AMWTP-044

IDAHO
DEPARTMENT OF ENVIRONMENTAL QUALITY



# AMWTP Permit To Construct an Air Pollution Emitting Facility: the Transuranic Storage Area – Retrieval Enclosure

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY

Permit Number 023-00001

Issued: January 27, 2003

**MANUAL TITLE**: IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY, **AMWTP Permit To Construct an Air Pollution Emitting Facility: the Transuranic Storage Area-Retrieval Enclosure**, IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY, PERMIT NO. 023-00001 Issued: January 27, 2003

**ASSIGNED TO:** C. Maupin DOE Reading Room **CONTROL #:** 7

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY



1410 North Hilton • Boise, Idaho 83706-1255 • (208) 373-0502

Dirk Kempthorne, Governor
C. Stephen Allred, Director

January 27, 2003

**CERTIFIED MAIL # 7099 3220 0009 1976 0367**

Fred Hughes, General Manager
BNFL, Inc.
1970 E. 17th St., Suite 207
Idaho Falls, ID 83404

RE: AIRS Facility No. 023-00001, BNFL Inc., Idaho Falls
Amended Permit to Construct, Transuranic Storage Area - Retrieval Enclosure (TSA-RE)

Dear Mr. Hughes:

The Department of Environmental Quality (Department) is issuing amended Permit to Construct No. 023-00001 for the BNFL Inc. TSA-RE facility in accordance with IDAPA 58.01.01.200 through 223, *Rules for the Control of Air Pollution in Idaho*. The enclosed permit is effective immediately and is based on your permit application received June 3, 2002.

This permit does not release BNFL Inc. from compliance with all other applicable federal, state, or local laws, regulations, permits, or ordinances.

Jorge Garcia of the Idaho Falls Regional Office will contact you regarding a meeting with the Department to discuss the permit terms and requirements. In addition to your facility's plant manager, the Department recommends the following representatives from your facility attend the meeting: your responsible official, environmental contact, and any operations staff responsible for day-to-day compliance with permit conditions.

You, as well as any other entity, may have the right to appeal this permit pursuant to IDAPA 58.01.23, *Rules of Administrative Procedure Before the Board of Environmental Quality*. A petition may be filed with the Hearings Coordinator, Department of Environmental Quality, 1410 N. Hilton, Boise, ID 83706-1255 within 35 days of the date of this decision. However, prior to filing a petition for a contested case, the Department encourages you to contact Dan Salgado, New Source Review Coordinator, to address any concerns you may have with the enclosed permit.

Sincerely,

Katherine B. Kelly
Administrator
Air Quality Division

KK/DH/bh Project No. P-020517 G:\Air Quality\Stationary Source\SS Ltd\PTC\Ineel\P-020517 TRA-Re\P-020517 Final Letter.doc

Enclosures

cc: Jorge Garcia, Idaho Falls Regional Office
Sherry Davis, Air Quality Division
Laurie Kral, EPA - Region 10
RF/AFS

# Air Quality
# PERMIT TO CONSTRUCT

**State of Idaho**
**Department of Environmental Quality**

**PERMIT NO.:** 023-00001

**AQCR:** 061 **CLASS:** A

**SIC:** 9999 **ZONE:** 12

**UTM COORDINATE (km):** 335.3, 4817.8

1. **PERMITTEE**
   BNFL, Inc.

2. **PROJECT**
   Transuranic Storage Area - Retrieval Enclosure

| 3. **MAILING ADDRESS** | **CITY** | **STATE** | **ZIP** |
|---|---|---|---|
| 1970 E. 17th St., Suite 207 | Idaho Falls | ID | 83402 |

| 4. **FACILITY CONTACT** | **TITLE** | **TELEPHONE** |
|---|---|---|
| Fred Hughes | General Manager | (208) 524-8484 |

| 5. **RESPONSIBLE OFFICIAL** | **TITLE** | **TELEPHONE** |
|---|---|---|
| Fred Hughes | General Manager | (208) 524-8484 |

| 6. **EXACT PLANT LOCATION** | **COUNTY** |
|---|---|
| INEEL / RWMC / Transuranic Storage Area | Butte |

7. **GENERAL NATURE OF BUSINESS & KINDS OF PRODUCTS**
   Mixed waste treatment

8. **GENERAL CONDITIONS**

This permit is issued according to IDAPA 58.01.01.200, *Rules for the Control of Air Pollution in Idaho*, and pertains only to emissions of air contaminants regulated by the state of Idaho and to the sources specifically allowed to be constructed by this permit.

This permit (a) does not affect the title of the premises upon which the equipment is to be located; (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment; (c) does not release the permittee from compliance with other applicable federal, state, tribal, or local laws, regulations, or ordinances; (d) in no manner implies or suggests that the Idaho Department of Environmental Quality or its officers, agents, or employees, assume any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment.

This permit is not transferable to another person, place, or piece or set of equipment. This permit will expire if construction has not begun within two years of its issue date or if construction is suspended for one year.

This permit has been granted on the basis of design information presented with its application. Changes of design or equipment may require Department approval pursuant to IDAPA 58.01.01.200, et seq.

KATHERINE B. KELLY, ADMINISTRATOR, AIR QUALITY DIVISION
DEPARTMENT OF ENVIRONMENTAL QUALITY

**DATE ISSUED:** January 27, 2003

# ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

| | |
|---|---|
| AQCR | Air Quality Control Region |
| ASME | American Society of Mechanical Engineers |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| Department | Department of Environmental Quality |
| dscf | dry standard cubic foot |
| EPA | Environmental Protection Agency |
| gr | grain (7,000 grains equals 1 pound) |
| HEPA | high-efficiency particulate air |
| IDAPA | A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act |
| INEEL | Idaho National Engineering and Environmental Laboratory |
| km | kilometer |
| lb/hr | pounds per hour |
| MMBtu/hr | million British thermal units per hour |
| mrem/yr | millirems per year |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| $NO_x$ | nitrogen oxides |
| PM | particulate matter |
| PM10 | particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers |
| QA | Quality Assurance |
| $SO_2$ | sulfur dioxide |
| T/yr | tons per year |
| TSA-RE | Transuranic Storage Area - Retrieval Enclosure |
| VOC | volatile organic compound |

# 1. EMISSION LIMITS

## 1.1 Radionuclide Dose Impact Limit

The permittee shall operate the Transuranic Storage Area - Retrieval Enclosure (TSA-RE) in accordance with the requirements of the EPA, NESHAPs, and 40 CFR Part 61, Subparts A and H. The permittee shall ensure radionuclide emissions from the TSA-RE shall not by themselves, or in combination with radionuclide emissions from all other facilities located at the Idaho National Engineering and Environmental Laboratory (INEEL) site, cause any member of the public at any off-site point where there is a residence, school, business, or office to receive an effective dose equivalent to greater than 10 millirems per year (mrem/yr).

**[40 CFR 61.92]**

## 1.2 Criteria Pollutant Emission Limits

The permittee shall limit nitrogen oxides ($NO_x$) emissions from the diesel powered soil vacuum and from mobile equipment operating within the TSA-RE to levels not exceeding the limits established in Table A.1 in Appendix A. The $NO_x$ limit applies to equipment used to move soil and retrieve waste within the TSA-RE. The $NO_x$ limit does not apply to dump trucks, tugs, yard cranes, and other equipment that enters the TSA-RE to move soil, retrieved waste, or other materials from the TSA-RE to another location outside of the TSA-RE.

**[IDAPA 58.01.01.211.01]**

## 1.3 Fuel-burning Equipment Standard

The permittee shall not discharge particulate matter (PM) to the atmosphere in excess of 0.050 grains per dry standard cubic foot (gr/dscf) corrected to 3% oxygen from any equipment burning liquid fuel PM. The permittee shall not discharge PM to the atmosphere from any equipment burning gaseous fuel in excess of 0.015 gr/dscf corrected to 3% oxygen.

**[IDAPA 58.01.01.677]**

## 1.4 Opacity Limit

Emissions from any stack, vent, or functionally equivalent opening associated with the TSA-RE, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. The permittee shall determine opacity by the procedures contained in IDAPA 58.01.01.625.

**[IDAPA 58.01.01.625]**

## 2. OPERATING REQUIREMENTS

2.1 Facility Waste Retrieval Limit

The permittee shall not retrieve more than 54,000 55-gallon drum equivalents of contact-handled waste per consecutive 12-month period from the TSA-RE.

**[IDAPA 58.01.01.211.01]**

2.2 Fuel Consumption Limitations

2.2.1 The permittee shall combust propane exclusively in the 2.5 million British thermal units per hour (MMBtu/hr) indirect-fired heater at the facility.

2.2.2 The amount of propane combusted in the indirect-fired heater shall not exceed 5.44 million cubic feet in any consecutive 12-month period.

**[IDAPA 58.01.01.211.01]**

2.3 Sulfur Content - Diesel Fuel

The permittee shall not sell, distribute, or use any No. 2 distillate fuel oil containing more than 0.5% sulfur by weight.

**[IDAPA 58.01.01.728.02]**

2.4 Air Pollution Control Device Operating Requirements

The permittee shall ensure all HEPA filters used within this facility shall meet the requirements specified in Appendix B of this permit.

**[IDAPA 58.01.01.211.01]**

## 3. MONITORING AND RECORDKEEPING REQUIREMENTS

3.1 Throughput Monitoring

The permittee shall monitor and record the drum equivalents retrieved on a monthly basis. This information shall be kept onsite for the most recent five-year period and shall be made available to Department representatives upon request.

**[IDAPA 58.01.01.211.01]**

3.2 Equipment Hours of Operation

The permittee shall monitor and record on a monthly basis the hours of operation for each piece of equipment that operates inside the TSA-RE. The permittee shall also monitor and record the hours of operation on a monthly basis for the 360-horsepower soil vacuum. These records shall be kept onsite for the most recent five-year period and shall be made available to the Department representatives upon request.

**[IDAPA 58.01.01.211.01]**

3.3 Fuel-burning Monitoring

The permittee shall monitor and record the total fuel usage, in cubic feet per consecutive 12-month period, of the indirect-fired heater at the TSA-RE facility on a monthly basis. This information shall be kept onsite for the most recent five-year period and shall be made available to Department representatives upon request.

**[IDAPA 58.01.01.211.01]**

3.4 Sulfur Content of Fuels

The permittee shall monitor and record the sulfur content of the No. 2 distillate oil combusted at the facility. This information shall be kept onsite for the most recent five-year period and shall be made available to Department representatives upon request.

**[IDAPA 58.01.01.211.01]**

3.5 Radionuclide Monitoring

In accordance with 40 CFR 61.93(b)(4)(i), the permittee shall perform periodic confirmatory measurements to verify low emissions.

**[40 CFR 61.93]**

3.6 Operations and Maintenance Manual Requirements

Prior to facility startup, the permittee shall have developed and submitted for Department approval an O&M manual, including all relevant manufacturer specification information for all air pollution control devices and associated monitoring equipment. The O&M manual shall, at a minimum, describe the procedures followed to comply with General Provision 2 of this permit and applicable manufacturer operating and maintenance specifications. A copy of this manual shall remain onsite at all times and shall be made available to Department representatives upon request.

**[IDAPA 58.01.01.211.01]**

..7 Emissions Calculations

The permittee shall calculate $NO_x$ emissions from the TSA-RE per consecutive 12-month period in the following manner.

3.7.1 On a monthly basis, for each piece of equipment operated within the TSA-RE as discussed in Permit Condition 1.2, the permittee shall multiply the hours of operation recorded in accordance with Permit Condition 3.2 by the horsepower rating for the equipment.

3.7.2 The permittee shall multiply the total from Permit Condition 3.7.1 by the appropriate emission factor. The emission factor to be used is 0.031 pounds $NO_x$ per horsepower-hour or a Department-approved alternative.

3.7.3 The permittee shall sum the $NO_x$ emissions from the previous consecutive 12-months.

3.7.4 This information shall be kept onsite for the most recent five-year period and shall be made available to Department representatives upon request.

**[IDAPA 58.01.01.211.01]**

# 4. REPORTING REQUIREMENTS

4.1 Initial Reporting

Prior to facility startup, the permittee shall submit a copy of the following to the Department for approval:

- The O&M manual required by Permit Condition 3.6.
- The O&M manual required by Permit Condition 2.4 of Appendix B.

**[IDAPA 58.01.01.211.01]**

4.2 Reporting Permit Deviations

The permittee shall submit a report to the Department within 15 days of discovering a deviation of any term or condition of this permit. The report shall contain the date(s), duration and description of the deviation(s), and the procedures taken to remedy the cause of the deviation(s).

**[IDAPA 58.01.01.211.01]**

4.3 NESHAPs Annual Report

The permittee shall submit a copy of the annual report required by 40 CFR 61.94 to the EPA and the Department no later than June 30 of each calendar year.

**[40 CFR 61.94, IDAPA 58.01.01.121.01]**

4.4 Certification of Documents

All documents, including, but not limited to, application forms for permits to construct, records, monitoring data, supporting information, requests for confidential treatment, testing reports, and compliance certifications submitted to the Department shall contain a certification by a responsible official in accordance with IDAPA 58.01.01.123. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the documents(s) are true, accurate, and complete.

**[IDAPA 58.01.01.123]**

All Department reporting required by this permit shall be sent to the following:

Air Quality Permit Compliance
Department of Environmental Quality
Idaho Falls Regional Office
900 N. Skyline, Suite B
Idaho Falls, ID 83402
Tel. (208) 528-2650
Fax: (208) 528-2695

# 5. APPENDIX A

**Table A.1 EMISSIONS LIMITS**

| BNFL Inc., Idaho Falls<br>Transuranic Retrieval Enclosure - Storage Area<br>Emission Limits[a] - Hourly (lb/hr) and Annual[b] (T/yr) | |
|---|---|
| Source Description | Nitrogen Oxides<br>T/yr |
| Aggregate emissions from the diesel powered soil vacuum and from mobile equipment that operates within the TSA-RE (in accordance with Permit Condition 1.2). | 21.4 |
| Propane heater | 1.0 |

[a] As determined by a pollutant-specific EPA reference method, a Department-approved alternative, or as determined by the Department's emissions estimation methods used in this permit analysis.

[b] As determined by multiplying the actual or allowable (if actual is not available) pound-per-hour emission rate by the allowable hours per year that the process(es) may operate(s), or by actual annual production rates.

**Table A.2 EMISSIONS INVENTORY [a]**

| Process Description | $PM_{10}$ | | $SO_2$ | | $NO_x$ | | CO | | VOC | |
|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr |
| Retrieval emissions | 3.0E-02 | 1.3E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 4.3E-06 | 1.9E-05 |
| Aggregate emissions - engines | 2.7E-01 | 4.1E-01 | 2.0 | 3.1 | 1.3E+01 | 2.1E+01 | 2.2 | 3.1 | 4.8E-01 | 7.5E-01 |
| Propane heater | 1.4E-02 | 3.0E-02 | 5.1E-02 | 1.1E-01 | 4.8E-01 | 1.0 | 6.5E-02 | 1.4E-01 | 1.7E-02 | 3.7E-02 |
| FACILITY TOTALS | 3.1E-01 | 5.7E-01 | 2.1E+ | 3.2E | 1.3E+01 | 2.2E+01 | 2.3 | 3.2 | 5.0E-01 | 7.9E-01 |

[a] Emissions inventory is for air quality management purposes and does not represent emission limits.

[b] includes condensables.

## 6. APPENDIX B - HEPA FILTER GENERAL REQUIREMENTS

1. Monitoring Requirements

1.1 The permittee shall conduct periodic, in-place efficiency tests on each certified HEPA filter or HEPA-filter bank, as applicable. The first test shall be conducted within 90 days of startup and subsequent tests shall be conducted per ASME N510, Table 1 "Tests and Inspections with Recommended Frequency." Testing will be conducted using guidelines of ASME N510, Section 10, "*HEPA Filter Bank In-Place Test.*" In addition, after replacement or installation of a HEPA filter, an in-place efficiency test shall be conducted within 90 days of the date that the HEPA filter is placed in operation.

1.2 A pressure-monitoring device shall be maintained to enable monitoring of the pressure drop across each certified HEPA-filter bank. The pressure drop monitoring equipment shall be maintained in good working order. The pressure drop shall be recorded once on a daily basis when the HEPA-filter bank is in use.

2. Operating Requirements

2.1 Certified HEPA filter efficiency shall be maintained at or above 99.97% removal efficiency as determined by the guidelines as ASME N510, Section 10.

2.2 If the removal efficiency of a certified HEPA filter or HEPA-filter bank, as applicable, falls below 99.97% as determined by ASME N510, Section 10, the permittee shall isolate the certified filters or replace the filters within 10 days.

2.3. Each certified HEPA filter shall be operated at a pressure drop that is limited to less than 5.0 inches of water column. If the total pressure drop across the HEPA-filter bank exceeds 5.0 inches of water column, the permittee shall isolate it or replace it within 10 days.

2.4 Prior to facility startup, the permittee shall have developed and submitted for Department approval an O&M manual which describes the procedures that will be followed to assure compliance with Conditions 1 and 2 of this permit appendix.

2.5 Prior to facility startup, the permittee shall have developed and submitted for Department approval a QA program, based on ASME N510 guidelines. The program shall define methods and procedures that will be used to assure that quality and representative data are collected while performing in-place HEPA filter tests and measuring pressure drops across HEPA-filter banks.

3. Reporting Requirements

3.1 The results of the initial, in-place, HEPA-filter bank test conducted using the guideline of ASME N510, Section 10, shall be reported to the Department within 30 days of performing the test.

3.2 The permittee shall submit a quarterly report, based on a quarter calendar year and due 30 days after the end of each quarter, containing the information listed below for Department review. A copy of these records shall also be kept onsite at all times and shall be made available to Department representatives upon request.

- The dates and results of all in-place efficiency tests using the guidelines of the ASME N510 HEPA-filter bank in-place test method.
- The dates of replacement of HEPA-filter elements.
- The dates when the HEPA-filter pressure drop exceeded the requirements of condition 2.3 of this permit appendix.

## 7. PERMIT TO CONSTRUCT GENERAL PROVISIONS

1. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the *Rules for the Control of Air Pollution in Idaho*. The emissions of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit and the *Rules for the Control of Air Pollution in Idaho*, and the Environmental Protection and Health Act, Idaho Code §39-101, et seq.

2. The permittee shall at all times (except as provided in the *Rules for the Control of Air Pollution in Idaho*) maintain in good working order and operate as efficiently as practicable, all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

3. The permittee shall allow the Director, and/or the authorized representative(s), upon the presentation of credentials:

   - To enter, at reasonable times, upon the premises where an emissions source is located, or in which any records are required to be kept under the terms and conditions of this permit.
   - At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit, to inspect any monitoring methods required in this permit, and require stack emissions testing in conformance with IDAPA 58.01.01.157 when deemed appropriate by the Director.

4. Nothing in this permit is intended to relieve or exempt the permittee from compliance with any applicable federal, state, or local law or regulation, except as specifically provided herein.

5. The permittee shall notify the Department, in writing, of the required information for the following events within five working days after occurrence:

   - Initiation of Construction - Date
   - Completion/Cessation of Construction - Date
   - Actual Production Startup - Date
   - Initial Date of Achieving Maximum Production Rate - Production Rate and Date

6. If emissions testing is specified, the permittee must schedule such testing within 60 days after achieving the maximum production rate, but not later than 180 days after initial startup. Such testing must **strictly** adhere to the procedures outlined in IDAPA 58.01.01.157 and shall not be conducted on weekends or state holidays without prior written approval from the Department. Testing procedures and specific time limitations may be modified by the Department by prior negotiation if conditions warrant adjustment. The Department shall be notified at least 15 days prior to the scheduled compliance test. Any records or data generated as a result of such compliance test shall be made available to the Department upon request.

   The maximum allowable operating rate shall be limited to 120% of the average operating rate attained during any performance test period, for which a test protocol has been granted prior approval by the Department, unless (1) the test demonstrates noncompliance; (2) a more restrictive operating limit is specified elsewhere in this permit; or (3) at such an operating rate, emissions would exceed any emissions limit(s) set forth in this permit.

   The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

# Air Quality Permitting
# Technical Memorandum

## Permit to Construct No. 023-00001

## BNFL, INC.
## TRANSURANIC STORAGE AREA - RETRIEVAL ENCLOSURE


**Prepared By:**

Michael Stambulis, P.E.
Staff Engineer


**Project No. P-020517**

**Date Prepared:**

December 20, 2002

**Permit Status:**

FINAL

# ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

| | |
|---|---|
| AP-42 | EPA Compilation of Air Pollution Emission Factors |
| AQCR | Air Quality Control Region |
| AIRS | Aerometric Information Retrieval System |
| AMWTP | Advanced Mixed Waste Treatment Project |
| ASME | American Society for Mechanical Engineers |
| Btu | British Thermal Units |
| CAA | Clean Air Act |
| CFR | Code of Federal Regulations |
| DEQ | Department of Environmental Quality |
| DOE | Department of Energy |
| EPA | Environmental Protection Agency |
| ERDA | Energy Research and Development Administration |
| HEPA | High-efficiency particulate air |
| IDAPA | A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act |
| INEEL | Idaho National Engineering and Environmental Laboratory |
| lb(s) | Pound(s) |
| MMBtu | Million British Thermal Units |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| $NO_x$ | Nitrogen Oxides |
| PSD | Prevention of Significant Deterioration |
| PTC | permit to construct |
| $SO_2$ | sulfur dioxide |
| T/yr | tons per year |
| TSA-RE | Transuranic Storage Area - Retrieval Enclosure |
| WIPP | Waste Isolation Pilot Plant |

## PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 through 228, *Rules for the Control of Air Pollution in Idaho,* for issuing PTCs.

## PROJECT DESCRIPTION

BNFL Inc. (BNFL) is proposing to amend Permit to Construct (PTC) No. 023-00001, originally issued on May 10, 2002 and amended on July 12, 2002, for the TSA-RE.

## SUMMARY OF EVENTS

On September 30, 2002, DEQ received an application from BNFL for amendments to PTC 023-00001 issued on July 12, 2002. BNFL is requesting the ability to use diesel-powered equipment not specifically listed in the July 12, 2002 PTC issued for the TSA-RE.

## DISCUSSION

1. Process Description

A brief process summary is provided below.

The TSA-RE, commonly known as WMF 636, contains approximately 53,300 cubic meters ($m^3$) of the 65,000 $m^3$ of mixed waste to be processed by the AMWTP. The goal of BNFL and DOE is to process TSA-stored waste so that it is certified for disposal at the WIPP in New Mexico, or another waste management unit. The TSA-RE is a metal building that encloses three asphalt pads that support primarily earthen-covered stacks of retrievably stored mixed waste. These three asphalt pads, known as TSA-1, TSA-2, and TSA-R are each divided into cells. Combined, they make up the TSA Interim Status units. Prior to shipping the waste to the waste management units, it must be retrieved from the TSA Interim Status units, characterized, treated (as applicable), and packaged.

The first step in the retrieval process is to remove the overburden soil (the soil on top of the waste cells) to gain access to a given section of containers. Before removal, the soil will be sampled and analyzed for the presence of radiological and hazardous contaminants. The majority of the soil is expected to be uncontaminated (estimated at 95% of the total volume). Soil identified as uncontaminated will be removed in two phases; direct load out, followed by vacuum removal. Once the overburdened soil is removed, approximately six to 12 inches of overburden soil will be left on top of the waste storage cells. This remaining overburden soil will likely be removed with a trailer-mounted, diesel-powered, industrial vacuum system equipped with cyclonic filtration, bag house, and HEPA filtration located outside the TSA-RE. The vacuumed soil will be deposited directly into a standard bottom dump trailer, dump truck, or equivalent for transport to disposal areas. If the soil vacuum unit is inoperable, then other appropriate means will be employed to complete the soil removal.

During retrieval operations, contaminated soil may be encountered. If radiological contamination is discovered, the area of contamination will be isolated and appropriate fixative solutions may be used to prevent the migration of waste constituents to other areas. If necessary, an HEPA-filtered tent may be erected over the area to provide further containment. Contaminated soil will be removed using several different means, depending on the volume of soil. The soil can be transferred to a container (typically a 55-gal drum) using either a portable vacuum system (equipped with HEPA filters and baghouse), shovels, or larger retrieval equipment, such as a skid steer loader. The total contaminated volume of soil is estimated as 2,000 $m^3$, or approximately 5% of the total soil volume. Residues from contaminated soil cleanup will be characterized based on the source of the contamination, and will then be handled appropriately.

Side-burden soil may be removed using either a reclaim conveyor/truck load-out or direct truck load-out. In the reclaim conveyor/truck load-out method, loaders will transfer the soil to a stacking conveyor that will then transport the soil to the reclaim conveyor. The reclaim conveyor will transport the soil out of the TSA-RE into a dump trailer or a dump truck. In the direct truck load-out method, skid loaders will deposit the soil directly into a truck/trailer located within the TSA-RE.

Once the overburden soil is removed, the fabric and/or plywood will be removed. After the soil, fabric tarp, plywood, and/or other miscellaneous materials are removed, a portion of the waste stack will be exposed. Waste containers will then be retrieved and processed as follows:

- Survey the area from which the container is to be retrieved for radiation and then survey the container for radiological contamination.
- Assess the container's structural soundness for handling. Visually inspect the container and, before lifting it from the stack, look for conditions such as corrosion.
- Lift the container a few inches to verify the integrity of its underside.
- Over-pack damaged containers, using an HEPA-filtered tent if necessary.
- Transfer containers from the retrieval area to the transport loading/inspection station.
- Use a portable HEPA-filtered vacuum unit to clean all remaining loose dust and/or soil from the container's exterior.
- Inspect the container for identification information.
- Determine the container's weight (only boxes, drums will be weighed in WMF-634) and then enter relevant information into the AMWTP data management system (DMS).
- Apply appropriate labels and enter container identification information into the AMWTP DMS. If original labeling can be used to identify the container, query the existing waste storage database to identify the constituents in the waste container.
- Survey the container for radiological surface contamination and surface dose rate measurement.

After the final inspection, the containers will be loaded and transferred to the appropriate AMWTP unit. No containers, materials, or equipment will be removed from the work area until they have been surveyed and determined to be radiologically uncontaminated or until the contamination is fixed and/or contained. Typically, materials (mainly soil) will be removed via trucks and trailers, or other appropriate equipment.

During operation, the TSA-RE will contain radiological control areas (which will include radiation and contamination control areas). Access in controlled areas will be restricted to trained personnel. These areas will be monitored routinely for radiological contamination and industrial hazards. Industrial hygiene personnel will monitor exposure rates to determine if hazardous contamination poses a threat to worker health and safety, and will take appropriate action if necessary. The support areas near the work faces typically will be used for equipment access, personnel access, waste container temporary storage, soil removal by conveyor, and container inspection.

Additional controlled areas may be established within the defined work area using HEPA-filtered tents for cleanup of radiological and hazardous contamination. Operations within the TSA-RE will be controlled in accordance with established operational, radiological, and hazardous material control procedures.

BNFL has explored several options to remove the overburden soil and conduct the retrieval operations. The PTC issued to BNFL on July 12, 2002 listed specific equipment that BNFL is allowed to use within the TSA-RE. The amendment proposed by BNFL requests the ability to use other diesel-powered equipment not specifically listed in the PTC. BNFL wishes to retain the flexibility to use equipment as the project dictates. The primary machines will be skid steer loaders (typically for soil removal operations) and telescopic boom forklifts (typically for waste container removal and handling operations). A yard crane and tugs will also be used for assistance in retrieval operations. Each diesel-powered machine will be equipped with an in-line catalytic

oxidizer/filter to reduce emissions from the individual engine stacks. (The in-line catalytic oxidizer/filters are not accounted for in the emission estimate calculations.) The emissions from the diesel engines will be exhausted from the TSA-RE via the existing ventilation system.
The planned duration of the project is 13 years and may be extended if the DOE exercises contract options. The duration of operations at the TSA-RE is expected to be between five and seven years, given the optimal retrieval rate, but may take longer.

2. Emission Estimates

There are no changes in emissions associated with this permit amendment. This permit amendment removes emissions limits and operational requirements from individual pieces of equipment listed in previous permits. Instead, the permit establishes an $NO_x$ emissions limitation based on aggregate equipment use within the TSA-RE. The $NO_x$ emissions limit for diesel-powered equipment is 21.4 tons per consecutive 12-month period.

3. Modeling

Since there are no changes in emissions no modeling is required for this permit amendment.

4. Facility Classification

The TSA-RE is considered a support facility to the INEEL. INEEL is an existing major facility as defined in IDAPA 58.01.01.006.55 and 58.01.01.008.10.

5. Area Classification

This facility is located in Air Quality Control Region (AQCR) 61 and Zone 12. It is located within the boundaries of the INEEL and Butte County in the southwest portion of the Idaho Falls regional district. Butte County is designated as unclassifiable for all criteria air pollutants.

6. Regulatory Review

IDAPA 58.01.01.201 Permit to Construct Required

There are no increases in emissions associated with this amendment. The changes proposed by BNFL do not constitute a modification as defined in IDAPA 58.01.01.006.

The Department considered whether a PTC is required for the diesel-powered equipment used within the TSA-RE. In accordance with IDAPA 58.01.01.201, a PTC from the Department is required for the construction or modification of any stationary source, facility, major facility, or major modification. The following definition were used in making a determination regarding permitting the diesel-powered equipment.

In accordance with 40 CFR 89.2, *"...a nonroad engine is: (i) any internal combustion engine in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or (ii) in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or (iii) that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform."*

Equipment operated within the TSA-RE are defined as non-road engines. The DEQ has the authority to regulate hours of operation of non-road engines in accordance with Appendix A of 40 CFR Part 89, Subpart A. Specifically, *"EPA believes that states are not precluded under section 209 from regulating the use and operation of nonroad engines, such as regulations on hours of usage, daily mass emission limits, or sulfur limits on fuel; nor are permits regulating such operations precluded, once the engine is no longer new."*

7. Permit Requirements

7.1 Emissions Limits

There are no changes in emissions limits associated with this permit amendment. The PTC issued on July 12, 2002 established $NO_x$ emissions limit based on consecutive 12-month periods. The limit is established for aggregate diesel-powered equipment used within the TSA-RE.

The emissions limit applies to equipment with the primary function of moving soil and retrieving waste within the TSA-RE. It is intended to limit emissions from equipment dedicated to the waste retrieval process within the TSA-RE, including the soil vacuum. The emissions limit is not intended to apply to equipment such as dump trucks, tugs, and yard cranes, which enter the TSA-RE for a brief period to remove material or equipment from the TSA-RE.

7.2 Operating Requirements

The July 12, 2002 PTC also established operational hour limitations on each piece of diesel-powered equipment used within the TSA-RE. This permit removes the limitations on individual pieces of diesel-powered equipment.

7.3 Monitoring and Recordkeeping Requirements

For each piece of equipment primarily operated within the TSA-RE, the permittee is required to monitor and record hours of operation. As discussed in Section 7.1, the permit is intended to regulate emissions from equipment dedicated to the waste retrieval process within the TSA-RE, including the soil vacuum. The permit is not intended to apply to equipment such as dump trucks, tugs, and yard cranes, which enter the TSA-RE for a brief period to remove material or equipment from the TSA-RE.

The permittee is required to reasonably assure compliance with the emissions limit by calculating $NO_x$ emissions on a monthly basis for the previous 12-month period. The emissions factor to be used is the EPA Compilation of Air Pollution Emission Factors (AP-42) emission factor in Table 3.3-1 (0.031 pounds $NO_x$ per horsepower-hour). The permittee may submit other emissions data for approval by the DEQ.

8. Permit Coordination

This facility is a Tier I source and the changes in this PTC will be included in the Tier I operating permit.

9. AIRS Information

The AIRS database does not need to be updated as a result if this amendment.

**FEES**

The TSA-RE is located within INEEL, a major facility as defined in IDAPA 58.01.01.008.55; therefore, the facility is subject to registration fees. This PTC amendment project is subject to a $1000 application fee in accordance with IDAPA 58.01.01.224 and PTC processing of $250 in accordance with IDAPA 58.01.01.225.

## RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommends BNFL be issued amended PTC No. 023-00001 for the TSA-RE. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

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cc: Jorge Garcia, Idaho Falls Regional Office
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