



Department of Energy

Fermi Site Office
Post Office Box 2000
Batavia, Illinois 60510

MAY - 4 2012

Dr. Bruce L. Chrisman
Chief Operating Officer
Fermilab
P. O. Box 500
Batavia, Illinois 60510

Dear Dr. Chrisman:

SUBJECT: FERMILAB LIFETIME OPERATING PERMIT – NESHAP AND NSPS SOURCE--
REVISED, I.D. NO. 043807AAI

References: 1) Letter with permit, from E. Bakowski to U.S. Department of Energy, dated
April 24, 2012, Subject: Same As Above
2) Letter, from M. Weis to E. Bakowski, dated March 5, 2012, Subject: Request
for Revision to Lifetime Operating Permit

Enclosed is the revised permit (Reference 1) granted by the Illinois Environmental Protection Agency (IEPA) to operate emission units and air pollution control equipment specified in the permit revision request (Reference 2). This permit revises and replaces the Lifetime Operating Permit issued by IEPA on November 19, 2009.

Please take careful note of, and comply with, the 28 special conditions listed in the letter portion of the permit and the 11 standard conditions, specified and attached to the letter portion of the permit. Some of these conditions may be different from those contained in the previous IEPA permit for these activities. If you have questions regarding this correspondence, please contact Rick Hersemann, of my staff, at extension 4122.

Sincerely,

Michael J. Weis
Site Manager

Enclosure:
As Stated

cc: P. Oddone, w/o encl.
Y. - K. Kim, w/o encl.
N. Grossman, w/encl.



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 -(217) 782-2113

PAT QUINN, GOVERNOR

JOHN J. KIM, INTERIM DIRECTOR

217/785-1705

LIFETIME OPERATING PERMIT -- NESHAP and NSPS SOURCE -- REVISED

PERMITTEE

U.S. Department of Energy
Attn: U.S. Department of Energy Fermi Site Office Manager
Wilson and Kirk Roads, P.O. Box 2000
Batavia, Illinois 60510

Application No.: 79070012

I.D. No.: 043807AAI

Applicant's Designation:

Date Received: March 8, 2012

Subject: Fermilab Site

Date Issued: April 24, 2012

Expiration Date: See Condition 1.

Location: Wilson and Kirk Roads, Batavia, DuPage County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

Magnet Debonding Oven with Afterburner
One 15 mmBtu/hour Natural Gas-Fired Boilers
One 11.55 mmBtu/hour Natural Gas-Fired Boiler
Gasoline Dispensing Facility with One 12,000 Gallon Gasoline Storage Tank
Equipped with Permanent Submerged Loading, with Stage 1 and Stage 2
Vapor Balance System
Radionuclide Emission Stacks
One Emergency Standby Diesel Fuel Fired Engine - Generator with Nominal
Rating of 2,220 Horsepower
Main Injector Particle Production (MIPP) Experiment Gas System
One Cavity Processing Facility which includes:
One Buffered Chemical Polishing (BCP) process
One Electropolishing (EP) process

pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This permit shall expire 180 days after the Illinois EPA sends a written request for the renewal of this permit.
- b. This permit shall terminate if it is withdrawn or is superseded by a revised permit.
- 2a. The 11.55 mmBtu/hour boiler is subject to the New Source Performance Standard (NSPS) for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR Part 60 Subparts A and Dc. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.
- b. The Permittee shall perform the applicable monitoring, reporting and recordkeeping as required by 40 CFR 60.47c and 60.48c.

- c. At all times the Permittee shall, to the extent practicable, maintain and operate the boilers, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.
- 3a. This Gasoline Dispensing Facility is subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories: Gasoline Dispensing Facilities, 40 CFR Part 63 Subparts A and CCCCCC. The Illinois EPA is administering NESHAP in Illinois on behalf of the United States EPA under a delegation agreement.
- b. The source shall comply with the applicable requirements of 40 CFR Part 63 Subparts A and CCCCCC.
- 4a. This Department of Energy facility (DOE) is subject to a National Emission Standard for Hazardous Air Pollutants (NESHAP) for radionuclide emissions, 40 CFR 61, Subparts A and H.
- b. Pursuant to the National Emission Standard for Hazardous Air Pollutants, emissions of radionuclides shall not exceed those amounts that cause a dose equivalent to 10 mrem/year to any member of the public. Doses due to radon-220, radon-222, and their respective decay products are excluded from these limits.
- c. The Permittee shall demonstrate compliance with NESHAP using the procedures specified by 40 CFR 61.93.
- d. The Permittee shall fulfill applicable notification, record keeping and reporting requirements for the NESHAP, 40 CFR 61.09, 61.10(c) and 61.94(c).
- e. At all times, the Permittee shall also, to the extent practicable, maintain and operate the facility, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.
- 5. Pursuant to 35 Ill. Adm. Code 216.121, no person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 10 mmBtu/hour to exceed 200 ppm, corrected to 50 percent excess air.
- 6. This permit is issued based on the cavity processing operations not being subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Area Source Standards for Plating and Polishing Operations, 40 CFR 63 Subpart W because the source does not use or have emissions of compounds of one or more plating and polishing metal HAPs, listed in 40 CFR 63.11504.
- 7a. Emissions and operation of the following equipment shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Operating Hours (Hours/Year)</u>	<u>E M I S S I O N S</u>			
		<u>Volatile Organic Material (Lbs/Hr)</u>	<u>(Tons/Yr)</u>	<u>Particulate Matter (Lbs/Hr)</u>	<u>(Tons/Yr)</u>
Debonding Oven	1,664	1.77	0.08	0.55	0.46

These limits are based on 35 Ill. Adm. Code 212.321. VOM emission limits are based on stack test results as provided in permit application. Compliance with annual limits shall be determined from a running total of 12 months of data.

- b. The afterburner shall maintain an operating temperature of not less than 1400°F and a control efficiency of not less than 99%.
- 8. Operation and emissions of the Cavity Processing Facility shall not exceed the following limits:

<u>Pollutant</u>	<u>Emissions</u>		
	<u>(Lbs/Hour)</u>	<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
Nitrogen Oxides (NO _x)	0.13	0.06	0.58
Particulate Matter (PM)	0.02	0.004	0.042

These limits are based on a maximum of 2,000 hours/year operation of the BCP process and a maximum 5,000 hours/year operation of the EP process and the information provided in the application. Compliance with annual limits shall be determined from a running total of 12 months of data.

- 9. Emissions and operation of the two boilers shall not exceed the following limits:

- a. The 15 mmBtu/hour boiler shall not exceed the following:

Natural Gas Usage: 11.2 mmscf/month, 132 mmscf/year

<u>Pollutant</u>	<u>Emission Factor</u>		
	<u>(Lb/mmscf)</u>	<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
Nitrogen Oxides (NO _x)	100.0	0.56	6.60
Carbon Monoxide (CO)	84.0	0.47	5.54
Particulate Matter (PM)	7.6	0.04	0.50
Volatile Organic Material (VOM)	5.5	0.07	0.36

These limits define the potential emissions of NO_x, CO, PM, and VOM and are based on maximum fuel usage and standard emission factors. Compliance with annual limits shall be determined from a running total of 12 months of data.

- b. The 11.55 mmBtu/hour boiler shall not exceed the following:

Natural Gas Usage: 10.0 mmscf/month, 99.25 mmscf/year

<u>Pollutant</u>	Emission	Emissions	
	Factor (Lb/mmscf)	(Tons/Mo)	(Tons/Yr)
Nitrogen Oxides (NO _x)	32*	0.16	1.59
Carbon Monoxide (CO)	84	0.417	4.17
Sulfur Dioxide (SO ₂)	0.6	0.003	0.03
Particulate Matter (PM)	7.6	0.038	0.38
Volatile Organic Materials (VOM)	5.5	0.027	0.27

These limits are based on the 99.25 mmscf of natural gas usage, 8760 hours of operation, the emission factors for natural gas combustion as listed in Section 1.4 of the AP-42 (Fifth edition, Supplement D, July 1998) Table 1.4-1, and information in the application. Compliance with annual limits shall be determined from a running total of 12 months of data.

* The emission factor for flue gas recirculation is used. This boiler is constructed with flue gas recirculation.

- c. Natural gas shall be the only fuel used in the two boilers. Use of any other fuel other than natural gas requires a permit change.
- 10. This permit is issued based on negligible emissions of VOM from the gasoline dispensing storage tank. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
- 11. VOM usage and emissions of the Main Injector Particle Production Gas System shall not exceed 110 lbs/mo and 0.66 ton/yr. These limits are based on the maximum hourly VOM usage and maximum hours of operations (8,760 hrs/yr).
- 12. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 8 lbs/hour of organic material into the atmosphere from any emission unit, except as provided by the following exception: If no odor nuisance exists this limitation shall apply only to photochemically reactive material.
- 13. This permit is issued based on the potential to emit (PTE) for Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act being less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result, this permit is issued based on the emissions of all HAPs from this source not triggering the requirements to obtain a Clean Air Act Permit Program Permit (CAAPP).
- 14. In the event that the operation of this emission unit results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
- 15a. The only fuel fired in the Emergency Engine-Generator shall be distillate fuel oil (No. 1 and 2 oil).

- b. The total annual consumption of fuel by the standby engine-generator shall not exceed 5,000 gallons/month and 60,000 gallons/year.
- c. At the above location, the Permittee shall not keep, store, or utilize:
 - i. Distillate fuel oil (Grades No. 1 and 2) with a sulfur content greater than the larger of the following two values:
 - A. 0.28 weight percent, or
 - B. The wt. percent given by the formula: Maximum wt. percent sulfur = (0.000015) x (Gross heating value of oil, Btu/lb).
- d. Emissions and operation of the engine-generator shall not exceed the following limits:

<u>Pollutant</u>	<u>Emission Factors (Lbs/Hp-Hour)</u>	<u>Monthly Limits (Tons/Month)</u>	<u>Annual Limits (Tons/Year)</u>
NO _x	0.024	1.11	13.32
CO	0.0055	0.25	3.05
SO ₂	0.0004	0.02	0.22
VOM	0.00071	0.03	0.39
PM	0.0007	0.03	0.39

These limits are based on standard AP-42 emission factors and information provided in the permit application, a maximum of 120 gallons per hour of fuel usage, a heat content of 137,000 Btu/gallon, and maximum operation of 500 hours per year for the engine-generator. Compliance with annual limits shall be determined from a running total of 12 months of data.

- e. The Permittee shall comply with the applicable requirements of 40 CFR Part 63 Subpart ZZZZ for the emergency generator.
16. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 17a. The gasoline tank shall be equipped and operated with a submerged loading pipe, pursuant to 35 IAC 218.122(b) and 218.583(a)(1).
- b. All tank vent pipes shall be equipped with pressure/vacuum relief valves with the following design specifications:
 - i. The pressure/vacuum relief valve shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column; or
 - ii. The pressure/vacuum relief valve shall meet the requirements of Section 218.586(c).
18. The Permittee shall implement the following with respect to the Stage I Vapor Balance System:

- a. Maintain and operate the system in accordance with the established procedures and instructions. [35 IAC 218.583(d)(1)]
 - b. Maintain gauges, meters, or other specified testing devices in proper working order. [35 IAC 218.583(d)(3)]
 - c. Operate the vapor balance system and delivery vessel unloading points in a manner that prevents:
 - i. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and
 - ii. Avoidable leaks of liquid during the filling of storage tanks. [35 IAC 218.583(d)(4)]
 - d. Repair, replace, or modify any worn out or malfunctioning component or element of design. [35 IAC 218.583(c)(3)]
 - e. Within 15 business days after discovery of the leak, repair and retest a vapor balance system which exceeds the above limits in Condition 20(c). [35 IAC 218.583(d)(5)]
 - f. Provide instructions to the personnel operating the gasoline dispensing facility describing necessary maintenance operations and procedures for prompt notification of the Permittee in case of any malfunction of a vapor balance system. [35 IAC 218.583(c)(2)]
19. The Permittee shall operate a Stage II vapor collection and control system which is properly installed and maintained as provided below, whenever vehicles are fueled with gasoline, pursuant to 35 IAC 218.586(c):
- a. The vapor collection and control system has been CARB certified.
 - b. The vapor collection and control system is maintained in accordance with the manufacturer's specifications and the certification.
 - c. No elements or components of a vapor collection and control system are modified, removed, replaced, or otherwise rendered inoperative in a manner which prevents the system from performing in accordance with its certification and design specifications.
 - d. The vapor collection and control system has no defective, malfunctioning, or missing components.
 - e. Personnel operating the gasoline dispensing facility are trained and instructed in the proper operation and maintenance of a vapor collection and control system.

- f. Instructions are posted in a conspicuous and visible place within the motor fuel dispensing area and describe the proper method of dispensing motor vehicle fuel with the use of the vapor collection and control system.
20. Personnel operating the gasoline dispensing facility shall operate in accordance with the Permittee's instructions and shall promptly notify responsible maintenance personnel or their supervisor of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor balance system. [35 IAC 218.583(d)(1) and (2)]
21. The Permittee shall only allow delivery vessels that display a current sticker showing that they are leak-tight to unload gasoline at the facility. [35 IAC 218.583(a)(2)(C)]
- 22a. The Permittee shall maintain monthly records of total gasoline throughput (gallons/month).
- b. The Permittee shall keep an inspection, maintenance, and repair log for the gasoline dispensing facility that shall list activities performed that relate to control of emissions, with date, description and responsible individual.
 - c. The Permittee shall maintain the following records with respect to the gasoline dispensing facility:
 - i. A copy of the registration information submitted to the Illinois EPA pursuant to 35 IAC 218.586(h).
 - ii. Records that clearly demonstrate:
 - A. That a certified Stage II vapor collection and control system has been installed and tested to verify its performance according to its specifications.
 - B. That proper maintenance has been conducted in accordance with the manufacturer's specifications and requirements.
 - C. The time period and duration of all malfunctions of the vapor collection and control system.
 - D. The motor vehicle fuel throughput of the operation for each calendar month of the previous year.
 - E. That personnel operating the gasoline dispensing facility are trained and instructed in the proper operation and maintenance of the vapor collection and control system and informed as to the potential penalties associated with the violation of provisions of 35 IAC 218.586.
23. The Permittee shall maintain monthly records of the following items:

- a. The amount of natural gas burned in the two boilers (mmscf/month and mmscf/year);
 - b. Hours of operation of the debonding oven (hours/month and hours/year);
 - c. The hours of operation of the EP process and the BCP process (hours/month and hours/year);
 - d. VOM usage in MIPP Gas System (lbs/month and tons/year);
 - e. Quantity and percent concentration of nitric acid used (gallons/month and gallons/year);
 - f. The amount of gasoline dispensed (gallons/month and gallons/year); and
 - g. PM, NO_x, CO, SO₂, VOM, and HAP emissions with supporting calculations (tons/month and tons/year).
- 24a. The Permittee shall maintain records of the following items to address compliance with the limits in Condition 15:
- i. Records of the sulfur content of the fuel oil for each shipment of fuel oil received, percent by weight.
 - ii. Hours of operation for the engine-generator (hours/month and hours/year).
 - iii. Monthly and annual records of fuel consumption by the engine-generator (gallons/month and gallons/year).
 - iv. Monthly and aggregate annual emissions of NO_x, CO, SO₂, VOC and PM in tons/month and tons/year of the engine-generator, with supporting calculations.
- b. The Permittee shall keep a maintenance and repair log for the engine-generator, listing significant activities performed with date.
25. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.
26. If there is an exceedance of or deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance/deviation. The report shall include the emissions released

in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.

27. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

28. Persons with lifetime operating permits must obtain a revised permit for any of the following changes at the source:

- a. An increase in emissions above the amount the emission unit or the source is permitted to emit;
- b. A modification;
- c. A change in operations that will result in the source's noncompliance with conditions in the existing permit; or
- d. A change in ownership, company name, or address, so that the application or existing permit is no longer accurate.

Please note that this permit has been revised to no longer include operations of one 15 mmBtu/hour boiler, open top vapor degreaser and collider detector facility per Permittee request.

If you have any questions concerning this permit, please contact Valeriy Brodsky at 217/785-1705.



Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed:

4-24-2012

ECB:VJB:jws

cc: Region 1



STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS
FOR
LIFETIME OPERATING PERMITS

July 1, 1998

The Illinois Environmental Protection Act [415 ILCS 5/39 (formerly Illinois Revised Statutes, Chapter 111-1/2, Section 1039)] grants the Illinois Environmental Protection Agency authority to impose conditions on permits which it issues.

1. The issuance of this Permit does not release the Permittee from compliance with state and federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or with applicable local laws, ordinances and regulations.
2. The Illinois EPA has issued this Permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be ground for revocation under 35 Ill. Adm. Code 201.166.
3.
 - a. The Permittee shall not authorize, cause, direct or allow any modification, as defined in 35 Ill. Adm. Code 201.102, of equipment, operations or practices which are reflected in the permit application as submitted, until the appropriate permit is obtained from the Illinois EPA.
 - b. The Permittee shall obtain a new or revised permit under Section 39.5 of the Act, if the source no longer meets the applicability criteria of 35 Ill. Adm. Code 201.169 because of changes in emissions units or control equipment.
 - c. The Permittee shall obtain a revised permit prior to any of the following changes at the source:
 - i. An increase in emissions above the amount the emission unit or the source is permitted to emit; or
 - ii. A modification; or
 - iii. A change in operations that will result in the source's noncompliance with a condition in the existing permit; or
 - iv. A change in ownership, company name, or address, so that the application or existing permit is no longer accurate.
4.
 - a. This Permit only covers emission units and control equipment while physically present at the indicated source location. Unless the Permit specifically provides for equipment relocation, this Permit is void for an item of equipment on the day it is removed from the permitted location, or if all equipment is removed.
 - b. The Permittee shall notify the Illinois EPA in writing to withdraw the Permit if all operations the source have been permanently discontinued.

5. The Permittee shall allow any duly authorized agent of the Illinois EPA, upon the presentation of credentials, at reasonable times:
 - a. To enter the Permittee's property where actual or potential effluent, emission or noise units are located or where any activity is to be conducted, pursuant to this Permit;
 - b. To have access to and to copy any records required to be kept under the terms and conditions of this Permit;
 - c. To inspect, including during any hours of operation of equipment constructed or operated under this Permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this Permit;
 - d. To obtain and remove samples of any discharge or emission of pollutants; and
 - e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any activity, discharge or emission authorized by this Permit.
6. The issuance of this Permit:
 - a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located;
 - b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the source;
 - c. Does not take into consideration or attest to the structural stability of any unit or part of the project; and
 - d. In no manner implies or suggests that the Illinois EPA (or its officers, agents, or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or source.
7. The Permittee shall maintain all equipment covered under this Permit in such a manner that the performance of such equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.
8. The Permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. This records shall be made available to any agent of the Illinois EPA at any time during normal working hours and/or operating hours. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.
9. No person shall cause or allow startup of any emission unit or continued operation during malfunction or breakdown of any emission unit or related air pollution control equipment if such startup or continued operation would cause a violation of an applicable emission standard or permit limitation if such operation is not allowed as a special condition of this Permit, as required by 35 Ill. Adm. Code 201.149.
10. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code 201.302 and 35 Ill. Adm. Code Part 254.
11. The Permittee shall pay the annual site fee for the source in accordance with Section 9.5 of the Act.

**DIRECTORY
ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR**

for assistance in preparing a permit application contact the Permit Section.

**Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section
1021 N. Grand Ave E.
P.O. Box 19506
Springfield, Illinois 62794-9506**

for a regional office of the Field Operations Section. The regional offices and their areas of responsibility are shown on the map. The addresses and telephone numbers of the regional offices are as follows:

**Illinois EPA
Region 1
Bureau of air, FOS
9511 West Harrison
Des Plaines, Illinois 60016
847/294-4000**

**Illinois EPA
Region 2
5415 North University
Peoria, Illinois 61614-
309/693-5463**

**Illinois EPA
Region 3
2009 Mall Street
Collinsville, Illinois 62234
618/346-5120**

