ignition standby generator. Detailed requirements for this all of the standby and emergency engines at the INL are being developed as part of the forthcoming INL renewal Tier I operating permit, therefore, refer to that permit for details on the specific parts of Subpart IIII that apply to this source.

Initial Permit Conditions 13 through 25; PTC General Provisions

Standardized "General Provisions" that are included in all Permits to Construct are also included in this permit. Those provisions are described individually below:

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.

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.

The obligation to comply with 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.

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

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.

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.

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.

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.

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.

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

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

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

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

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

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 a request for a full comment period was received, therefore a 30-day public comment period on the draft permit was provided in accordance with IDAPA 58.01.01.209.01.c. During the comment period, a request to extend the comment period was received from the Shoshone-Bannock Tribes, so the comment period was extended an additional 15 days. During this time, there were comments received on DEQ's proposed action. Refer to the Application Chronology above for public comment opportunity dates.

APPENDIX A – EPA APPROVAL, 40 CFR 61 SUBPART H NESHAP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

AUG 23 2011

OFFICE OF
AIR, WASTE AND TOXICS

Mr. Tim J. Safford
Environmental Technical Support Division
Department of Energy
Idaho Operations Office
1955 Fremont Avenue
Idaho Falls, Idaho 83415

Re: Idaho National Laboratory Radionuclide Emissions from the Materials and Fuels Complex (MFC) for construciton of the Irradiated Materials Characterization Laboratory (IMCL)

Dear Mr. Safford:

This letter is in response to your June 15, 2011, letter requesting the U.S. Environmental Protection Agency's review and approval of the Application to Construct the Irradiated Materials Characterization Laboratory (IMCL) at the Materials and Fuels Complex (MFC) of the Idaho National Laboratory (INL). In the request, the proposed IMCL construction will provide a state-of-the-art laboratory efficient and flexible for analysis and charaterization of irridiated and nonirradiated nuclear material samples. Based on the discussion below, the EPA approves your request to construct the IMCL.

BACKGROUND

The purpose of this application is for approval of construction of the IMCL. The IMCL will be located in the north area of the MFC, north of the existing Hot Fuel Examination Facility. The IMCL will provide research areas to house future program-provided nuclear material scientific research instruments. Instruments will be purchased at later dates and will be the responsibilities of future research activities. The construction of IMCL will accommodate a series of modular and reconfigurable enclosures, gloveboxes, and fume hoods by providing power, communications, fire protection, process gas, plumbing, and heating, ventilation, and air conditioning (HVAC) infractructure.

The anticipated maximum amount of radionuclides to be processed in one year at the IMCL is 260 grams of fifth recycled materials. The fifth recycle fuel is a transmutation fuel fabricated from the most radioactive dregs that could come out of a fuel recycle plant where the goal is to transmute hazardous heavy elements into shorter-lived radionuclides. After five cycles of reprocess and fabrication, the fuel will be loaded with radioisotopes of Americium, Curium, and Plutonium.

The IMCL design will incorporate the ability to conduct effluent flowrate measurements, and directly monitor or extract, collect, and measure readionuclides using the methods specified in ANSI/HPS N13.1-1999, 40 CFR 61.93(c)(1), and (c)(2).

The calculated exposure to the Maximally Exposed Individual (MEI) from future IMCL activities will by 3.65E-07 millirems (mrem) per year.

DETERMINATION

EPA has reviewed the project application and the proposed methodology for estimating radionuclide emissions. The following determinations were made based on the information provided by INL regarding the IMCL construction:

1. **40 CFR 61 Subpart H**

The INL used the following assumptions to calculate the total unabated dose for the purpose of the determining whether continuous monitoring is required per 40 CFR 61.93:

1. Twenty five percent (25%) of the total materials were heated to great that 100 °C;
2. All materials heated above 100 °C are considered air borne releases except Cs-137, which has a boiling point of 671 °C;
3. Cs-137 will be released in particulate matter form due to its boiling point exceeding HEPA filter operation temperature.

The calculated abated effective dose equivalent (EDE) from anticipate IMCL activities will be 3.65E-07 mrem per year. Pursuant to 40 CFR 61.96(e), periodic confirmatory measurements shall be made to verify the low emissions and all radionuclides that could contribute greater than 10% of the potential EDE shall be measured.

2. **40 CFR 61 Subpart A**

According to 40 CFR 61.07(a), the owner or operator shall submit to the Administrator an application for approval of the construction of any new source or modification of any existing source. Based on the 3.65E-07 mrem per year estimated emissions from IMCL operations, the dose to the MEI will not exceed the 10 mrem per year limit set forth in 40 CFR 61.92.

I hereby approve the construction of the Irridiated Materials Characterization Laboratory located at the north area of the Materials and Fuels Complex in the Idaho National Laboratory.

Please note that this approval only allows the use of the methods described in the INL technical report, *Irradiated Materials Characterization Laboratory-Application for an Air Quality permit to Construct and Approval to Construct*, INL/MIS-11-21791; any methods not listed in this document will not be accepted for estimating PTE at INL. If DOE-INL wishes to use alternative methods for PTE estimation, it will be required to submit requests for EPA review and approval. It is DOE-INL's responsibility to ensure that it is compliant with all State and local requirements for calculating radionuclide air emissions doses.

If you have any questions regarding this approval, please contact Davis Zhen of my staff at 206-553-7660 or email at zhen.davis@epa.gov.

Sincerely,

Richard Albright, Director
Office of Air, Waste & Toxics

From: Davis Zhen [mailto:Zhen.Davis@epamail.epa.gov]
Sent: Wednesday, July 27, 2011 10:22 AM
To: Safford, Tim J
Subject: Re: Idaho National Laboratory Application To Construct - Irradiated Materials Characterization Laboratory

Hi Tim,

I just finished reviewing the ATC, and have the following questions:

Section 5.2 talked about 260 grams of 5th recycled material, what is exactly is a 5th recycled material? How did you arrived at the 260 grams? Why is the 260 grams conservative, and representative of the overall operations? The Isotopic Masses (first column) in Table 5.1 does not add up to 260, what other materials are we missing, I assume there are bunch of other nuclides that add up to the remaining, which is more than 80 grams?
Section 6.2, for the release fractions, could you elaborate as to how the 75% and 25% were derived, because this could trigger an alternative release fraction if INL wants to use this release fraction to report emissions?
Table B-3 used the 0.25 as the airborne release factor while B-4 used the 10^3 release factor except Cs-137, could you explain why you used the different release factors? If Cs-137 is volatilized, then all of it should be considered gas.
Table B-5 footnote c assumes all Cs-137 return to particulate form before the HEPA filters, how was this assumption made?

Thank you,

Davis

From: "Safford, Tim J" <saffortj@id.doe.gov>
To: Davis Zhen/R10/USEPA/US@EPA
Cc: "Solle, Tim A" <tim.solle@inl.gov>, "Gosswiller, Kelly J" <kelly.gosswiller@inl.gov>, "McManus, Gary J" <gary.mcmanus@inl.gov>, "Rasch, Donald N" <raschdn@id.doe.gov>, "Sorrell, Steven W" <sorrelsw@id.doe.gov>
Date: 08/04/2011 09:25 AM
Subject: RE: Idaho National Laboratory Application To Construct - Irradiated Materials Characterization Laboratory

Hi Davis - attached are responses to your questions. If you would like further clarification on these or if there are additional questions - let me know and we can either respond via e-mail or we would be happy to discuss on a conference call.

Thank you.

Tim

Tim Safford
U.S. Department of Energy - Idaho Operations
Environmental Technical Support Division
(208) 526-5670

saffortj@id.doe.gov

Section 5.2 talked about 260 grams of 5th recycled material, what is exactly is a 5th recycled material?

A 5th recycle fuel is a transmutation fuel fabricated from the hottest dregs that could come out of a fuel recycle plant where the goal is to transmute hazardous heavy elements into shorter lived (still hazardous) radionuclides. After five cycles (irradiate, reprocess, fabricate, then irradiate – five times) the fuel is loaded with americium, curium, and plutonium in sufficient quantities to make it very self-protecting. That fuel represents the worst possible material that can be envisioned handled over the life of MFC (not just the IMCL).

The INL had Brookhaven Laboratory take a 5th recycle fuel composition, simulate an irradiation, and return a simulation of what isotopes would be in a fuel pellet at reactor discharge. There is no more worst-case material at MFC today, or anticipated by any envisioned fuel development program.

How did you arrived at the 260 grams? Why is the 260 grams conservative, and representative of the overall operations?

Based on the kinds of work to be performed in IMCL, how big the sample sizes would be, and how much material it would take to make the facility independent of shipping schedules and issues that happen between facilities, two standard-shaped, oxide fuel pellets is considered the "conservative case." That works out to the approximately 260 grams total mass, which provides a conservative safety envelope in which to operate.

The Isotopic Masses (first column) in Table 5.1 does not add up to 260, what other materials are we missing, I assume there are bunch of other nuclides that add up to the remaining, which is more than 80 grams?

Your assumption is correct – not all radionuclides contained in the 260-gram sample contribute significantly to the overall dose. Table 5.1 includes only those nuclides that contribute significantly to the total dose. The isotopes that make up the remaining 112.08 grams add only about 0.7% to the overall dose of 593 mrem/yr (see table included).

Section 6.2, for the release fractions, could you elaborate as to how the 75% and 25% were derived, because this could trigger an alternative release fraction if INL wants to use this release fraction to report emissions?

The 25/75 split is to reflect that of the total material processed at IMCL; that is, 25% of the material is heated to greater than 100°C and 75% is processed at a lower temperature. (It is **not** meant to reflect that all the material is **processed** at >100°C, and only 25% of that volatilizes.) This assumption falls within the boundaries of Appendix D and should not require approval of an alternative release fraction.

Table B-3 used the 0.25 as the airborne release factor while B-4 used the 10^3 release factor except Cs-137, could you explain why you used the different release factors? If Cs-137 is volatilized, then all of it should be considered gas.

Table B-3 summarizes the dose to the MEI for the purpose of determining if an ATC is needed, which requires the use of Appendix D factors. Thus, it was assumed (for this purpose) that all of the material that is heated (25% of the total) to >100°C volatilizes, as prescribed by Appendix D.

Values presented in Table B-4, on the other hand, are for the purpose of determining if continuous monitoring is required. This calculation does not require the use of Appendix D factors, so a more realistic estimate was calculated using factors based on actual process knowledge. Based on physical characteristics of the isotopes, namely vapor pressures and boiling points, none of the isotopes will volatilize at the planned process temperatures, except for cesium-137. So, of the mass that is heated (25% of the total), it is expected that only cesium-137 has the potential to volatilize.

Table B-5 footnote c assumes all Cs-137 return to particulate form before the HEPA filters, how was this assumption made?

Since the boiling point of cesium is 671°C, it is reasonable to assume that by the time the cesium has mixed with the bulk of the exhaust, it has cooled to below 671°C, returning it to a particulate form prior to entering the HEPA bank. In fact, the design of the local exhaust system will ensure that the exhaust has cooled, as HEPA filters are limited to much lower temperatures.

APPENDIX B – FACILITY DRAFT COMMENTS

The following comments were received from the facility on October 20, 2011:

Facility Comment: Correct various typographical and grammatical errors in the Permit and Statement of Basis.

DEQ Response: The errors were corrected.

Facility Comment: The Permittee on the permit cover page should be as follows: U.S. Department of Energy, Idaho Operations Office (DOE-ID) and Battelle Energy Alliance, LLC (BEA), Idaho National Laboratory (INL)

DEQ Response: The Permittee name was changed as requested.

Facility Comment: On the permit cover page, change the Facility Contact to be "Teresa Perkins; Director, Environment and Sustainability Division; (208) 526-1483.

DEQ Response: The information was changed.

Facility Comment: On the permit cover page, change the Responsible Official information as follows: "~~Secretary~~Director, ES&H, Battelle Energy Alliance, LLC"

DEQ Response: The information was changed.

Facility Comment: In Tables 1 and 2 of the permit and Table 1 of the Statement of Basis, HEPA control efficiency should not be referenced to PM_{10}. It should be shown as 99.97%

DEQ Response: The descriptions were changed. Control efficiency is addressed by the methods specified for testing the HEPA filters.

Facility Comment: In permit conditions 6 and 8.1, change the phrase "samples outside its primary container", to be "samples outside their primary containers".

DEQ Response: The text was corrected.

Facility Comment: Permit Condition 12 should refer to Subpart IIII instead of III.

DEQ Response: The text was corrected.

Facility Comment: Add IMCL to the list of acronyms in the Statement of Basis.

DEQ Response: The acronym was added.

Facility Comment: In the Statement of Basis, change the text in the Application Scope section to read as follows: This permit application seeks approval for the construction of a new building with ~~installation of new~~ enclosures, …

DEQ Response: The text was changed as requested to improve the description of the project.

Facility Comment: In the Statement of Basis Permit Conditions Review section, with regard to information shown for Permit Conditions 5, 6, 8, and 10, the reference to "permit conditions 6 and 9.1" should be changed to be "permit conditions 6 and 8.1."

DEQ Response: The permit condition reference was corrected.

APPENDIX C – PUBLIC COMMENT PERIOD COMMENTS

The following comments were received from Beatrice Brailsford, Nuclear Program Director, Snake River Alliance, on December 12, 2011:

Comment : Will material already at the Idaho National Laboratory be the "feedstock" for the Irradiated Materials Characterization Laboratory? Or will the feedstock be material covered by the January 6, 2011, Memorandum of Agreement Concerning Research Quantities of Commercial Spent Nuclear Fuel? Or will the feedstock be both brought in and material already in Idaho?

DEQ Response: With regard to requirements for a permit to construct (PTC) a decision pertaining to the origin of the material being processed is not an issue that can be addressed under the PTC rules at IDAPA 58.01.01.200. Decisions regarding what materials may be brought to the INL and how long they may be kept there are based on other documents outside of the air permitting process, such as by the January 6, 2011 Memorandum you have noted. The INL Oversight Program reviewed the terms of the 1995 Settlement Agreement and the 2011 MOA for commercial spent nuclear fuel and did not find that issuing an air permit to construct to DOE to be contrary to either document. The INL Oversight Program will continue to monitor spent nuclear fuel shipments to the INL to insure compliance with the 1995 Settlement Agreement and the 2011 MOA. Please refer to the information provided by the Department of Energy/Battelle Energy Alliance (DOE/BEA) in response to your inquiry concerning the source of the material at page number 31 of this document.

Comment : Page 11 of the application reads: "The amount of radionuclides to be processed at the IMCL is **based on** [emphasis added] 260 g of fifth recycled material, which is considered the maximum amount of fuel to be analyzed in the IMCL in one year. This most conservative fuel composition is the result of **postulated** [emphasis added] transmutation fuels being irradiated and recycled five times. The isotopes listed are those that contribute more than 0.01% of the total dose to the maximally exposed individual (MEI)." The August 23, 2011, letter to DOE-ID from the Environmental Protection Agency included in the Statement of Basis reads: "The anticipated maximum amount of radionuclides to be processed in one year at the IMCL is 260 grams of fifth recycled materials. The fifth recycle fuel is a transmutation fuel fabricated from the most radioactive dregs that could come out of a fuel recycle plant where the goal is to transmute hazardous heavy elements into shorter-lived radionuclides. After five cycles of reprocess and fabrication, the fuel will be loaded with radioisotopes of Americium, Curium, and Plutonium." Those two statements imply very different things: Is the EPA describing something that has happened or will happen, here or elsewhere? Is Batelle using "260 g of fifth recycled material" as a bounding quantity? It's somewhat disquieting to see confusion about something as basic as what's going into the facility.

DEQ Response: Refer to the response for the comment immediately above this one. The origin of the material being processed is not a decision that can be addressed under the PTC permitting process. DOE/BEA has described the material that will be managed at this facility (as also described in the EPA approval under 40 CFR Part 61 that is attached above). If, after operations commence, it is discovered by the EPA or DEQ that the laboratory is managing materials in a manner that is not consistent with what was described in approval applications, then the facility could be found in violation and an enforcement action taken. With regard to compliance under this air quality permit to construct, the primary requirements that this facility must meet are set forth in detail under 40 CFR Part 61, Subpart H. Refer to the DOE/BEA response for information on this subject.

Comment : Furthermore, the statement in the application does not seem to include the sufficient detail needed to meet the Idaho Administrative Procedures Act's criteria for completeness (58.01.01.361).

DEQ Response: Sufficient information was provided in the permit application for DEQ to determine what the applicable requirements are for this facility (e.g., 40 CFR 60 Subpart H) and to demonstrate that the facility will be capable of complying with them. The applicable requirements are issued as permit conditions in the Permit to Construct (PTC), and these same requirements will also become applicable requirements addressed by the INL Tier I operating permit. The currently effective INL Tier I operating permit already contains the requirements that will apply to this facility.

The following comments were received from Roger Turner, Air Quality Officer, Shoshone-Bannock Tribes, on December 12, 2011:

Comment : In general the application lacks sufficient detail of the project to enable the public to understand the project and, moreover, limits the IDEQ staff's ability to write an enforceable permit for this facility. The applicant failed to clearly describe the raw material characteristics and projected inventory, failed to adequately describe the equipment usage and failed to propose a monitoring system that is adequate. With the above shortfalls and gaps the IDEQ cannot write an enforceable permit for the IMCL. With the vagueness of the application comes with it a permit without practical emission limits and lacking in monitoring requirements; but this can be corrected by obtaining more information from the applicant and re-writing a permit.

DEQ Response: DEQ has sufficient detail to understand the nature of business and sources of emissions from the proposed facility. The permit contains sufficient emissions limits, operating, monitoring and recordkeeping conditions to assure the facility will meet applicable requirements, as defined under the Permit to Construct and Title V air programs on an on-going basis. Refer to the detailed responses provided below for the issues included in this comment.

Comment : On page 1 of the application it states that there are 2 purposes for the facility: (1) Build and operate a sample enclosure/sample storage area and; (2) carry out experiments on nuclear material. Unfortunately, the experiments are not described, nor the equipment needed to carry out the experiments. As far as the sample enclosures are concerned, the applicant failed to describe them, because they are modular and need to be changed depending on the circumstances. Although the applicant claims that they intend on constructing a section for storage of the samples, there is not a description of the intended storage capacity or precautions to prevent releases from the storage area (except the vague description of exhaust fans and duct work). Hence the applicant failed to complete the application details of the facility to be constructed.

DEQ Response: With regard to the storage activity, the applicant has provided sufficient information to issue a PTC. Storage of this type of material is an activity that does not generate emissions to the ambient air. Under Section 201 of the Rules, a PTC is required for a new "stationary source". Section 006.119 defines a stationary source as "any building, structure, facility, emissions unit, or installation which emits or may emit any air pollutant. The fugitive emissions shall not be considered in determining whether a permit is required unless required by federal law." Since normal operations of this storage area will not emit any air pollutant, then this activity is not considered to be a "stationary source" and, therefore, the storage activity is not subject to PTC requirements. The only event in which permitting requirements might apply to the storage activity is if an upset condition were to occur that resulted in air emissions outside of the building. In that case, the general permit conditions governing excess emissions and requirements under 40 CFR 61 Subpart H would apply and those requirements are already included in both the PTC and the INL site-wide Tier I operating permit.

Comment : As far as the "experiments" are concerned, the applicant provided no practical explanation of them. No description was provided and --as far as IDEQ is concerned-- these open ended experiments could be dangerous or release toxics or radionuclides in such volume to overwhelm the scrubber system. IDEQ has the right and the obligation to find out what types of experiments are planned, the equipment used at this air emission source.

DEQ Response: The applicant has provided sufficient information to understand the potential amount and nature of emissions. With regard to TAPs and HAPs, a detailed list of laboratory chemicals was provided based on actual operating experience at existing INL laboratories to demonstrate that emission of no TAPs would exceed the emissions screening levels in Sections 585 and 586 of the Rules. With regard to on-going compliance, during future inspections of INL facilities like this, if DEQ discovers that the facility is not operating as described in the permit application, it could be subject to a compliance/enforcement action (refer to the "Permit Authority" listed on the cover page of the permit). With regard to the emission of radionuclides, approval of the Application to Construct under 40 CFR 61

Subpart H is managed by EPA Region 10 based on information in the permit application and based on additional information provided by the applicant on August 4, 2011. A copy of that information has been added to Appendix A. Note that EPA has not delegated authority to the Idaho DEQ for implementation and enforcement of 40 CFR 61 Subpart H as part of the approval of Idaho's State Implementation Plan (i.e., the Rules for the Control of Air Pollution in Idaho), therefore, authority for review and approval of the radionuclide regulations under Subpart H rests with the EPA. This review/approval process occurs as a separate action from issuance of this PTC.

Comment : Draft Basic Permit lacks Basic permit limits and enforceability – One of the most basic minimum requirements for an enforceable air permit is to limit raw material throughput or hours of operation. The applicant proposed that throughput was "260 g of 5th recycled material". Setting aside for a moment the fact that this strange description is not explained or defined in the application, the IDEQ should place an enforceable limit on the raw material to be processed, experimented on, and stored at this facility. Otherwise, the applicant may add projects that would run many more times this amount through this facility, increasing the air emissions over Federal and State limits, without any permit restrictions to do so. IDEQ needs to require a limit on the raw throughput to this facility or their permit is unenforceable.

DEQ Response: Refer to the information in Appendix A for more information regarding the "260 grams of 5th recycled material"; also refer to the copy of information attached below provided by the Department of Energy and Battelle Energy Alliance. The permit does include an enforceable limit for the emissions of radionuclides. It is the federal emission limit set forth in Permit Condition 5 which reads as follows: "In accordance with 40 CFR 61.92, emissions of radionuclides to the ambient air from Department of Energy facilities shall not exceed those amounts that would cause any member of the public to receive, in any year, an effective dose equivalent of 10 millirems per year (mrem/yr)." To assure compliance with this limit, 40 CFR 61 Subpart H includes detailed and extensive operating, monitoring and recordkeeping requirements that DOE/BEA must comply with, including requirements for an in-stack monitoring system to measure actual emissions from this facility. The permit incorporates these requirements by reference. In a situation where the CFR already establishes sufficient operating, monitoring and recordkeeping requirements to assure compliance (i.e., with the radionuclide emission standard), it is not necessary to add additional requirements in the PTC for this purpose.

Comment : In addition to the above referenced need for throughput limits. Another basic requirement of permitting is to limit emissions. Unfortunately, the draft permit places an efficiency limit on the HEPA filter system, without any specific mass emission limits for toxics, HAPs, or NAAQS emissions. Since there is no limit on how much material DOE may run through the IMCL facility processes or scrubbers, neither are there enforceable limits on these emissions (except for the Federal NESHAP limit). The IDEQ should require annual stack testing of the Hazardous Air Pollutants (HAPs) and NAAQS pollutants during maximum throughput conditions.

DEQ Response: Regarding emission limits for radionuclides, refer to the response to the comment immediately above this one. Regarding TAPs and HAPs, the applicant has shown, based on actual operational experience at similar laboratories, that emission levels would be below the screening emission levels, and this will be subject to verification by DEQ during periodic inspections of the INL facility. Since modeling was not required to demonstrate TAPs compliance, a limit is not mandated (refer to Section 210.08.c). For air permits, a decision to require stack testing is based on consideration of a number of conditions, including whether or not the potential emissions are close to a regulatory standard, the proximity of ambient air receptors, and variability of the emissions rate from the source. In this case, since estimated emissions are less than the screening level and not close to a regulatory limit, and the level of effort/cost imposed by a stack testing requirements would not be warranted. Regarding the NAAQS, refer to the Statement of Basis information provided above entitled "Ambient Air Quality Impact Analysis" located in the "Technical Analysis" section. When a facility has emissions below the thresholds that trigger modeling, the NAAQS compliance demonstration is complete and no further action is necessary. In addition, for this facility, the measures taken/necessary to ensure compliance with the

radionuclide standard under 40 CFR 61 Subpart H will also assure compliance with the NAAQS for PM_{10} and $PM_{2.5}$.

Comment : Finally, the enforceability of the permit is weakened by the HEPA filter Pressure Drop Monitoring. The DOE application presents the IMCL as "State-Of-The-Art" and, as such, the permit should change the HEPA filter pressure drop monitoring from "once-per day" to "continuous", with the addition of an alarm system to warn operators of any excursions from the pressure drop limits. Continuous pressure drop monitoring systems and warning systems are readily available in the marketplace. The permit should specifically require a shut-down procedure for periods when pressure drop excursions occur. Likewise, the permit should require HEPA filter testing results to be sent to IDEQ on a regular basis.

DEQ Response: DEQ has worked closely with the INL for many years with regard to installation, maintenance and operation of HEPA filter systems installed at the site. Reliability of the HEPA filter systems is demonstrated by the compliant release rates documented in the annual reports the permittee prepares in accordance with 40 CFR 61.94 and 61.95 to document compliance with the emission limit under 40 CFR 61.92 (Permit Condition 5). In addition, for this facility, monitoring of actual emissions must be conducted in accordance with 40 CFR 61.93 (Permit Conditions 6 and 8). The combined monitoring requirements are considered to be sufficient to demonstrate compliance with the applicable requirements. Even though the air permit does not specify continuous pressure drop monitoring, the permittee has indicated this level of monitoring is planned to be conducted. Refer to the information provided by the Department of Energy and Battelle Energy Alliance that is attached below.

Comment : When taken as a whole the lack of any description of "experiments" and equipment used to carry them out, the lack of throughput limits (and throughput monitoring) along with the lack of specific mass emission limits, render this permit unenforceable under State Rules (IDAPA 58.01.11 et seq.) and unenforceable under 40 CFR part 70. Limited stack testing requirements further weaken this draft permit.

DEQ Response: The applicant has provided sufficient information to demonstrate pre-construction compliance with applicable requirements for the proposed laboratory. Based on the information provided by the permittee and on on-site visits by DEQ personnel to other similar facilities at the INL, it is apparent that there is sufficient information in the permit and in the permit application to meet PTC requirements under Sections 200-228 and Tier I operating permit requirements under Sections 300-397. Also refer to the information provided by the Department of Energy and Battelle Energy Alliance that is attached below. Mass emission limits are not necessary in this case for purposes of assuring compliance with applicable requirements. In this case, the emission limit set forth at 40 CFR 61.92 applies and enforceability of this limit is addressed by the remaining federal requirements under 40 CFR 61 Subpart H. Stack testing requirements under 40 CFR Subpart H, in order to demonstrate compliance for the in-stack monitoring equipment are detailed and extensive. The operating monitoring, recordkeeping and reporting requirements given under Subpart H are "sufficient" for purposes of meeting the corresponding Tier I operating Permit requirements under IDAPA 58.01.01.322 (i.e., 40 CFR Part 70).

Comment : Permit Section 7.3-Operating Requirements- Under this section IDEQ places a State-Only requirement for the permittee to provide written documentation for procedures to specify how the pressure drop across the filter will be measured, frequency of pressure drop monitoring and the conditions that require a change out of the filters. The Tribal Air Quality Department supports this section and recommends continuous monitoring of the pressure drop.

DEQ Response: DEQ has worked closely with the INL for many years with regard to installation, maintenance and operation of HEPA filter systems installed at the site. Reliability of the HEPA filter systems is demonstrated by the compliant release rates documented in the annual reports the permittee prepares in accordance with 40 CFR 61.94 and 61.95 to document compliance with the emission limit under 40 CFR 61.92 (Permit Condition 5). In addition, for this facility, monitoring of actual emissions must be conducted in accordance with 40 CFR 61.93 (Permit Conditions 6 and 8). The combined monitoring requirements are considered to be sufficient to demonstrate compliance with the applicable

requirements. Even though the air permit does not specify continuous pressure drop monitoring, the permittee has indicated this level of monitoring is planned to be conducted. Refer to the information provided by the Department of Energy and Battelle Energy Alliance that is attached below.

Comment : Permit requirement: The application at section 4.6- Stack Effluent Monitoring System- states that the permitee will periodically analyze alpha and beta radioactivity, however this monitoring was not written into the permit. We recommend that this be included in the permit, with specific timetables for reporting. If the technology is there for this to be carried out with a Continuous Emission Monitors (CEMs) then IDEQ should add this as a permit requirement. As it stands, the permitee has promised to carry out this stack monitoring in their application but have not stated that they will send the results to IDEQ and IDEQ has not asked for it in the permit.

DEQ Response: The radiation monitoring requirements are included in the permit. The permit incorporates the in-stack monitoring requirements under 40 CFR 61 Subpart H. This includes requirements for installation and testing of the stack monitor and for on-going operating, monitoring, record keeping and reporting requirements for that monitoring system. Refer to 40 CFR 61 Subpart H for details. For this specific project it was noted by BEA that the IMCL is categorized different than the previous project, the MFC Fuel Manufacturing Facility (FMF). The FMF stack monitoring system is categorized as a Potential Impact Category (PIC) 1 monitor (greater than 5 mrem/yr unmitigated). The IMCL is a PIC 2 monitor because the dose is less than 5 mrem/yr unmitigated. Here is the difference according to ANSI/HPS N13.1 1999 Table 2: PIC 1 " Continuous sampling for a record of emissions and in-line, realtime monitoring with alarm capability; consideration of separate accident monitoring system". A PIC 2 is "Continuous sampling for record of emissions, with retrospective, off-line periodic analysis". To eliminate any confusion on this issue, the word continuous was removed from Permit Condition 8.1 and now it indicates that the monitoring must be conducted "in accordance with 40 CFR 61.93." Refer to 40 CFR 61.93 to see the exact requirements this facility must comply with. For future reference, this information was added into the Statement of Basis above; it was added to the NESHAP Applicability Section located in the Regulatory Analysis Section.

Comment : Section 2.1.2.2 – Enclosure/Ceiling Penetrations – The description in this section does not describe any monitoring instruments for radiation or Hazardous Air Pollutants (HAPs), except for a fire alarm. This is inadequate to protect against releases to the environment.

DEQ Response: For purposes of meeting PTC requirements, a laboratory like this one would typically meet PTC exemption requirements under IDAPA 58.01.01.222.01.a., in which case no additional monitoring for HAPs would be required. In this case, 40 CFR 61 Subpart H applies so a PTC is required instead of an exemption. For this project, a pre-construction compliance demonstration for toxic air pollutants (which includes hazardous air pollutants) was presented in the permit application that shows that emissions would be less than the screening emission levels; this information shows compliance with IDAPA 58.01.01.223. Specific monitoring requirements are not necessary for a facility that uses chemicals at less than the screening emission levels. The use of TAP/HAP materials will be subject to evaluation by DEQ during periodic inspections of the facility. With regard to monitoring by radionuclides, this issue is addressed by the requirements to comply with the monitoring and reporting requirements under 40 CFR 61 Subpart H. The continuous in-stack monitoring system specified for this facility is the highest level of monitoring available for this type of source. For example, continuous monitoring provides much more information than a periodic testing would, such as an annual stack test.

Comment : Section 3 of Application- Facility Description- Figures 3.1 and Figure 3.3 at page 5 and 6 are improperly sized and details are unreadable even with magnification. Very few of the internal structures and rooms in the proposed facility are visible to the reader to view. The IDEQ should require a resubmission of schematics and drawings of the proposed facility. The blurred lay-out of the IMCL renders the application incomplete under IDAPA 58.01.01.124.

DEQ Response: DOE/BEA have provided better figures. Refer to the Permittee's response shown below.

Comment : 4.4 Suspect Exhaust System and Stack- No Stack height. It is generally a good permit practice to require a certain stack height to limit the possibility of exposure to workers from localized air movement. The permit should require a reasonable stack height that follows engineering review at this facility.

DEQ Response: Stack requirements will be established in accordance with the installation and approval process for the in stack monitor as required by 40 CFR 61.93. Permit Condition 6 of the PTC requires the permittee to comply with this regulation. Since the EPA has retained authority for implementation and enforcement of 40 CFR 61 Subpart H, review and approval of the design and installation of the IMCL exhaust stack, would be conducted by the EPA.

Comment : Application and Permit Needs to Address Construction-based emissions- The permit needs to specifically require control of fugitive dust and visible emissions. This area of the INL may contain dangerous levels of radionuclides, or toxics in the soil and sub-surface, especially if dispersed in the air pathway. This area should be pre-tested by core sampling and analyses for Mercury, Lead, other heavy metals and radionuclides. A plan should be put in place for monitoring and sampling fugitive dust during construction. What is the plan for disposal of the soil taken out for the foundation of the IMCL and will this pile become a potential air emission source? All of this should be in the application and permit. IDEQ and DOE should devise a way to protect workers and public from wind-blown particulate matter during construction.

DEQ Response: The purpose of the permit is to regulate normal operations of the facility. During construction, standards such as the fugitive dust rules will apply. There is no information known to indicate that the proposed site for the IMCL is contaminated (e.g., it is not a CERCA site). In this case, the permittee's have conducted previous construction projects at the facility and are familiar with fugitive dust control requirements. DEQ information regarding control of fugitive dust at construction sites is given here:
http://www.deq.idaho.gov/media/61836-fugitive_dust_brochure_0708.pdf

Comment : Summary. This IMCL application by DOE for an experimental lab is too vague to enable IDEQ to write an enforceable air permit. The application does not conform to IDEQs Rules for completeness (IDAPA 58.01.01.124). The application hinted at unspecified experiments, with unspecified equipment, with no way to account for material throughput, no accounting for material storage, and no mass emission limits. The monitoring is also weak in many respects. As a result, the draft permit is, likewise, vague and unenforceable. As it stands, the permit places no limit on how much raw material or experiments that can be done at this facility and since there are no emission limits in the permit (except to keep the HEPA Filters operating efficiently) the facility could emit large amounts of hazardous air pollutants and NAAQS pollutants. We urge IDEQ (and EPA) to return this permit to DOE as incomplete. IDEQ needs to find out what the experiments are and place a limit on process material throughput and place emission limits on the non-radionuclides in the final permit. The permit should add monitoring at both the front-end and the back-end (stack emissions) to ensure that air quality is protected. Fugitive dust from construction could be a source of unhealthy air and should be monitored and controlled as specified in the final permit.

DEQ Response: For these summarized issues, refer to the detailed responses provided above.

The U.S Department of Energy and Battelle Energy Alliance provided the following responses to the comments received on the Draft permit:

Shoshone-Bannock Tribes

1. *The experiments are not described, nor the equipment needed to carry out the experiments. As far as the "experiments" are concerned, the applicant provided no practical explanation of them. No description was provided and --as far as IDEQ is concerned-- these open ended experiments could be dangerous or release toxics or radionuclides in such volume to overwhelm the scrubber system.*

One of the first instruments to be implemented in the IMCL includes a focused-ion beam (FIB) instrument. A FIB functions similarly to a scanning electron microscope (SEM) in that an electron beam can be scanned across the surface of a sample, and images and compositional analyses can be conducted. The FIB also has a second electron probe that can be used to machine smaller samples from the sample being examined. These smaller samples can be collected and examined further on instruments such as a transmission electron microscope (TEM), which is another instrument that will be implemented in the IMCL. A TEM allows very high resolution examinations of the atomic structure of materials and can also provide compositional and structural analyses of samples at a very small scale.

Another instrument to be implemented in the IMCL is an electron probe microanalyzer (EPMA). This instrument not only provides very high resolution images of a material, but can perform near quantitative analyses on microscopic features within a sample. Other microscopes, sample preparation equipment, and surface science equipment may be deployed over time in the IMCL, all related to the INL's post-irradiation examination mission that is conducted for the DOE.

As site needs evolve, other equipment may displace these instruments and equipment. One future mission may be mechanical properties testing. This would involve equipment to prepare samples for testing like an electrical discharge machine (EDM). An EDM can prepare samples for tensile testing, fracture toughness testing, or creep testing. Each of these mechanical tests has specific instruments designed for that purpose that would be housed in the IMCL.

Regardless of the type of instrument/experiment, the amount and type of material to be examined and/or tested in the IMCL is bounded by the radionuclide and chemical inventories analyzed as the basis for the PTC application and the EPA Application to Construct.

Note: There is no need for a scrubber in this facility; HEPA filters are the appropriate control devices for these types of dry, particulate airborne contaminants.

2. *As far as the sample enclosures are concerned, the applicant failed to describe them, because they are modular and need to be changed depending on the circumstances.*

The shielded enclosures provide shielding and partial confinement (they will be operated at a negative pressure relative to the main working space). Inside an enclosure are an instrument and a confinement box. The confinement box is like a glovebox, but will be fitted with light-duty remote manipulators. The atmosphere in these boxes will typically be inert (e.g., argon). Confinement boxes will be used to place samples into the instruments for examination without contaminating the inside of the shielded

enclosure. Confinement boxes may be HEPA-filtered prior to exhausting into the outlet of the shielded enclosure.

3. Although the applicant claims that they intend on constructing a section for storage of the samples, there is not a description of the intended storage capacity or precautions to prevent releases from the storage area (except the vague description of exhaust fans and duct work).

The IMCL confinement strategy consists of providing multiple protective layers between the radioactive samples and the facility workers, public, and environment. The portions of the instruments containing the nuclear material samples will be contained within sealed enclosures or that portion of the instrument will be sealed by design (e.g., the sample chamber of an electron microscope), providing primary confinement of any loose contamination. Samples will be introduced to the instruments using confinement boxes specifically designed for each instrument or transfer container. These boxes also are part of the primary confinement. The sample and instrument enclosure structures will provide the shielding necessary to shield the worker from the radioactivity of the samples and provide a secondary confinement boundary around scientific research instruments. The outer facility structure and exhaust system will provide a tertiary confinement boundary to the public and the environment.

Samples are stored in closed containers until transferred to locations with appropriate controls in place for opening the container. Depending on the hazard, controls may include ventilation, shielding, and/or inert atmospheres (e.g., enclosure, hood, glovebox, vented instrument). Continuous air monitors (CAMs) will sample the air in the area, monitor for airborne radioactivity, and alarm when levels are above background.

The amount of material in the facility that may be in storage is limited by the mass limits of the facility, and will not exceed a total mass of isotopes equivalent to 300 Curies of Pu-239. Where sample containers are handled outside of an enclosure, hood, or glovebox, radiological controls are in place to mitigate hazards to personnel.

4. The applicant failed to clearly describe the raw material characteristics and projected inventory.

1. Civilian fuel recycling strategies are being proposed as a way to extract more energy out of the nuclear fuel cycle and to transmute hazardous, heavy, long-lived radionuclides to shorter-lived (still hazardous) radionuclides that have less of a long-range impact on the environment. It is projected that after five cycles (irradiate, reprocess, fabricate, then irradiate – five times), the fuel would contain sufficient quantities of americium (Am), curium (Cm), and plutonium (Pu) to make it the highest hazard fuel material based on unmitigated dose to an off-site resident that can be envisioned to be handled at the IMCL. For the evaluation of potential air emissions, samples of fifth recycled material are thus considered the "worst case" in reference to the inhalation dose hazard.
Based on the kinds of work to be performed in IMCL, the relatively small sample sizes analyzed, 260 grams total mass of fifth cycle oxide fuel pellet samples are considered the "upper bound case."

5. Draft permit lacks basic permit limits and enforceability, such as throughput limits or limits on hours of operation.

As documented in the application, all toxic air pollutants (TAPs) are calculated to be below IDAPA 58.01.01.585 and 586 screening levels, and, as such, do not require enforceable limits. It is important to note that TAP emissions will primarily be from the use of common laboratory chemicals used in very small amounts.

As regulated by EPA, the NESHAPs standard at 40 CFR 61.92 states, "Emissions of radionuclides to the ambient air from Department of Energy facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/yr." Estimated abated annual emissions from the IMCL will be a small fraction of this annual limit (estimated at 3.65E-07 mrem/yr). Actual emissions from this facility will be based on stack sample results and will be reported to the DEQ and EPA yearly in the INL's annual NESHAPs report.

6. The draft permit has no specific mass emission limits for toxics, HAPs, or NAAQS emissions.

The only HAP emissions are from the emergency diesel generator, which is regulated per 40 CFR 63. TAP emissions are regulated as stated above using IDAPA 58.01.01.585 and 586 screening levels.

Based on the information provided to IDEQ regarding the new 150 kW (250 bhp) emergency generator to be installed as part of the IMCL project, a review of existing emissions and the proximity to an ambient air boundary at the MFC, and comparison of emission rates and exhaust parameters with DEQ modeling threshold assumptions, dispersion modeling for criteria pollutants/NAAQS and TAPs was not required to demonstrate compliance for this project.

7. The permit should change the HEPA filter pressure drop monitoring from "once-per day" to "continuous," with the addition of an alarm system to warn operators of any excursions from the pressure drop limits.

While the pressure drop across the HEPA filters is measured continuously at the filter bank, there is no requirement to have a continuous recording of HEPA-filter pressure drop or an alarm set point on the pressure measurement devices. Daily pressure drop recordings are made by operations personnel; this frequency is adequate for trending of particulate loading and determining if leaks have developed.

8. The application at section 4.6- Stack Effluent Monitoring System- states that the permitee will periodically analyze alpha and beta radioactivity, however this monitoring was not written into the permit. We recommend that this be included in the permit, with specific timetables for reporting. If the technology is there for this to be carried out with a Continuous Emission Monitors (CEMs) then IDEQ should add this as a permit requirement. As it stands, the permitee has promised to carry out this stack monitoring in their application but have not stated that they will send the results to IDEQ and IDEQ has not asked for it in the permit.

The application states that the facility will have a continuous stack sampling system that conforms to the current EPA standards per 40 CFR 61, Subpart H, Section 93, Paragraph (c)(2). This section puts forth the requirements for sampling location, sample monitoring, maintenance, and analysis methods as per ANSI/HPS N13.1-1999 and 40 CFR 61, Appendix B, Method 114. Compliance and reporting requirements

are addressed in 40 CFR 61, Subpart H, Section 94. The annual INL radionuclide NESHAPs report goes to the State of Idaho and the EPA.

9. *The description in the Enclosure/Ceiling Penetrations section does not describe any monitoring instruments for radiation or Hazardous Air Pollutants (HAPs), except for a fire alarm. This is inadequate to protect against releases to the environment.*

Exhaust from the enclosures is drawn through a local HEPA filter, routed to common building ducting, through a pre-filter and another HEPA filter, then out the stack. The stack effluent is continuously sampled and the filters from the sample system are analyzed monthly for alpha and beta radioactivity. The HEPA filters are the primary control of releases to the environment. HAPs are not contaminants of concern for this material.

10. *Section 3 of Application- Facility Description- Figures 3.1 and Figure 3.3 at page 5 and 6 are improperly sized and details are unreadable even with magnification. Very few of the internal structures and rooms in the proposed facility are visible to the reader to view.*

Larger, clearer depictions of Figures 3.1 and 3.3 are provided below.

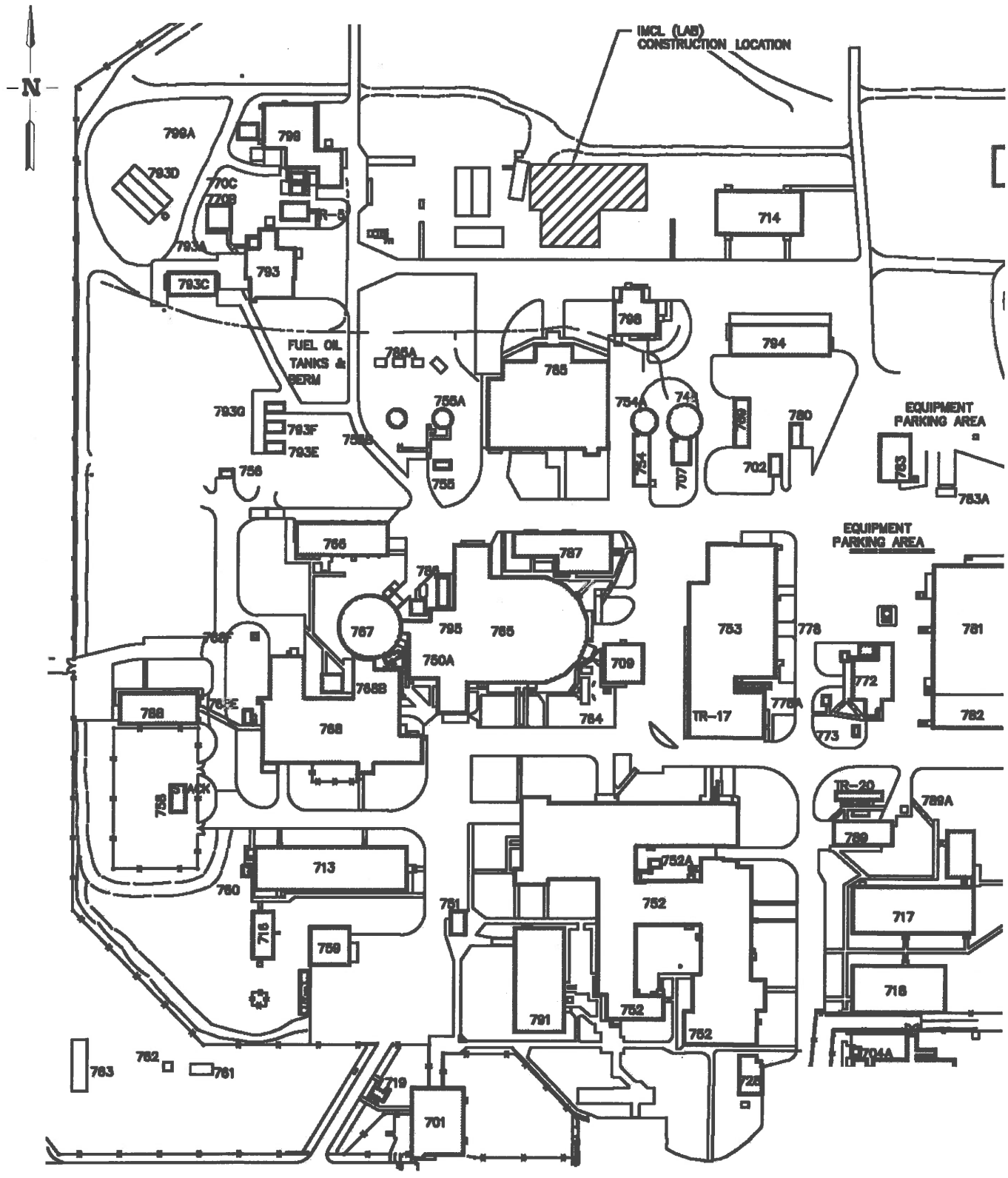

Figure 3.1. Location of the IMCL at the MFC.

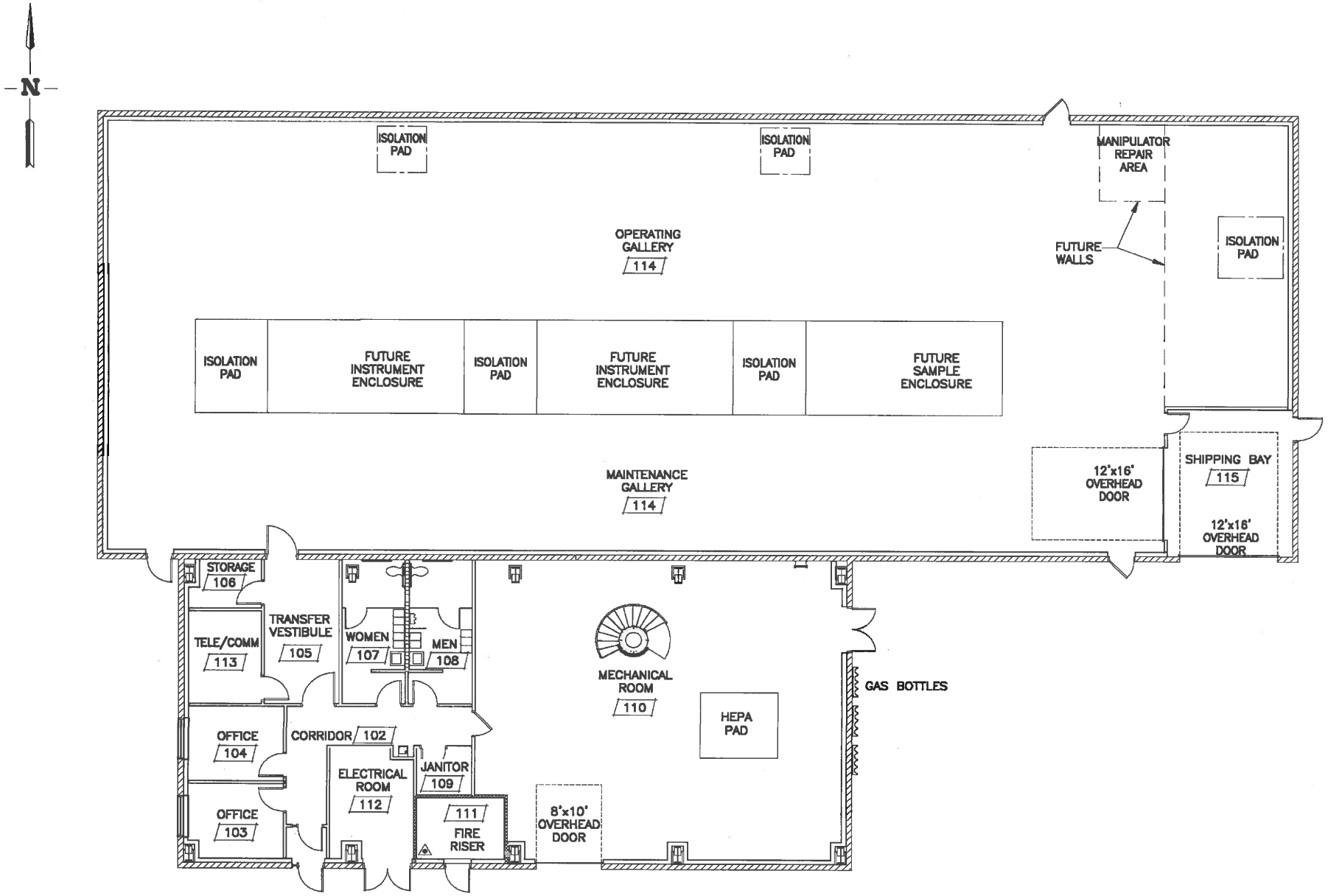

Figure 3.3. Basic layout of the IMCL.

11. It is generally a good permit practice to require a certain stack height to limit the possibility of exposure to workers from localized air movement. The permit should require a reasonable stack height that follows engineering review at this facility.

A comprehensive engineering analysis was completed (EDF-10004) which looked at four different stack designs. Given the small amounts of toxic chemicals and radioactive materials to be handled at the IMCL, it was shown that emissions from any of the four stack configurations would not cause on-site air quality issues.

The dimensions chosen for the IMCL stack based on the engineering analysis are:

Stack height = 52'-6"
Flow = variable up to 13,500 cfm
Top diameter = 24" (cone towards top)
Bottom diameter = 36"

Unit release concentration contours for the MFC were developed for 8-hour and annual averaging times. These averaging times are appropriate for considering worker exposures to releases of toxic air pollutants and radionuclides, respectively. High ground-level unit concentrations for locations near IMCL are presented below.

High Unit Concentrations near the IMCL Averaging Time	Unit Concentration ($\mu g/m^3$ per lb/hr)
1 hr	42
8 hr	29
24 hr	20
Annual	4.4

12. Application and permit need to address construction-based emissions.

The IMCL building site has never been identified as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site or a site that has been previously contaminated with radiological or toxic contamination. Fugitive dust has been controlled and will continue to be controlled in accordance with IDAPA 58.01.01.651, which requires that all reasonable precautions be taken to prevent particulate matter from becoming airborne. Records of the dust control activities will be maintained. Excavated soil is to be reused on-site at MFC as back fill.

Snake River Alliance

1. Will material already at the Idaho National Laboratory be the "feedstock" for the Irradiated Materials Characterization Laboratory? Or will the feedstock be material covered by the January 6, 2011, Memorandum of Agreement Concerning Research Quantities of Commercial Spent Nuclear Fuel? Or will the feedstock be both brought in and material already in Idaho?

The material that will be used in the IMCL will consist of small samples of previously irradiated fuel material. The samples will be from either existing INL material or material that is brought in under the January 6, 2011 memorandum of agreement (MOA). Some of these samples will be from feedstock currently at the INL fabricated into experiments and then irradiated at ATR, as well as previously irradiated materials. Some may be

from fuel samples that have been chemically separated and refined, then inserted into the ATR reactor for additional irradiation. This process if repeated a number of times would then produce the so called "fifth recycled material" which was used in the analysis of the maximum dose at the IMCL.

2. *Page 11 of the application reads: "The amount of radionuclides to be processed at the IMCL is **based on** [emphasis added] 260 g of fifth recycled material, which is considered the maximum amount of fuel to be analyzed in the IMCL in one year. This most conservative fuel composition is the result of **postulated** [emphasis added] transmutation fuels being irradiated and recycled five times. The isotopes listed are those that contribute more than 0.01% of the total dose to the maximally exposed individual (MEI)." The August 23, 2011, letter to DOE-ID from the Environmental Protection Agency included in the Statement of Basis reads: "The anticipated maximum amount of radionuclides to be processed in one year at the IMCL is 260 grams of fifth recycled materials. The fifth recycle fuel is a transmutation fuel fabricated from the most radioactive dregs that could come out of a fuel recycle plant where the goal is to transmute hazardous heavy elements into shorter-lived radionuclides. After five cycles of reprocess and fabrication, the fuel will be loaded with radioisotopes of Americium, Curium, and Plutonium." Those two statements imply very different things: Is the EPA describing something that has happened or will happen, here or elsewhere? Is Batelle using "260 g of fifth recycled material" as a bounding quantity? It's somewhat disquieting to see confusion about something as basic as what's going into the facility.*

Battelle has proposed bounding assumptions based on a hypothetical "260 g of fifth recycled material". EPA has addressed the bounding assumptions in their approval. In order to provide a maximum credible dose for the permit application the most irradiated material envisioned for use in the laboratory was derived. This maximum annual dose is based on the proposed examinations of fifth recycled material described above. As a provision that includes safety to workers and security mass limitations, 260 grams per year of the fifth recycled material was selected as the maximum amount of material that would be processed in a single year and the corresponding dose was calculated. The dose from this design basis material was calculated to be 3.65E-07 mrem/yr to the maximally-exposed, off-site resident based on normal operation.

APPENDIX D – PTC PROCESSING FEE WORKSHEET

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 MFC IMCL**
Address:	**INL MFC**
City:	
State:	
Zip Code:	
Facility Contact:	**Tim Safford, Tim Solle**
Title:	
AIRS No.:	**011-00022**

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	0.4	0	0.4
SO_2	0.0	0	0.0
CO	0.2	0	0.2
PM10	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**0.7**
Fee Due	**$ 1,000.00**		