ACCELERATOR DIVISION ENVIRONMENT, SAFETY AND HEALTH PROCEDURE

ADSP-08-0501

AIR EMISSION SOURCE PROGRAM

RESPONSIBLE DEPARTMENT ES&H

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1.0 PURPOSE AND SCOPE

This document establishes Accelerator Division (AD) procedures for identifying and inventorying potential stationary sources airborne emissions of radionuclides and conventional chemical pollutants, determining whether state or federal permits are required, and fulfilling any applicable management, monitoring, reporting, and control requirements. It provides guidance on what constitutes an emissions source and also includes an inventory of known emissions sources in AD spaces. The procedure does not cover motor vehicles or forklifts.

The goals of this procedure are to ensure compliance with applicable requirements and to prevent delays when new facilities that would constitute new sources are planned.

2.0 DEFINITIONS

Regulated Air Contaminant: any solid, liquid or gaseous matter, any odor or any form of energy, that is capable of being released into the atmosphere from an emission source and that is regulated by Subtitle B of Title 35, Illinois Administrative Code, or Title 40, Code of Federal Regulations. Conventional pollutants potentially emitted by Fermilab activities include volatile organic compounds, oxides of nitrogen and sulfur, carbon monoxide, and particulates. Hazardous air pollutants potentially produced at Fermilab include radionuclides, asbestos, benzene, and beryllium.

Stationary Emission Source: any non-mobile equipment or facility of a type capable of emitting regulated air contaminants to the atmosphere.

Modification: any physical change in, or change in the method of operations of, an emission source or of air pollution control equipment which increases the amount of any regulated air contaminant emitted by such source or equipment or which results in the emission of any regulated air contaminant not previously emitted. It shall be presumed that an increase in the use of raw materials, the time of operation or the rate of production will change the amount of any regulated air contaminant emitted.

3.0 RESPONSIBILITIES

3.1 AD ENVIRONMENTAL OFFICER (EO)

The AD EO will:

a. inspect division spaces periodically to identify and inventory equipment that constitutes an emissions source and document a determination on whether a permit is required,

b. evaluate new potential emissions sources reported by department heads for applicability of permitting and control requirements,

c. obtain all relevant information needed to prepare any required permit application and submitting it to the ESH&Q Section,

d. submit a ''New/Modified Air Pollution Emission Source'' form to the ESH&Q Section for new air emission sources,

e. notify department heads of any changes in policy or new requirements pertaining to air emissions sources,

f. review purchase requisitions for equipment with potential to produce air emissions,

g. revise the appendices to this procedure, and

h. monitor annual use of coatings in AD and revise record-keeping requirements associated with paint spray booths if the assumptions described in section 4.3.1 change.

3.2 AD DEPARTMENT HEADS

The department heads will:

a. provide timely notification to the AD EO of planned new air emissions sources or modifications to existing sources,

b. assist the AD EO in the review and inventory of potential emission sources,

c. provide the AD EO with any requested technical specifications and use data related to their emissions sources,

d. comply with all permit requirements for any permitted equipment for which they have primary operational responsibility, and

e. maintain their equipment, including any emissions controls, in accordance with manufacturer's instructions.

4.0 INSTRUCTIONS

4.1 IDENTIFYING AIR EMISSIONS SOURCES

Illinois Environmental Protection Agency (IEPA) regulations prohibit construction or operation of a new emission source or modification or operation of an existing source without first obtaining a permit from the Agency. However, there is a long list of exemptions from permitting in 35 IAC 201.146. Department Heads are responsible for reporting all existing and new potential emissions sources to the AD EO for evaluation. In order to meet this requirement, department heads should evaluate their areas and processes/equipment for potential emission sources including, but not necessarily limited to, the following:

Any equipment that involves fuel combustion

Any portion of an accelerator where beam activates air

Paint spray booths

Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, sand blast cleaning, shot blasting, shot peening, or polishing metals, plastics, concrete, rubber, or wood

Fume hoods

Degreasers

Ventilating equipment designed to remove dust, fumes, or particles from the operational vicinity of machine tools for metal or wood working or sand blasting

Tanks for storage of organic liquids, surfactants, detergents, aqueous salt solutions, aqueous caustic solutions, and oil

Cooling towers (in-service only)

Ovens

Furnaces for melting metals

Air pollution control devices

4.2 INVENTORYING EMISSIONS SOURCES

The EO will compile and review information pertaining to AD's air emission sources and responsible departments. The EO will document whether a permit is required for the emission source. Information will be sent to the ESH&Q Section's Environmental Group to be maintained and incorporated into the lab's main air emission inventory and maintained.

4.3 MANAGEMENT OF SPECIFIC SOURCES

4.3.1 Paint Spray Booths

4.3.1.1 Coating operations, e.g., paint spray booths, are exempt from permitting requirements if the total coating material used on site annually does not exceed 5,000 gallons [35 I.A.C. 201.146(g)]. Therefore, Fermilab needs some means of demonstrating that it qualifies for the exemption. One way would be to measure and document coating usage for each spray booth and report it to the ESH&Q Section annually for aggregation into a site-wide total. However, this would be rather labor-intensive and the Lab has not chosen to require it in FESHM Chapter 8080.

4.3.1.2 Because Fermilab is located in an area that is not in attainment of the standard for ozone, emissions limitations for coatings in 35 I.A.C. Part 218 potentially need to be considered even if a permit is not required. However, § 218.208 exempts a source from having to meet these emissions limitations if the combined actual volatile organic material emissions from all painting activities on site are below 15 lb. per day. This again suggests that Fermilab's site-wide paint usage is below the level that would require compliance with specific emissions limitations.

4.3.1.3 In conjunction with compiling the annual Toxic Release Inventory report, the Environmental Officer will monitor paint usage in the division and modify the program if paint usage levels increase to an extent that might invalidate the above.

4.3.1.4 Owners of the equipment shall assign a person or persons the responsibility of changing filters and performing any other required maintenance on a schedule recommended by the manufacturer or dictated by usage. These assignments shall be reported to the ES&H Department. The maintenance shall be maintained by the department and kept near the equipment.

4.3.2 Cold Solvent Cleaning (e.g., Safety Kleen)

4.3.2.1 The cover of the degreaser must be kept closed when parts are not being handled.

4.3.2.2 Cleaned parts must be drained inside the degreaser until dripping ceases.

4.3.2.3 Waste solvent must be stored in covered containers.

4.3.2.4 Degreasers must meet applicable provisions of 35 IAC 218.182(b).

4.3.2.5 Except when cleaning electronic components (defined as "all portions of an electronic assembly, including, but not limited to, circuit board assemblies, printed wire assemblies, printed circuit boards, soldered joints, ground wires, bus bars, and associated electronic component manufacturing equipment such as screens and filters" (35 IAC 211.1885)), the solvent used must have a vapor pressure no greater than 1.0 mmHg (0.019 psi) measured at 20°C (68°F).

4.3.2.6 Records of solvent purchases must be kept for three years. Documentation must include the name and address of the solvent supplier, date of purchase, type of solvent, and vapor pressure of solvent.

4.3.3 Dust Collection Devices

Owners of the equipment shall assign a person or persons the responsibility of changing filters and performing any other required maintenance on a schedule recommended by the manufacturer or dictated by usage. Such maintenance shall be documented on a log kept near the equipment.

4.3.4 Solvent Wipe Cleaning

4.3.4.1 Solvent shall be applied to the rag rather than directly to the part being cleaned.

4.3.4.2 Use as little solvent as needed to do the job.

4.3.4.3 Dispose of spent rags in a steel can intended for combustible waste. Spent rags shall be classified according to Attachment B and segregated as necessary.

4.3.5 Emergency Generators

Emergency generators with a rated power output of 1118 kW (1500 hp) or more require a permit. No one should purchase or allow a generator of this size to be brought on site (even temporarily, e.g., by a contractor) without first consulting the EO.

5.0 REFERENCES

5.1 Fermilab ES&H Manual Chapter 8060, National Environmental Policy Act (NEPA) Review

5.2 Fermilab ES&H Manual Chapter 8080, Air Emissions Control Program

5.3 Title 40 Code of Federal Regulations Part 61, National Emission Standards for Hazardous Air Pollutants

5.4 Subtitle B, Title 35, Illinois Administrative Code, "Air Pollution"

6.0 DISTRIBUTION

6.1 An electronic controlled copy of this procedure is maintained at http://ad-esh.fnal.gov/ad/adsp/ADSP-08-0501.pdf.

6.2 The Main Control Room and the AD ES&H Department have controlled hardcopies of this procedure.

PROPER DISPOSAL OF CONTAMINATED WIPES AND RAGS

The disposal methods below are applicable only to rags and wipes that are non-radioactive, as determined with a frisker. Rags and wipes generated in a beam enclosure or through work on components that are potentially contaminated must be surveyed.

CONTAMINANT	CATEGORY/CONDITIONS	WASTE CODE
LEAD		
LEAD-CONTAMINATED	HAZARDOUS	D008
SOLVENTS		
MINERAL SPIRITS, ETHANOL, XYLENE, ACETONE, METHANOL	Hazardous All wipes and rags contaminated with the solvents at left may be commingled in a single container. They should be collected in a labeled clear bag and then placed inside of an approved container. Containers and bags are available through the Waste Coordinator. **Disposal in the regular trash is PROHIBITED!**	D001, F003
MINERAL SPIRITS, ETHANOL	HAZARDOUS	D001
XYLENE, ACETONE, METHANOL	HAZARDOUS	F003
TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, METHYLENE CHLORIDE AND CHLORINATED FLUOROCARBONS; all spent halogenated solvents, mixtures/blends containing before use, a total of 10% or more (by volume) of one or more of the above halogenated solvents or solvents listed in F002, F004, and F005.	HAZARDOUS	IF OILY, F001; OTHERWISE F002
TOLUENE, METHYL ETHYL KETONE (MEK), ISOBUTANOL;all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvent or those solvents listed in F001, F002, or F004.	HAZARDOUS	F005
OILS		
NON-PCB OILS	REFUSE Reminder: Only 1 ft^3 of cleanup debris per dumpster. Larger cleanups (i.e., ≥30 gallons) must be conducted in coordination with the Waste Coordinator.	NONE
PCB		
PCB OILS	SPECIAL Contact the Waste Coordinator for assistance.	NONE
GLYCOLS		
ETHYLENE GLYCOL, PROPYLENE GLYCOL	REFUSE Reminder: Only 1 ft^3 of cleanup debris per dumpster. Larger cleanups (i.e., ≥30 gallons) must be conducted in coordination with the Waste Coordinator.	NONE

Solvents naturally evaporate from rags and wipes during the course of their use. This is unavoidable and it is acceptable if rags and wipes become devoid of free liquids in this way. However, it is not permissible to spread wet rags/wipes out to deliberately allow them to dry. This is considered treatment and would require a special permit from IEPA. It also would potentially create safety and health hazards and contribute to ground-level ozone (i.e., smog) formation. Hint: Try to minimize the amount of solvent you apply to the rag/wipe. Use repeated applications, if necessary, rather than saturating the rag/wipe with solvent.