

C-1. Chemical Hygiene Plan

I. Scope

The Chemical Hygiene Plan applies to all on-site and off-site Frederick National Laboratory for Cancer Research (FNL) operations involving laboratory use of hazardous chemicals as defined in 29 CFR 1910.1450. This definition follows below. Employees working at an off-site facility with its own Chemical Hygiene Plan shall comply with applicable requirements of that Plan.

II. Purpose

To ensure laboratory employees using hazardous chemicals:

- (1) are provided a safe and healthful work environment;
- (2) receive the necessary information and training to perform their job safely; and
- (3) comply with the Occupational Health and Safety Administration (OSHA) Laboratory Standard (29 CFR 1910.1450).

III. Definitions

Action Level – A concentration specified in 29 CFR Part 1910 for a specific substance, calculated as an 8-hour time-weighted average, which initiates certain required activities such as exposure monitoring and medical surveillance.

Chemical Hygiene Plan – An implemented written program which describes procedures, equipment, personal protective equipment and work practices, capable of protecting employees from health hazards presented by hazardous chemicals used in the laboratory.

Designated Area - An area which may be used for work with “select carcinogens”, reproductive toxins (teratogens / embryotoxins), or substances which have a high degree of acute or chronic toxicity. A designated area may comprise an entire laboratory, a fume hood, or glove box.

Hazardous Chemical - Any chemical which is classified as a health hazard or simple asphyxiant in accordance with the Hazard Communication Standard (29 CFR 1910.1200).

Health Hazard – Means any chemical that is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in appendix A of the Hazard Communication Standard (29 CFR 1910.1200).

Laboratory Employee - An individual employed in a laboratory who may be exposed to hazardous chemicals in the course of his/her assignments including visiting scientists, guest researchers, special volunteers, students, and other similar personnel are included in the scope of the Chemical Hygiene Plan.

Laboratory Use of Hazardous Chemicals - The handling or utilization of relatively small quantities of hazardous chemicals on a non-production basis, and in which:

1. Chemical containers may be safely and easily manipulated by one person;
2. Multiple chemical procedures or chemicals are used; and
3. Protective laboratory practices and equipment are available and in common use to minimize the potential for employee exposure to hazardous chemicals.

Permissible Exposure Limit (PEL) – OSHA defined (29 CFR 1910 subpart Z) limits for safe employee exposure to toxic and hazardous substances.

Particularly Hazardous Substances (PHSs) include:

- Reproductive Toxins - Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis). The State of California, Office of Environmental Health Hazard Assessment (OEHHA) has developed a list of chemicals known to cause cancer or reproductive toxicity.

- Select Carcinogens - Substances regulated by OSHA as carcinogens, listed under the category "known to be carcinogens" in the Annual Report on Carcinogens published by the National Toxicology Program, or listed in Group 1, 2A, or 2B by the International Agency for Research on Cancer (IARC) Monographs.
- Substances With a High Degree of Acute Toxicity - A chemical falling within any of the following categories:
 1. A chemical that has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each;
 2. A chemical that has a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each; or
 3. A chemical that has a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

IV. Responsibilities

A. Supervisor

1. Review each new operation, activity, or equipment to identify potential new chemical hazards.
2. Ensure that employees receive job-specific training (i.e., training in the potential hazards of specific chemicals in

- their work areas, in the safe handling of these hazardous chemicals, and in related emergency procedures).
3. Provide job-specific training before new employees begin work with hazardous chemicals, and before existing employees are exposed to new hazards. Environment, Health and Safety (EHS) assistance is available as requested (See Section V.C.3).
 4. Refer employees to Occupational Health Services (OHS) if the supervisor suspects that the employee may have been overexposed to a chemical.
 5. Develop a written SOP for laboratory operations that require EHS approval. In addition, supervisors should develop SOPs for other higher risk activities, or those that are not addressed in the general laboratory safety rules within Section G of this Chemical Hygiene Plan, or in the FNL Safety and Health Compliance Manual. Assistance is available from EHS. See Section VI.D.
 6. Enforce the requirements and practices contained in this Chapter, in program-specific Standard Operating Procedures (SOPs), and in the FNL Safety and Environmental Compliance Manual.
 7. Ensure that ANSI-approved emergency eyewash units in areas under their control are tested weekly to flush the line and verify proper operation. Document this testing on an inspection tag attached on or near the eyewash and refer malfunctioning units for corrective action.
 8. Request EHS approval for working with, or storing the particularly hazardous chemicals specified in Section VI.D.
 9. Enforce the use of PPE including a basic level consisting of safety glasses with side shields, appropriate gloves, fully fastened laboratory coat, and closed-toed shoes as outlined in Section C-11 Personal Protective Equipment.

B. Employee

1. Immediately inform supervisor and report to OHS when overexposure to a chemical is suspected.
2. Use engineering controls, wear personal protective equipment (PPE), and use good laboratory safety practices listed in Section V.G. to minimize all chemical exposure.
3. Immediately cease work, close containers, pull down the sash, and call the trouble desk if a chemical fume hood goes into alarm.
4. Report to their supervisor or EHS any condition in the workplace that is potentially unsafe.

C. Protective Services

Test ANSI-approved emergency eyewash units in common-use areas (e.g., hallways) weekly to flush the lines and verify proper operation. Document this testing and refer malfunctioning units to the FME trouble desk for corrective action.

D. Facilities Maintenance and Engineering (FME):

1. Evaluate chemical fume hoods (CFHs) at least every 6 months and biological safety cabinets (BSCs) at least annually, or as needed after repairs or maintenance, and maintains a record of test results at the hood card.
2. Test emergency showers at least semi-annually to flush the line and to verify proper operation, and documents this testing on a tag attached to each shower unit.

E. Occupational Health Services (OHS)

1. Provide or refer employees for medical consultation in the event of a potential overexposure to a chemical. A

written finding from the OHS clinician must be maintained.

2. Maintain a record of and provide restricted access to employee medical measurements and any medical consultation or examinations, in accordance with 29 CFR 1910.20, Access to Employee Exposure and Medical Records.
3. Maintain all employee medical and exposure records for duration of employment plus 30 years.

F. Environment, Health & Safety Program (EHS):

1. Designate personnel responsible for technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan including the assignment of a Chemical Hygiene Officer (CHO). The CHO is designated as the Industrial Hygiene Safety Officer position within EHS. The CHO may establish a Chemical Hygiene Safety Committee if needed or requested.
2. Coordinate the measurement and documentation of employee exposure to any substance that the supervisor or EHS have reason to believe may exceed the OSHA Action Level, the OSHA Permissible Exposure Limit (PEL), or in absence of an OSHA PEL, the ACGIH Threshold Limit Value (TLV), or a substance that has an OSHA-specific requirement.
3. Notify affected employees in writing of the results of personal monitoring within 15 working days after the results are established and enter results into the medical record (electronic).
4. Archive a copy of employee monitoring report in EHS files.

5. Consult with OHS in the event of suspected employee overexposure to a chemical and provide re-monitoring after corrective actions as required.
6. Train employees on the details of the FNL Chemical Hygiene Plan, general hazards posed by chemicals and by processes used/performed, and methods to reduce the chance of accident or exposure.
7. Review standard operating procedures as provided by supervisors describing any new laboratory operation, activity, or equipment installation to ensure compliance with applicable environmental and safety laws and regulations.
8. Grant approval for working with, or storing particularly hazardous chemicals specified in Section VI.D.

V. Procedures

A. Applicability and Allowable Permissible Exposure Limits (PEL)

For laboratory use of OSHA-regulated substances, the FNL will ensure that laboratory employees' exposures to such substances do not exceed the PELs specified in 29 CFR Part 1910, Subpart Z or, in the absence of a OSHA PEL, the American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Values (TLV).

B. Employee Exposure Determination

1. Initial Monitoring: EHS will coordinate the measurement of employee exposure to any substance which EHS, in consultation with the supervisor, has reason to believe the exposure levels for that substance may exceed the action level, or in the absence of an action level, the PEL or ceiling limit.
2. Periodic Monitoring: If initial monitoring discloses employee exposure over the action level, or in the absence of an action level the PEL, EHS will immediately

initiate measures to comply with the periodic monitoring provisions of the applicable standard and take actions to investigate controls (engineering or PPE) to limit the exposures.

3. EHS will notify affected employees in writing of the results of initial or periodic monitoring within 15 working days after the results are established.

C. Employee Information and Training

1. Initial orientation/training of permanent or temporary laboratory employees with potential exposure to hazardous chemicals will be provided by EHS and the supervisor. EHS will provide all employees with New Employee Orientation training which includes, among other topics, general laboratory safety, hazard communication, waste management, pollution prevention, and bloodborne pathogen training, and:
 - a. The content, location, and availability of the Chemical Hygiene Plan and requirements of the OSHA Laboratory Standard (29 CFR 1910.1450). The Plan is available on the EHS web site.
 - b. The function of PELs established by OSHA for certain substances and the responsibility of the supervisor for contacting EHS for suspected overexposures. PELs for specific chemicals may be found on the Material Safety Data Sheet (MSDS).
 - c. General instruction on signs and symptoms associated with exposure to hazardous chemicals used in the laboratory.
 - d. The location and availability MSDSs and other hazard information sources
 - e. The general classes of hazardous chemicals used at FNL and the hazards they pose.

- f. General health and safety procedures relating to the use of hazardous chemicals.
 - g. Methods and observations to detect the presence or release of a hazardous chemical in their work areas, including air monitoring, visual appearance, odor, etc.
 - h. General measures employees can take to protect themselves from hazardous chemicals, such as safe work practices, engineering controls, and use of personal protective equipment.
 - i. General procedures for responding to emergencies and for dealing with unusual operations.
2. Supervisors will train new employees on job-specific chemical hazards as documented by completing the New Employee Safety Checklist. Supervisors will also provide job-specific training for employees performing new procedures or exposed to new hazards. EHS can assist with job-specific training as requested.
- Supervisors will provide employees with additional instruction as appropriate for signs and symptoms associated with exposure to specific chemicals in the laboratory.
- Employees must complete training ***prior to*** working with, or around, hazardous chemicals. If an employee changes jobs, the supervisor shall complete a New Employee Safety Checklist for the employee's new job prior to the start of hazardous work.
3. Supervisors provide additional training when a new chemical hazard is introduced into the work area(s), when a hazardous chemical is used for a new purpose that presents different potential hazards, and when new,

significant information is received about hazardous chemicals already in the work area(s).

4. All training given by EHS will be documented with:
 - a. A sheet signed by participating employees;
 - b. A description of topics covered (or a copy of materials presented);
 - c. The date training was given;
 - d. Entered into the Occupational Health Manager (OHM) software;
5. Subcontractors with exposure to hazardous chemicals from FNL operations (laboratory or elsewhere) are referred to training requirements as described in Section C-5 "Employee Right-to-Know: Non-Laboratory Operations".
6. Subcontractors must provide the subcontract manager (i.e., generally this is the Contracting Officer's Representative (COR) for a construction project) with a chemical inventory list of each product brought on-site to which FNL employees may be exposed.

D. Medical Consultation and Examination

1. Employees working with hazardous chemicals will be provided medical attention under the following circumstances:
 - a. Whenever an employee develops signs or symptoms of overexposure to a hazardous chemical to which the employee may have been exposed in the laboratory, the employee will be provided an opportunity to receive an appropriate medical examination.
 - b. Where exposure monitoring reveals an exposure level routinely above the action level or, in the absence of an action level, the PEL (for which there are medical

surveillance requirements), medical surveillance will be provided for the affected employee as prescribed by the applicable OSHA standard.

- c. Whenever an event takes place in the laboratory, such as a spill, fire, or other occurrence resulting in the likelihood of overexposure, the employee will be provided an opportunity for a medical consultation. Such consultation will be for the purpose of determining the need for a medical examination.
2. All medical examinations and consultations will be performed by or under the direct supervision of a licensed physician and will be provided without cost to the employee, without loss of pay, and at a reasonable time and place.
 3. For medical consultation or consultation required under the Laboratory Standard, OHS will provide or obtain from the examining clinician a written opinion which will include:
 - a. Any recommendation for further medical follow-up;
 - b. The results of medical examination and any associated tests;
 - c. Any medical condition revealed in the course of the examination which may place the employee at increased risk as a result of exposure to a hazardous chemical found in the workplace;
 - d. A statement that the employee has been informed by the clinician of the results of the consultation or medical examination and any medical condition that may require further examination or treatment.

Note: The written opinion shall not reveal specific findings or diagnosis unrelated to occupational exposure.
 4. OHS will maintain, for each employee affected by the OSHA Laboratory Standard, an accurate record provided by EHS of any measurements taken to monitor employee exposures and medical

consultation and examinations, including written opinions. All monitoring and medical records are to be maintained for the duration of employment plus thirty years.

E. Hazard Identification

1. Incoming Materials: Labels on incoming hazardous chemicals shall not be removed or defaced and MSDSs will be available as described in Section C-5: Employee Right-to-Know: Non-Laboratory Operations.
2. Laboratory Generated Materials: The supervisor will ensure that all laboratory-generated materials are properly labeled. If the laboratory-generated materials will be used outside of the immediate laboratory where they were generated, the supervisor will generate a Material Safety Data Sheet and ensure that a warning label and identification of the substances(s) are attached. Questions on appropriate labeling and MSDSs should be referred to EHS.

F. Use of Respirators

Where EHS determines that the use of respirators is necessary to maintain exposure below PELs, the employer will provide, at no charge to the employee, the proper respirator. Training, fit-testing, and medical surveillance will be provided, and respirators will be selected and used in accordance with the requirements of 29 CFR 1910.134, OSHA Respiratory Protection Standard and Section C-10: Respiratory Protection Program.

G. Laboratory Safety – General Laboratory Practices when work involves hazardous chemicals

All employees will follow FNL laboratory safety rules and requirements in the EHS Manual. A synopsis of the basic rules follows:

1. Working alone with hazardous chemicals in the laboratory is highly discouraged. See FNL Safetygram ISM-128.
2. Food, including beverages, shall not be stored or consumed in laboratory areas where chemicals are used or stored.

3. Food and beverages will not be stored in laboratory refrigerators.
4. Work areas must be kept clean and free of obstructions (minimum 28" aisles).
5. Pipetting by mouth is forbidden.
6. Wash hands with soap and water before leaving the laboratory area and before eating or drinking.
7. Application of cosmetics, etc. in laboratories where chemicals are used or stored is prohibited.
8. Protective laboratory clothing such as coveralls, laboratory coats, or gloves can become contaminated and shall not be worn in administrative areas or outside a laboratory facility.
9. Chemical Storage
 - a. No chemicals will be kept on or in desks, unless desks are considered part of the laboratory area (food and drink prohibited).
 - b. Incompatible materials shall be physically separated in storage (a secondary containment tray is acceptable). For example:
 - i. Oxidizers from flammables and organic acids;
 - ii. Acids from bases and flammables;
 - iii. Water-reactive chemicals from potential water sources and flammable liquids.
 - c. All chemicals that may form peroxides when exposed to air shall be labeled with the date of receipt and date opened (outdated material is to be recycled or disposed of through EHS). It is recommended that unopened containers of peroxide forming chemicals be disposed of within one year and opened containers within six months.

- d. All vessels holding hazardous chemicals, including transfer containers and transfer lines, must be properly labeled in accordance with Section C-5 Employee Right-to-Know.
- e. Flammable liquids not in immediate use must be stored inside an approved flammable liquid cabinet. If refrigerators are used to store flammable liquids, they must be “explosion proof” or “laboratory safe” as defined in NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals.
- f. Broken or chipped glassware shall not be used in the laboratory and must be disposed of in rigid enclosed container specifically designated as a broken glass receptacle.
- g. All compressed gas cylinders (empty or full) shall be secured at all times and capped when not in use.

10. Waste Disposal

All chemicals shall be disposed of in accordance with Section D-1: Waste Management and Section D- 2: Hazardous Waste Disposal.

11. Emergency Procedures

Emergency Procedures to be followed in the event of a fire, medical emergency, chemical spill, or utility outages are contained in Section B-1 Emergency Response Procedures.

12. Accidents

- a. Accident reporting procedures to be followed in the event of a work-related accident are contained in Section B-2 Accident Reporting.
- b. Accessible ANSI-approved emergency eyewash units and shower equipment shall be available for use in the

event of chemical contamination of skin, eyes, or clothing. ANSI-approved emergency eyewash units and showers shall be inspected as described under Responsibilities. Inspections will be documented on tags (available from EHS) attached to the eyewash or shower, or by other effective means.

13. Control Methods

- a. Laboratory hoods or local exhaust ventilation must be used when handling or working with hazardous chemicals where there is the possibility that inhalation exposure may exceed a PEL or TLV or cause a health hazard through the inhalation route.
- b. Hood face velocity must be in compliance with Section C-12: Laboratory Ventilation Management Program.
- c. Alterations or modifications of the ventilation systems are permissible only if approved by EHS and FME. Procedures for approving alterations or modifications are described in Chapter C-12: Laboratory Ventilation Management Program.
- d. Chemical Fume Hoods will be evaluated at least semi-annually by FME. BSCs, special purpose hoods, and other devices that are relied upon to control hazards (snorkels, slot hoods, articulating arms) shall be evaluated as specified by Chapter C-12: Laboratory Ventilation Management Program. Additional ventilation checks will be conducted as needed (i.e., after repairs or modifications to exhaust fan or ductwork). A record of results and modifications will be maintained by FME and made available to EHS.
- e. Ductless chemical fume hoods are not permitted to be used in NIH laboratories and FNL enforces this requirement.
- f. Newly installed chemical fume hoods will be tested according to the NIH Design requirements Manual

(DRM). Currently these requirements are for 50% of the fume hoods in the project to be tested and pass the NIH modified ASHRAE 110 test.

14. Personal Protective Equipment

- a. Refer to Sections C-10 Respiratory Protection Program, and C-11 Personal Protective Equipment, for further information.

VI. Provisions for additional employee protection for work with Particularly Hazardous Substances (PHSs) or unknowns.

A. Designated Areas

1. All chemicals of high acute toxicity, select carcinogens, or reproductive toxins shall be handled in "designated areas". All laboratory areas at FNL are classified as designated areas, unless specifically exempted by EHS and labeled on the door sign as such. Unescorted entry into designated areas is restricted to those employees instructed on the hazards and handling procedures specific to the operations performed, and hazardous chemicals present, in the areas.
2. Designated areas that pose an inhalation exposure potential are required to have negative pressure (airflow) with adjacent administrative areas or corridors.
3. Non-laboratory employees (e.g., FME, Warehouse, or Property) may not work in designated areas or work on equipment which has been removed from designated areas unless a Work Authorization Tag, a signed room clearance sign, or without being escorted by trained laboratory or EHS staff. Other individuals should call one of the contacts noted on the laboratory door sign for escorted entry or training.

B. Use of containment devices

1. The laboratory's general ventilation system alone is not to be relied on for protection from airborne contaminants. Local exhaust ventilation (LEV) systems (fume hoods, enclosures, and snorkels) are to be used as the primary method of control.
2. Performance-tested laboratory hoods, local exhaust ventilation, or glove boxes must be used when handling or working with PHSs where the possibility of inhalation exposure exists.
3. If the containment device is not functioning properly or in alarm, work shall not continue until such time as FME has restored and verified proper function of the device.
4. All Particularly Hazardous Substances (PHS) should be stored in properly labeled secondary containment (drip proof non-reactive trays, bottle totes, glass beakers, or anything capable of containing a spill or container failure).
5. Use additional containment devices as necessary (such as shielding or protective filters) to safely handle or store particularly hazardous substances, and to protect equipment and employees.

C. Decontamination procedures

1. Laboratory employees handling PHSs must wash hands thoroughly with soap and water after removing PPE and before exiting the laboratory. The laboratory must have a sink.
2. All containment devices, weighing apparatus, and work areas shall be wiped clean or appropriately decontaminated immediately after work and before vacating the area.

3. Protect work surfaces from contamination through the use of disposable, absorbent, plastic backed paper (plastic side down). Regularly replace and dispose of promptly and properly if contaminated.
- D. Prior approval and notification required for certain particularly hazardous substances

Some chemicals or activities require submission and approval by EHS of a Safety Protocol or SOP that includes information outlined in Appendix A. (Minimum Requirements of a Safety Protocol). These substances and activities which require prior approval before use or storage are:

- Explosive or shock sensitive – Includes chemicals that are highly unstable or, when combined with other compounds in the procedure, are explosive.
- Pyrophoric liquids or pyrophoric compressed gasses (*e.g., silane, germane, dichloroborane, phosphine, stibine **)
- Reactive metals (*sodium metal, lithium metal**)
- Beryllium or beryllium compounds that involve particles less than 10 microns in size.
- Hydrogen peroxide in concentrations greater than 50%.
- Perchloric acid in concentrations greater than 85%
- Compressed gases which are select carcinogens, reproductive toxins, acutely toxic or corrosive:
 - in quantities greater than 20 cubic feet (*e.g., ammonia, chlorine, hydrogen fluoride, hydrogen sulfide, sulfur dioxide, silicon tetrafluoride, hydrogen chloride, 1,3butadiene, vinyl chloride, ethylene oxide, phosgene, hydrogen cyanide **).

OR

- that are plumbed outside of the source exhausted enclosure (i.e., when all gas use is not inside a fume hood, gas cabinet or exhausted enclosure).

- Organophosphate acetyl cholinesterase inhibitors (nerve agents – (e.g. sarin, tabun, soman, VX, phenothiazines, Malathion, parathion, dichlorvos, diisopropyl fluorophosphate) or anything that requires antidote for emergency treatment of acute overexposure (e.g., *atropine*, *2-PAM**).

- OSHA-specified carcinogens including:
 - 4-Nitrobiphenyl, Chemical Abstracts Service Register Number (CAS No.) 92933
 - alpha-Naphthylamine, CAS No. 134327
 - Methyl chloromethyl ether, CAS No. 107302
 - 3,3'-Dichlorobenzidine (and its salts) CAS No. 91941
 - bis-Chloromethyl ether, CAS No. 542881
 - beta-Naphthylamine, CAS No. 91598
 - Benzidine, CAS No. 92875
 - 4-Aminodiphenyl, CAS No. 92671
 - Ethyleneimine, CAS No. 151564
 - beta-Propiolactone, CAS No. 57578
 - 2-Acetylaminofluorene, CAS No. 53963
 - 4-Dimethylaminoazo-benzene, CAS No. 60117
 - N-Nitrosodimethylamine, CAS No. 62759
 - Vinyl chloride, CAS No.75014
 - Asbestos, (chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite)
 - Chromium (VI)

- Specific chemicals with a high degree of acute toxicity (Substances of high acute toxicity include materials that may be fatal or cause damage to target organs from a single exposure or from exposures of short duration or have known unusual hazards.
 - Aniline [62-53-3]
 - Dimethylmercury [593-74-8]

- Specific chemicals that require specialized Medical treatment or antidotes from acute overexposure (e.g. hydrofluoric acid or hydrogen fluoride*)

* *Examples are not all inclusive*

1. Evidence of employee training on the established safety protocol must be available for review by EHS. This information shall be current and include the topics in Appendix A.
2. When working with biological toxins, such as cholera toxin, diphtheria toxin, or pertussis toxin, the work must be registered with the Institutional Biosafety Committee (IBC).

Appendix A

MINIMUM CONTENTS OF SAFETY PROTOCOL

General Information

Date:

Chemical Name, synonyms, and CAS number:

Principal Investigator:

Use location:

Storage location:

Period/frequency of use:

Quantity obtained, maximum amounts in use:

Project Personnel:

Experimental Procedures

Operational procedures:

Control procedures and engineering controls:

Personal protective equipment (PPE):

Decontamination and disposal procedures:

Emergency Procedures:

Personnel exposure:

Spill:

EHS Approval:

Date
