STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM

900 North Skyline, Suite B • Idaho Falls, Idaho 83402-1718 • (208) 528-2650

Dirk Kempthorne, Governor
C. Stephen Allred, Director

September 26, 2000

CERTIFIED MAIL #

Mark M. Holzmer, Team Leader
Department of Energy
Argonne Group-West
Post Office Box 2528
Idaho Falls, ID 83403-2528

RE: P-000504, DOE/INEEL, ANL-W
(Sodium Process Facility PTC Amendment, PTC No. 011-00022)

Dear Mr. Holzmer:

The following events have taken place in the process of your application:

- March 10, 2000, the Idaho Department of Environmental Quality (IDEQ), Idaho Falls Regional Office received an application from Argonne Group-West (previously Argonne National Laboratory-West) for an amendment to their PTC for the Sodium Process Facility.
- April 6, 2000, the application was determined complete.
- July 17, 2000, DEQ issued PTC N0. 011-00022 to the facility.
- August 2, 2000, the permit handoff with the facility was conducted at the Idaho Falls Regional Office. The facility requested alterations to the PTC.
- August 18, 2000, DEQ received the requested alterations.
- August 28, 2000, DEQ received a written request from Argonne Group West to supply a draft permit prior to issuance of a final permit.
- September 18, 2000, DEQ issued Argonne Group West a draft PTC.
- September 22, 2000, a conference call with Argonne Group West and DEQ was conducted to discuss any applicable PTC alterations.

Based on review of the application and all applicable state and federal rules and regulations, DEQ finds that this project meets the provisions of IDAPA 58.01.01.200 (*Rules for the Control of Air Pollution in Idaho*). Enclosed is PTC No. 011-00022.

This permit does not release the Permittee from compliance with all other applicable federal, state, local, or tribal laws, regulations, or ordinances.

Please pay particular attention to the reporting requirements contained in Paragraph E of the General Provisions section of the permit. This information is needed to properly track the progress of the permit. Please refer to the appropriate permit number when submitting reports required in the Reporting Requirements section of the permit.

You, as well as any other entity, may have the right to appeal this final agency action pursuant to the Idaho Department of Health and Welfare Rules, Title 5, Chapter 3, "Rules Governing Contested Case Proceedings and Declaratory Rulings," by filing a petition with the Hearings Coordinator, Department of Health and Welfare, Administrative Procedures Section, 450 West State Street, Tenth Floor, Boise, Idaho 83720-5450, within thirty-five (35) days of the date of this decision. However, DEQ encourages you to contact the Air Quality Permit Program to address any concerns you may have with the enclosed permit prior to filing a petition for a contested case.

Sincerely,

Jim Johnston
Regional Administrator
Idaho Falls Regional Office

JJ/WCW/bm Q:\PERMITS\ARGONNE\P000504.DPL

Enclosures

cc: DEQ State Office
Idaho Falls Regional Office
EPA Region X

State of Idaho
Department of Environmental Quality

PERMIT TO CONSTRUCT AN AIR POLLUTION EMITTING SOURCE

PERMIT NUMBER 011 - 00022

AQCR 061 **CLASS** A **SIC** 9999

ZONE 12 **UTM COORDINATE (km)** 366.3, 4828.1

1. PERMITTEE

Department of Energy -- Argonne Group West (ARG-W)

2. PROJECT

Sodium Process Facility

3. MAILING ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 2528	Idaho Falls	Idaho	83403

4. SITE LOCATION COUNTY	NO. OF FULL-TIME EMPLOYEES	PROPERTY AREA AT SITE (Acreage)
Bingham	700 (ANL-W)	

5. PERSON TO CONTACT	TITLE	TELEPHONE
Mark M. Holzmer	- Team Leader, Argonne Group-West DOE Chicago Operations Office	(208) 533-7445

6. EXACT PLANT LOCATION

SE Corner of the INEEL, Approximately 35 miles West of Idaho Falls, UTM co-ordinates (km) N4828.1 E 336.3

7. GENERAL NATURE OF BUSINESS & KINDS OF PRODUCTS

Government Energy Research and Development

8. GENERAL CONDITIONS

This permit is issued according to the *Rules for the Control of Air Pollution in Idaho*, Section 58.01.01.200, and pertains only to emissions of air contaminants that are 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 (DEQ) or its officers, agents, or employees, assumes 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, 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 the *Rules for the Control of Air Pollution in Idaho*, IDAPA 58.01.01.200, et.seq.

DISCLAIMER: This document may serve as a Preliminary Inspection Finding Form for use by Department personnel in communicating your compliance status upon inspection. It does not constitute a final determination of compliance status with the Idaho Code or any rules promulgated, permits issued, or consent or judicial orders entered into pursuant to the law. The Idaho Department of Environmental Quality reserves the right to supplement this document with additional compliance determinations, and amend, change, or otherwise modify any compliance determination stated in this document. This document in no way restricts the state of Idaho, Department of Environmental Quality from taking any action available under law to address past, present, or future violations of the laws administered by the agency.

ADMINISTRATOR, IDAHO FALLS REGIONAL OFFICE
DEPARTMENT OF ENVIRONMENTAL QUALITY

DATE: 09/26/00

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Permittee: DOE/Argonne Area Office - West (AAO-W)
Project: Sodium Process Facility
Location: Bingham Argonne National Laboratory
Source: Sodium Process Facility

PERMIT NUMBER 0 1 1 - 0 0 0 2 2

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1. SOURCE DESCRIPTION

1.1 Process Description

The Sodium Process Facility (SPF) of the Argonne National Laboratory - West will process radioactive elemental sodium (Na) and/or sodium-potassium alloy (NaK). Radioactive sodium and/or NaK will be converted into a solid NaOH, or KOH, waste form suitable for land disposal at the INEEL Radioactive Waste Management Complex (RWMC) as a low-level radioactive waste.

The majority of the emissions from the SPF will be from the caustic process. The demister, condenser, and mist eliminators in this control arrangement remove some moisture, caustic, and radioactive particulate from the off-gas system and return it to the treatment process. Although the scrubber and prefilters prevent some radioactive particulate and caustic from reaching the HEPA filters, the emission estimates in Appendix A of this permit were calculated with the only pollution control provided by the HEPA filters.

1.2 Equipment Listing

1.2.1 Control Equipment

HEPA Filters for caustic process off-gas system.
Material: expanded polytetrafluoroethylene (e-PTFE, or Teflon)
Manufacturer : Camfil, or equivalent

2. EMISSION LIMITS

2.1 Radionuclide emissions emanating from the Sodium Process Facility vents, combined with all other airborne radionuclides from all DOE/INEEL facilities, shall not result in an effective dose equivalent to the maximally exposed off-site member of the public where there is a residence, school, business or office which exceeds 10 millirems per year (mrem/yr) as per 40 CFR 61.92 and 94. Furthermore, unabated radionuclide emissions emanating from the Sodium Process Facility vents exclusive of all other DOE/INEEL emissions shall not result in an effective dose equivalent at any business, school or residence which exceeds 8.8E-02 millirems per year (mrem/yr) as per applicant's worst case exposure scenario utilizing the estimated maximum unabated annual emissions.

2.2 The permittee shall determine the effective dose equivalent values to members of the public using methods specified in 40 CFR 61.93.

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3. OPERATING REQUIREMENTS

3.1 Processing Rate

The facility shall process Na/NaK at the maximum rate of three hundred sixty-five thousand gallons per year (365,000 gal/yr).

3.2 HEPA Filter Requirements

3.2.1 The Permittee shall install, maintain and operate all HEPA filters in accordance with Appendix B of this permit.

3.2.2 Operators shall be alerted of a degraded HEPA filter (breached, plugged, or leaking) by a monitor alarm or by readings of higher than normal emissions or by an abrupt change in the differential pressure readings across the HEPA filter in accordance with applicant's submittal.

3.3 Off-Gas Temperature Requirements

The temperature of the off-gas upon exiting the HEPA filter system, or the HEPA filter housing, shall not exceed 140°F (60°C).

4. MONITORING REQUIREMENTS

4.1 HEPA Filter Monitoring Requirements

The Permittee shall monitor and maintain the HEPA filters in accordance with Appendix B of this permit.

4.2 Process Monitoring Requirements

The following data shall be monitored and recorded on a daily basis when the process is in operation. The most recent two (2) years compilation of data shall be kept on-site in a log and be made available to DEQ representatives upon request.

4.2.1 Pressure drop across the HEPA filter;

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4.2.2 Total annual cumulative amount of Na and/or Na/NaK processed and Na and/or Na/NaK hydroxides produced from the first calendar day of the year.

4.2.3 Off-gas temperature (°F or °C) as defined in Section 3.3 .

5. REPORTING REQUIREMENTS

5.1 The Permittee shall submit reports to the Department on HEPA filter operation in accordance with Appendix B of this permit.

5.2 The permittee shall compile, keep on-site, and make available to the DEQ upon request, a quarterly record of the following information:

5.2.1 A record of all off-gas temperature(s) that exceed 140°F (60°C), per Section 3.3 of this permit.

5.2.2 A record of all process rate exceedances of the rates specified in Section 3.1 of this permit.

5.3 The permittee shall submit an annual report to the DEQ indicating the highest dose equivalent as required in 40 CFR 61.94.

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Permittee: DOE/Argonne Area Office - West (AAO-W)
Project: Sodium Process Facility
Location: Bingham Argonne National Laboratory
Source: Appendix A

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APPENDIX A

ARGONNE NATIONAL LABORATORY - WEST
SODIUM PROCESSING FACILITY

ESTIMATED MAXIMUM UNABATED ANNUAL RADIO NUCLIDE EMISSIONS (μCi/yr)
USED IN ESTIMATION OF THE WORST CASE EXPOSURE SCENARIO

Sodium Processing Facility

EMISSION PT.	DESCRIPTION	ALPHA	BETA	GAMMA	TRITIUM
799-003	SODIUM MELTING & DRAINING ROOM	2.37E-04	1.34E-02	1.10E+01	0.00
799-010	PROCESS VENT	2.37E+01	1.34E+03	1.10E+06	2.9E+08
799-011/012	ROOF VENTS	2.37E-02	1.34E+00	1.10E+03	0.00
799-014	BARREL WASH PAD	2.37E-04	1.34E-02	1.10E+01	0.00
799-015	DRUM FILLING AND STORAGE AREA VENT	2.37E-04	1.34E-02	1.10E+01	0.00
799-016	Sodium Tanks Vent	2.37E-02	1.34E+00	1.10E+03	0.00
TOTAL	ALL VENTS	2.37E+01	1.34E+03	1.10E+06	2.90E+08

Inspection Comments:

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Permittee: DOE/Argonne Area Office - West (AAO-W)
Project: Sodium Process Facility
Location: Bingham Argonne National Laboratory
Source: Appendix B

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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 at least every (twelve) 12 months thereafter, per Nuclear Air Cleaning Handbook, ERDA 76-21, Section 8.3.5, "Frequency of Testing." 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 ninety (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 percent removal efficiency as determined by the guidelines of 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 percent as determined by ASME N510, Section 10, certified filters shall be isolated or replaced within (ten) 10 days until the required efficiency is achieved.

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

2.4. Within (ninety) 90 days of issuance, the permittee shall make available to DEQ upon request an operating and maintenance (O&M) manual which describes the procedures which will be followed to assure compliance with Sections 1 and 2 of this permit Appendix.

2.5. Within 90 days of issuance, the permittee shall make available to DEQ upon request a quality assurance program, based on ASME N510 guidelines, which defines methods and procedures

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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 filters banks.

3. REPORTING REQUIREMENTS

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

3.2. The permittee shall submit a quarterly statement to DEQ, based on a quarter calendar year and due thirty (30) days after the end of each quarter, stating that all the requirements under this Appendix have been met. In addition, records of the following information shall be kept on site and shall be made available for DEQ review upon request:

3.2.1 The dates and results of all in-place efficiency tests using the guidelines of the ASME N150 HEPA filter bank in-place test method.

3.2.2 The dates of replacement of HEPA filter elements.

3.2.3 The dates when the HEPA filter pressure drop exceeded the requirements of Section 2.3 of this permit Appendix.

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PERMIT TO CONSTRUCT GENERAL PROVISIONS

A. 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 emission 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.

B. 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.

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

1. To enter at reasonable times upon the premises where an emission source is located, or in which any records are required to be kept under the terms and conditions of this permit; and

2. 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 emission testing in conformance with IDAPA 58.01.01.157 when deemed appropriate by the Director.

D. 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.

E. The Permittee shall notify DEQ, in writing, of the required information for the following events within five (5) working days after occurrence:

Inspection Comments:

DATE: 09/26/00

1. Initiation of Construction - Date
2. Completion/Cessation of Construction - Date
3. Actual Production Startup - Date
4. Initial Date of Achieving Maximum Production Rate - Production Rate and Date

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F. If emission testing is specified, the Permittee must schedule such testing within sixty (60) days after achieving the maximum production rate, but not later than one hundred and eighty (180) days after initial startup. Such testing must **strictly** adhere to the procedures outlined in IDAPA 16.01.01.157

and shall not be conducted on weekends or state holidays without prior written DEQ approval. Testing procedures and specific time limitations may be modified by DEQ by prior negotiation if conditions

warrant adjustment. DEQ shall be notified at least fifteen (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 DEQ 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 DEQ, 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 emission limit(s) set forth in this permit.

G. 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.

Inspection Comments:

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Inspection Comments:

DATE:	09/26/00

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