LAPC

LOS ANGELES PIERCE COLLEGE

HAZARDOUS MATERIAL

CONTROL PLAN

HMCP

LOS ANGELES PIERCE COLLEGE
HAZARDOUS MATERIAL CONTROL PLAN

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Part 1 – Administrative Requirements

Program Responsibility

The Vice President - Administration, or designee, is overall responsible for matters pertaining to the control of hazardous materials and environmental programs and procedures at Los Angeles Pierce College. The Director of Facillities or designated Hazardous Materials Coordinator is assigned to implement this business plan on campus. These individuals may be contacted at the following address and telephone numbers:

LOS ANGELES PIERCE COLLEGE
6201 Winnetka Ave
Woodland Hills , CA 91371
ATTN.: Vice President - Administration
(818) 710-4241
ATTN: Director of Facilities
(818) 710-4241
Facility ID No. FA19051-0010911
EPA ID No. CAD982347007
SIC Code 8222

The District's Director of Business Services is overall responsible for environmental matters on behalf of the Los Angeles Community Colleges. The Director of Business Services, or designees, may be contacted at the following address and telephone numbers:

LOS ANGELES COMMUNITY COLLEGE DISTRICT
770 Wilshire Blvd. – 3RD Floor
Los Angeles, CA 90017
ATTN.: Director of Business Services
(213) 891-2400 *Director*
(213) 891-2231 *Risk Manager*
(213) 891-2422 *Occupational Safety and Health Specialist*

Regulatory Commitments

The Los Angeles Pierce College Hazardous Material Control Plan *(LASC HMCP)* shall be established in accordance with the following regulations:

- Applicable sections of Title 22, California Code of Regulations, Division 4.5, *Environmental Health Standards for the Management of Hazardous Waste*, as regulated by the Department of Toxic Substances Control or local Certified Unified Program Agency *(CUPA)*; and

- Applicable sections of Title 8, California Code of Regulations, Division 1, Chapter 4, Subchapter 7, *General Industry Safety Orders*, as regulated by the Division of Occupational Safety and Health *(Cal/OSHA)*.

A CUPA representative may be contacted at the following address and telephone number:

COUNTY OF LOS ANGELES FIRE DEPARTMENT
HEALTH HAZARDOUS MATERIALS DIVISION
200 North Street, Room 970
LOS ANGELES. CA 90012
ATTN.: Deputy Health Officer
(818)756-8561

A CUPA/SHA representative may be contacted at the following address and telephone number:

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
6150 Van Nuys Blvd, Room 405
Van Nuys, CA 91401
ATTN.: Duty Officer

(818)901-5403

Program Compliance

The Vice President – Administration, or designee, shall appoint a person to serve as Hazardous Materials Coordinator *(HMC)*, who is responsible for the implementation of this business plan on campus. Each administrator, manager, and onsite supervisor whose facilities, operations, processes, instruction, or programs handle hazardous materials or generate hazardous wastes share responsibility to implement this business plan as it pertains to their assigned areas of responsibility in consultation with the HMC or Director of Facillities.

Program compliance is assured by the HMC and responsible administrators, managers, and onsite supervisors:

- Characterizing hazardous waste and communicating hazardous substance safety matters to affected employees;
- Encouraging employees to communicate workplace hazards to supervision and addressing those hazards within their ability to identify and abate;
- Identifying and posting Hazardous Waste Storage Areas and Hazardous Waste Satellite Accumulation Areas on campus;
- Posting hazards and labeling hazardous substances found in the workplace;
- Establishing appropriate primary and secondary containers, spill control prevention procedures, and safe work practices for handling hazardous materials and hazardous wastes;
- Establishing emergency preparedness or contingency plan procedures to be used in conjunction with the campus Emergency Action and Fire Prevention Plans;
- Maintaining Material Safety Data Sheets *(MSDS)* for hazardous substances *(Appendix C)*;
- Training and retraining employees as required by environmental health and occupational safety standards; and
- Developing and implementing effective workplace inspection programs and checklists.

Employees are responsible for ensuring that environmental health and occupational safety rules are not compromised in the performance of their assigned duties.

Program compliance is assured by employees in:

- Attending to workplace hazards communicated by supervision;
- Reporting workplace hazards to appropriate supervision;
- Posting hazards and labeling hazardous substances found in the workplace;
- Adhering to posted information that is pertinent to maintaining safe and healthful workplaces;
- Submitting safe work practice suggestions and communicating hazards to supervision, responsible committees, and/or employee designated representatives; and

- Attending and participating in training and retraining opportunities.

Reporting Requirements

The Director of Facillities, or HMC, shall document initial and periodic Unified Program reporting requirements on local forms approved by the CUPA or on the Unified Program Consolidated Form *(UPCF)* approved by Cal/EPA. If the state form is used, the CUPA or participating agency *(PA)* may require supplementary information, which the Director of Facillities shall provide. Copies of the full and short version of the CUPAs of Los Angeles County Unified Program (UP) Form and individual pages of the form are available for download at www.lacofd.org. Information shall be provided concerning the following topics:

- *Hazardous Materials Disclosure* for handling greater than or equal to 55-gallons, 500-pounds, or 200-cubic feet of hazardous liquids, solids, or compressed gases, respectively, at any one time throughout the reporting year. Hazardous Materials Disclosure involves the submission of a Chemical Description Page for each substance stored and handled on campus and a Site Map depicting their storage and/or use location(s).

  NOTE: The CUPA may establish lower threshold volume values at which to disclose the handling of certain hazardous substances.

- *California Accidental Release Prevention Program (Cal ARP)* for handling regulated substances, including federal-listed extremely hazardous substances and state-listed acutely hazardous materials. Cal ARP involves the submission of a Regulated Substances Registration to the CUPA.

- *Underground Storage Tank (UST) Program* for storing any amount of hazardous materials in underground storage tanks. UST disclosure involves the submission of a UST Facility Page and UST Tank Page for each underground storage tank to the CUPA. For new UST's, complete and submit a UST Installation-Certificate of Compliance Page and a Plot Plan depicting the tank location to the CUPA.

- *Aboveground Petroleum Storage Tanks,* for storing petroleum products in containers exceeding 660-gallons capacity, or total capacity on site greater than 1,320-gallons. For aboveground storage tanks that meet these volume requirements, a Spill Prevention Countermeasure Control (SPCC) Plan shall be submitted to the CUPA; and

- *Hazardous Waste Generator* for any quantity of a hazardous waste generated due to onsite business operations and activities. Complete and submit a Waste Generator Form to the CUPA and obtain an EPA ID Number from the Department of Toxic Substances Control, if needed.

  NOTE: The Department of Toxic Substances Control may be telephoned at:
  (916) 324-1781
  (800) 618-6942
  (800) 61-TOXIC

  Other future reporting requirements, as applicable to the campus, may include:

  1. Onsite Treatment of hazardous wastes;
  2. Recycling exclusion/exemption;
  3. Remote Waste Sites; and
  4. Hazardous waste tank closure.

The Director of Facillities, or HMC, shall evaluate all new facilities and instructional operations and processes that may introduce new or additional hazardous materials on campus in light of these reporting requirements. The Director of Facillities shall update the Hazardous Material Control Plan and submit the required reports in consultation with the PA or CUPA, as appropriate.

Emergency Notification Requirements

Immediate Notification

For all emergencies and unusual events that occur at Los Angeles Pierce College, the local emergency plans shall apply in accordance with LACCD EH&S EP-03, *Emergency Action and Fire Prevention Plan*, pursuant to Title 8, California Code of Regulations, Sections 3220 and 3221. To contact Campus Police, press "**5311**" for local emergency services. The Campus Police may also be contacted by pressing "#30" from any public campus pay-telephone. For public emergency services, press "**9 + 911**".

The College Police Office may be telephoned at **(818) 719-6450** 24-hours per day/7-days per week in order to report all emergencies. The Los Angeles County Sheriff's Department operates this office and responds to all law enforcement and other emergency needs.

The College Police Office is provided with an Emergency Recall List for recalling key Facilities personnel in the event of a facilities emergency or unusual event. This office is also provided with an Emergency Notification List for notifying key administrators of event status.

Where an emergency or unusual event results in serious occupational injury or illness, notify Cal/OSHA within 8-hours in accordance with LACCD EH&S RR-03, *Reporting Occupational Injuries and Illnesses*.

Los Angeles County Sheriff	**Extension No. 6450** **(818) 719-6450** **#30 from public (pay) telephone**
Public Emergency Services	**9 + 911**

Supplementary Notification

Immediately after the local emergency response personnel are notified, notify the Certified Unified Program Agency *(CUPA)*, State Office of Emergency Services *(OES)*, and the National Response Center *(NRC)* as follows:

CUPA	**(323) 890-4045**
OES	**(916) 262-1621**
	(800) 852-7550
NRC	**(800) 424-8802**

Provide the following information during the supplementary notification:

- Caller's name and the telephone number from which a telephone call may be returned;
- Facility address;
- Date, time, cause, and type of incident (e.g., fire, air release, spill, etc.);
- Hazardous material and quantity of the release to the extent known;
- Current condition of the facility;
- Extent of injuries, if any; and
- Report any possible hazards to public health and/or the environment outside of the facility.

Emergency Medical Facility

WEST HILLS HOSPITAL
7300 Medical Center Drive
WEST HILLS , CA 91307
(818 340-0977

NEAREST CROSS STREETS: SHERMAN WAY AND WOODLAKEE

Local Emergency Response

General Provisions

Los Angeles Pierce College maintains an occupational medical program, respiratory protection program utilizing half-face and/or full-face respirators equipped with appropriate canisters, employee training, and adequate supplies and equipment in order to respond to small spills of hazardous substances, as may occur during normal operations, maintenance, and instructional activities. The campus is equipped with personal protective equipment, emergency eyewash stations, and deluge showers in order to provide initial personnel decontamination. Additionally, Facilities is equipped to isolate and post large area spills in order to protect the public and the environment from hazardous substances exposure. Local emergency response guidelines and safe work practices are provided in Part 4 of this business plan.

Industrial Hygiene and Environmental Monitoring

The District maintains an industrial hygiene program for an EPA-certified testing laboratory to analyze bulk samples and air samples that may be needed in the case of an emergency or unusual event.

Hazardous Substance Cleanup during Event Recovery

The College has designated the following contractor to provide cleanup services, if needed, in the event of hazardous material release:

NORTH STATE ENMIRONMENTAL INC
2776 S Lilac Ave.
Bloomington, 92316-3242
(909) 875-9288

Arrangements with Emergency Responders

The District has contracted with the Los Angeles County Sheriff's Department to provide all law enforcement and to coordinate all emergency services on campus.

The College has an agreement with WEST HILLS HOSPITAL to service occupational injuries and illnesses, as may result from emergencies and unusual events on campus.

Evacuation Plan

Evacuation procedures shall be implemented in accordance with the safe work practices described in Part 4 of this business plan in conjunction with the campus Emergency Action Plan.

Facilities Re-entry (Earthquake Vulnerability)

The District's Emergency Action Plan prescribes Facility re-entry criterion and inspections following an earthquake, emergency, unusual event, or other disaster. These requirements are provided in Part 4 of this business plan.

The Director of Facillities, or designee, shall schedule appropriate Facilities inspections as soon as practicable following an emergency or event to ensure that primary and secondary containment systems are not compromised. Such inspections shall be required to be completed prior to restoring unrestricted public or employee access to campus facilities.

Where the Director of Facillities, or designee, determines that the structural integrity of any facility has been compromised, an engineering inspection shall be scheduled in consultation with District Facilities and Planning Division.

Employee Training

General Provisions
Employees shall be trained in accordance with LACCD EH&S ET-01, *Employee Communication and Information*. Refresher training shall be provided in accordance with LACCD ET-02, *Continuing Training Plan Matrix*. Employee training and program checklists are provided in Appendices A and B of this plan.

Emergency Action Plan
Employees shall be initially trained as to their responsibilities under the Los Angeles Pierce College Emergency Action Plan. Continuing training is required whenever the employee's assignment changes and when the plan is modified or revised. Additional training is required whenever new processes, equipment, or facilities are introduced to the campus that may affect the employee's assignment.

Hazardous Material Control Plan
Employees shall be indoctrinated in this business plan. Annual retraining is required on all parts of the plan that may have been revised since the employee was initially indoctrinated. Annual refresher training is required on all parts of the plan that affect the employee's assignment.

Employee Information
Employees shall be provided with information on all hazardous substances to which they may be exposed during normal operations, maintenance, and instructional activities in accordance with the following District procedures:

- LACCD EH&S EC-02, *Hazard Communication Plan*, for occupational exposure to pesticides and other hazardous substances used in operations and maintenance activities.

- LACCD EH&S EC-04, *Chemical Hygiene Plan*, for occupational exposure to chemicals used in laboratories; and

- LACCD EH&S EC-06, *Control of Select Carcinogens*, for asbestos and lead found in construction materials, formaldehyde used in Life Science Laboratories, and other hazardous substances listed by Cal/OSHA.

Material Safety Data Sheets
The Director of Facillities, or HMC, shall ensure that Material Safety Data Sheets *(MSDS)* are maintained for each hazardous substance used on campus. MSDS shall be made available to employees at all times in a central location or at an accessible location that is near to the point of operation. Where hazardous substances are transferred into service containers for use in remote areas, a copy of the MSDS should be made available at the jobsite or in the employee's vehicle.

Hazardous Waste Generator and Department of Transportation (DOT) Training
Employees who handle or manage hazardous waste shall complete hazardous waste generator training within six months of their assignment to handle or manage hazardous wastes. Supervisors and Managers who sign for hazardous waste shipments shall be provided DOT training prior to signing for shipments and every three years thereafter.

No supervisor, manager, or employee may handle hazardous waste unsupervised until trained in accordance with this business plan.

Documentation
Substantial compliance for documenting the employee indoctrination and refresher training requirements of this section may be attained by using the forms provided in Appendix A of this business plan. The written

training program should be documented using the form provided in Appendix B of this business plan. Equivalent forms of documentation may be used as approved by the Vice President.

Underground Storage Tank (UST) Emergency Response and Monitoring Plan

Presently, there are no underground storage tanks located at Los Angeles Pierce College. The CUPA requires certain business, operational, installation, emergency response, monitoring plan information and operating permit with certificate of compliance for new UST's.

Site Plans and Storage Maps

Site Plans and Storage Maps are provided in Part 8 of this business plan. The Los Angeles Pierce College Site Plan shall include, but not limited to, all of the following applicable requirements:

- Site orientation (e.g., north, south, east, and west);
- Approximate scale (e.g., 1-inch = 10-feet)
- Date the map was drawn;
- Locations of all buildings and other structures;
- Parking lots and internal roads;
- Hazardous materials loading / unloading areas;
- Outside hazardous materials storage or use areas;
- Storm drain and sanitary sewer drain inlets;
- Wells for monitoring of underground tank systems;
- Primary and alternate evacuation routes, emergency exits, and primary and alternate staging areas;
- Adjacent property use;
- Locations and names of adjacent streets and alleys; and
- Access points, egress points, and roads.

The Storage Maps shall include, but not limited to, all of the following applicable requirements:

- General purpose of each section / area within each building (e.g., Office Area, Manufacturing Area, etc.);
- Location of each hazardous material or waste storage, dispensing, use, or handling area (e.g., individual underground tanks, aboveground tanks, storage rooms, paint booths, etc.). Each area shall be identified by a unique location code number, letter, or name (e.g., 1, 2, 3, A, B, C, etc.);
- Entrances to and exits from each building and hazardous material / waste room / area;
- Location of each utility emergency shut-off point (i.e., gas, water, electric); and
- Location of each monitoring system control panel (e.g., underground tank monitoring, toxic gas monitoring, etc.).

A map legend shall be provided in order to identify the above minimum information that must be included in the Site Plan or Storage Map. Where more than one page is required to depict the above minimum

locations, number each page and include the total number of pages that comprise the Site Plan or Storage Map.

Hazardous Materials Inventory – Chemical Description

Reportable Quantities

The Director of Facillities, or HMC, shall maintain a Hazardous Materials Inventory – Chemical Description for each hazardous substance (material and waste) on campus as follows:

- Aggregate solid quantities equal to or greater than 500-pounds;
- Aggregate liquid quantities equal to or greater than 55-gallons;
- Aggregate gas quantities equal to or greater than 200-cubic feet @ STP;
- Any amount of an acutely hazardous or extremely hazardous substance in any physical state; and
- Any amount or aggregate quantity of any hazardous substance in any physical state, as required by the PA or CUPA.

This portion of the inventory shall be documented on CUPA-approved forms. Only one chemical shall be documented per page. Number all pages and include on each page the total of all pages that comprise the complete inventory. The Chemical Abstracts Service *(CAS)* number shall be provided for each chemical and hazardous substance. To obtain the CAS number, refer to the chemical's MSDS, contact the chemical's manufacturer, or contact:

CHEMICAL ABSTRACTS SERVICE
(614) 447-3600

Facilities reporting chemicals subject to federal Emergency Planning and Community Right-to-Know Act *(EPCRA)* reporting thresholds must sign each page for each EPCRA reported chemical. For more information, contact the United States Environmental Protection Agency *(US EPA)*:

US EPA
(800) 535-0202
EPCRA website @ www.epa.gov/opptintr/tri.

Regulated Substance Registration

The Director of Facillities, or HMC, shall complete a CUPA-approved Regulated Substance Registration form for each chemical that is used in a process at or above the threshold quantity. All regulated substances, including federal and state listed extremely hazardous substances, shall be registered for compliance with the California Accidental Release Prevention *(Cal ARP)* Program. Contact the District's Occupational Safety and Health Specialist for a current list of regulated substances.

Other Chemicals and Hazardous Substances

The Director of Facillities, or HMC, shall maintain a chemical and hazardous substance list for all other hazardous materials on campus. The list should indicate the chemical name, storage location, MSDS location, and approximate quantity on-hand at the time the inventory is performed. Document this list on any form approved by the Vice President and review the inventories and lists at least annually.

Recyclable Materials Biennial Report

The Recyclable Materials Report is submitted every two years to the CUPA or PA by businesses that have recyclable materials excluded from classification as hazardous waste or conduct recycling activities exempted from the State Hazardous Waste Control Law.

The form identifies the business as both the generator and recycler if more than 100 kilograms/month of excluded or exempted recyclable material is recycled from the same location at which the material was generated (i.e., onsite recycling).

The form identifies the business as an offsite recycler if more than 100 kilograms/month of non-manifested, excluded recyclable materials are received from another location at which the material was generated (i.e., offsite recycling).

Los Angeles Pierce College may send recyclable hazardous materials to an offsite recycler, but does not perform any reportable recycling activities apart from those required in accordance with LACCD EH&S RR-06, *Integrated Waste Management Program*.

Onsite Hazardous Waste Treatment Notification

The District may register a college with the Department of Health Services Environmental Programs – Medical Waste Management Program to perform limited medical waste treatment onsite in accordance with LACCD EH&S HM-01, *Medical Waste Management Program*, and LACCD EH&S PP-01, *Medical Waste Management Program Permitting Process*. For more information, contact the District's Occupational Safety and Health Specialist.

The District does not engage in reportable onsite hazardous waste treatment activities. The following treatment activities are exempt under the law provided certain conditions are met. No CUPA notification is required for the following treatment activities that may be performed at any District location in accordance with the below sections cited of the California Health and Safety Code:

- Neutralization of acid and alkaline wastes from regeneration of ion exchange media, Section 25201.13(a);
  The waste must contain less than or equal to 10% acid or base by weight.

- Silver recovery, Section 25143.13;
  The waste contains only silver from photo-finishing or photo-imaging solutions.

- Sieving or filtering under limited conditions, Section 25123.5(b)(2)(A);
  Removal of solid fractions may not be done using heat, chemicals, or pressure.

- Phase separation under limited conditions, Section 25123.5(b)(2)(B);
  For hazardous wastes in storage or during accumulation, phase separation may not be aided by applying heat or using chemicals.

- Combination of waste streams under limited conditions, Section 25123.5(b)(2)(C); and
  The waste streams shall be compatible with one another, combined solely for the purpose of accumulation, storage, or consolidation for offsite shipment, and managed in compliance with the most stringent regulatory requirements applicable to each individual waste stream. The combined waste streams may not be combined to meet a fuel specification or to otherwise be chemically or physically prepared to be treated, burned for energy value, or incinerated.

- Evaporation of water under limited conditions, Section 25123.5(b)(2)(D).

No authorization is needed for evaporation of water from hazardous wastes in tanks or containers, such as breathing and evaporation through vents and floating roofs, without the addition of pressure, chemicals, or heat other than sunlight or ambient room lighting or heating.

Hazardous Waste Generator

Hazardous Waste Generator Status
The CUPA-approved Hazardous Waste Generator Page form is used to identify Los Angeles Pierce College generator status and all of the waste streams generated on campus to the CUPA. An analysis of each waste stream is required in order to determine whether the college is a federal (Resource Conservation and Recovery Act- RCRA) or state (non-RCRA):

- Large Quantity Generator (greater than 1,000-kilograms of hazardous waste per month or greater than one kilogram of acutely hazardous or extremely hazardous waste per month); or
- Small Quantity Generator (greater than 100-kilograms and less than 1,000-kilograms of hazardous waste per month); or
- Conditionally Exempt Small Quantity Generator [less than 100-kilograms (less than 220-pounds) of hazardous waste per month or less than one kilogram of acutely hazardous or extremely hazardous waste per month].

Waste Stream Identification
Complete the table (columns B – G) of the CUPA-approved form. For each waste stream indicate its:

- Process (i.e., plating, machining, painting, etc.);
- Waste description from each process (i.e., heavy metal sludge, waste oil, etc.);
- Waste identification for all RCRA and non-RCRA hazardous waste in accordance with Title 22, California Code of Regulations, Section 66261.126 *(22 CCR §66261.126)*;
- Amount per year in units of kilograms, pounds, gallons, or tons per year;
- Storage method (A=drums, B=underground tank, C=aboveground tank, D=waste pile, E= in-process equipment); and
- Disposal method (A=treatment onsite, B=treatment offsite, C=recycle onsite, D=recycle offsite)

The hazardous waste generator status for Los Angeles Pierce College identifies the college as a Conditionally Exempt Small Quantity Generator of federal and state listed hazardous wastes.

Hazardous Waste Determination

The Director of Facillities, or designee, shall determine if a waste is classified as a hazardous waste by applying the definition provided in 22 CCR §66261.3, in consultation with the District's Occupational Safety and Health Specialist and/or authorized representatives of the PA, CUPA, or Department of Toxic Substances Control.

General Characterization
Hazardous wastes are characterized as being ignitable, corrosive, reactive, acutely hazardous, or toxic in accordance with 22 CCR §66261.20 through §66261.24, inclusive.

Categorization
Hazardous waste is categorized as follows:

- RCRA Hazardous Waste types are assigned an EPA Hazardous Waste Number and Hazard Letter Code, if applicable, in accordance with 22 CCR §66261.30 through §66261.100, inclusive. Such waste is identified by the USEPA Administrator's Office; or
- Non-RCRA Hazardous Waste (22 CCR §66261.101); or
- Extremely Hazardous Waste (22 CCR §66261.107 through §66261.113, inclusive); or
- Special Waste (22 CCR §66261.120 through §66261.124, inclusive).

Certain hazardous waste streams are further assigned California-listed hazardous waste codes. Categorization lists for both federal and state hazardous wastes are provided in accordance with 22 CCR

§66261.126. The current regulations are available through the District's Occupational Safety and Health Specialist.

LOS ANGELES PIERCE COLLEGE
HAZARDOUS MATERIAL CONTROL PLAN

Part 2 – Chemical and Hazardous Substance Storage

Stockrooms

Procurement
The Chemical Hygiene Officer, Director of Facillities, or HMC, shall obtain information on proper handling, storage, and disposal of any chemical or hazardous substance prior to receiving the chemical or substance, unless already known.

Employees who will receive, distribute, handle, store, and dispose of any chemical or hazardous substance shall receive appropriate training on the information obtained by the Chemical Hygiene Officer and/or the Chemical Hygiene Committee.

No hazardous substance container may be accepted without an adequate identifying label *(Reference EH&S EC-02, Hazard Communication Plan).*

All hazardous substances should be received in a central location by a responsible person.

Inventory
The Hazardous Substance List *(HSL)*, or equivalent chemical inventory for the District location, should be updated within one (1) working day of receipt of the substance, unless the product is already listed *(Reference EH&S EC-02, Hazard Communication Plan).*

Update the Hazardous Materials Inventory Form – Chemical Description Page, accordingly. If the new substance represents a significant hazard to the public, employees, or emergency response personnel, notify the PA or CUPA for any additional requirements that may be required.

Transportation

When chemicals or hazardous substances are hand-carried, verify that the container is tightly closed and that the intended traffic route is clear. The container should be placed in an outside container capable of holding the entire contents of the original container while in transit.

- Avoid transporting flammable substances during periods of known maintenance activities that generate or involve ignition sources.
- Avoid transporting incompatible hazardous substances at the same time.
- Freight-only elevators should be used, if available.
- In addition to the above guidelines, when chemicals or hazardous substances are transported by way of a handcart or dolly, the outside container should be firmly secured to the transport equipment.
- The cart or dolly should be pushed, not pulled, in order to allow the operator to see and control the load and the traffic route at the same time.
- The load should be attended at all times.
- In addition to the above guidelines, when chemicals or hazardous substances are transported by way of a motorized cart or forklift, the outside container should be firmly secured to the transport vehicle.
- A second person should be available to escort the transport vehicle to monitor the load during transit and assist the operator with visibility.
- The vehicle operator should drive slowly. Do not get ahead of the escort. Avoid unsettling the load.

General Storage Considerations

Toxic substances should be segregated in well-identified areas that are provided with local exhaust ventilation.

Highly toxic substances and other chemicals whose containers have been opened should be stored in unbreakable secondary containers.

Stockrooms/storerooms should not be used as preparation or repackaging areas.

Stockrooms/storerooms should be open or made readily available to employees during normal working hours to preclude excess stock from being left outside of designated storage areas or being left out in any "uncontrolled" manner.

Chemicals and hazardous substances shall be sufficiently separated and protected within secondary containers that will prevent mixing of incompatible substances.

All chemicals and hazardous substances should be stored in designated cabinets and/or on shelves within the stockroom.

Storage shelves that are not enclosed within cabinet doors should be equipped with restraining devices that will preclude spillage in the event of accident or earthquake.

Store all chemicals and hazardous substances in approved storage enclosures posted in accordance with product information labeling and/or the accompanying Material Safety Data Sheet *(MSDS).*

- Store hazardous substances and "select carcinogens" in approved storage enclosures posted in accordance with any specific health standard. Storage areas that contain "select carcinogens" or house acutely or extremely hazardous substances should be secured by way of dedicated locks and keys.

- Store biohazardous substances in locked storage enclosures posted, "BIOHAZARD", with the international symbol and color-coding *(Reference EH&S EC-01, Bloodborne Pathogens Exposure Control Plan).*

- Store nonexempt radioactive substances in locked storage enclosures posted, "CAUTION – RADIOACTIVE MATERIALS".

- Store perishable chemicals and hazardous substances below 45° F in designated refrigeration or freezer units posted, "NOT FOR FOOD OR DRINK STORAGE", as appropriate.

- Store hazardous wastes in a designated storage area posted, "CAUTION" or "WARNING, HAZARDOUS MATERIALS STORAGE AREA", or equivalent words and additional instructions to permit entry by authorized personnel only.

- Hazardous wastes may be temporarily stored near to the point(s) of generation in designated areas posted, "CAUTION" or "WARNING, HAZARDOUS WASTE SATELLITE ACCUMULATION AREA", or equivalent words and additional instructions to permit entry by authorized personnel only.

The Chemical Hygiene Officer, Director of Facillities, or HMC shall approve the storage locations of all hazardous substances and wastes. Such storage locations shall be inspected at least weekly *(Appendix F),* whenever there is a risk of leakage from a primary or secondary container, and during facility re-entry following an unusual event or earthquake to ensure container integrity. Outdoor facilities and storage areas should be posted with National Fire Rating *(NFR)* signage *(Appendix G).*

Flammable Storage

Flammable Liquids

NOTE: The following requirements apply to the storage of flammable chemicals and hazardous substances in stockrooms and laboratories.

Store flammable chemicals and hazardous substances in approved flammable storage lockers or in designated bunkers posted, "DANGER – KEEP FIRE AWAY".

Mechanical ventilation systems shall provide sufficient air exchange to maintain the concentration of flammable gases or vapors at or below 25% LEL.

Container and Quantity Limitations
Hydrogen, oxygen, or other flammable gas cylinder containers shall not be stored in laboratories.

CAUTION: Quantities of flammable and combustible liquids in excess of the below limits shall be stored in an inside storage room or storage cabinet.

No service container for Class I or Class II flammable liquids shall exceed a capacity of one (1) gallon, except that safety cans may be of a maximum of two (2) gallons capacity.

Not more than ten (10) gallons of Class I and Class II flammable liquids combined shall be stored outside of a storage cabinet or storage room, except in safety cans.

Not more than twenty-five (25) gallons of Class I and Class II flammable liquids combined shall be stored in safety cans outside of a storage room or storage cabinet.

Not more than sixty- (60) gallons of combustible liquids shall be stored outside of a storage room or storage cabinet.

Laboratory Storage

Chemicals and hazardous substances permitted in the immediate work area should be minimized to only those amounts necessary to perform the experiment, exercise, examination, or operation, whenever possible.

Avoid storage on bench tops and in laboratory type hoods, whenever practical.

Avoid chemical or hazardous substance exposure to heat or direct sunlight.

Outdoor facilities and storage areas should be posted with NFR signage *(See Appendix G)*.

Indoor facilities and storage areas may be posted with NFR signage in consultation with the local Fire Department, PA, or CUPA.

Laboratory Storage *(Continued)*

General Chemical Incompatibilities

ACIDS	**(***Do not store with***)** **BASES**
Alkali and alkaline earth metals Hydrides, hydroxides, oxides and peroxides	Water, acids, halogenated organic compounds and oxidizing agents
Inorganic azides	Acids, heavy metals and their salts, and oxidizing agents
Inorganic cyanides	Acids and strong bases
Inorganic nitrates	Acids, metals, nitrites and sulfur
Inorganic nitrites	Acids and oxidizing agents
Inorganic sulfides	Acids
Organic compounds	Oxidizing agents

Specific Incompatibles

CHEMICAL/SUBSTANCE	(*Do not store with*) **CHEMICAL/SUBSTANCE**
Acetic Acid	Ammonium nitrate, bases, hydrogen peroxide, nitric acid, permanganates
Acetone	Activated carbon, hydrogen peroxide, nitric acid, sulfuric acid
Ammonium hydroxide	Acids, halogens, halogenating agents, mercury, silver
Carbon, activated	Oxidizing agents
Ethanolamine	Acetic acid, acids, oxidizers
Formic Acid	Bases, hydrogen peroxide
Hydrochloric acid	Bases, sulfuric acid
Hydrogen peroxide	Ammonium hydroxide, alcohols, acetic acid, acetone, charcoal, formic acid, metals and their salts, sulfuric acid, wood
Monoethylamine	Acids, oxidizers
Morpholine	Acids, oxidizers
Nitric acid	Alcohols, acetone acetic acid, ammonium nitrate, bases, boric acid, chromic acid, chromates, formic acid, hydrogen peroxide, hydrocarbons, metals, nitrites, oxidizing agents, permanganates, reducing agents, sulfuric acid, sulfides
Mercuric Nitrate	Ethanol, petroleum hydrocarbons
Oxalic acid	Silver, mercury
Phosphoric acid	Bases, sodium tetra borate
Iodine	Reducing agents
Potassium permanganate	Acetic acid, ammonium nitrate, carbon, ethylene glycol, hydrochloric acid, hydrogen peroxide, organic acids, oxalic acid, polypropylene
Stoddard Solvent	Oxidizers

Sulfuric Acid	Acetic acid, acetone, acetonitrile, bases, chlorates, hydrochloric acid, metals, nitric acid, perchlorates, permanganates.

Laboratory Storage *(Continued)*

Possible Reactions When Incompatibles are Mixed

KEEP THESE	AWAY FROM THESE	OR YOU MAY GET
Acids or Bases	**Reactive Metals** Aluminum, Beryllium, Calcium, Lithium, Potassium, Magnesium, Sodium, Zinc Powder, Metal Hydrides	**Fire** **Explosion** **Hydrogen Gas**
Waters or Alcohols	**Concentrated Acids** **Concentrated Bases** **Calcium, Lithium, Potassium, Metal Hydrides, Other Water Reactive Substances**	**Heat** **Fire** **Explosion** **Flammable Gases** **Toxic Gases**
Reactive Organic Compounds or Solvents Alcohols, Aldehydes, Nitrated Hydrocarbons	**Concentrated Acids** **Contracted Bases** **Reactive Metals** **Metal Hydrides**	**Fire** **Explosion**
Cyanide or Sulfide Solutions	**Acids**	**Toxic Hydrogen Cyanide Gas** **Toxic Sulfide Gas**
Strong Oxidizers Chlorates, Chlorine, Chlorites, Chromic Acid, Hypochlorites, Nitrates, Perchlorates, Permanganates, Peroxides	**Organic Acids, Concentrated Mineral Acids, Reactive Metals, Metal Hydrides, Reactive Organic Compounds or Solvents, Flammable or Combustible Wastes**	**Fire** **Explosion**

Department of Transportation Segregation of Hazardous Materials

Class or Division	NOTE	1.1 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 Gas Zone A	2.3 Gas Not Zone A	3	4.1	4.2	4.3	5.1	5.2	6.1 Liquids PG 1 Zone A	7	8 Liquids Only
1.1 1.2	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
1.3		*	*	*	*	*	X		X	X	X		X	X	X	X	X		X
1.4		*	*	*	*	*	O		O	O	O		O				O		O
1.5	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
1.6		*	*	*	*	*													
2.1		X	X	O	X				X	O							O	O	O
2.2		X			X														
2.3 Gas Zone A		X	X	O	X		X				X	X	X	X	X	X			X
2.3 Gas Not Zone A		X	X	O	X		O				O	O	O	O	O	O			O
3		X	X	O	X				X	O					O		X		
4.1		X			X				X	O							X		O
4.2		X	X	O	X				X	O							X		X
4.3		X	X		X				X	O							X		O
5.1	A	X	X		X				X	O							X		O
5.2		X	X		X				X	O							X		O
6.1 Liquids PG 1 Zone A		X	X	O	X		O				X	X	X	X	X	X			X
7		X			X		O												
8 Liquids Only		X	X	O	X		O		X	O		O	X	O	O	O	X		

NOTES: **1.** Blank = no restrictions apply **REFERENCE: 49CFR§177.848**
2. X = Cannot load, transport, or store together during transport
3. O = Must separate within vehicle during transport to prevent contact with one another
4. * = Segregation among different Class 1 (explosive materials) is governed by 49CFR§177.848(f) compatibility table

5. A = Ammonium nitrate fertilizer may be stored with Division 1.1 (Class A explosive) or Division 1.5 (blasting agents)

Laboratory Storage *(Continued)*

Color-Coding Designated Storage Areas (Non-Mandatory)
Chemicals or their storage cabinets/containers may be color-coded to allow identification to the most hazardous property and provide a means to identify storage areas to prevent accidental mixing of incompatible substances. Color-coding schemes may be used by posting a legend adjacent to where the containers are stored. Where such an identification system is in place, chemicals should be grouped together for storage as indicated by the appropriate color. Many chemicals may have more than one hazard. The color-coding system only identifies the most significant hazard. The following table provides an example.

COLOR	HAZARD	EXAMPLES
BLUE	Severe health hazard *(e.g., toxic, poison, carcinogen, etc.)*	Chromium standards ≥ 1000 ppm Iodine Lithium standards ≥ 1000 ppm Magnesium standards ≥ 1000 ppm Oxalic acid Phenyl arsine oxide Sodium fluoride Hydrazine standard ≥ 1000 ppm
RED	Flammables *(acids and bases must be kept separated to prevent mixing)*	Acid Flammables Acetic Acid Formic Acid Base Flammables Monoethylamine TBAOH in methanol General Flammables Acetone Acetonitrile Alcohol, anhydrous Alcohol, isopropyl Mannitol Methanol Morpholine Opti-fluor Stoddard solvent
YELLOW	Oxidizers *(highly reactive)*	Hydrogen Peroxide Mercuric nitrate, monohydrate Nitrate standards ≥ 1000 ppm Nitrite standards ≥ 1000 ppm Potassium bromate Potassium permanganate Potassium per sulfate Potassium standards ≥ 1000 ppm Sodium iodate Sodium nitrate Sodium nitrite
WHITE	Corrosives *(contact hazard - acids and bases must be kept separated to prevent uncontrolled reactions)* *The incompatibility of nitric and sulfuric acids with other acids necessitates extraordinary handling. Each bottle should be stored within separate spill containers prior to being added to the "white" section.	Acids Hydrochloric acid Phosphoric acid Copper standards ≥ 1000 ppm Iron standards ≥ 1000 ppm Magnesium standards ≥ 1000 ppm Ammonium Bifluoride Lead Sulfate *Nitric Acid *Sulfuric acid Bases Ammonium hydroxide Ascarite II Lithium hydroxide Lithium standards ≥ 1000 ppm Potassium hydroxide Sodium hydroxide Sodium standards ≥ 1000 ppm
ORANGE or GRAY	Material poses minimal risk while being stored.	
STRIPED	1. Material poses a special hazard due to material that is incompatible with certain other materials of the same color class or the material has more than one type of significant hazard such that it falls in more than	

	one category.	

LOS ANGELES PIERCE COLLEGE
HAZARDOUS MATERIAL CONTROL PLAN

Part 3 – Compressed Gas Cylinders

Construction and Marking

All portable cylinders used for the storage and shipment of compressed gases shall be constructed and maintained in accordance with the regulations of the U.S. Department of Transportation, Title 49, Code of Federal Regulations, Part 171-179.

Compressed gas cylinders shall be equipped with connections complying with ANSI B57.1-1965, *Compressed Gas Cylinder Valve Outlet and Inlet Connections.*

All cylinders having a water weight capacity of over thirty- (30) pounds shall be equipped with a valve protection device or a collar or recess in order to protect the valve.

Compressed gas cylinders, portable tanks, and cargo tanks shall have appropriate pressure relief devices installed and maintained in accordance with Compressed Gas Association *(CGA)* Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963. All safety relief devices shall meet the design, construction, marking, and test specification of the CGA Safety Relief Device Standards Part I, *Cylinders for Compressed Gases, S1.1-1963.* The following types of safety relief devices are covered by CGA pamphlets:

- Type CG-1, *Frangible disc*;
- Type CG-2, *Fusible plug or reinforced fusible plug utilizing a fusible alloy with yield temperature between 157°F and 170°F*;
- Type CG-3, *Fusible plug or reinforced fusible plug utilizing a fusible alloy with yield temperature between 208°F and 220°F*;
- Type CG-4, *Combination frangible disc-fusible plug utilizing a fusible alloy with yield temperature between 157°F and 170°F*;
- Type CG-5, *Combination frangible disc-fusible plug utilizing a fusible alloy with yield temperature between 208°F and 220°F*;
- Type CG-7, *Safety relief valve*; and
- Type CG-8, *Combination safety relief valve and fusible plug.*

Service Piping and Manifolds

All service piping, manifolds, and fittings from compressed gas cylinders shall comply with Section 2, Industrial Gas and Air Piping Systems of the American National Standard Code for Pressure Piping, *ANSI B31.1-1983*.

All manifolds shall be labeled as to the compressed gas they supply.

Where multiple gas systems are in place, service piping should be color-coded or labeled to indicate the type of gas supplied.

Where color-coding is used to indicate the type of gas supplied, a legend should be posted near the service station for operators to reference during operations.

Compressed Gas Storage, Handling, and Use

Compressed gas cylinder storage in laboratories is prohibited.

Compressed gas cylinders shall not be stored in unventilated enclosures, such as lockers and cupboards, with the exception of portable fire extinguishers.

Oxygen cylinders shall not be stored near highly combustible materials, especially oil and grease, or near any other substance likely to cause or accelerate fire.

Compressed gas cylinders shall be stored in areas where they are protected from external heat sources such as flame impingement, intense radiant heat, electric arc, or high temperature steam lines.

Inside of buildings, cylinders shall be stored in a well-protected, well-ventilated, dry area, at least twenty (20) feet from highly combustible materials. Oxidizing gases shall be separated from fuel gases by at least twenty (20) feet or by a one (1) hour rated barrier at least five (5) feet high.

Compressed gas cylinder storage shall be protected from falling objects and access from unauthorized persons.

Compressed gas cylinders shall be stored or transported in a manner to prevent them from creating a hazard by tipping, falling, or rolling.

Liquefied fuel-gas cylinders shall be stored or transported in a position so that the safety relief device is in direct contact with the vapor space in the cylinder.

All cylinders that are designed to accept valve protection devices shall be equipped with such devices when the cylinders are not in use.

Compressed gas cylinders in portable service shall be conveyed by suitable trucks to which they are securely fastened.

Prevent damage by securing all gas cylinders in service in substantial racks or other rigid structures.

EXCEPTION: For short distances of travel, compressed gas cylinders may be moved by tilting and rolling them on their bottom edges.

Compressed gas cylinders shall be lifted using a suitable crane, hoist, or derrick by way of suitable cradles, nets, or skip boxes, but never by magnet or slings, unless the sling is designed and constructed to prevent accidental release of the cylinders.

Valve protection devices shall not be used for lifting cylinders, unless specifically designed for that purpose.

Cylinder valves shall be closed prior to moving cylinders and whenever the work, operation, or service life is completed.

Cylinder valves not provided with fixed hand wheels shall have keys or handles on valve spindles or stems while cylinders are in service. In multiple cylinder installations, only one key or handle is required for each manifold.

Compressed Gas Storage, Handling, and Use *(Continued)*

Leaking regulators, cylinder valves, hoses, piping systems, apparatus or fittings shall not be used. Never use tape of any type on CGA fitting threads.

Compressed gas cylinders shall not be dropped, struck, or permitted to strike each other violently.

Never use compressed gas cylinders to be used as rollers or supports.

Do not place compressed gas cylinders where they might form part of an electric circuit.

Compressed gas cylinder contents may only be used in accordance with the supplier's intended purpose.

When flammable gas lines or other parts of equipment are being purged of air or gas, open lights or other sources of ignition shall not be permitted near uncapped openings.

Compressed Gas Cylinder Identification

Compressed gas cylinders shall be legibly marked to indicate the contents with either the chemical or the trade name of the gas.

The marking shall be stenciled, stamped, or labeled in such a manner so as not to make the marking readily removable.

The marking should be located on the shoulder of the gas cylinder container, whenever possible.

Numbers and markings that are stamped into gas cylinder containers shall not be tampered with or obscured in any way.

Empty compressed gas cylinders should be clearly labeled as such.

Empty compressed gas cylinders should be handled according to all of the same safety provisions as when the cylinders were full of whatever gas they contained.

LOS ANGELES PIERCE COLLEGE
HAZARDOUS MATERIAL CONTROL PLAN

Part 4 – Safe Work Practices

Portable Fire Extinguishers *(Appendix D)*

Portable fire extinguishers shall be mounted and identified so that they are readily accessible to employees without subjecting the employees to possible injury.

Only fire extinguishers meeting National Fire Protection Association (NFPA) requirements are approved for use.

Portable fire extinguishers that are intended for use on Class A fires shall be located within 75 feet of the combustible material source and where employees normally work.

Portable fire extinguishers that are intended for use on Class B fires shall be located within 50 feet of the flammable liquid source and where employees normally work.

Portable fire extinguishers that are intended for use on Class C fires shall be located consistent with the Class A or Class B fire potential for the workplace.

Portable fire extinguishers that are intended for use on Class D fires shall be located within 75 feet of the combustible metal source and where employees normally work.

NOTE: For most laboratories, portable fire extinguishers that are rated for Class ABC fires are acceptable and may be supplemented by a separate Class D rated extinguisher, as necessary for the District location.

All portable fire extinguishers shall be subjected to an annual maintenance check and a record of this inspection shall be preserved and maintained by Facilities for at least one (1) year after the last entry or the life of the shell, whichever is less.

Hydrostatic testing intervals and requirements of fire extinguisher systems shall be performed in accordance with 8 CCR §6151 *(See Appendix D).*

Emergency Eyewash and Shower Equipment

Plumbed or self-contained eyewash equipment shall meet ANSI Z358.1-1981 requirements. Such equipment shall be provided at all work areas where, during routine operations or foreseeable emergencies, the eyes of an employee may come into contact with a substance which can cause corrosion, severe irritation or permanent tissue damage or which is toxic by absorption.

Emergency showers shall meet ANSI Z358.1-1981 requirements. Such equipment shall be provided at all work areas where, during routine operations or foreseeable emergencies, the body may come into contact with a substance which is corrosive or severely irritating to the skin or which is toxic by skin absorption.

Emergency eyewash facilities and deluge showers shall be in accessible locations that require no more than ten- (10) seconds for the injured person to reach.

Emergency Eyewash and Shower Equipment *(Continued)*

If both an eyewash and shower are needed, they shall be located so that both can be used at the same time by one- (1) person.

The areas of the eyewash and shower equipment shall be maintained free of items that may obstruct their use. The equipment shall be maintained in a clean and sanitary condition.

The control valve for plumbed and self-contained eyewash and shower equipment shall be designed so that the water flow remains on without requiring the use of the operator's hands.

Personal eyewash units shall deliver potable water or other eye-flushing solution approved by the District's occupational medical program licensed physician.

Eye and Face Protective Equipment

Eye and/or face protection is required in areas where operations are conducted that pose a risk of injury to the eyes and/or face.

The Chemical Hygiene Officer or Director of Facillities shall determine what areas of the workplace and under what conditions eye and/or face protection is necessary.

Where such protection is required, a sign should be posted in the workplace.

Where exposure to injurious light rays or radiant energy is possible, the filter lens shade shall be selected in accordance with 8 CCR §3382.

Where full face or bubble hood respirator systems are utilized for protection against harmful airborne contaminants, additional eye and/or facial protection are normally not required.

Eye and face protective equipment shall be maintained in a clean and sanitary condition.

Eye and face protective equipment should be cleaned and sanitized at the end of the work shift and prior to transfer to another employee.

Eye and face protective equipment should be stored in protective cases or other suitable container when not in use.

Body Protection

Coveralls, lab aprons, plastic suits, and other types of general body protection may be required to protect employees from corrosive or poisonous/toxic liquids.

The Chemical Hygiene Officer shall determine what areas of the laboratory and under what conditions body protection is necessary. The type of clothing selected shall be adequate to protect employees from the chemical(s) or hazardous substance(s).

Where such protection is required, a sign should be posted in the workplace or may be specified through verbal or written laboratory operating instructions or product MSDS.

Such protective clothing shall be maintained in a clean and sanitary condition.

Body Protection *(Continued)*

Laboratory aprons should be wiped down after use.

Laboratory smocks or coveralls should be laundered at least weekly and as otherwise needed.

Clothing that is saturated or impregnated with flammable liquids, corrosive substances, irritants, or oxidizing agents shall be removed and may not be worn until properly cleaned.

Hand Protection

Hand protection shall be required for employees whose work involves unusual and excessive exposure of hands to cuts, burns, harmful physical or chemical agents or radioactive materials which are encountered and capable of causing injury or impairments.

The Chemical Hygiene Officer or Director of Facillities shall determine what areas of the workplace and under what conditions hand protection is necessary. The type of gloves selected shall be adequate to protect employees from the chemical(s) or hazardous substance(s).

Where such protection is required, a sign should be posted in the workplace or may be specified through verbal or written laboratory operating instructions or product MSDS.

Hand protection shall be maintained in a clean and sanitary condition.

Reusable gloves should be wiped down after use.

Reusable gloves should be laundered at least weekly and as otherwise needed.

Gloves that are saturated or impregnated with flammable liquids, corrosive substances, irritants, or oxidizing agents shall be removed and may not be worn until properly cleaned or must be disposed.

Foot Protection

Appropriate foot protection shall be required for employees who are exposed to foot injuries from electrical hazards, hot, corrosive, poisonous substances, falling objects, crushing or penetrating objects which may cause injuries or who are required to work in abnormally wet locations.

The Chemical Hygiene Officer or Director of Facillities shall determine what type of footwear is appropriate for the workplace environment.

Respiratory Protective Equipment

Respirators shall be worn to protect employees against exposure to harmful airborne contaminants in accordance with EH&S EC-05, *Respiratory Protection and Industrial Hygiene Plan*, in order to prevent exposures above established permissible exposure limits as established in 8 CCR §5155 and/or in the MSDS.

Housekeeping Controls

All supporting equipment and supplies shall be returned to their proper storage areas immediately after a laboratory activity or facilities operation is completed.

All in use countertops and fume hoods shall be cleaned immediately after a spill, completed activity, and/or prior to the end of the work shift.

Other laboratory and facilities areas shall be cleaned in accordance with applicable laboratory or facilities access and security plans submitted by the Chemical Hygiene Officer or Director of Facillities, respectively.

A floor plan of the facility should be included in the routine cleaning schedule with the appropriate areas shaded to indicate areas to be cleaned. The schedule should also include a list of approved cleaning agents and/or cleaning techniques to be used.

Personal Hygiene

Confine long hair and loose clothing.

Wear appropriate shoes during laboratory operations.

Upon leaving a "controlled area", remove any protective apparel and place them into an appropriate labeled container.

Upon leaving a "controlled area", thoroughly wash hands, forearms, face, and neck, or any other exposed areas that may have become inadvertently contaminated during the activity.

Upon leaving a laboratory facility or other areas where hazardous materials are stored, wash hands and any area of exposed skin that may have contacted chemicals or hazardous substances.

Authorized Work Activities / Experiments

No employee or student is authorized to perform, conduct, modify, or create experiments in a laboratory that have not been expressly authorized by the Chemical Hygiene Officer.

No employee or student is authorized to perform onsite treatment, mix hazardous wastes, or perform any other work activity that has not been expressly authorized by the Director of Facillities in consultation with the PA or CUPA.

An experiment, activity, or operation that involves the use of "select carcinogens" or regulated hazardous substances in concentrations above an action level (AL) or permissible exposure limit (PEL) must be authorized by the College President. Such activities shall be performed in strict adherence to a written operating instruction or business plan reviewed by the Chemical Hygiene Officer, Director of Facillities, and District's Director of Business Services, or designee.

Exposure Controls

General Provisions
Avoid "routine" exposure to chemicals and hazardous substances by any route of entry. Open bottles slowly and away from the face- not towards others.

Exposure Controls *(General Provisions - Continued)*

Do not smell or taste chemicals. Vent apparatus that may discharge toxic chemicals (e.g., vacuum pumps, distillation columns, etc.) into local exhaust devices.

Avoid eating, drinking, smoking, gum chewing, or applying cosmetics or medicines in areas where laboratory chemicals or hazardous substances are present.

Do not store or handle food or beverages in storage areas, refrigerators, glassware or utensils that are also used for laboratory operations.

Avoid practical jokes or other behavior that might confuse, startle, or distract another worker.

Never use chemicals that cannot be identified. Immediately label all unlabeled containers of hazardous substances that may be left unattended.

Corrosive liquids can quickly obliterate labels. Wipe down the outside of the bottle prior to returning it to storage.

Avoid use of contact lenses during laboratory operations.

Be alert to unsafe conditions and see that they are corrected as soon as possible after being detected.

Use the "buddy" system or other means of accountability when working with chemicals and/or hazardous substances that are highly toxic or of unknown toxicity.

Review MSDS before working with a new chemical. Review the complete procedure prior to beginning an operation to ensure that all support equipment and emergency equipment is readily available and accessible and properly positioned.

Laboratory and Protective Equipment Provisions
Inspect and/or test gloves, glove boxes, eye goggles, face shields, aprons, coveralls, and respirators prior to use, as appropriate.

Use equipment only for its designed purpose.

Do not use mouth suction to pipette or start a siphon. Never pipette directly from stock containers.

Handle and store laboratory glassware with care to avoid damage.

Do not use broken or damaged glassware or utensils.

Mechanical Ventilation and Laboratory Type Hoods
Use only those chemicals for which the quality of the available mechanical ventilation system is appropriate.

Do not release toxic substances into areas in which the mechanical ventilation system is operated in the re-circulating mode.

Confirm adequate hood performance before use.

Attempt to keep hoods closed during hazardous operations except when adjustments are being made.

Keep materials stored in hoods to a minimum and do not allow them to block vents or restrict airflow.

Exposure Controls *(Mechanical Ventilation and Laboratory Type Hoods - Continued)*

Apparatus used inside a fume hood should be located at least six- (6) inches from the front edge of the hood to prevent impairment of hood performance.

For hoods that are used for storage of hazardous substances during instructional activities, the sash adjustment shall be made in order to best compliment and accommodate the mechanical ventilation system.

Use the laboratory hood for operations that might result in release of toxic chemical vapors or dust.

Use a hood or other local ventilation device when working with any appreciable volatile substance having a TLV of < 50 ppm.

Use a hood if hazardous dusts cannot be avoided.

Do not use fume hoods to discharge toxic gases to the atmosphere.

Leave the hood "on" when it is not in active use if toxic substances are stored in it or if it is uncertain whether adequate general laboratory ventilation will be maintained when the hood is "off".

Unattended Operations
Receive permission from the Chemical Hygiene Officer or Director of Facillities prior to leaving operations unattended. In either case, notify the Facilities staff that the operation is unattended.

Leave the lights on in the facility.

Adequately post the area to warn others of the ongoing activity.

Provide additional secondary or backup containment to prevent accidental mixing of incompatible substances while the operation is unattended.

Specific Operations
Use extra care when evacuating flasks and other evacuated glass apparatus; shield or wrap them to contain chemicals and fragments should implosion occur.

Avoid raising dust when handling solids.

Keep sources of heat and ignition away from flammable liquids and gases.

Spills (specific chemicals are listed in Part 5 of this business plan)
Clean up all chemical spills immediately, whether they occur on the floor, on a laboratory countertop, or in a posted hazardous material/waste area.

If the substance is a relatively non-toxic liquid or solution, absorb the spill with towels or rags.

Wear gloves.

Rinse the towels thoroughly with water prior to discarding them into the trash.

If the substance is a water-soluble non-toxic solid, sweep up the material without raising dust and flush the sweepings down the sink drain.

Wear gloves.

Exposure Controls *(Spills - Continued)*

Use wet towels or rags to wipe up any remaining powder.

Rinse the towels thoroughly with water prior to discarding them into the trash.

If the substance is a toxic liquid or solution or solid, follow the cleanup procedures as found in the chemical product MSDS or as provided in this business plan.

Dilute small acid and caustic spills with water prior to cleanup.

Neutralize large acid spills with soda ash prior to cleanup.

Neutralize large caustic spills with dilute acetic acid prior to cleanup.

Always use an approved absorbent to sufficiently minimize, if not eliminate, the inhalation hazard associated with hazardous substances, as necessary.

Vapors
Whenever flammable substance vapors are suspected to have accumulated, determine if a lower explosive limit (LEL) has been reached by measuring the area using an explosive meter or confined space monitor.

Whenever other substance vapors are suspected to have accumulated and represent a risk of exposure notify the District's Occupational Safety and Health Specialist to determine what air monitoring techniques are indicated.

Emergencies

First Aid

CAUTION: Employees may only administer first aid treatment that is commensurate with their qualifications, training, and experience and that is appropriate for any existing conditions in the laboratory.

NOTE: Additional first aid information is provided in EH&S EP-05, *First Aid Program*

Whenever first aid treatment beyond an employee's qualifications, training, and experience is required, immediately contact the Campus Police Office *(Los Angeles County Sheriff)* to initiate the appropriate emergency response actions. Emergency contact numbers shall be conspicuously posted in the immediate vicinity where hazardous chemicals are used.

Employees shall know the location of fire protection equipment, emergency eyewash and shower facilities, and spill kits prior to working with hazardous chemicals.

Whenever medical treatment is needed beyond first aid, a copy of the chemical product MSDS should be made available for use by the attending licensed physician.

Inhalation

CAUTION: Entering an area a victim has been exposed to a toxic substance may pose a great health risk to the rescuer.

Move the victim to fresh air, if appropriate.

Administer artificial respiration if the victim is not breathing.

Emergencies *(Continued)*

Ingestion
If the victim is conscience, attempt to have him/her drink as much water as possible. Never give an unconscious person anything by mouth; never induce an unconscious person to vomit.

If a corrosive substance has been swallowed, do not immediately induce vomiting. Such action poses a risk of exposure to more soft tissues and may permit aspiration into the lungs.

Contact the Poison Control Center for additional instructions and a determination as to whether or not to induce vomiting.

Poison Control Center 1 (800) 777 - 6476

Seek medical attention immediately.

Contact with Outer Clothing or Protective Equipment
Remove contaminated outer clothing or protective equipment immediately;

Check any under clothing and/or areas of the skin in the area of chemical contact to ensure the substance did not soak through.

Decontaminate items and areas, as necessary.

Skin and Eyes
Flush the exposed area with plenty of water or solution approved by a licensed physician. Flush away from the body and any exposed skin lacerations, whenever possible.

Use a deluge shower for at least ten- (10) minutes for contact with chemicals over a large part of the body.

Use portable or plumbed eyewash for at least 15- minutes for contact with chemicals in the eye(s). Hold the eyelids open with clean fingers so that the water can flush the entire eyeball.

Continue flushing the exposed area in accordance with recommendations listed on the MSDS for the hazardous substance.

NOTE: Washing away a chemical takes approximately ten- (10) times longer than that amount of time the chemical was originally in contact with the skin.

Decontaminate items and/or areas as time permits.

Ignition
If an incident involving an explosion or fire causes a person's hair or clothing to ignite, utilize the **STOP**, **DROP**, **ROLL** maneuver.

STOP. Do not run. Running fans the fire and causes it to spread more rapidly.

Emergencies *(Ignition - Continued)*

DROP. Drop to the floor or any horizontal surface. Standing allows flames to spread upwards towards the mouth and nose.

ROLL. Roll to smother the flames. Cool the victim using a deluge shower.

Follow additional instructions provided in the facility's Emergency Action Plan and as follows in the next section of this business plan *(Fire).*

Fire
Warn others and notify the Campus Police Office *(Los Angeles County Sheriff)* while evacuating the laboratory or work area. Close the doors upon exiting.

Chemistry and facilities personnel should only use fire extinguishers if they are trained to do so and the fire is not of such magnitude to present a significant health risk. Generally, portable fire extinguishers are provided to assist with safe local evacuation.

The police should contact the Chemical Hygiene Officer and Director of Facillities for any additional and specific safety precautions to be observed during laboratory re-entry following a fire.

A thorough inspection of the laboratory and affected chemical and hazardous material storage areas shall be performed prior to allowing operations to continue *(See Re-entry Guidelines this Section).*

Earthquake
If time and magnitude permit ongoing operations to be placed in a safe condition, do so.

Evacuate the laboratory as soon as possible. Close the doors upon exiting and notify the Campus Police Office.

A thorough inspection of the laboratory and affected chemical and hazardous material storage areas shall be performed prior to allowing operations to continue. The inspection should be performed considering the likelihood and affects of possible after shocks.

Flooding
Attempt to determine whether water reactive chemicals are, or could be, adversely affected by the flooding.

Evacuate the area. Do not close the doors if the resulting rise in water level may expose the floodwaters to water reactive chemicals. Immediately notify Facilities and attempt to identify the source of flooding.

Facilities shall isolate and/or contain the source of flooding, if possible.

Dike downstream storm drains to prevent the addition of diluted hazardous chemicals to the environment.

Isolate the spill area.

Take a sample of the floodwaters for laboratory analysis. This sample shall be used to determine how best to dispose of the floodwaters.

The Director of Facillities or HMC shall determine if the floodwaters may be discharged into a storm drain, diverted and/or collected into an industrial sewer, or collected for disposal as hazardous waste in accordance with this business plan.

Facility Re-Entry and Inspections

CAUTION: A College President, the Senior Vice Chancellor, or Chancellor may waive any of the requirements of this Section in order to preserve life, preserve the environment, or enable the effective response of the following federal and state agencies:

1. Federal Emergency Management Agency *(FEMA)*;
2. State of California Office of Emergency Services *(OES)*;
3. Los Angeles County Office of Emergency Management *(LACOEM)*;
4. American Red Cross *(ARC)*;
5. Division of Occupational Safety and Health *(DOSH or Cal/OSHA)*;
6. Environmental Protection Agency *(Cal/EPA)*;
7. Local law enforcement agencies, fire departments, and other emergency response organizations; and
8. To comply with any legal court order, Chancellor's Administrative Regulation, or Board of Trustees Rule or Resolution, as submitted by the District's Office of General Counsel.

Re-entry

- The Director of Facillities, or designee, is responsible to establish safe facility re-entry procedures after an emergency to affect rescue efforts, assess environmental impact, and/or to investigate the event cause and any secondary effects.

- Normally, such procedures need not be in writing, but must be clearly communicated to all entry participants and support personnel *(See Pre-job Briefings)*.

EXCEPTIONS: Safe re-entry into facilities that are known to have, or suspected to contain, confined spaces require written procedures in accordance with EH&S FC-04, Confined Spaces.

Safe re-entry into facilities may require certain equipment to be first secured in accordance with EH&S FC-05, Lockout/Tagout.

Safe re-entry into laboratories may require personnel to utilize personal protective equipment in accordance with EH&S EC-04, Chemical Hygiene Plan, and EH&S EC-05, Respiratory Protection Plan.

Safe re-entry into attics, tunnels, and crawl spaces may require industrial hygiene monitoring in accordance with EH&S EC-06, Control of Select Carcinogens.

Rendering first aid should be performed consistent with EH&S EP-05, First Aid Program, and EH&S EC-01, Bloodborne Pathogens Exposure Control Plan.

- Where written procedures exist to address specific and unique hazards, those procedures should be followed, whenever possible.

- Where a federal or state agency or other emergency response organization is in charge of the scene, the Director of Facillities shall first consult with the Incident Commander *(IC)* in accordance with EH&S EP-04, *Standardized Emergency Management System (SEMS)*.

Facility Re-Entry and Inspections *(Continued)*

Inspections

- The Director of Facillities shall determine the need for facility inspections after an event.
- Select the facilities to be included in the inspection.
- Contact a District Building Inspector to perform a preliminary inspection of the selected facilities.
- The Building Inspector should perform a preliminary inspection of the selected facilities with a designated Facilities Supervisor and/or the Director of Facillities.
- Recommend follow-up or expanded facility inspections, as results indicate.
- Contact the District's Director of Facilities Planning and Development to discuss follow-up inspections or facility conditions that may call for specialty or other professionally certified services to properly evaluate. The Director should authorize specialty or other professionally certified services in consultation with the Building Inspector, Director of Facillities, and Vice President – Administration.

Stop Work Authority

- Any employee may refuse to perform work that would violate the Labor Code, or any occupational safety and health standard, or order whereby such violation would create a real and apparent hazard to employee safety or health.
- The Director of Facillities or Building Inspector may order the shutdown or securing of any facility system, equipment, or portions thereof, due to an apparent public safety or health hazard.
- The District's Director of Facilities Planning and Development or Vice President – Administration may order the shutdown of any facility or operation in consultation with inspections performed by a Professional Engineer, or equivalent certified individual.
- Where inspection results and recommendations differ, the Senior Vice Chancellor or Chancellor should implement compliance options in consultation with the Vice President – Administration or President, respectively.

Pre-Job Briefings (See Appendix E)

- Where SEMS is established, all re-entry and inspection briefings shall be approved and coordinated by the Incident Commander (IC – Local Fire Department or County Sheriff) or the Emergency Coordinator (EC – College President or designated Vice President), as applicable to the responding organization.
- Where the Emergency Coordinator is in charge of the scene, all re-entry and inspection emergency response teams shall be briefed on the hazards to which they may be exposed.

    a) Substantial compliance with this communication requirement will be attained by utilizing a Pre-Job Brief Checklist, or equivalent emergency re-entry checklist.

    b) A sample checklist is provided in Appendix E of this business plan.

Electrical Safety

General Rules

Regularly inspect the power cords on all electrical equipment. If cracked or frayed, immediately remove the instrument from service and replace the cord.

Keep all electrical panels and junction boxes clear of materials and debris.

Position electrical devices to minimize the probability of water or chemicals splashing onto the equipment.

Unplug any device that gets wet.

Do not reuse the device until thoroughly dried and inspected.

Keep electrical cords and leads out of the way of operations. Excess lengths should be minimized, whenever possible.

Never run power cords along the ceiling and/or across the floor. Check with the Director of Facillities or Electrical Supervisor if special electrical accommodations are needed.

Hotplates, Power Strips, and Transformers

Do not allow power cords from hotplates that are used in a laboratory type hood to drape in front of the cabinet doors located under the hood.

Do not overload power strips. As a rule, small electronic instruments use relatively little current (< 1-amp) whereas heating or cooling devices use considerably more (6 – 10 amps).

EXAMPLE: Two large (1,000 watt) hotplates plugged into a 15-amp power strip and operated at maximum heating rate will overload the strip. Determine the amount of current an electrical device uses by looking at the nameplate. If the nameplate is obliterated, check the fuse. The rating of the fuse is the maximum amount of current that the instrument will draw. If power is given, calculate the current from the below equation:

Current (I) (amps) = Power (P) (watts) / Volts (E) (volts)

Do not attempt to repair any electrical device, especially transformers.

Variable or automatic transformers are used in the laboratory to control the voltage supplied to immersion heaters and heating mantles.

Depending upon the internal wiring, placing the ON/OFF switch to the OFF position may only disconnect one of the output leads.

In variable mode transformers, one lead is “hot” and the other is neutral. The ON/OFF switch breaks the connection in both output or input leads.

Disposal

NOTE: The Chemical Hygiene Officer, in consultation with the Director of Facillities or HMC, shall designate appropriate staging areas and waste segregation containers for various laboratory operations.

Medical wastes shall be collected and disposed of in accordance with EH&S HM-01, Medical Waste Management Plan.

Hazardous chemical and substance wastes shall be collected and disposed of in accordance with EH&S HM-02, Hazardous Material Control Plan.

Laboratory glassware wastes shall be collected, identified, and placed into a rigid container.

Laboratory Waste Disposal into any Storm Drain is strictly prohibited.

Laboratory Waste Disposal into an Industrial (Laboratory Sink) Drain may occur under certain circumstances as stated below:

CAUTION: All employees who dispose of wastes into a laboratory sink drain must comply with the requirements as set forth in the industrial wastewater permit issued for their District location by the City of Los Angeles Department of Public Works, Bureau of Sanitation, Industrial Waste Management Division **or** by the County Sanitation District, as appropriate.

Solutions with a pH <2 or pH > 12.5 are hazardous waste and may not be disposed of into laboratory sink drains. Such solutions may be neutralized as follows:

- Mix the contents of the waste receptacle by stirring, tilting, or swirling several times to ensure that a homogeneous mixture exists.
- Analyze the mixture using a pH meter, pH test paper, or indicator solution.
- If the pH is between 5.5 and 11, the contents may be disposed of through the laboratory sink drains.

CAUTION: When neutralizing a waste solution, add chemicals slowly while stirring or swirling to prevent a violent chemical reaction from occurring. Gas may be generated that can cause pressure in a closed container. After mixing, leave the cap loosened to allow for venting of the container.

- If the pH is $\leq$ 5.5, add sodium carbonate (soda ash is preferred) to increase the pH to between 5.5 and 11.
- If the pH is $\geq$ 11, add 6N HCl to decrease pH to between 5.5 and 11.

The following inorganic compounds are non-hazardous and may be disposed of through a laboratory drain without regard to the quantity discarded:

Disposal *(Continued)*

- Chlorides (sodium, potassium, magnesium, calcium, and ammonium);
- Sulfates (sodium, potassium, magnesium, calcium, and ammonium);
- Carbonates and bicarbonates (sodium, potassium, magnesium, calcium, and ammonium); and
- Phosphates (sodium, potassium, calcium, magnesium, and ammonium);

The following inorganic compounds have low toxic hazards. Rinsings may be disposed of into a laboratory drain.

- Borates (sodium and ammonium);
- Fluorides (calcium);
- Oxides (magnesium, calcium, aluminum, silicon, manganese, iron, cobalt, copper, and zinc);
- Sulfites and bisulfites (sodium and potassium);
- Thiosulfates (sodium);
- Chlorides (cesium);
- Iodides (sodium and potassium);
- Bromides (sodium and potassium);
- Nitrates (sodium, potassium, calcium, and magnesium); and
- Thiocyanates (ammonium, sodium, and potassium).

The following hazardous inorganic compounds may be disposed of into a laboratory drain provided the concentration is less than those specified below:

• Arsenic	3 mg/l	Lead	5 mg/l
• Cadmium	15 mg/l	Nickel	12 mg/l
• Chromium (total)	10 mg/l	pH Range	5.5-11
• Copper	15 mg/l	Silver	5 mg/l
• Cyanide (total)	10 mg/l	Sulfides (dissolved)	0.1 mg/l
• Cyanide (free)	2 mg/l	Zinc	250 mg/l

The total of dispersed oil and grease shall not exceed 600 mg/l. Floatable oil and grease shall be "none visible".

Sharps waste may be ground such that at least 40% passes a No. 8 sieve, 65% passes a No. 3 sieve, and 100% shall pass a ½ inch screen. The grinder shall not exceed a rating of five (5) horsepower.

LOS ANGELES PIERCE COLLEGE
HAZARDOUS MATERIAL CONTROL PLAN

Part 5 – Common Laboratory Chemicals

Routes of Entry

NOTE: LACCD EH&S EC-02, *Hazard Communication Plan*, provides information on the types of hazards to which employees may be exposed during laboratory operations.

Inhalation
Toxic chemical exposure by way of inhalation is perhaps the most prevalent route of entry into the human body.

Avoid inhaling chemical gases, vapors, and/or fumes as much as possible.

Follow all of the safe work practice guidelines provided in Part 4 of this business plan.

NOTE: 25% of a harmful airborne contaminant may remain in the lungs after exhaling. 50-70% of the harmful substance will be immediately exhaled. This leaves between 5-25% that may be subsequently exhaled or ultimately ingested.

Absorption or Contact
Toxic chemical exposure by way of contact with areas of the skin or entry through the eyes commonly results in irritation or burns.

Avoid contact with harmful chemicals by properly using personal protective equipment. Such equipment is designed to create a barrier between the hazard and exposed skin and/or eye areas of the operator.

Chemical exposure by way of contact is the second most common route of entry into the human body.

Ingestion
Toxic chemical exposure by way of ingestion normally occurs indirectly.

Avoid ingestion by strict adherence to personal hygiene practices.

Never eat or drink in the laboratory or while working with hazardous substances.

Keep all foods and drinks out of workplaces where hazardous substances may be used or stored.

Chemical exposure incidents by way of ingestion ranks third when considering possible routes of entry into the human body.

Injection
Toxic chemical exposure by way of injection is rare.

Injection may occur if a sharp object that is contaminated with a harmful substance cuts or abrades the skin.

Avoid injection incidents by strict adherence to housekeeping practices and proper use of personal protective equipment.

Common Chemicals

Hydrochloric Acid

Hydrochloric acid fumes irritate the eyes and the mucous membranes of the respiratory tract. An airborne concentration of 35-ppm causes irritation of the throat. Concentrations of 1,000-2,000 ppm are dangerous and may result in pulmonary edema. Severe burns result if the acid contacts the eyes or skin. Contact with the eyes may cause blindness.

- Use concentrated hydrochloric acid in a fume hood. Prior to opening a bottle of concentrated acid, verify the location and operation of the nearest emergency eyewash.
- Use adequate facial protection, gloves, and apron to guard against splashes. Because gas pressure can build up inside the bottle, always open the cap slowly while pointing the container away from yourself and others.
- Dilute hydrochloric acid *(≤ 19.5%)* may be used in the open laboratory.
- Clean up spills of hydrochloric acid immediately.

CAUTION: Do not add pour water directly onto an acid spill. Thoroughly wet the mop with water and carefully soak up the acid into the mop.

a) Clean up small spills *(≤ 20 ml concentrated acid, ≤ 100 ml diluted acid)* by soaking up the spill using a mop wetted with water.

b) Clean up large spills *(> 20 ml concentrated acid, > 100 ml diluted acid)* by carefully sprinkling dry soda ash *(sodium bicarbonate)* onto the spill.

c) Avoid exposure to the acid mist that may form when soda ash reacts with hydrochloric acid by donning a respirator system utilizing a NIOSH-approved acid mist filter canister.

- Discard hydrochloric acid waste into the appropriate waste satellite collection acid container.

Sulfuric Acid

- Sulfuric acid causes severe burns to the skin, eyes, and respiratory system. The acid also reacts violently with water, releasing large amounts of heat that cause the water to flash to steam. The ensuing steam explosion may propel droplets of hot, concentrated sulfuric acid in all directions.
- In addition to observing the same safe handling rules presented when using hydrochloric acid, take the following precautions when diluting concentrated sulfuric acid:

a) Place a large beaker containing cold dilution water in the laboratory sink and fill the sink with water.

b) Slowly add sulfuric acid to the water while continuously stirring. Prevent spattering by pouring the acid down the insides of the beaker container.

c) If the solution gets too hot *(> 80°C)*, stop adding acid. Cover the beaker with a watch glass and allow the solution to cool prior to adding more acid.

Common Chemicals *(Sodium, Lithium, Potassium Hydroxides; continued)*

Sodium Hydroxide

- Sodium hydroxide, both solid and in concentrated solution, is corrosive to all body tissues. Symptoms are usually immediate and prolonged contact results in severe burns and deep ulceration. The eyes are particularly vulnerable to sodium hydroxide.

- Sodium hydroxide liberates an irritating mist when dissolved in water. When preparing solutions from dry chemical, work in a fume hood or well-ventilated space.

- Sodium hydroxide has a large, positive heat of solution. Never prepare concentrated sodium hydroxide in a stoppered container; pressure caused by the trapped expanding air may launch the stopper as a missile accompanied by flying droplets of caustic solution.

- Sodium hydroxide pellets are hygroscopic; a sodium hydroxide solution will be left behind after the solid is removed. The residue may be wiped up with wet paper towels.

- Clean up spills of sodium hydroxide immediately.

  CAUTION: Do not add pour water directly onto a caustic spill. Thoroughly wet the mop with water and carefully soak up the caustic into the mop.

  a) Clean up small spills *(≤ 20 ml concentrated caustic, ≤ 100 ml diluted caustic)* by soaking up the spill using a mop wetted with water.

  b) Clean up large spills *(> 20 ml concentrated caustic, > 100 ml diluted caustic)* by neutralizing the spill with dilute acetic acid prior to mopping up the spill.

  c) Avoid exposure to any vapors that may form during caustic spill cleanup by donning a respirator system utilizing a NIOSH-approved filter canister.

- Discard sodium hydroxide waste into the appropriate waste caustic container.

Follow the same precautions when handling lithium and potassium hydroxides.

Oxidizing Agents

- The major hazard associated with oxidizing agents is reactivity. The reaction between oxidizing and reducing agents or organic materials may result in fire or explosion. Not all oxidizing agents are compatible with one another.

- The hazards posed by accidental inhalation, ingestion, or absorption of oxidizing agents are similar and attributable to the reactive and corrosive nature of the compounds involved. Inhalation generally produces irritation and possible severe damage to the lungs and respiratory system. Ingestion causes nausea, headaches, dizziness, and gastrointestinal irritation. Chlorates, bromates, and iodates also cause destruction of the red blood corpuscles. Due to their corrosive nature, oxidizing agents can severely burn the eyes, skin, mouth, and throat.

- Avoid raising dust when removing solids from the stock container. If dust cannot be avoided, perform the activity within a laboratory type hood.

Common Chemicals *(Oxidizing Agents, Flammable Liquids and Gases; continued)*

- Wash hands and forearms thoroughly after handling oxidizing agents, especially prior to eating or drinking.

- Clean up spills of oxidizing agents immediately.

  a) If a small amount of solid material has been spilled *(≤ 3-gm)*, the material may be flushed directly into a laboratory sink.

  b) If a large amount of solid material has been spilled *(> 3-gm)*, sweep up the material without raising dust and place the sweepings into an appropriate rigid container. Never discard spilled solid waste into the normal trash.

- If a liquid solution has been spilled of any quantity, soak up the liquid with paper towels.

  a) Rinse the towels thoroughly with water and collect the rinse water into a beaker.

  b) Discard the towels into the normal trash.

  c) Dispose of the rinse water into the appropriate waste oxidizer container.

Flammable Liquids and Gases

- Flammable liquids are volatile; their vapors will ignite in concentrations between the lower flammability limit *(LFL)* and upper flammability limit *(UFL)* in air. Flammable liquid vapors are normally heavier than air. Gases that are lighter than air include:

  a) Hydrogen and hydrogen cyanide gases;

  b) Ammonia gas;

  c) Helium gas;

  d) Acetylene gas;

  e) Methane gas;

  f) Illuminating *(natural)* gas;

  g) Carbon monoxide gas; and

  h) Ethylene gas.

- Within the flammable range, a gas or vapor will burn rapidly, if ignited. Concentrations that are outside of the flammability range are considered either too lean (i.e., less than that concentration required to sustain combustion) or too rich (i.e., not enough oxygen present in the air to sustain combustion).

- Flammable liquids and gases are often inhalation, ingestion, and contact hazards.

- Keep sources of ignition away from flammable substances.

Common Chemicals *(Flammable Liquids and Gases; continued)*

- Know the location of all laboratory fire extinguishers.
- Handle flammable substances within a laboratory type hood, whenever possible.
- Do not heat flammable substances without permission from the Chemical Hygiene Officer.
- Use flammable substances in small amounts and keep containers covered when not in use.

Several common flammable liquids and gases that may be found at various District locations are presented below:

- The first table lists the substance flashpoint, vapor pressure, and lower flammability limit (LFL) by percent volume in air along with its corresponding upper flammability limit (UFL).

SUBSTANCE	**FLASHPOINT** *(°C)*	**VAPOR PRESSURE** *(mm-Hg)*	**LFL** *(% v/v)*	**UFL** *(% v/v)*
Acetone	**-17.8**	**180**	**2.6**	**12.8**
Acetylene	**N/A – Gas**	**33595** *(44.2 atm)*	**2.5**	**100**
Anhydrous Ammonia	**N/A – Gas**	**6460** *(8.5 atm)*	**16.0**	**25.0**
Butane	**N/A – Gas**	**1558** *(2.05 atm)*	**1.8**	**8.4**
Carbon Disulfide	**-30**	**297**	**1.3**	**50.0**
Carbon Monoxide	**N/A – Gas**	**26600** *(35 atm)*	**13.0**	**74.0**
Ethyl Alcohol	**12.8**	**44**	**3.3**	**19.0**
Formaldehyde	**N/A - Gas**	**760** *(1 atm)*	**7.0**	**73.0**
Gasoline	**-48**	**300**	**1.4**	**7.6**
Hexane	**-21.7**	**124**	**1.1**	**7.5**
Hydrogen	**N/A - Gas**	**N/A**	**4.0**	**74.0**
Isopropyl Alcohol	**11.7**	**33**	**2.0**	**12.7**
Kerosene	**38**	**5**	**0.7**	**5.0**
Methane	**N/A - Gas**	**N/A**	**5.0**	**15.0**
Methyl Alcohol	**11.1**	**96**	**6.7**	**36.0**
Methyl Ethyl Ketone	**-9**	**78**	**1.4**	**11.4**
Propane	**N/A - Gas**	**6384** *(8.4 atm)*	**2.1**	**9.5**
Toluene	**4**	**21**	**1.1**	**7.1**

- The second table lists some common flammable solvents permissible exposure limits *(PELs)* and their corresponding weights that must evaporate in a 1,000 cubic foot space in order to reach the PEL, assuming no effect from ventilation and ambient temperature at 25°C.

SOLVENT	**PEL** *(ppm)*	**WEIGHT IN 1,000 FT** *(gm)*
Acetone	**750**	**50**
Hexane	**500**	**51**
Isopropyl Alcohol	**400**	**29**
Methyl Alcohol	**200**	**7**
Ethyl Alcohol	**1,000**	**54**

NOTE: Evaporation rate for these solvents under the above stated conditions is not more than 200-mg/hr.

Common Chemicals *(Flammable Liquids and Gases, Formaldehyde; continued)*

- Flammable liquids tend to irritate and cause defatting of the skin.

  a) Wear gloves if there is any likelihood that the solvents will contact the skin.

  b) Always wear gloves when using methanol.

- Less the presence of ignition sources, acetone, reagent alcohol, methyl alcohol, isopropyl alcohol, and hexanes may be used in the open laboratory.

  NOTE: Ignition sources are not limited to flames. Sparks created by electrical devices and hotplate high temperatures can ignite flammable vapors.

- Clean up spills immediately.

- If a small spill of flammable liquid occurs *(≤ 500-ml)*, paper towels may be used to soak up the liquid.

  a) Rinse the paper towels with water.

  b) Discard the paper towels into the normal trash.

- If a large spill of flammable liquid occurs *(> 500-ml)*, immediately secure all possible sources of ignition.

  a) Use absorbent material in order to contain the spread of flammable liquid and vapors.

  b) Clean up the absorbent waste material using gloves and respirators equipped with an approved NIOSH filter canister.

  c) Collect the absorbent waste material in a rigid container and store for disposal.

- Do not dispose of hexane by way of a laboratory sink drain.

- For ingestion of acetone, reagent alcohol, methyl alcohol, or isopropyl alcohol, give the victim water and induce vomiting.

Formaldehyde

- Formaldehyde is a carcinogen that is used as a preservative in organic specimens. Formalin is an aqueous solution that is approximately 35% formaldehyde by weight. Inhibited solutions contain 6-12% methyl alcohol.

- Formaldehyde is a colorless liquid with a pungent odor that may be readily absorbed by the body through all routes of entry.

Common Chemicals *(Formaldehyde; continued)*

- Skin contact may result in white discoloration, skin hardness, skin anesthesia, and first-degree burns. Chronic skin exposure may result in second-degree burns, fingernail damage, tanning of the skin, and sensitization. The resulting dermatitis may be a sudden vesicular reaction or be delayed several years with eruptions starting on the digital areas, wrists, and on other parts of the body.

- Eye contact with formaldehyde concentrations in air of 0.05 – 3 ppm may cause irritation with redness, itching, pain, blurred vision, and mild lacrimation. Concentrations from 4 – 20 ppm may result in profuse lacrimation and ocular damage.

- Ingestion may cause burning of the mouth, throat, and stomach, difficulty in swallowing, vomiting, and diarrhea. In acute exposures, degenerative changes in the liver, heart and brain, damage to spleen, pancreas, central nervous system, and kidneys may occur. A mean fatal dose in people is 1 – 2 ounces of a 37% solution.

- Inhalation of formaldehyde gas in concentrations of 0.1 – 5 ppm may cause irritation of the nose and throat. In acute exposures, 10-20 ppm may cause difficulty in breathing, a burning sensation in the nose and throat, and coughing. Above 25-50 ppm, issue damage and serious respiratory tract injury may occur.

- Chronic exposure to formaldehyde may result in nasal cancer, asthma, lung cancer and dermatitis. Mood and memory disorders may also occur.

- Where concentrations of formaldehyde exceed an "action level" *(0.5-ppm TWA/8hr)*, a licensed physician must evaluate the effects of occupational exposure. Workplace *(industrial hygiene)* monitoring must be performed every six- (6) months.

- Avoid skin and eye contact with formaldehyde at all times by wearing gloves, lab coats, and non-vented eye goggles.

- Where engineering controls are not effective in reducing employee exposure to formaldehyde vapors below the PEL of 0.75-ppm *(8-hr TWA)*, respirators shall be worn.

- Clean up small spills *(e.g., $\leq$ 20-ml formaldehyde, $\leq$ 50-ml Formalin)* immediately using vermiculite or other suitable absorbent material or attempt neutralization with sodium hydroxide or sodium sulfite.

- Clean up moderate spills *(e.g., between 21 - 100 ml formaldehyde, 51 – 250 ml Formalin)* utilizing a half-mask respirator equipped with a formaldehyde canister.

- Collect all waste containing formaldehyde and store in a rigid airtight container that is designated for formaldehyde waste.

- If formaldehyde is ingested and the victim is conscious, dilute, inactivate, or absorb the ingested formaldehyde by giving milk, activated charcoal, or water. Any organic material will inactivate formaldehyde. Keep the victim warm and at rest. Get medical attention immediately. If vomiting occurs, keep the victim's head lower than the hips.

- If formaldehyde is inhaled, remove the victim from the exposure area to fresh air immediately. Where the formaldehyde concentration may be very high, and where large spills have occurred, evacuate the workplace. Reentry must occur using self-contained breathing apparatus. If breathing has stopped, give artificial respiration. Keep the victim warm and at rest. Qualified first-aid or medical personnel should administer oxygen, if available, and maintain the patient's airway and blood pressure until the victim can be transported to a medical facility.

Common Chemicals *(Formaldehyde, Mercury; continued)*

- If the skin is contacted with formaldehyde, remove contaminated clothing, including shoes, immediately. Wash the affected area with soap or mild detergent and large amounts of water for at least 10-20 minutes or until no evidence of chemical remains. In case of burns, get first aid to cover the area with sterile, dry dressings and bandages. Seek medical attention if appreciable eye or respiratory irritation occurs.

- If the eyes are contacted with formaldehyde, wash the eyes immediately with large amounts of water. Occasionally lifting the lower and upper eyelids and flush for at least 15-20 minutes or until no evidence of chemical remains. In case of burns, apply sterile bandages loosely without medication and seek medical attention immediately.

Mercury

Mercury and mercury compounds are cumulative poisons. They are readily absorbed by the body through all routes of entry and, once absorbed, are slowly excreted. Chronic exposure to mercury produces a variety of symptoms such as fatigue, emotional disturbances, memory loss, gingivitis, and tremors. Most mercury compounds are also corrosive, thereby presenting a severe contact hazard.

- Avoid raising dust when removing solids from stock containers.

- Wash hands and forearms thoroughly after use and prior to eating or drinking.

- Clean up spills immediately.

- If a solution containing mercury salts has been spilled, wipe up the spill with paper towels.

    a) Rinse the paper towels with water into a laboratory sink, but collect the rinse water. Never discard mercury compounds into the normal trash.

    b) Discard the paper towels into the normal trash.

    c) Store the rinse water in a rigid, air tight, container that is designated for waste mercury.

- If elemental mercury has been spilled, use suction from a pipette bulb applied to a glass capillary to collect the droplets.

    CAUTION: Do not use a vacuum pump to collect elemental mercury. The discharge from the pump could release airborne mercury into the area.

- If elemental mercury has rolled into inaccessible areas, cover it with a mixture of sulfur and calcium polysulfide, or other equivalent absorbent material.

- An approved mercury vacuum cleaner may be used to clean up the resulting amalgam.

- Retain all waste materials for subsequent disposal.

- If mercury is ingested, give water and induce vomiting.

Common Chemicals *(Monoethylamine, Nitric Acid, Metal Compounds; continued)*

Monoethylamine

Monoethylamine *(MEA)* is highly flammable. When heated or exposed to open flame, MEA will react vigorously with oxidizers. MEA emits toxic vapors *(ammonia and nitrogen oxides)* when heated and is highly toxic by inhalation or ingestion. Exposure to MEA may cause delayed lung injury *(pulmonary edema)* and may irritate or burn the skin and mucous membranes. MEA is a severe eye irritant.

- Handle MEA containers in a laboratory type hood or other well-ventilated space.
- Wear protective gloves, safety goggles, and apron.
- Wash hands and arms thoroughly after handling.
- In the event of a spill of MEA, take immediate action to preclude a buildup of toxic and flammable vapors. Such actions include, but are not limited to:

  a) Local evacuation of all unnecessary personnel;

  b) Remove or extinguish possible ignition sources; and

  c) Ventilate the area, if possible.

Nitric Acid, Nitrates, and Nitrites

Nitric acid is highly corrosive and generates vapors containing nitrates that are highly irritating to the eyes and respiratory system. Nitric acid is poisonous if ingested. Symptoms of acute exposure may include dizziness, weakness, convulsions, or gastrointestinal disturbances such as cramps, diarrhea, and vomiting.

Nitric acid, nitrates, and nitrites are strong oxidizers. They are incompatible with reducing agents, physical shock, heat, and/or organic materials.

Nitric acid, nitrate, and nitrite wastes must be collected and stored separately. Nitrate and nitrite salts could react with the paper or other organic material in the normal trash, thereby starting a fire.

Metal Compounds and Solutions

- Many metal salts are hazardous when ingested and may be poisonous or carcinogenic.
- Wear goggles, lab coat, apron, and gloves when handling metal salts and liquid solutions.
- Work within a laboratory type hood and practice good personal hygiene controls at all times when working with metal compounds and solutions.
- Avoid contact with any of the salts featured below:

  a) Soluble barium salts are poisonous if ingested. Insoluble barium salts are relatively non-hazardous.

Common Chemicals *(Metal Compounds and Solutions, Silver Nitrate, Chromates, Hydrazine; continued)*

b) Cobalt salts are poisonous. If ingested, they cause gastrointestinal disturbances and may be animal carcinogens.

c) Salts of chromium III cause gastric disturbances. Skin contact with chromium salts causes dermatitis.

d) Nickel salt dusts are human carcinogens to respiratory system. Skin contact causes severe dermatitis.

e) Lead and lead salts may be inhaled or ingested. Lead is easily absorbed. Symptoms of acute exposure include muscle weakness, gastric disturbances, lead line on the gums, irritability, and a metallic taste in the mouth.

Silver Nitrate

Silver nitrate is corrosive and can cause severe burns to the eyes. Prolonged ingestion of silver compounds leads to deposition of elemental silver in the skin and mucous membranes, thereby causing the victim to appear grayish in color.

Silver nitrate is non-combustible however; it is a strong oxidizer, capable of igniting combustible materials.

Collect silver nitrate waste in dedicated containers.

Chromates and Dichromates

Chromates and dichromates are carcinogens. Always work in a laboratory type hood, if possible. Chromate waste should be segregated from hazardous material wastes.

Hydrazine and Hydrazine Salts

Hydrazine solids and solutions are carcinogens. They cause cancer in laboratory animals and damage the liver and red blood cells in humans. Hydrazine salts are moderately corrosive. Aqueous hydrazine *(35% w/w)* is very corrosive.

All operations involving concentrated material shall be performed within a laboratory type hood. Avoid raising dust when removing solid hydrazine from its stock container.

Clean up spills immediately.

- If a hydrazine salt has been spilled, sweep up the material without raising dust and place the sweepings into a rigid, airtight container.
- If a dilute aqueous solution has been spilled, soak up the liquid with paper towels. Rinse the towels thoroughly before discarding them in the trash.
- If 35% hydrazine has been spilled, dilute the spill with water and mop up or soak up with towels. Place the towels in a sealed container for disposal.
- Never discard spilled or unused hydrazine compounds in the normal trash due to the potential of creating a fire.

If hydrazine dust or solution is ingested, give water and induce vomiting.

Common Chemicals *(Sodium Azide, Cryogenics; continued)*

Sodium Azide

Sodium azide is a colorless to white odorless, crystalline solid preservative commonly used in vitro diagnostic products. Sodium azide forms hydrazoic acid in water. In plumbing systems, sodium azide may react with copper, lead, brass, or solder to form an accumulation of highly explosive compounds of lead azide and copper azide. For this reason, sodium azide waste shall not be disposed through a laboratory sink drain.

Notify the Chemical Hygiene Officer and Director of Facillities in the event that sodium azide is flushed down a laboratory sink drain. As soon as possible, dilute any solution that may remain in the piping with water and flush the drain lines with a strong caustic such as sodium hydroxide or potassium hydroxide.

Cryogenics – Liquid Nitrogen

The word cryogenic means very cold. Four general characteristics apply to all cryogenic liquids.

- Cryogenic liquids are extremely cold. The boiling point for cryogenics may be -400°F (-240°C) or below.
- Cryogenic liquids boil at ambient temperatures. Therefore, the liquid turns to gas upon release from its container when exposed to the laboratory environment.
- At normal atmospheric pressure, cryogenics exist as liquids. Gases must be cooled or pressurized to be converted into the liquid form. Cryogenics are produced by cooling.
- Cryogenics have a wide liquid/vapor ratio. For any given amount of liquid, a cryogenic produces many times more vapor.

  EXAMPLES: One unit of liquid nitrogen vaporizes to 695.7 units of nitrogen gas when warmed to 70°F (21°C) at 1-atmosphere of pressure. The volume expansion ratio of liquid oxygen is 860.4:1. Liquid neon has the highest expansion ratio of any industrial gas at 1,445:1.

Most cryogenic liquids are odorless, colorless, and tasteless in the gaseous state. Liquid oxygen however, is light blue. The cold boil-off vapors condense the moisture in the air creating a visible fog. This fog normally extends over more area than the vaporizing gas.

All of the cryogenic gases displace breathable air, except for liquid oxygen. In an enclosed space, asphyxiation can occur without warning signs to the victim. Carbon monoxide is also toxic and flammable. Liquid nitrogen and argon are chemically inactive and non-corrosive at cryogenic temperatures. Liquid oxygen is an oxidizer and will enhance the combustion of other materials, but will not burn itself. Liquid carbon monoxide, natural gas, and hydrogen are also classified as flammable liquids.

Cryogenic liquids are extremely dangerous to human tissue. The liquid or its vapors can rapidly freeze any exposed human tissue, causing a cryogenic burn. Such burns are considered nine-times as severe as chemical burns and 81-times as severe as a thermal burn. Cryogenic burns are extremely painful and may be disfiguring after only a short exposure.

Common Chemicals *(Cryogenics; continued)*

Cryogenic liquids will cool any exposed material. If an individual touches an exposed piece of metal with an unprotected hand, the hand tissue may freeze and stick to the metal. Attempting to remove the hand from the metal can cause the frozen tissue to tear from the body.

Cryogenics can cause materials to become brittle, including human tissue. Such materials may tend to break, disintegrate, or otherwise fail when stressed or impacted or warmed quickly.

Transport cryogenics in approved containers.

Never apply water directly on spilled liquid. Water will react as a super-heated agent that will increase vapor production and dissipation of the spill. A hose stream of water applied directly to a large hydrogen or oxygen spill could initiate an explosion.

For large spills, eliminate possible ignition sources and/or attempt to direct the vapors away from such sources.

Cryogenic liquids are stored, shipped, and handled in three types of containers; dewars, pressurized cylinders, and tanks. Such containers are double-wall construction with a metal outer skin or shell separated from an inner skin by either a vacuum or vacuum and insulated layer.

Always wear proper protective clothing when handling cryogenics. At a minimum, full-face protection and lined (thermal) chemical resistant gloves that cover up to the elbow should be considered. Where additional splash protection is deemed necessary, an apron, chaps, and/or chemical boots should be considered. Where work in enclosed spaces is necessary, self-contained breathing apparatus and permit-required confined space procedures should be utilized.

LOS ANGELES PIERCE COLLEGE
HAZARDOUS MATERIAL CONTROL PLAN

Part 6 – Hazardous Waste Management

Hazardous Waste Definition

CAUTION: Los Angeles Pierce College is prohibited from offering up any hazardous wastes that are generated onsite to the Household Hazardous Waste Program, without expressed permission from the PA or CUPA.

NOTE: The District maintains a current copy of the hazardous waste rules adopted by Cal/EPA – Department of Toxic Substances Control (DTSC).

- A waste, as defined in 22 CCR §66261.2, is a hazardous waste if it meets any one or more of the criteria provided in 22 CCR §66261.3, unless specifically excluded in 22 CCR §66261.4.
- The requirements for recyclable materials are provided in 22 CCR §66261.6.
- A waste is presumed to be hazardous waste if its contents are unknown.
- A hazardous substance is presumed to be hazardous waste if its primary container is not properly labeled. In-service containers, whose contents are known to the user and are in constant control of the user, do not require labeling.

Contaminated Containers

A contaminated container is a container or liner that previously held hazardous waste or a hazardous substance.

Such containers are considered empty if the following conditions exist:

- If no hazardous material can be poured or drained from the container or inner liner when the container or inner liner is held in any orientation (e.g., tilted, inverted, etc.);
- If no hazardous material remains in or on the container or inner liner that can be removed by physical methods (excluding rinsing) that:
  a) Comply with SCAQMD rules;
  b) Are commonly used to remove materials from the container;
  c) The container capacity is 5-gallons or less; and
  d) Do not result in a build-up of solidified material or mass along the top, sidewalls, and bottom of the container. A thin uniform layer or dried material or powder is considered acceptable.

Treatment

Acutely hazardous or extremely hazardous waste containers or inner liners shall be triple-rinsed using a solvent capable of removing the waste and all residues that may be poured by way of a DTSC-approved method, or alternative method, and specific authorization to treat the container or liner in such a manner. Collect the rinsate or other residue generated by treating contaminated containers and control the material collected as hazardous waste.

Contaminated Containers *(Continued)*

Manage contaminated containers by way of approved and authorized treatment, or as follows:

- Dispose of the container or liner at an appropriate solid waste facility;
- Reconditioning or remanufacturing the container or inner liner;
- Shipping the container or inner liner to the original supplier or to another intermediate collection location for accumulation prior to managing the container or inner liner;
- If the container or inner liner capacity is greater than 5-gallons, indicate the date on which the container was emptied and manage the container as hazardous waste within 1-year of being emptied; and
- In any case, package and transport the container or inner liner pursuant to 49 CFR Part 173.

Where an inner liner has prevented a hazardous substance from coming into contact with a container, then only the inner liner need be managed as hazardous waste in accordance with the above steps.

Household Material Containers

Emptied household hazardous material and pesticide containers, or inner liners removed from containers, of 5-gallons or less capacity, may be emptied by removing all of the contents that can be removed using practices commonly employed to remove materials from that type of container. Such containers are not managed as hazardous waste.

- Apply the entire contents of the container;
- Apply any rinsate from the container; and
- Render the container unusable.

Compressed Gas Cylinders

Compressed gas cylinders are considered empty when the pressure in the container approaches atmospheric pressure. Return empty gas cylinders to the supplier. Such containers are not managed as hazardous waste.

Aerosol Containers

Aerosol containers are pressurized, sealed containers that contain a product and liquified or compressed gas, and which can dispense a product by the activation of a pressure-sensitive valve. Aerosol containers are empty if:

- The contents are non-RCRA regulated hazardous wastes;
- The containers are emptied of the contents and propellant to the maximum extent practical under normal use; and
- Render the container unusable.

Such containers are not managed as hazardous waste.

Contaminated Containers *(Continued)*

Non-Exempt Containers

The following other types of containers are managed as hazardous waste:

- Acutely hazardous or extremely hazardous contents;
- RCRA regulated waste contents;
- Containers made of wood, paper, cardboard, fabric, or any other similarly absorptive materials if such containers have contacted hazardous substances.
- Used oil filters (22 CCR §66266.130);
- Polychlorinated biphenyl (PCB) or PCB-contaminated electrical equipment, including but not limited to, transformers and capacitors [22 CCR §66268.29(b)];
- Bulk container residues greater than 0.3% by weight of the total capacity of the bulk container, the bulk container is no longer operated for hazardous waste or hazardous material transportation, or if an incompatible substance is added to any amount of container contents residue.

Hazardous Waste Determination Method

The Director of Facillities, or HMC, shall determine if a waste generated at Los Angeles Pierce College is a hazardous waste using the following method:

- Determine if the waste is excluded from regulation under 22 CCR §66261.4 or Health and Safety Code Section 25143.2;
- Determine if the waste is listed as a RCRA hazardous waste under 22 CCR §66261.30 – 35;
- Determine if the waste is listed under 22 CCR §66261.126 Appendix X;
- If the waste is listed in Appendix X, but is not listed as a RCRA hazardous waste, determine if the waste is hazardous by:
  a) Testing the waste pursuant to 22 CCR §66260.21 – 210; or
  b) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used and the characteristics set forth in 22 CCR §66261.20 – 30.
- Upon making a determination that a waste is hazardous waste, consider the following standards for possible exclusions or restrictions pertaining to hazardous waste management:
  a) Standards for Owners and Operators of Hazardous Waste Transfer, Treatment, Storage, and Disposal Facilities (TSDF), commencing with 22 CCR §66264.1;
  b) Interim status TSDF Standards, commencing with 22 CCR §66265.1; and

c) Land Disposal Restrictions (LDR), commencing with 22 CCR §66268.1.

EPA Identification (ID) Numbers

Los Angeles Pierce College shall not treat, store, dispose, transport or offer for transportation, hazardous waste without having received an EPA ID number.

The Director of Facillities may apply for an EPA ID number by completing EPA Form 8700-12 (Revised 12/99). The form is submitted to Cal/EPA – DTSC.

- The Department requires an annual administrative fee based upon the District's total number of employees for each EPA ID number assigned to the college.
- An additional fee is charged based upon the types and amounts of hazardous wastes that are shipped from the college under the assigned EPA ID.
- Therefore, the college should only use one number in reporting its hazardous waste disposed each year.

The Director of Facillities may apply for additional EPA ID numbers that will be utilized for a specific project (e.g., asbestos or lead abatement or other construction and demolition projects). After the project is completed, the college should notify the Department to cancel the additional EPA ID number.

Los Angeles Pierce College shall not offer any hazardous waste to a transporter or to a TSDF that has not received an EPA ID number.

Uniform Hazardous Waste Manifest

The Director of Facillities, or HMC, shall prepare a Uniform Hazardous Waste Manifest (UHWM) for hazardous waste that is sent for offsite treatment, storage, or disposal.

- Obtain DTSC Form 8022A (4/97), or most recent revision, and a Continuation Form, Form 8700-22A, if necessary.
- Manifest requests should be submitted to the following agency:

Department of General Services
Documents and Publications
P.O. Box 1015
North Highlands, CA 95660
(916) 574-2200

- Designate on the manifest one facility that is permitted to handle the waste described on the manifest. An alternate facility may be designated in the event an emergency prevents delivery of the hazardous to the primary facility.
- If the transporter is unable to deliver the hazardous waste to either facility, the Director of Facillities, or designee, shall either designate another facility or instruct the transporter to return the hazardous waste to the college.
- If the state to which the shipment is manifested supplies the manifest and requires its use, then the Director of Facillities, or HMC, shall use that manifest.

Uniform Hazardous Waste Manifest *(Continued)*

- UHWM (6-copies) copy distribution is as follows:

  a) College – 2 copies; one copy for Facilities and one copy for the Administration;
  b) Transporter – 1 copy;
  c) District – 1 copy; and
  d) DTSC – 2 copies.

- The Director of Facillities, or HMC, shall:

  a) Complete the generator and waste sections and sign the manifest certification according to the form's instructions;
  b) Obtain the handwritten signature of the initial transporter and date of acceptance on the manifest;
  c) Retain 2 copies for at least 3-years, or until the designated facility that received the waste returns a signed completed copy. The transporter should receive the remaining copies. Retain the completed copy for at least 3-years from the date the initial transporter received the waste; and
  d) Within 30-days submit a copy to DTSC.

- If the shipment is sent to a designated facility in an authorized state that has not yet obtained authorization to regulate the particular waste as hazardous, the Director of Facillities, or HMC, shall assure that the designed facility agrees to sign and return the manifest to the college, and that any out-of-state transporter signs and forwards the manifest to the designated facility.

Shipments from Hazardous Waste Storage Areas

Before transporting hazardous waste or offering hazardous waste for transportation offsite, the Director of Facillities, or HMC, shall assure that the hazardous waste is:

- Packaged in accordance with the applicable Department of Transportation (DOT) regulations on packing under 49 CFR Parts 173, 178, and 179;

- Labeled in accordance with the applicable DOT regulations under 49 CFR Part 172; and

- Marked in accordance with the applicable DOT regulations under 49 CFR Part 172.

  Each container of 110-gallons or less shall be marked with the following words and information displayed (49 CFR 172.304):

  "HAZARDOUS WASTE- State and Federal Law Prohibit Improper Disposal. If found, contact the nearest police or public safety authority, the U.S. Environmental Protection Agency or the California Department of Health Services.

  Generator's Name and Address _____

  Manifest Document Number _____"

Before transporting or offering hazardous waste for transportation offsite, the Director of Facillities, or HMC, shall assure that the transport vehicle is correctly placarded in accordance with the applicable DOT regulations under 49 CFR Part 172, Subpart F.

Hazardous Waste Accumulation

Quantities

The total quantity of hazardous waste accumulated at Los Angeles Pierce College from all hazardous wastestreams shall not exceed 6,000-kilograms. Of this total quantity, no more than:

- 1-quart of acutely hazardous or extremely hazardous compatible waste; or
- 55-gallons of hazardous compatible waste may be accumulated at any one time.

NOTE: If the Director of Facillities determines that these limits are not practical (e.g., the restrictions prevent recycling or require unreasonable accumulation procedures), or safe from an environmental or worker/public health and safety standpoint, the Director of Facillities may authorize the use of a separate 55-gallon or a 1-quart container for those specific compatible waste streams.

Time Limits

The Director of Facillities, or HMC, shall ensure that all acutely hazardous and extremely hazardous wastes accumulated at Los Angeles Pierce College are properly disposed:

- Within 180-days of the date of initial waste accumulation;

NOTE: An additional 90-days, for a total of 270-days, is allowed for offering hazardous waste for transportation over a distance of 200 miles or more.

- Within 90-days of the date any hazardous waste stream accumulates 55-gallons; and
- Within 90-days of the date any acutely hazardous or extremely hazardous waste stream accumulates 1-quart.

Substantial compliance with these time and volume limits may be attained by scheduling hazardous waste pickups shipments after each semester or every 6-months.

If the Administration receives information that the above time limits are routinely compromised, then the Vice President – Administration shall direct the Director of Facillities, or HMC, to prepare all hazardous wastestreams for shipment offsite on a quarterly routine schedule (i.e., every calendar quarter, or 90-days).

Satellite Collection Accumulation

Hazardous waste may be collected in containers, other than tanks, at the initial accumulation point that is at or near the area where the waste is generated and which is under the control of the operator of the process generating the waste.

- In addition to the above time and volume limits, the waste shall not be accumulated for a period longer than 1-year from the initial date of accumulation.

Hazardous Waste Accumulation

Satellite Collection Accumulation (Continued)

- The initial date of waste accumulation shall be clearly marked and visible.
- Each container shall be labeled or marked clearly with the words, "HAZARDOUS WASTE", and the following information:
  a) Composition and physical state of the wastes;
  b) Statements that call attention to the particular hazardous properties of the waste (e.g., flammable, reactive, toxic, etc.); and
  c) Name and address of the responsible department, person in charge, and address.
- When an accumulation limit is reached, indicate the date and transfer the accumulated waste to the designated Hazardous Material Storage Area within 3-days. Mark and label its new container.

Hazardous Waste Storage and Accumulation Containers

- Containers shall be suitable for the hazardous waste constituents.
- Containers shall be in good condition. If the container rusts, leaks, or develops any structural defect, the contents shall be transferred to a container in good condition.
- Container liners shall be compatible with the container contents.
- Containers shall be closed during transfer and storage.
- Containers shall not be opened, handled, stored, or transferred in a manner that may rupture the containers or cause them to leak.
- Containers shall be controlled within the confines of a locked Hazardous Materials Storage Area within Campus Facilities or Satellite Collection Accumulation Area that is controlled by the responsible department.

Hazardous Material Storage Area and Satellite Collection Area Facilities Inspections

- Containers and the areas in which they are used and maintained shall be inspected at least weekly.
- The Director of Facillities or Chemical Hygiene Officer shall schedule additional inspections as needed to ensure container integrity immediately following an earthquake or other unusual event in which container integrity may have been compromised.
- Containers holding ignitable or reactive wastes shall be located at least 50-feet from the facility's property line.
- Incompatible wastes shall not be placed in the same container.
- Hazardous wastes shall not be placed in an unwashed container that previously held an incompatible substance.
- Incompatible hazardous wastes shall not share a common secondary collection system.
- Incompatible substances shall be separated from one another by location, or other approved means of separation, such as with a dike, berm, wall, or storage cabinet.
- Additional inspection requirements include all other provisions of this business plan for controlling hazardous materials.

Hazardous Material Storage Area Containment

Hazardous waste container transfer and storage areas shall be equipped with a containment system. Storage areas that store containers holding only hazardous wastes that do not contain free liquids normally do not need a containment system. The following RCRA-listed wastes, from non-specific production and manufacturing sources that do not contain free liquids, require containment:

Industry and EPA Hazardous Waste No.	*Hazardous Waste Description*	*Hazard Code**
F-020	Pesticide derivatives	H
F-021	Pentachlorophenol / derivatives	H
F-022	Tetra-, penta-, hexachlorobenzenes	H
F-023	Tri-, tetrachlorophenols	H
F-026	F-022 previously used equipment	H
F-027	Chlorophenols discarded unused formulations	H

* Hazard Code "H" = Acutely Hazardous Waste

The containment system, if required, shall be designed and operated as follows:

- A base shall underlie the containers that is free of cracks or gaps and is impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.
- The base shall be sloped or the containment system shall be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids.
- The containment system shall have sufficient capacity to contain:

  a) Precipitation from at least a 24-hour, 25-year storm; and

  b) 10% of the aggregate volume of all containers; or

  c) The volume of the largest container, whichever is greater.

  NOTE: Containers that do not contain free liquids need not be considered in the above determination.

- Run-on into the containment system shall be prevented unless the collection system has sufficient excess capacity in addition to that required in the above determination to contain any run-on that might enter the system.
- Spilled or leaked waste and accumulated precipitation shall be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system.

  a) All spilled or leaked waste shall be managed as a hazardous waste.

  b) All spilled or leaked waste mixed with precipitation shall be managed as a hazardous waste.

  c) All collected precipitation shall be subject to any applicable requirements of Title 33, United States Code, Section 1342, *Federal clean Water Act*, and applicable requirements of the California State Water Resources Board and Los Angeles Regional Water Quality Control Board.

Recyclable Hazardous Wastes

Regulatory Commitments to Recycle

The Director of Facillities, or HMC, shall ensure that all recyclable hazardous wastes are recycled, to the extent feasible. The Department of Toxic Substances Control (DTSC) has determined that the following hazardous waste types are both economically and technologically feasible to recycle:

- Commercial chemical products including unused laboratory grade products (return to the manufacturer or supplier or turn over to chemical salvager for resale or resource recovery; sell or barter to another consumer);

- Solvents, used or contaminated (reclaim, in-plant or through custom solvent reclaimer, by purification processes of rectification, ion exchange, adsorption, or extraction; or if combustible, use in-plant or sell for use as energy resource for heating, cooling, or power generation), including:

  a) *Halogenated solvents* such as trichloroethane, perchloroethylene, methylene dichloride, chloroform, carbon tetrachloride, freons (R);
  b) *Oxygenated solvents* such as acetone, methyl ethyl ketone (MEK), methanol, ethanol, butanol, ethyl acetate; and
  c) *Hydrocarbon solvents* such as hexanes, Stoddard, benzene, toluene, xylenes, and paint thinner.

- Used or unused petroleum products including motor oils, hydraulic fluids, cutting lubricants, fortified weed oils (turn over to reclaimer of motor oils and other petroleum products for recovery of petroleum components; or use in-plant, or sell for use as energy resource for heating, cooling, or power generation);

- Pickling liquor (recover iron salts by concentration, e.g., by solar evaporation of spent liquor);

- Unspent acids, such as hydrochloric, hydrofluoric, nitric, phosphoric, sulfuric, in concentrations exceeding 15% [use directly as pickling and etching acids; in neutralization of alkaline process wastestreams; or in manufacture of useful salt products (e.g., ammonium salts, calcium and fluoride)];

- Unspent alkalis including hydroxides and carbonates of sodium, potassium, and calcium, and acetylene sludge ([use directly in certain metal finishing operations; in neutralization of pickling acids and acid process wastestreams; in precipitation of heavy metals; or in manufacture of useable products (e.g., calcium oxide, sulfate, fluoride, and chloride)]; and

- Unrinsed empty containers of iron or steel used for pesticides or other hazardous chemicals:

  a) Return pesticide containers to the registrant or, if 30- or 55-gallon size, recondition in accordance with 3 CCR §3143; or shred or bale, after removal of pesticide residues by solvent or chemical action or burning, for use as steel scrap; or

  b) Return other hazardous chemicals containers to the supplier or, if 30- or 55-gallon size, recondition; or shred or bale, after removal of chemical residues by solvent or chemical action or burning, for use as steel scrap.

  CAUTION: Recyclable materials are prohibited from being used to create, manufacture, or produce from a hazardous waste, a product that poses a hazard to health, safety, or the environment under the circumstances of its intended use. The Chemical Hygiene Officer must approve all laboratory experiments.

Recyclable Hazardous Wastes *(Continued)*

Specific Recyclable Hazardous Wastestreams

- Undamaged Spent Lead-Acid Storage Batteries (22 CCR §66266.80).

  a) Equivalent or smaller in size than those removed from motor vehicles (Vehicle Code Section 415 and 670);

  b) Exemption of storage requirements if batteries are not damaged and $\leq$ 10 generated;

  c) Accumulation time limits are $\leq$ 2,000-lbs for more than 1-year, > 2,000-lbs for less than 180-days, or remove the electrolyte;

  d) Transport to recycler, user, or reclaimer by way of manifest or bill of lading; and

  e) Retain manifest or bill of lading for at least 3-years.

- Damaged Spent Lead-Acid Storage Batteries [22 CCR §66266.81(b)]. Additional requirements:

  a) Damaged battery means any cracked or otherwise damaged lead-acid storage battery that may leak acid, including but not limited to, a battery that is missing one or more caps and a battery that is damaged at any time before the lead plates are removed.

  b) Manage damaged batteries so as to minimize release of acid and lead;

  c) Store and transport in a non-reactive, structurally secure, closed container capable of preventing the release of acid and lead;

  d) Label the container holding one or more damaged batteries with the initial date of accumulation. Ensure that the date is legible and conspicuous;

  e) Pack the container for transportation in a manner that prevents the container from tipping, spilling, or breaking during transport;

  f) Damaged batteries that are properly labeled and packaged may be shipped with other intact batteries;

  g) Do not store in the immediate vicinity of non-compatible substances, especially with non-compatibles sharing the same secondary containment.

- Hazardous Waste Burned in Boilers and Industrial Furnaces (22 CCR 66266.100)

  Presently does not apply to Los Angeles Pierce College. Requires SCAQMD permit consideration, DTSC notification. Contact the District's Occupational Safety and Health Specialist for requirements.

- Recyclable Materials Used in Agriculture (22 CCR 66266.115)

  Presently does not apply to Los Angeles Pierce College. Requires DTSC and California Department of Food and Agriculture notification, permit consideration, and approval. Contact the District's Occupational Safety and Health Specialist for requirements.

Recyclable Hazardous Wastes *(Continued)*

Specific Recyclable Hazardous Wastestreams

- Waste Elemental Mercury (22 CCR §66266.120).

  a) No permit required if the total quantity stored is ≤ 10-lbs;

  b) Store in leak-tight, covered suitable container labeled, "WASTE ELEMENTAL MERCURY";

  c) Transport to a resource recovery facility;

  d) Use a manifest or bill of lading to document transport.

- Oily Waste Filters (22 CCR §66266.130).

  a) Drain filters of free-flowing (i.e., steady flow; not drop by drop) used oil when inverted;

  b) Store in leak-tight, rainproof, covered suitable container labeled, "DRAINED USED OIL FILTERS", such as a drum.

  c) Indicate the accumulation date on each container or drum;

  d) Drums of used oil filters shall be sealed during transfer;

  e) Drums shall be secured to prevent movement or tipping during transfer;

  f) Storage limits are 1-year for less than 2000-lbs and 180-days for more than 2000-lbs;

  g) Ship drums of filters using a bill of lading.

  h) Retain bills of lading for at least 3-years.

  i) Manage waste oil that separates from filters during storage in accordance with the following "Waste Oil" provisions.

- Used Oil (Article 13, Chapter 6.5, Division 20, Health and Safety Code and 22 CCR §66279.1 et seq).

  NOTE: Used oils that contain > 1,000-ppm total halogens are presumed to be a RCRA hazardous waste.

  a) Determine if the used oil contains > 1,000-ppm total halogens by analyzing each shipment or applying knowledge of the halogen content in light of the materials or processes used.

  b) Whenever used oil samples are taken and analyzed, the procedures listed in 22 CCR §66279.90 shall apply and records of each test shall be retained for at least 3-years.

  c) Whenever applying knowledge of the halogen content, adhere to the following requirements:

Recyclable Hazardous Wastes *(Continued)*

Specific Recyclable Hazardous Wastestreams – Used Oil

(i) Determine the halogen content of the used oil due to the presence of halogenated substances in the unused product oil by way of product labels, MSDS, manufacturer's specification, and/or manufacturer's consultation;

(ii) Determine the halogen content of the used oil due to its use onsite. This estimation shall be based on an assessment of whether the equipment or process generating the used oil ordinarily results in the introduction of any halogenated substances in the used oil. Unusual occurrences such as a break in the seal that ordinarily keeps the oil separated from halogens within the device or component shall also be considered in this estimation.

(iii) Determine the halogen content of the used oil resulting from mixture of the used oil with halogenated substances. This estimation may be done by observing separation, abnormal viscosity, or unusual colors or odors. This evaluation may include discussions with persons handling used oil.

(iv) Add the individual halogen contents estimated in the above 3-steps to determine if total halogens exceed 1,000-ppm.

(v) Retain records documenting the steps taken in the above 4-steps for at least 3-years.

d) Transporters, used oil transfer facilities, used oil- recycling facilities, and used oil collection centers are also responsible to determine that the used oil contains < 1,000-ppm halogenated substances before they receive the waste.

(i) Analytical testing may be used to rebut the RCRA presumption.

(ii) The presumption is rebutted if it is demonstrated that the used oil is metalworking oil or fluid containing chlorinated paraffins, if processed through a tolling arrangement as described in 40 CFR Part 279.24(c). However, the metalworking oil/fluid must not be recycled in any other manner.

(iii) The presumption is rebutted if it is demonstrated that the used oil is contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units, unless the waste is mixed with other hazardous waste.

(iv) The presumption is not rebutted if F001 or F002 waste is > 100-ppm.

(v) The presumption is not rebutted if used oil containing any detectable concentrations of non-solvent individual halogenated hazardous constituents, as listed in 40 CFR Part 261 Appendix VIII.

e) Used oil shall not be intentionally mixed with other hazardous waste, including household hazardous waste, and hazardous waste from a conditionally exempt small quantity generator as defined in 40 CFR Part 261.5(a).

f) Containers and aboveground tanks used to store used oil and fill pipes used to transfer used oil into underground storage tanks shall be marked or clearly labeled with the words, "USED OIL". Indicate the initial accumulation date on the label.

g) Containers of used oil shall be kept closed during transfer and storage and situated within suitable secondary containment.

Requirements for Polychlorinated biphenyls (PCBs)

NOTES: Many fluorescent light ballasts manufactured before 1979 used capacitors containing a small amount of PCBs sealed in a capacitor. Ballasts manufactured after 1979 should not contain PCBs, but were required to be labeled, "Non-PCBs".

PCB-containing transformers were required to be labeled and registered with local fire departments in 1985.

No materials are permitted to be stored within PCB-containing transformer enclosures.

California-Listed Hazardous Waste

- Any detectable concentration of PCBs shall be identified as having hazardous constituents and controlled in accordance with this business plan. PCB materials include polychlorinated biphenyls, askarel, aroclor, chlorextol, inerteen, and pyranol, which are all presumed to be toxics.
- PCBs shall be controlled as a California-Listed Waste
- Use California Waste Code Number 261 to identify PCB materials on shipping documents, regardless of the concentration.

RCRA-Listed Hazardous Waste

- Waste materials are toxics if PCBs are $\geq$ 5 mg/l Soluble Threshold Limit Concentration or $\geq$ 50-mg/kg wet weight Total Threshold Limit Concentration.
- Waste materials are extremely hazardous toxics if PCBs are $\geq$ 5,000-mg/kg wet weight Total Threshold Limit Concentration.
- Use both the California and EPA Hazardous Waste Codes to identify PCB materials on shipping documents.

Fluorescent Light Ballasts (22 CCR §67426.1 et seq)

Non-Leaking Ballasts

- Los Angeles Pierce College is exempt from the waste classification, manifest, and recordkeeping requirements of 22 CCR §66262.10 – 66262.23 and 66262.40 – 66262.47, provided no more than two 55-gallon drums of fluorescent light ballasts that contain PCBs per transportation vehicle.
- The college is exempt from filing for an Extremely Hazardous Waste Disposal Permit with DTSC.
- Do not mix PCB ballast waste with other hazardous waste.
- Store PCB ballast waste in lined 55-gallon drums that are labeled with a California Hazardous Waste Label, marked as "WASTE PCB BALLASTS". Indicate the initial accumulation date on the container.

Requirements for Polychlorinated biphenyls (PCBs)

Fluorescent Light Ballasts (Continued)

- Take care not to break open ballasts containing PCBs.

Leaking or Damaged Ballasts

- Store leaking or damaged ballasts containing PCBs in lined 55-gallon drums and apart from other intact PCB hazardous waste.
- Do not mix with other hazardous wastes, except for sorbent material wastes that are generated in decontaminating spills.
- Immediately contain all spills of PCB-containing materials to preclude storm drain and/or soil contamination.
    a) Prevent storm or floor drain contamination by forming a dike or berm.
    b) Contain the spill with oil socks.
    c) Wear chemical gloves and eye goggles or face shields.
    d) Use rubber boots for large area spills.
    e) Apply sorbent materials to the spill area.
    f) Prepare waste sorbent for hazardous waste storage.
    g) Remove residual oil stains with an appropriate solvent.
    h) Dispose of oily waste rags and control as PCB-containing hazardous waste.
    i) Any spill residue or smoke residue that may result from a fire shall be treated as PCB-containing waste.
    j) Notify the District's Occupational Safety and Health Specialist to ensure that all areas are sampled and analyzed to verify the decontamination process is effective.
    k) All samples shall be submitted to an EPA-certified testing laboratory for analysis.
    l) The spill area shall remain posted and barricaded until analytical results are known and the area is determined to be free from PCB-containing materials.
- Utilize secondary containment systems for storing leaking or damaged ballasts.

Transportation

- The transporter shall use a shipping paper to document transportation of fluorescent light ballasts pursuant to 49 CFR Part 172, Subpart C.
- Retain the shipping paper copies for at least 3-years.

Hazardous Waste Permits

A permit is required for the transfer, treatment, storage, and disposal of any hazardous waste, unless:

- The college accumulates and manages such waste in a manner that excludes the facility from meeting the definition of a *storage facility* pursuant to California Health and Safety Code, Section 25123.3;
- Farm pesticide containers are applied, emptied, triple rinsed, and made unusable in accordance with 22 CCR §66262.70;
- Absorbent material is added to hazardous waste containers prior to adding hazardous waste to such containers in accordance with 22 CCR §66264.17(b), -171, and -172;
- Universal wastes are managed in accordance with 22 CCR §66273.1 et seq and the following section;
- The treatment or containment activity is necessary as a response to a:
  a) Discharge of a hazardous waste;
  b) Imminent and substantial threat of a discharge of hazardous waste; or
  c) Discharge of a material which, when discharged, becomes a hazardous waste.

Universal Wastes

Applications for Conditional Exempt Small Quantity Generator

Universal wastes **are not** managed as hazardous wastes provided:

- The college is a "conditional exempt small quantity generator", generating no more than 220-lbs of universal wastes *(i.e., total weight of batteries, lamps and mercury-added lamps and other M003 wastes, consumer electronic devices, aerosol cans, mercury-containing motor vehicle switches and other M002 wastes, dental amalgam wastes, pressure or vacuum gauges, mercury-added novelties and other M004 wastes, mercury thermometers, dilators and weighted tubing, mercury-containing rubber flooring, mercury counterweights and dampers, and mercury gas flow regulators)* and RCRA hazardous wastes in any one calendar month, but excluding cathode ray tube *(CRT)* materials, which are also universal wastes;

  NOTES: On January 1, 2004, mercury-added novelties are included in M004 wastes. On January 1, 2005, a motor vehicle from which any mercury-containing light switches have not been removed becomes a universal waste on the date any person decides to crush, bale, shear, or shred it. On February 9, 2006, non-automotive mercury switches, and products that contain such switches are included in M002 wastes.

- The college generates no more than 1-kg of acutely hazardous or extremely hazardous waste in any one calendar month;
- Universal waste is recycled by a destination facility or is disposed in a landfill permitted to accept municipal solid waste or hazardous waste;
- The college complies with the requirements of 40 CFR Part 261.5; and
- Universal wastes are disposed as non-hazardous waste in no more than the following quantities:
  a) 20-lbs universal waste batteries, except for lead-acid storage batteries, in any one calendar month;
  b) No universal waste thermostats; and
  c) 30 universal waste lamps *(e.g., fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps)* in any calendar month.
- Universal wastes shall not be accumulated for longer than 1-year.

Applications for Conditional Exempt Small Quantity Generator

Los Angeles Pierce College is considered a "small quantity handler of universal waste" if the college does not meet the above "conditionally exempt provisions", but generates less than 5,000 kilograms or more total of universal waste batteries, thermostats, and lamps, calculated collectively, at any one time. Small quantity handlers are prohibited from disposing of universal waste and are prohibited from diluting or treating universal waste, except as allowed in responding to releases or managing specific wastes as listed in the

following section. Los Angeles Pierce College is not required to notify DTSC or the U.S. EPA of its universal waste handling activities.

Universal Wastes *(Continued)*

Standards for Small Quantity Handlers of Universal Waste

Universal wastes shall be managed in a way that prevents releases of any universal waste or component to the environment. If managed properly, secondary containment is not required.

Batteries

- Contain damaged batteries in a closed, structurally sound, compatible container.
- Individual battery cells may be opened to remove the electrolyte, but then the cells most be retained intact and closed. The electrolyte shall be presumed to be hazardous waste, unless proven otherwise in accordance with this business plan.
- Batteries may be:

  a) Sorted by type;
  b) Mixed into a single container;
  c) Discharged so as to remove the electric charge;
  d) Regenerated; and
  e) Disassembled into battery pack individual cells or batteries;

- Label each battery or a container or package in which such batteries are contained as, "UNIVERSAL WASTE – BATTERIES", or "WASTE BATTERIES", or "USED BATTERIES".
- Indicate the initial accumulation date on each container.

Mercury Thermostats

- Contain damaged thermostats in a closed, structurally sound, compatible container.
- Individual thermostats may be opened to remove mercury-containing ampules as follows:

  a) Remove the ampules in a manner designed to prevent breakage;
  b) Remove the ampules only over or in a containment device that is sufficient to collect and contain any mercury released from an ampule in case of breakage;
  c) Ensure that a mercury clean-up kit is readily available to immediately transfer any mercury resulting from spills or leaks from the containment device to a hazardous waste container;
  d) Ensure that the area is well-ventilated and that permissible exposure levels for mercury are not exceeded;
  e) Ensure that employees are thoroughly familiar with proper waste mercury handling and emergency procedures;
  f) Store removed ampules in closed, non-leaking containers that are in good condition;
  g) Package removed ampules in the container with packing materials adequate to prevent breakage during storage, handling, and transportation; and
  h) Handle all mercury waste, including a broken thermostat that is potentially contaminated with mercury waste, as hazardous waste.

- Label each thermostat or a container or package in which such thermostats are contained as, "UNIVERSAL WASTE – MERCURY THERMOSTATS", or "WASTE MERCURY THERMOSTATS", or "USED MERCURY THERMOSTATS".

- Indicate the initial accumulation date on each container.

Universal Wastes *(Continued)*
Waste Management - continued

Lamps

- Contain all lamps in a closed, structurally sound, compatible container.
- Immediately clean up, place in a container any lamp that is broken, and place in a container any lamp that shows evidence of breakage, leakage, or damage that could cause the release of mercury or other hazardous constituents to the environment.
- All containers shall be kept closed at all times and in such a way as to prevent the release of potentially hazardous wastes.
- Label each lamp or a container or package in which such lamps are contained as, "UNIVERSAL WASTE – LAMPS", or "WASTE LAMPS", or "USED LAMPS".
- Indicate the initial accumulation date on each container.

Other Universal Waste Excluding CRT Materials

- Contain all other universal wastes in closed, structurally sound, compatible container.
- Immediately clean up, place in a container other universal waste that is broken, and place in a container any item that shows evidence of breakage, leakage, or damage that could cause the release of any hazardous constituents to the environment.
- All containers shall be kept closed at all times and in such a way as to prevent the release of potentially hazardous wastes.
- Label each container or package as, "UNIVERSAL WASTE – (ITEM DESCRIPTION).
- Indicate the initial accumulation date on each container.

Standards for CRT Material Handlers

Universal materials are not normally considered as waste materials until the waste is shipped for reclamation. CRT materials are waste materials if the device is physically cracked, broken, or shattered. CRT glass becomes a waste on the date that the glass is released or derived from the CRT or CRT device

CRT Material Handler means any person that generates, accumulates, stores, treats, or recycles any CRT material, except for a "Conditionally Exempt Small Quantity Universal Waste Generator".

Notification Requirements

A CRT Material Handler that generates 5,000 kilograms or more of CRT material (CRTs, CRT devices, and CRT glass calculated collectively) per calendar year shall send written notification containing the information specified in 22 CCR §66273.82(d) to the Department of Toxic Substances Control and to the local CUPA. This notification shall be submitted no later than November 1 of each calendar year, commencing November 1, 2001.

Waste Management

CRT materials shall be managed in a manner that prevents release of any CRT material or component of a CRT material to the environment.

- CRT materials shall be stored in structurally sound, compatible containers or packages.
- Such containers shall be adequate to prevent breakage, such as shrink-wrapped on a pallet.
- Immediately clean up and place into a container any CRT material that is broken and from any container that appears to be leaking or damaged.
- CRT's may be removed in a manner designed to prevent CRT breakage.

a) Remove CRTs only over or in a containment device that is sufficient in size and construction to contain any material that may be released in the event of breakage.

Universal Wastes *(Standards for CRT Material Handlers)*

Waste Management *(Continued)*

b) Ensure that persons removing CRTs are thoroughly familiar with the techniques and safety precautions required to safely remove CRTs.

c) Use packing material to prevent breakage during handling, storage, and transportation.

d) Determine that the remaining material is not contaminated with CRT material due to the removal process or handle as potential hazardous waste.

Labeling / Marking

Each CRT or CRT device, or container or pallet in or on which CRTs or CRT devices, or CRT glass are contained shall be labeled or marked clearly with one of the following, "CRT's" or "CRT DEVICES" or "CRT GLASS" or "CONTAINS LEADED GLASS". Indicate the date of initial accumulation on the component or on the container or pallet.

EXCEPTION: In lieu of labeling individual components, the handler may accumulate CRTs within a designated area demarcated by boundaries that are clearly labeled as described above provided no other materials are stored within that area.

Accumulation Time Limits

CRT material may not be accumulated for longer than 1-year from the date of initial accumulation.

Universal Waste Offsite Shipments

A Small Quantity Handler of Universal Waste is prohibited from sending or taking universal waste to a place other than another universal waste handler, a destination facility, or a foreign destination.

NOTE: Notify the District's Occupational Safety and Health Specialist prior to exporting, such as in a sale of surplus property, universal waste to a foreign destination for current exporting and U.S. EPA rules.

- Universal waste shall be shipped in accordance with applicable requirements of 49 CFR Parts 171 – 180.

- Shipment records of most universal wastes need not be retained. Shipments of most universal waste need not be tracked.

  EXCEPTION: Shipments of CRT materials maintained on a log, invoice, manifest, bill of lading, or other shipping document.

- Retain the CRT shipping record for at least 3-years. The record shall include the quantity of each type of CRT material (weight or count) and other requirements of 22 CCR §66273.89.

Universal Waste Employee Training

A Small Quantity Handler of universal waste shall inform all employees who handle or have responsibility for managing universal waste of all the proper handling and emergency procedures and requirements of this section.

Construction and Demolition Wastes

Asbestos (California Hazardous Waste Code Number 151)
The Total Threshold Limit Concentration *(TTLC)* for Inorganic Persistent and Bioaccumulative Toxic Substances establishes waste materials comprised of 1.0% asbestos as hazardous and toxic *[22 CCR §66261.24 and §66261.126 Appendix X (a) 75]*.

- The 1.0% concentration applies only if the substances are in a friable, powdered, or finely divided state.
- Asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.
- Asbestos waste is wetted using surfactant *(amended water)* to minimize, if not eliminate, the potential for release of airborne fibers *(Refer to LACCD EH&S EC-06, Control of Select Carcinogens)*.
- Double bag asbestos wastes at the job site. Use properly labeled asbestos disposal bags or label the bags as follows:

DANGER
Contains Asbestos Fibers
Avoid Creating Dust
Cancer and Lung Disease Hazard

- Transport the properly labeled bags to a designated posted hazardous waste storage area.
- Establish a dedicated asbestos waste leak tight accumulation container labeled as follows:

Lead (California Restricted Waste Code Number 724 for liquids with lead ≥ 500-mg/l)
(California Hazardous Waste Code Number 121 for alkaline solutions with metals)

The Total Threshold Limit Concentration *(TTLC)* for Inorganic Persistent and Bioaccumulative Toxic Substances establishes waste materials comprised of 5.0-mg/l or 1,000-mg/kg lead and/or lead compounds as hazardous and toxic *[22 CCR §66261.24 and §66261.126 Appendix X (a) 406]*. Safe work practice controls are required *(Refer to LACCD EH&S EC-06, Control of Select Carcinogens)* whenever the concentration in construction materials is ≥ 0.06% lead dry weight *(600-ppm)*.

- Double bag asbestos wastes at the job site. Use properly labeled asbestos disposal bags or label the bags as follows:

WARNING
Contains Lead
POISON

- Transport the properly labeled bags to a designated posted hazardous waste storage area.
- Establish a dedicated lead waste leak tight accumulation container labeled as containing lead.

Hazardous Waste Recordkeeping and Reporting

Manifests / Shipping Papers

- Retain Uniform Hazardous Waste Manifests for at least 3-years in accordance with the previous Manifest section of this business plan.
- Only those employees who have been trained in this business plan and DOT requirements for hazardous waste shipments should sign the manifest as a college representative.

Biennial Report
Biennial Reports are required under 40 CFR Part 262.41. Such reports shall be retained for at least 3-years, if required pursuant to 22 CCR §66262.41. If required, the Director of Facillities, or designee, shall prepare the report for the Vice President-Administration, in consultation with the District's Occupational Safety and Health Specialist.

Universal Waste

- CRT Material shipping records shall be retained for at least 3-years.
- Other universal waste shipments need not be tracked, nor records maintained, unless specifically required in accordance with the Los Angeles Pierce College Integrated Waste Management Plan.

APPENDIX A

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LOS ANGELES COMMUNITY COLLEGE DISTRICT
HAZARDOUS MATERIAL CONTROL PLAN SAFETY TRAINING RECORD

SECTION I: ADMINISTRATIVE

EMPLOYEE: _____ _____ _____
Print Name: *Signature*

EMPLOYEE NUMBER: _____ _____
Supervisor Name / Telephone Number

TRAINER: _____ _____
Print Name: *Signature*

COLLEGE: _____ DATE: _____

SECTION II: TRAINING TOPICS CHECK OFF LIST

☐ 1. Format and meaning of information, such as precautionary statement about human health hazards, contained in chemical products labeling.

☐ 2. Hazards of chemicals, including acute and chronic effects, delayed effects, and sensitization, as identified in chemical products labeling, Material Safety Data Sheets, or other reference material(s).

☐ 3. Routes by which chemicals can enter the body.

☐ 4. Signs and symptoms of overexposure.

☐ 5. Emergency first aid for chemical overexposure.

☐ 6. How to obtain emergency medical care.

☐ 7. Routine and emergency decontamination procedures, including spill clean up and the need to thoroughly shower with soap and warm water after the exposure period.

☐ 8. Need for, limitations, appropriate use, and sanitation of any required personal protective equipment.

☐ 9. Prevention, recognition, and first aid for heat related illness.

☐ 10. Safety requirements and procedures, including engineering controls *(such as laboratory hoods and glove boxes)* for handling, transporting, storing, and disposing of hazardous materials.

☐ 11. Environmental concerns such as discharge into laboratory hoods, disposal into industrial sinks, and storm drain prohibitions.

☐ 12. Warning against taking chemicals, hazardous materials, or their containers home.

☐ 13. Laws and regulations relating to chemicals, Material Safety Data Sheets, and the Hazardous Material Control Plan.

☐ 14. The purposes and requirements for medical supervision if "select carcinogens" or other acutely or extremely hazardous substances are used in concentrations above an "action level" or a "threshold level".

☐ 15. The location of the written Hazard Communication Information for employees handling chemicals *(EH&S EC-02, Hazard Communication Plan)* and Material Safety Data Sheets, including the location of the written Hazardous Material Control Plan.

☐ 16. Employee's rights; including the right:
(A) To personally receive information about the hazardous substances to which he or she may be exposed;
(B) For his or her physician or employee representative to receive information about chemicals to which he or she be exposed; and
(C) To be protected against retaliatory action due to the exercise of any of his or her rights.

REFERENCES: 22 CCR §66264.16

APPENDIX A

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LOS ANGELES COMMUNITY COLLEGE DISTRICT
HAZARDOUS MATERIAL CONTROL PLAN SAFETY TRAINING RECORD

SECTION II: TRAINING TOPIC CHECK-OFF LIST *(Continued)*

☐ 17. The training shall be in a manner the employee can understand, be conducted pursuant to the Hazardous Material Control Plan, and include response to questions.

☐ 18. Training shall be completed before the employee is allowed to handle hazardous materials, continually updated to cover any new chemicals that will be handled, and repeated at least annually thereafter.

☐ 19. The college shall provide and ensure employees use of approved respiratory protective equipment when chemical products labeling or regulations require respiratory protection or when respiratory protection is needed to maintain employee exposure below an applicable exposure standard found in 8 CCR §5155.

☐ 20. The training should include an opportunity to discuss events/incidents that have occurred during the preceding year *(lessons learned)*.

SECTION III: MEDICAL AND PHYSICAL CONDITION ACKNOWLEDGMENT

To the best of my knowledge, I have ____ have no ____ medical conditions which would interfere with my ability to wear a respirator or
(Check one)

to carry out my job duties and responsibilities since my last respirator physical within the last 365 days by a licensed physician..

EMPLOYEE: _____ _____ _____
Print Name *Signature*

If an employee checks that he or she has such a condition, a physician's report of evaluation and approval for respirator shall be on file before work requiring respirator use or exposure to hazardous chemicals is allowed.

SECTION IV: LIST OF TRADE NAMES/COMMON NAMES/CHEMICAL FAMILIES COVERED

1.		**7.**		**13.**	
2.		**8.**		**14.**	
3.		**9.**		**15.**	
4.		**10.**		**16.**	
5.		**11.**		**17.**	
6.		**12.**		**18.**	

REFERENCES: 22 CCR §66264.16
LACCD EH&S HM-02

LACCD EH&S HM-02-1 Rev. 0 05/02

APPENDIX B

(Page 1 of 2)

REFERENCES: **22 CCR §66264.16**
LACCD EH&S HM-02

LOS ANGELES COMMUNITY COLLEGE DISTRICT
WRITTEN HAZARDOUS MATERIAL CONTROL TRAINING PROGRAM RECORD

SECTION I: INSTRUCTIONS

List the titles of the training materials used for employee safety training in the spaces provided. Include the required Hazardous Material Control and Hazard Communication Plans in use for the District location.. List the applicable chemical product labels and Material Safety Data Sheets or list the chemical families covered in training. Include the titles of any laboratory safety videotapes, pamphlets, books, magazine articles or any other materials that are used to train employees. The training presentation should address the subjects numbered 1-16 on the reverse.

SECTION II: HAZARDOUS MATERIAL CONTROL PLAN TRAINING RESOURCE LIST

TITLE *(List name and indicate type of training material to the right by checking the appropriate column)* *** Mandatory Resource**	**REGULATORY PUBLICATION (✓)**	**VIDEO TAPE (✓)**	**PAMPHLET (✓)**	**BOOK (✓)**	**OTHER** *(Specify)* **(v)**
*** Title 22, California Code of Regulations, Reference Guide or Selected Sections**	✓				
*** LACCD EH&S HM-02, Hazardous Material Control Plan, or Site-Specific Plan**					✓ District Procedure College Procedure
*** Chemical Product Material Safety Data Sheets**			✓		
LACCD EH&S EC-02, Hazard Communication Plan					✓ District Procedure
OTHER SOURCE REFERENCE MATERIALS					
DOT TRAINING GUIDE (every 3 years)		✓			

SECTION III: TRAINER INFORMATION

PRINT NAME	SIGNATURE	TITLE	DATE

(Continued on Reverse)

APPENDIX B
(Page 2 of 2)

REFERENCES: **22 CCR §66264.16**
LACCD EH&S HM-02

LOS ANGELES COMMUNITY COLLEGE DISTRICT WRITTEN HAZARDOUS MATERIAL CONTROL PLAN TRAINING PROGRAM RECORD

SECTION IV: HAZARDOUS MATERIAL CONTROL PLAN TRAINING CONTENTS

The training shall cover, for each chemical or chemically similar group or hazardous substances managed:

1. Format and meaning of information, such as precautionary statements about human health hazards contained in chemical product labeling;

2. Hazards of chemicals, including acute and chronic effects, delayed effect, and sensitization, as identified in product labeling, Material Safety Data Sheets *(MSDS)*, or other reference material(s);

3. Routes by which chemicals can enter the body;

4. Signs and symptoms of overexposure;

5. Emergency first aid for chemical overexposure;

6. How to obtain emergency medical care;

7. Routine and emergency decontamination procedures, including spill clean up and the need to thoroughly shower with soap and warm water after the exposure period;

8. Need for, limitation, appropriate use, and sanitation of any required personal protective equipment;

9. Prevention, recognition, and first aid for heat-related illness;

10. Safety requirements and procedures, including engineering controls *(such as laboratory type hoods and glove boxes)* for handling, transporting, storing, and disposing of chemicals;

11. Environmental concerns such as discharge from laboratory hoods, disposal down industrial sinks, and storm drain prohibitions;

12. Warnings against taking chemicals, hazardous substances, or their containers home;

13. Laws and regulations relating to chemical safety, MSDS's, and the Hazardous Material Control Plan;

14. The purposes and requirements for medical supervision if "select carcinogens" or other acutely hazardous or extremely hazardous regulated substances are used in concentrations above an action or threshold level;

15. The purposes and requirements for workplace monitoring if "select carcinogens" or other regulated hazardous substances are used in concentrations above an action level or threshold level;

16. The employees' rights, including the right:

    A. To personally receive information about chemicals to which he or she may be exposed;
    B. For his or her physician or employee representative to receive information about the hazardous substances to which he or she may be exposed; and
    C. To be protected against retaliatory action due to the exercise of any of his or her rights.

APPENDIX C
SAMPLE MATERIAL SAFETY DATA SHEET

(Page 1 of 2)

Material Safety Data Sheet May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements	**U.S. Department of Labor** Occupational Safety and Health Administration (Non-Mandatory Form) Form Approved OMB No. 1218-0072
IDENTITY *(As Used on Label and List)* Methyl Ethyl Ketone (MEK)	*Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.*
Section I	
Manufacturer's Name XYX Chemical Company	Emergency Telephone Number (204) 123-4566
Address 111 Main Street	Telephone Number for Information (204) 123-4522
New York, NY 10012	Date Prepared January 5, 1990
	Signature of Preparer *(optional)* John Doe

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% *(optional)*
Methyl Ethyl Ketone (2-butanone)	200 ppm	200 ppm	N/A	100%
CAS No. 78-93-3				

Section III - Physical/Chemical Characteristics

Boiling Point @ 760 mm HG	175.3°F	Specific Gravity (H_2O = 1)	0.8061
Vapor Pressure @ 20°C	70 mm HG	Melting Point	N/A
Vapor Density (Air = 1)	2.5	Evaporation Rate (Butyl Acetate = 1)	5.7

Solubility in Water
Appreciable = 24%

Appearance and Odor
Clear liquid with sweet odor similar to acetone

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) Tag. Open Cup = 22°F	Flammable Limits In air % by volume	LEL 1.8	UEL 10

Extinguishing Media Use carbon dioxide or dry chemical for small fires.
Use alcohol type foams for large fires.

Special Fire Fighting Procedures
Self-contained (NIOSH-approved) breathing apparatus and protective clothing should be used in all fires involving chemicals.

Unusual Fire and Explosion Hazards
Vapors are heavier than air and may travel along the ground, or be

moved by ventilation, and ignited by various ignition sources.

(Reproduce locally) **OSHA 174, Sept. 1985**

APPENDIX C
SAMPLE MATERIAL SAFETY DATA SHEET

(Page 2 of 2)

Section V - Reactivity Data			
Stability	Unstable		Conditions to Avoid
	Stable	X	None
Incompatibility *(Materials to Avoid)*	May react with oxidizing agent and/or organic peroxides. Avoid alkaline materials, mineral acids and halogens.		
Hazardous Decomposition or Byproducts	Burning can produce carbon monoxide and/or carbon dioxide.		
Hazardous Polymerization	May Occur		Conditions to avoid
	Will Not Occur	X	None
Section VI - Health Hazard Data			
Route(s) of Entry:	Inhalation? Yes	Skin? Yes	Ingestion? Yes
Health Hazards *(Acute and Chronic)*	Acute LD (oral rat) = 3,100 mg/kg. Inhalation: lung irritation, central nervous system effects (dizziness and headaches). Skin: irritation, rashes, dermatitis Eyes: irritation, redness, pains.		
Carcinogenicity:	NTP? No	IARC Monographs? No	OSHA Regulated? No
Signs and Symptoms of Exposure	Inhalation: irritation of respiratory tract, coughing, headache, nausea		
	Skin: dryness, redness, rashes		
	Eyes: irritation, pain, conjunctivitis (redness)		
	Ingestion: abdominal spasms, nausea, vomiting.		
Medical Conditions Generally Aggravated by Exposure	None known.		
Emergency and First Aid Procedures	Inhalation: move to fresh air, provide oxygen, and obtain medical help. Eyes: flush with water for at least 15 minutes, obtain medical help if irritation persists. Skin: thoroughly wash affected areas with water, remove contaminated clothing, obtain medical help if irritation persists or large body areas are affected. Ingestion: give water to drink, obtain medical help.		
Section VII - Precautions for Safe Handling and Use			
Steps to Be Taken in Case Material is Released or Spilled			
	Collect leaking liquid in sealable containers. Absorb spilled liquid in sand or inert absorbent and remove to a safe place. Cleanup personnel should wear protective clothing, including a self-contained respirator. Avoid contact with the skin. Remove all sources of ignition.		
Waste Disposal Method			
	Consult a licensed waste disposal service firm for disposal in accordance with all federal, state and local regulations.		
Precautions to Be Taken in Handling and Storing			
	Drums must be grounded and electrically bonded to the receiving vessel while dispensing in order to avoid static sparks. Store away from oxidizing agents, heat and ignition sources. Handle small quantities in approved safety cans. Handle as a Class 1B flammable liquid.		
Other Precautions			
	Good personal hygiene practices should always be followed.		
Section VIII - Control Measures			
Respiratory Protection *(Specify Type)*	Not required if concentration is below PEL. At higher concentrations, NIOSH-approved respirator with organic vapor filter should be worn.		
Ventilation	Local Exhaust Required for high concentrations	Special All electrical equipment must be Class 1, Group D; fans must be non-sparking	
	Mechanical *(General)*	Other	
Protective Gloves	Rubber	Eye Protection	Chemical goggles and/or face shield.
Other Protective Clothing or Equipment			

Eyewash fountains, safety showers, barrier creams, etc.
Work/Hygienic Practices *(This section includes information such as whether clean lunch rooms should be provided and personal hygiene practices, such as post-shift hand washing or showering and soiled clothing/laundry handling procedures.)*

REFERENCE: 29 CFR §1910.1200

APPENDIX D
Page 1 of 6

FIRE PROTECTION / EMPLOYEE ALARM SYSTEMS REQUIREMENTS

FIRE PROTECTION SYSTEM TYPE	REFERENCE	ACCESSIBILITY	INSPECTION
PORTABLE FIRE EXTINGUISHERS Class A Fire Potential Class B Fire Potential Class C Fire Potential Class D Fire Potential	8 CCR §6151	Accessible within 75 feet from employees Accessible within 50 feet from employees Accessible within 50-75 feet from employees, dependent upon Class A or B Fire potential Accessible within 75 feet from employees	MONTHLY By Employees ANNUALLY By Qualified Technician

FIRE PROTECTION SYSTEM TYPE	REFERENCE	HYDROSTATIC TEST INTERVAL *(YEARS) Performed by Qualified Technician*	EMPLOYEE TRAINING
PORTABLE FIRE EXTINGUISHERS			Where portable fire extinguishers are provided for employee use in the workplace, employees shall be trained in the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting. Training is required for those employees who are designated and authorized by the Administration to provide emergency response to certain types of incidents. Such training is required initially upon assignment and annually thereafter.
Soda Acid (stainless steel shell)	8 CCR §6151	5	
Cartridge operated water and/or antifreeze		5	
Stored pressure water and/or antifreeze		5	
Wetting Agent		5	
Foam (stainless steel shell)		5	
Aqueous Film Forming Foam (AFFF)		5	
Loaded Stream		5	
Dry chemical with stainless steel		12	
Carbon dioxide			
Dry Chemical, stored pressure, with mild steel, brazed brass or aluminum shells		12	
Dry chemical, cartridge or cylinder operated, with mild steel shells		12	
Halon 1211		12	
Halon 1301			
Dry powder, cartridge or cylinder operated with mild steel shells			

REFERENCE: 8 CCR GROUP 27, FIRE DETECTION

APPENDIX D
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FIRE PROTECTION / EMPLOYEE ALARM SYSTEMS REQUIREMENTS

FIRE PROTECTION SYSTEM TYPE	REFERENCE	MISCELLANEOUS REQUIREMENTS	*INSPECTION and MAINTENANCE
STANDPIPE AND HOSE SYSTEMS Standpipe and Hose Reels and Cabinets Hose Outlets and Connections Hoses Nozzles Water Supply	8 CCR §6165 NFPA 141978	Standpipes located or otherwise protected against mechanical damage. Standpipes shall be supplied with lined hoses after 07/01/81. Designed to facilitate prompt use of the hose valves, the hose, and other equipment at the time of a fire or other emergency. Reels and cabinets must be conspicuously identified and used only for fire equipment. Positioned such as not to be obstructed and accessible to employees. Screw threads shall be standardized or adapters shall be provided. Every hose that is ≤ 1-1/2 inches in diameter shall be connected to the water supply and ready for use. Hose length must not drop nozzle pressure below 30 psig. Nozzles shall be shut-off types. Minimum water supplies sufficient to provide 100 gallons per minute for 30 minutes.	Hydrostatic testing is required upon installation for systems installed after 07/01/81 with all couplings in place. Water supply tanks inspected monthly for proper water level, unless under repair. All valves in main piping connections to automatic sources of water shall be kept fully open at all times, except during repair. When any portion of the system is not serviceable, remove from service and replace with equivalent protection extinguishers and fire watches.
AUTOMATIC SPRINKLER SYSTEMS	8 CCR §6170 NFPA 13-1978	System must be maintained to ensure that discharge patterns, densities, and water flow characteristics provide for complete coverage in a particular workplace or zoned subdivision of the workplace. Minimum water supplies sufficient to provide design flow for 30 minutes. Auxiliary water supply provided when the automatic water supply is out of service, except for systems of 20 or less sprinklers. Hose connections may be attached to the water supply provided the design capacity of the system is not compromised. Sprinklers must be protected against mechanical damage. Water flow alarm required on systems having more than 20 sprinklers to alarm if there is flow through the system equal to the flow from a single sprinkler	Main drain flow test required annually. System protected against freezing and corrosion. System must be installed in such a manner that all piping may be completely drained. *All inspection and maintenance to be performed by qualified technician

REFERENCE: 8 CCR GROUP 27, FIRE DETECTION

APPENDIX D
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FIRE PROTECTION / EMPLOYEE ALARM SYSTEMS REQUIREMENTS

FIRE PROTECTION SYSTEM TYPE	REFERENCE	MISCELLANEOUS REQUIREMENTS	*INSPECTION and MAINTENANCE
GENERALFIXED EXTINGUISHING SYSTEMS	8 CCR §6175	Applicable for those systems utilizing an extinguishing agent that is harmful to employees.	Inspect system annually by a knowledgeable person.
System malfunction or in repair		When system is inoperable, employees must be notified and temporary precautions put into place to ensure employee safety until the system is restored.	
Space re-entry		Safeguards must be in place to warn employees not to enter the area whenever the extinguishing system discharges and until such time that the atmosphere is no longer harmful.	The weight and pressure of refillable containers shall be checked semi-annually.
Recognizable Discharges		Discharge alarms are not required for areas in which the discharge of the system is immediately recognizable.	Maintenance required on any refillable container that loses 5% weight or 10% pressure.
Postings		Post warning or caution signs at the entrance to and inside of the affected area having extinguishing systems that utilize harmful extinguishing agents.	Inspection and maintenance dates shall be recorded on the container or on a tag posted on the container, or in a central location.
Training		Annual training must be provided to designated employees who are assigned to inspect, maintain, operate, or repair fixed extinguishing systems.	Systems must operate in any temperature extremes associated with the area.
System Protection		Systems installed in the presence of corrosive atmospheres must be constructed of non-corrosive material or otherwise protected against corrosion.	
Manual Actuation Stations		At least one manual station must be provided for discharge activation of each fixed extinguishing system. Manual operating devices must be identified as to the hazard against which they provide protection.	*All inspections and maintenance to be performed by qualified technician
Personal Protective Equipment		Personal protective equipment needed for immediate rescue of employees trapped in hazardous atmospheres created by an extinguishing agent is required.	
Total Flooding Systems		An Emergency Action Plan is required for any area in which harmful exposures to employees may result for total flooding system discharges. For total flooding systems, a pre-discharge alarm must be provided that will give employees time to safely exit.	
Fire Detection Device		Fire detection device is required and must be interconnected with the employee alarm system and any automatic actuation system.	

REFERENCE: 8 CCR GROUP 27, FIRE DETECTION

APPENDIX D
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FIRE PROTECTION / EMPLOYEE ALARM SYSTEMS REQUIREMENTS

FIRE PROTECTION SYSTEM TYPE	REFERENCE	MISCELLANEOUS REQUIREMENTS	*INSPECTION and MAINTENANCE
DRY CHEMICAL FIXED EXTINUISHING SYSTEMS	8 CCR §6180 NFPA 171980 8 CCR §6175		
Chemical Compatibility		Chemical compatibility with any foams or wetting agents that are used is required. Dry chemicals extinguishing agents of different composition must not be mixed. Dry chemical containers must be labeled with the approved or equivalent chemical.	Sample chemical annually to assure that the dry chemical supply is free of moisture that may cause the supply to cake or form lumps.
Employee Alarm System		System pre-discharge employee alarm is required if the chemical discharge may obscure vision.	Rate of application of dry chemicals will not be reached within 30 seconds of initial discharge.
GASEOUS AGENT FIXED EXTINGUISHING SYSTEMS	8 CCR §6181 NFPA 121977		
Carbon Dioxide	8 CCR §6175	Safeguards provided to ensure prompt evacuation of employees upon actuation and restriction of entry until atmosphere is safe.	Carbon dioxide obtained by dry ice conversion to liquid is not acceptable unless it is processed to remove excess water and oil.
Safeguards		Safeguards include training, warning signs, discharge alarms, pre-discharge alarms, and breathing apparatus, any one or more of which may be necessary for particular carbon dioxide extinguishing system installation.	
Extinguishing Agent Concentration		Concentration of gaseous agents must be maintained until the fire has been extinguished or is under control unless the system is being overhauled. Employees shall not be exposed to toxic concentrations of gaseous agent or its decomposition products. No entry during discharge.	Extinguishing concentration must be reached within 30 seconds of initial discharge except for Halon systems that must achieve design concentration within 10 seconds.
Employee Alarm System		A pre-discharge system employee alarm is required.	*All inspections and maintenance to be performed by qualified technician
Egress Requirements		Halon 1301 may not be used in concentrations above 7% where egress takes greater than one minute, 10% where egress takes longer than 30 seconds, but less than one minute. Above 10%, area must not be intended for employee occupancy, but escape must be possible within 30 seconds.	

REFERENCE: 8 CCR GROUP 27, FIRE DETECTION

APPENDIX D
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FIRE PROTECTION / EMPLOYEE ALARM SYSTEMS REQUIREMENTS

FIRE PROTECTION SYSTEM TYPE	REFERENCE	MISCELLANEOUS REQUIREMENTS	*INSPECTION and MAINTENANCE
WATER-SPRAY AND FOAM-WATER SPRINKLER SYSTEMS FIXED EXTINUISHING SYSTEMS	8 CCR §6182 NFPA 15-1977 NFPA 16-1974 8 CCR §6175	Foam and water spray systems must be designed to be effective in at least controlling fire in the protected area or on protected equipment. Drainage of water spray systems must be directed away from areas where employees are working and that no emergency egress may be permitted through the drainage path.	No additional requirements than previously listed for Fixed Extinguishing Systems.
FIRE DETECTION SYSTEMS General Testing Pneumatic and Hydraulic Systems Cleanliness Equipment Protection System Actuation System Delay	8 CCR §6183 NFPA 721978	All fire detection systems shall be restored to normal operating condition as promptly as possible after each test or alarm. Fire detectors and systems shall be tested and adjusted as often as needed to maintain proper reliability and operating conditions. Pneumatic and hydraulic operated detection systems installed after 07/01/81 shall be equipped with supervised systems. Fire detectors shall be cleaned as necessary to assure proper operation. Fire detection equipment shall be protected from corrosion; if outdoors, a protective covering is required. Fire detection equipment shall be protected against mechanical or physical impact. Fire detectors must be supported independently of their attachment to wires or tubing. System actuation fire detectors must operate in time to control or extinguish a fire. Employee alarm actuation fire detectors must operate to provide a warning for emergency action and safe escape of employees. Alarms or devices initiated by fire detector actuation shall not be delayed for more than 30 seconds unless the delay is necessary for the immediate safety of employees. In such a case, the Emergency Action Plan must address specific actions to be taken.	All fire detection systems shall be operable except during repairs or maintenance. Factory calibrated detectors need not be adjusted after installation. *A trained person knowledgeable in the operations and functions of the systems shall perform servicing, maintenance, and testing of fire detection systems, including cleaning and necessary sensitivity adjustments.

REFERENCE: 8 CCR GROUP 27, FIRE DETECTION

APPENDIX D

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FIRE PROTECTION / EMPLOYEE ALARM SYSTEMS REQUIREMENTS

FIRE PROTECTION SYSTEM TYPE	REFERENCE	MISCELLANEOUS REQUIREMENTS	*INSPECTION and MAINTENANCE
EMPLOYEE ALARM SYSTEMS	8 CCR §6184 NFPA 72A1975		
Alarm Sound		Distinctive and recognizable as a signal to evacuate the work area or to perform actions required under the Emergency Action Plan.	Tested to ensure the alarm is capable of being perceived above ambient noise levels or light levels. Tactile devices may be used for employees who would not be able to perceive noise or light.
Reporting Emergencies		Employees must be made aware of the means to report emergencies, whether by telephone, public address systems, pull box alarms, radios, etc. Where telephones are used, the telephone numbers must be posted nearby.	
Priority Communication		Where communication systems are used to deliver emergency messages, all emergency messages shall have priority over non-emergency messages.	Only approved devices and equipment are authorized.
Procedure for Sounding Alarms		A procedure is required for sounding emergency alarms in the workplace, except for workplaces having 10 or fewer employees, in which case direct voice communication is an acceptable procedure for sounding the alarm. Where direct voice communication is selected, a backup system is not required.	Test the reliability and adequacy of non-supervised employee alarm systems every two months. For multi-actuation systems, a different device shall be used so that no individual device is used for two consecutive tests.
Operating Condition		All employee alarm systems shall be maintained in operating condition except when undergoing repairs or maintenance.	
Backup Alarm System		Backup alarm means shall be used when the system is out of service. Telephones or runners are approved as a backup means of alerting employees.	Test supervised employee alarm systems at least annually for reliability and accuracy.
Manually Operated Devices		Manually operated actuation devices shall be unobstructed and readily accessible.	*Servicing, maintenance, and testing of employee alarms shall be performed by persons trained in the designed operation and functions necessary for reliable and safe operations of the system.
Supervised Circuitry		After 07/01/81, employee alarm circuitry installation shall be supervised and provide positive notification to assigned personnel whenever a deficiency exists in the system.	

REFERENCE: 8 CCR GROUP 27, FIRE DETECTION

APPENDIX E

LOS ANGELES COMMUNITY COLLEGE DISTRICT
PRE-JOB BRIEF CHECKLIST

Page 1 of 2

☐ **PREVENTIVE MAINTENANCE** ☐ **REPAIR** ☐ **ROUTINE OPERATIONS** ☐ **DEFERRED MAINTENANCE**

JOB NUMBER: _____

JOB DESCRIPTION: _____

SUPERVISOR *(Print Name)*	**SUPERVISOR** *(Signature)*	**SUPERVISOR** *(Title)*	**INITIALS**
CAMPUS *(or District)*	**LOCATION** *(or Facility)*	**DATE**	

ACCESS AND JOB SITE REVIEW	**YES**	**NO**	**N/A**
SPECIAL KEYS REQUIRED?			
SPECIAL NOTIFICATION REQUIRED?			
ACCESS / EGRESS ROUTES SPECIFIED?			
CAN ANY PORTION OF THE WORK BE DONE IN A LESS HAZARDOUS AREA OR AWAY FROM THE PUBLIC?			
APPROPRIATE ACCIDENT PREVENTION SIGNS AND TAGS AVAILABLE TO ISOLATE THE WORK AREA?			
CATCH BAGS, TENTS, FME CONTROLS, OR OTHER CONTAINMENT DEVICES NEEDED?			
TRIP / FALL HAZARDS IDENTIFIED?			

WORK REVIEW	**YES**	**NO**	**N/A**
REVIEW JOB SCOPE AND EXPECTED OUTCOME			
ASSIGN NUMBER OF EMPLOYEES / CREATE INDIVIDUAL ASSIGNMENTS AND RESPONSIBILITIES			
ALL PARTS AVAILABLE?			
SPECIAL TOOLS NEEDED?			
SPECIAL EQUIPMENT NEEDED?			
SPECIAL QUALIFICATIONS / CERTIFICATIONS REQUIRED?			
RESPIRATORY PROTECTION EQUIPMENT REQUIRED?			
SPECIAL PERSONAL PROTECTIVE EQUIPMENT REQUIRED?			
WRITTEN PROCEDURE REQUIRED?			
WORK HISTORY REVIEWED/LESSONS LEARNED FROM PREVIOUS MISTAKES OR UNPLANNED CONDITIONS?			
HEAT STRESS CONSIDERATIONS / FIRST AID / EMERGENCY RESPONSE ACTIONS?			

SPECIAL SERVICES / OPERATIONS	**YES**	**NO**	**N/A**
WELDING / HOTWORK *(fire protection needs)*?			
RADIOGRAPHY *(extreme boundaries - adjacent business establishments)*?			
CONFINED SPACE ENTRY *(oxygen monitoring required or explosive / toxic gases present or anticipated)*?			
WORK OR OPERATIONS IN PROGRESS IN RELATED OR ADJACENT AREAS?			
INSTRUCTIONAL ACTIVITIES IMPACTED - NOTIFICATIONS OR PERMISSION REQUIRED?			
OVERHEADS, SCAFFOLDS, OR WORK OVER WATER?			
HIGH VOLTAGE / LOW VOLTAGE SYSTEMS *(lockout / tagout procedures identified, buddy system established)*?			
EXCAVATION, TRENCHING, OTHER BELOW GROUND ACTIVITIES / HAZARDS?			
ASBESTOS / LEAD ABATEMENT, REGULATED CARCINOGENS, HAZARDOUS SUBSTANCES PRESENT?			
INDUSTRIAL HYGIENE SAMPLING - FREQUENCY / DURATION / TYPES?			

REFERENCE: EH&S ET-01

(Continued on Reverse)

LACCD EH&S ET-01-2 Rev. 0 12/97

APPENDIX E

LOS ANGELES COMMUNITY COLLEGE DISTRICT
PRE-JOB BRIEF CHECKLIST

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ATTENDANCE	ASSIGNMENT

SPECIAL PRECAUTIONS / HOLD POINTS / STOP WORK AUTHORITY	RESPONSIBLE PERSON

COMMENTS / GENERAL INSTRUCTIONS / WORK LOG	INITIALS

REFERENCE: EH&S ET-01

LACCD EH&S ET-01-2 Rev. 0 12/97

APPENDIX F-1

LOS ANGELES COMMUNITY COLLEGE DISTRICT
HAZARDOUS MATERIAL AND HAZARDOUS WASTE FACILITIES INSPECTION CHECKLIST

Page 1 of 2

SECTION I: FIELD OBSERVATIONS

☐ **Weekly** ☐ **Monthly** ☐ **Annual** ☐ **Emergency / Special**

TOPIC [1] *Key items / areas - not intended as a complete list*	**OK** (√)	**COMMENT** [2]	**N/A** (√)	**TOPIC** [1] *Key items / areas - not intended as a complete list*	**OK** (√)	**COMMENT** [2]	**N/A** (√)
1.1 Facility Externals *Paint, brick, siding, roof, windows, portals, stucco, vegetation / weeds*				**1.11 Hazardous Materials Storage Area(s)** *Signs, markings, accumulation start dates, containment*			
1.2 Regulatory Postings / Notices / Records / Permits / Training *Signs, posters, permits, citations, notices, rights, telephone numbers*				**1.12 Hazardous Waste Satellite Accumulation Area(s)** *Signs, markings, accumulation start dates, containment*			
1.3 Emergency Medical / Police / Fire Services *First aid, eyewash/shower, telephone numbers, disaster preparedness*				**1.13 Primary Hazardous Materials Containment** *Capacity, compatible containers and wastes*			
1.4 Accident Prevention Signs / Tags *Hazard tags, caution/danger tapes, traffic cones/triangles, barricades*				**1.14 Hazardous Materials Secondary Containment** *Capacity, compatible containers and wastes*			
1.5 Fire Protection Equipment / Controls *Fire extinguishers, sprinklers, hoses, tools, testing, emergency lights*				**1.15 Primary Hazardous Wastes Containment** *Capacity, compatible containers and wastes*			
1.6 Personal Protective Equipment (PPE) *Helmet, gloves, goggles, face shield, boots, hearing protection, aprons*				**1.16 Hazardous Wastes Secondary Containment** *Capacity, compatible containers and wastes*			
1.7 Housekeeping / Cleanliness / General Environment *Cleanliness, pest control, safe storage, adequate illumination*				**1.17 Hazardous Materials Inventory** *MSDS, chemical lists, accumulation time limits, quantities*			
1.8 Indoor Air Quality/Industrial Hygiene/Regulated Carcinogens *Particulates, vapors, fumes, air exchange, temp./hum., noise, sampling*				**1.18 Universal Waste Handling, Storage, Containment** *Batteries, CRTs, lamps, thermostats*			
1.9 Passageways / Stairs / Ramps / Exits *Aisles, safe routes, stairways/steps, slope, handrails, clearance*				**1.19 Spill Prevention Control and Countermeasures** *Adequate inventory, types, storm and industrial drains,*			
1.10 Elevated Surfaces / Ladders / Scaffolding *Toe boards, guards, rails, non-slip footing, stability, clearance*				**1.20 Hazardous Materials / Wastes Transportation / Shipping** *Records, labels, markings, packaging*			

SECTION II: COMMENTS *(Include any immediate actions taken; if an observation, provide recommendation)*

_____

_____

COLLEGE		**HMC or INSPECTOR**		**DATE:**
FACILITY or AREA		**DIRECTOR OF FACILLITIES** *Required for Section IV*		**DATE:**

NOTES: **REFERENCE: LACCD EH&S HM-02**

1. Refer to the Hazardous Material Control Plan for inspection requirements.
2. Record the Comment Designator in this section corresponding to any comments listed in Section II *(e.g., "O-1", "O-2", "O-3", ...etc.)*

"O" = Observation "D" = Deficiency "V" = Violation

LACCD EH&S HM-02-3 Rev. 0 05/02

APPENDIX F-1

LOS ANGELES COMMUNITY COLLEGE DISTRICT
HAZARDOUS MATERIAL AND HAZARDOUS WASTE FACILITIES INSPECTION CHECKLIST

Page 2 of 2

SECTION III: HMC VALIDATION *(Required for reported deficiencies and violations)*

COMMENT DESIGNATOR(s)	OK (√)	N/A (√)	ACTION / DISPOSITION	ABATEMENT DATE	VALIDATED BY: *Trade / Craft Supervisor / HMC*

SECTION IV: DIRECTOR OF FACILLITIES APPROVAL *(Required for Section III maintenance action recommendations)*

COMMENT DESIGNATOR(s)	OK (√)	N/A (√)	ACTION / DISPOSITION	ABATEMENT DATE	CLOSURE APPROVED BY: *Supervisor / Director of Facillities*

REFERENCE: LACCD EH&S HM-02

LACCD EH&S HM-02-3 Rev. 0 05/02

APPENDIX F-2

LOS ANGELES COMMUNITY COLLEGE DISTRICT
SAFE WORK PRACTICES INSPECTION CHECKLIST

Page 1 of 2

SECTION I: FIELD OBSERVATIONS

☐ **Weekly** ☐ **Monthly** ☐ **Annual** ☐ **Emergency / Special**

TOPIC [1] *Key Safe Work Practice items / areas - not intended as a complete list*	**OK (√)**	**COMMENT** [2]	**N/A (√)**	**TOPIC** [1] *Key Safe Work Practice items / areas - not intended as a complete list*	**OK (√)**	**COMMENT** [2]	**N/A (√)**
1.1 Attentiveness to the Job *Alert to hazards, relevant reading material, attentive to job duties*				**1.11 Operating Equipment Safely** *In accordance with Technical Manual, equipment guides*			
1.2 Operating with Authority / Qualifications *Trained, knowledgeable, familiar, with processes, qualified to operate*				**1.12 Proper and Effective Posting and Barricading** *Caution / danger tapes, electrical safety ribbon, required postings*			
1.3 Making Secure *Seat belts, safety belts, lanyards, tools on overhead platforms*				**1.13 Slips / Trips / Fall Hazards** *Hoses, cables, rope, slings, across aisles, open holes, tools / equipment*			
1.4 Safety Devices Operable *Guards, mechanical and electrical interlocks*				**1.14 Hazardous Materials (Wastes) Management** *LACCD EH&S HM-02, Hazardous Material Control Plan*			
1.5 Proper Storage and Handling of Materials *Stack height, aisles clear, access to electrical panels/fire extinguishers.*				**1.15 Fluid Systems / Electrical Systems** *Foreign Material Exclusion (FME) program controls*			
1.6 Assuming Safe (Intentional) Positions *Caught between, striking against / struck by*				**1.16 Tools and Equipment** *Right for the job, used correctly, in safe condition, stored properly*			
1.7 Professional Behavior *No practical jokes, or horseplay*				**1.17 Housekeeping / Cleanliness Controls** *Work site housekeeping controls / adjacent spaces / pest control*			
1.8 Operating at Safe Speeds *Driving , carts / dollies, operating within equipment parameters*				**1.18 Chemical Routes of Entry / Eating, Drinking, Smoking** *Ingestion (eating/drinking), inhalation, absorption, injection (sticking)*			
1.9 Working on Moving or Energized Equipment *Lockout / Tagout, adjusting equipment or machinery*				**1.19 Heat Stress / Overexertion** *Working fast / haphazardly, too much PPE for temp./hum.*			
1.10 Violating Safety Rules, Policies, Procedures, Instructions *General category, verbal and / or written*				**1.20 Personal Protective Equipment (PPE)** *Head, face, eyes, ears, trunk, feet, legs, hands, arms, respiratory equip.*			

SECTION II: COMMENTS *(Include any immediate actions taken; if an observation, provide recommendation)*

_____

_____

COLLEGE		**HMC or INSPECTOR**		**DATE:**
FACILITY or AREA		**DIRECTOR OF FACILLITIES** *Required for Section IV*		**DATE:**

NOTES: **REFERENCE: LACCD EH&S HM-02**

1. Refer to the Hazardous Material Control Plan for inspection requirements.

2. Record the Comment Designator in this section corresponding to any comments listed in Section II *(e.g., "O-1", "O-2", "O-3", ...etc.)*
"O" = Observation "D" = Deficiency "V" = Violation

LACCD EH&S HM-02-4 Rev. 0 05/02

APPENDIX F-2

LOS ANGELES COMMUNITY COLLEGE DISTRICT
SAFE WORK PRACTICES INSPECTION CHECKLIST

Page 2 of 2

SECTION III: HMC VALIDATION *(Required for reported deficiencies and violations)*

COMMENT DESIGNATOR(s)	OK (√)	N/A (√)	ACTION / DISPOSITION	ABATEMENT DATE	VALIDATED BY: *Trade / Craft Supervisor / HMC*

SECTION IV: DIRECTOR OF FACILLITIES APPROVAL *(Required for Section III maintenance action recommendations)*

COMMENT DESIGNATOR(s)	OK (√)	N/A (√)	ACTION / DISPOSITION	ABATEMENT DATE	CLOSURE APPROVED BY: *Supervisor / Director of Facillities*

REFERENCE: LACCD EH&S HM-02

LACCD EH&S HM-02-4 Rev. 0 05/02

APPENDIX G

NATIONAL FIRE RATING (NFR) SYSTEM SIGNAL PARAMETERS

HEALTH		FLAMMABILITY		REACTIVITY	
BLUE		RED		YELLOW	
Signal	**Type of Possible Injury**	**Signal**	**Susceptibility to Burning**	**Signal**	**Susceptibility to Release of Energy**
4	Very short exposure could cause death or major residual injury, even though prompt medical treatment were given.	**4**	Rapidly or completely vaporizes at atmospheric pressure and normal ambient temperature or readily disperses in air and burns readily.	**4**	Readily capable of detonation or explosive decomposition or reaction at normal temperatures and pressures.
3	Short exposure could cause serious temporary or residual injury, even though prompt medical treatment were given.	**3**	Liquids and solids that can be ignited under almost all ambient temperature conditions.	**3**	Capable of detonation or explosive reaction but require a strong initiating source or must be heated under confinement before initiation or reacts explosively with water.
2	Intense or continued exposure could cause temporary incapacitation or possible residual injury, unless prompt medical treatment were given.	**2**	Must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.	**2**	Normally unstable and readily undergo violent chemical change but do not detonate. Also, materials that may react violently with water or that may form potentially explosive mixtures with water.
1	Exposure causes irritation but only minor residual injury, even if no medical treatment were given.	**1**	Must be preheated before ignition can occur.	**1**	Normally stable but can become unstable at elevated temperatures and pressures or reacts with water with some release of energy, but not violently.
0	Under fire exposure conditions would offer no hazard beyond that of ordinary combustibles.	**0**	Materials that will not burn.	**0**	Materials that are normally stable, even under fire exposure conditions, and that are not reactive with water.

FACILITY EXTERNALS (OUTDOOR) SIGNAL SIZE DETERMINATION	
Distance at which Signals must be legible	**Minimum size of Signals required**
50 feet	1 inch
75 feet	2 inches
100 feet	3 inches
200 feet	4 inches
300 feet	6 inches

EXAMPLES

APPENDIX H
(Page 1 of 12)
KEY TERMS AND DEFINITIONS

SECTION I: CHEMICAL HYGIENE TERMS

1.0 *Action Level* means a concentration designated in Title 8, California Code of Regulations for a specific substance, calculated as an eight (8) hour time weighted average, which initiates certain required activities such as exposure monitoring and medical surveillance.

2.0 *Carcinogen* means "select carcinogen".

3.0 *Chemical Hygiene Officer* means an employee who is designated by the employer, and who is qualified by training or experience, to provide technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan. This definition is not intended to place limitations on the position description or job classification that the designated individual shall hold within the employer's organizational structure.

4.0 *Chemical Hygiene Plan* means a written program developed and implemented by the employer which sets forth procedures, equipment, personal protective equipment and work practices that:

4.1 Are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular work place; and

4.2 Meets the requirements of 8 CCR §5191(e).

5.0 *Combustible Liquid* means any liquid having a flashpoint at or above 100°F *(37.8°C)*, but below 200°F *(93.3°C)* except any mixture having components with flashpoints of 200°F *(93.3°C)*, or higher, the total volume of which make up 99% or more of the total volume of the mixture.

6.0 *Compressed Gas* means:

6.1 A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70°F *(21.1°C)*; or

6.2 A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130°F *(54.4°C)* regardless of the pressure at 70°F *(21.1°C)*; or

6.3 A liquid having a vapor pressure exceeding 40 psi at 100°F *(37.8°C)* as determined by ASTM D-323-72.

7.0 *Designated Area* means an area which may be used for work with "select carcinogens", reproductive toxins or substances which have a high degree of acute toxicity. A designated area may be the entire laboratory, an area of a laboratory or a device such as a laboratory hood.

8.0 *Emergency* means any occurrence such as, but not limited to, equipment failure, rupture of containers or failure of control equipment which results in an uncontrolled release of a hazardous chemical into the workplace.

9.0 *Employee* means an individual employed in a laboratory workplace who may be exposed to hazardous chemicals in the course of his or her assignments.

10.0 *Explosive* means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

APPENDIX H
(Page 2 of 12)
KEY TERMS AND DEFINITIONS

SECTION I: CHEMICAL HYGIENE TERMS

11.0 *Flammable* means a chemical that falls into one of the following categories:

11.1 **Aerosol Flammable**; an aerosol that, when tested by the method described in 16 CFR §1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback *(e.g., a flame extending back to the valve)* at any degree of valve opening.

11.2 **Gas Flammable**; a gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13% of volume or less; **or** a gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air greater than 12% by volume, regardless of the lower explosive limit *(LEL)*.

11.3 **Liquid Flammable**; any liquid having a flashpoint below 100°F *(37.8°C)*, except any mixture having components with flashpoints of 100°F *(37.8°C)*, or higher, the total of which make up 99% or more of the total volume of the mixture.

11.4 **Solid Flammable**; a solid, other than a blasting agent or explosive as defined in 29 CFR 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered a flammable solid, if, when tested by the method described in 16 CFR §1500.44, it ignites and burns with a self-sustained flame at a rate greater than 0.1 inch per second along its major axis.

12.0 *Flashpoint* means the minimum temperature at which a liquid, except for organic peroxides which undergo auto-accelerating thermal decomposition, gives off a vapor in sufficient concentration to ignite when tested as follows:

12.1 Tagliabue Closed Tester, ASTM D 56-79, for liquids with a viscosity of less than 45 SUS at 100°F *(37.8°C)*, that do not have a tendency to form a surface film under test; or

12.2 Pensky-Martens Closed Tester, ASTM D 93-79, for liquids with a viscosity equal to or greater than 45 SUS at 100°F *(37.8°C)*, or that have a tendency to form a surface film under test; or

12.3 Setaflash Closed Tester, ASTM D 3278-78.

13.0 *Hazardous Chemical* means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. Hazardous chemicals include *(See definitions listed in EH&S EC-02, Hazard Communication Plan)*:

13.1 Carcinogens;

13.2 Toxic or highly toxic agents;

13.3 Reproductive toxins;

13.3 Irritants;

APPENDIX H
(Page 3 of 12)
KEY TERMS AND DEFINITIONS

SECTION I: CHEMICAL HYGIENE TERMS

13.4 Corrosives;

13.5 Sensitizers;

13.6 Hepatoxins;

13.7 Nephrotoxins;

13.8 Neurotoxins;

13.9 Agents that act on the hematopoietic systems; and

13.10 Agents that damage the lungs, skin, eyes, or mucous membranes.

14.0 *Laboratory* means a facility where the "laboratory use of hazardous chemicals" occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a non-production basis.

15.0 *Laboratory Scale* means work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person. Other workplaces designed to produce commercial quantities are excluded.

15.0 *Laboratory type Hood* means a device located in a laboratory, enclosed on five (5) sides with a movable sash or fixed partial enclosure on the remaining side; constructed and maintained to draw air from the laboratory and to prevent or minimize the escape of air contaminants into the laboratory; and allows chemical manipulations to be conducted in the enclosure without insertion of any portion of the employee's body other than hands and arms.

NOTE: Walk-in hoods with adjustable sashes meet the above definition if the sashes are adjusted during use so that the airflow and the exhaust of air contaminants are not compromised and employees do not work inside the enclosure during the release of airborne hazardous chemicals.

16.0 *Laboratory Use of Chemicals* means handling or use of such chemicals in which all of the following conditions are met:

16.1 Chemical manipulations are carried out on a "laboratory scale";

16.2 Multiple chemical procedures or chemicals are used;

16.3 The procedures involved are not part of a production process, nor in any way simulate a production process; and

16.4 "Protective laboratory practices and equipment" are available and in common use industry-wide to minimize the potential for employee exposure to hazardous chemicals.

17.0 *Medical Consultation* means a consultation which takes place between an employee and a licensed physician for determining what medical examinations or procedures, if any, are appropriate in cases where a significant exposure to a hazardous chemical may have taken place.

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KEY TERMS AND DEFINITIONS

SECTION I: CHEMICAL HYGIENE TERMS

18.0 *Organic Peroxide* means an organic compound that contains the bivalent -o-o structure and which may be considered a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

19.0 *Oxidizer* means a substance other than a blasting agent or explosive that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

20.0 *Physical Hazard* means a substance for which there is scientifically valid evidence that it is a **combustible liquid**, a **compressed gas**, **explosive**, **flammable**, an **organic peroxide**, an **oxidizer**, **pyrophoric**, **unstable** *(reactive)* or **water reactive**.

21.0 *Protective Laboratory Practices and Equipment* means those laboratory procedures, practices and equipment accepted by laboratory health and safety experts as effective, or that the employer can show to be effective, in minimizing the potential for employee exposure to hazardous chemicals.

22.0 *Pyrophoric* means a substance that will ignite spontaneously in air at a temperature of 130°F *(54.4°C)* or below.

23.0 *Reproductive Toxins* means chemicals which affect the reproductive capabilities including chromosomal damage *(mutations)* and effects on unborn children *(teratogenesis)*.

24.0 *Select Carcinogen* means any substance which meets one of the following criteria:

24.1 It is regulated by Cal/OSHA as a carcinogen;

24.2 It is listed under the category, "known to be carcinogens", in the Annual Report on Carcinogens published by the National Toxicology Program *(NTP)* 1985 edition;

24.3 It is listed under Group 1 *("carcinogenic to humans")* by the International Agency for Research on Cancer Monographs *(IARC)* Volumes 1-48 and Supplements 1-8; or

24.4 It is listed in either Group 2A or 2B by IARC or under the category, "reasonably anticipated to be carcinogens" by NTP, and causes statistically significant tumor incidence in experimental animals in accordance with any of the following criteria:

24.4.1 After inhalation exposure of 6-7 hours per day, 5 days per week, for a significant portion of a lifetime to dosages of less than 10 mg/m^3;

24.4.2 After repeated skin application of less than 300 mg/kg of body weight per week; or

24.4.3 After oral dosages of less than 50 mg/kg of body weight per day.

25.0 *Unstable (reactive)* means a substance which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure, or temperature.

26.0 *Water-reactive* means a substance that reacts with water to release a gas that is either flammable or presents a health hazard.

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SECTION II: HEALTH HAZARD TERMS

1.0 *Acute Effect* means that health effects usually occur rapidly because of short-term exposures over a short duration.

2.0 *Carcinogen* means:

2.1 The substance has been evaluated by IARC Monographs, Vols. 1-53 and Supplements 1-8, and found to be a carcinogen or potential carcinogen;

2.2 The substance is listed as a carcinogen or potential carcinogen in the Sixth Annual Report on Carcinogens published by NTP; and/or

2.3 The substance is regulated by OSHA as a carcinogen.

3.0 *Chronic Effect* means that health effects generally occur because of long-term exposure over a long duration.

4.0 *Corrosive* means a substance that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a substance is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described by the U.S. Department of Transportation in Appendix A to 49 CFR Part 173, it destroys or changes irreversibly the structure of the tissue of four hours. This term shall not refer to action on inanimate surfaces.

5.0 *Highly Toxic* means a substance falling within any of the following categories:

5.1 A substance 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 200-300 grams each.

5.2 A substance 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 2-3 kilograms each.

5.3 A substance 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 200-300 grams each.

6.0 *Irritant* means a substance, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A substance is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR §1500.41 for 24 hours exposure or by other appropriate techniques, it results in an empirical score of five or more. A substance is an eye irritant if so determined under the procedure listed in 16 CFR §1500.42 or other appropriate techniques.

7.0 *Sensitizer* means a substance that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the substance.

8.0 *Toxic* means a substance falling within any of the following categories:

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KEY TERMS AND DEFINITIONS

SECTION II: HEALTH HAZARD TERMS

8.1 A substance that has a median lethal dose *(LD50)* of more than 50 milligrams per kilogram, but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200-300 grams each.

8.2 A substance that has a median lethal dose *(LD50)* of more than 200 milligrams per kilogram, but not more than 1,000 milligrams 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 2-3 kilograms each.

8.3 A substance that has a median lethal concentration *(LC50)* in air of more than 200 parts per million, but not more than 2,000 parts per million by volume of gas or vapor, or more than 2 milligrams per liter but not more than 20 milligrams per liter 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 200-300 grams each.

9.0 *Target Organ Effects* means a categorization of effects which may occur, including examples of signs and symptoms and substances which have been found to cause such effects. This list is not intended to be all-inclusive:

Category	**Organ Damaged**	**Signs/Symptoms**	**Examples**
Hepatoxins	Liver	Jaundice, Enlargement of liver	Carbon tetrachloride Nitrosamines
Nephrotoxins	Kidneys	Edema Proteinuria	Halogenated hydrocarbons Uranium
Neurotoxins	Nervous System	Narcosis Behavioral changes Decreased motor functions	Mercury Carbon disulfide
Agents that act on the blood or hematopoietic system or decrease hemoglobin function or deprive body tissues of oxygen		Cyanosis Loss of conciousness	Carbon monoxide Cyanides
Agents that damage the lung Agents that irritate or damage the pulmonary tissue		Cough, tightness in chest Tightness in the chest Shortness of breath	Silica Asbestos
Reproductive Toxins	DNA Chromosomal damage *(mutations)* Unborn child effects *(teratogenesis)*	Serility Birth defects	Lead DBCP
Cutaneous Hazards	Dermal layer of body	Defatting of the skin Rashes Irritation	Ketones Chlorinated compounds
Eye Hazards	Eye or Visual Capacity	Conjunctivitis Corneal damage	Organic solvents Acids

Alkalines

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KEY TERMS AND DEFINITIONS

SECTION III: MATERIAL SAFETY DATA SHEET (MSDS) TERMS

1.0 *Asphyxiant* means a vapor or gas which can cause unconsciousness or death by suffocation *(lack of oxygen).* Most simple asphyxiants are harmful to the body only when they become so concentrated that they reduce oxygen in the air to dangerous levels. Asphyxiation is one of the principal potential hazards of working in confined and enclosed spaces.

2.0 *Boiling Point* means the temperature at which a liquid changes to a vapor state at a given pressure, and expressed in degrees Fahrenheit at sea level pressure *(760 mm Hg, or one atmosphere).* For mixtures, the initial boiling point or the boiling range may be given.

3.0 *CHEMTREC* means the Chemical Transportation Emergency Center; a national center established by the Chemical Manufacturers Association *(CMA)* in Washington, DC, in 1970, to relay pertinent emergency information concerning specific chemicals on request. CHEMTREC has a 24-hour too-free telephone number intended primarily for use by those who respond to chemical transportation emergencies ***(800-424-9300)***.

4.0 *Epidemiology* means the science that deals with the study of disease in a general population. Determination of the incidence or rate of occurrence, and distribution of a particular disease, such as by age, six, or occupation, may provide information about the cause of the disease.

5.0 *Evaporation Rate* means the rate at which a material vaporizes compared to the rate of vaporization of a known material, usually normal-butyl acetate having an evaporation rate designated as 1.0. Evaporation rate can be useful in evaluating health and fire hazards of a material. Vaporization rates of other materials are classified as:

5.1 **Fast Evaporating** if greater than 3.0 *(MEK = 3.8)*;

5.2 **Medium Evaporating** if from 0.8-3.0 *(Ethyl Alcohol = 1.4)*; and

5.3 **Slow Evaporating** if less than 0.8 *(Xylene = 0.6, Mineral Spirits = 0.1)*.

6.0 *Formula* means the conventional scientific designation for a material *(water=H_2O).*

7.0 *Ignitable Waste* means a solid, liquid, or compressed gas waste which exhibits a "characteristic of ignitability" *(flashpoint < 140°F).*

8.0 *Incompatible* means materials which could cause dangerous reactions from direct contact with one another.

9.0 *Ingestion* means taking in of a substance through the mouth.

10.0 *Inhalation* means breathing in of a substance in the form of a gas, vapor, fume, mist, or dust through the nose and/or mouth.

11.0 *Inhibitor* means a chemical which is added to another substance to prevent an unwanted chemical change from occurring.

12.0 *LEL or LFL* means lower explosive limit or lower flammability limit of a vapor or gas; the lowest concentration that will produce a flash of fire when an ignition source is present. At concentrations lower than the LEL or LFL, the mixture is said to be "too lean" to burn. The engineering design for laboratory fume hoods is to enable the removal of flammable vapors to ensure that the concentrations

in the ducting are less than 20% LEL. Respirators may not be worn in any area having concentrations of flammable vapors greater than 25% LEL.

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SECTION III: MATERIAL SAFETY DATA SHEET (MSDS) TERMS

13.0 *Melting Point* means the temperature at which a solid substance changes to a liquid state. For mixtures, the melting range may be given.

14.0 *Mutagen* means a substance or agent capable of altering the genetic material in a living cell.

15.0 *Necrosis* means tissue death at the site of contact or injection.

16.0 *NRC* means National Response Center; a notification center in the Coast Guard Building in Washington, DC, with a toll-free number which must be called when significant oil or chemical spills or other environmentally-related accidents occur ***(800-424-8802)***.

17.0 *NFR* means a four-diamond signal system relating hazards of health, colored blue, flammability, colored red, reactivity, colored yellow, and specific hazards, colored white, based upon a 0-4 numbering system, 4 having the greatest hazard potential, *as would be expected to exist* under fire or related emergency conditions for a facility in which hazardous materials are stored.

18.0 *Olfactory* means relating to the sense of smell.

19.0 *Oxidation* means a reaction in which a substance combines with oxygen provided by an oxidizer or oxidizing agent. It is a reaction brought about by an oxidizing agent in which atoms, molecules, or ions lose electrons. In this sense, an oxidation reaction may occur even when oxygen is not present. Oxidation reactions are always accompanied by an offsetting reduction reaction in which oxygen is removed from a compound or atoms, molecules, or ions gain electrons.

20.0 *Oxidizer (DOT definition)* means a substance that yields oxygen readily to stimulate the combustion *(or oxidation)* of organic matter.

21.0 *Oxidizing Agent* means a chemical or substance which brings about an oxidation reaction. The agent may provide the oxygen to the substance being oxidized or it may receive electrons being transferred from the substance undergoing oxidation *(chlorine is a good oxidizing agent for electron-transfer purposes, even though it contains no oxygen)*.

22.0 *PEL* means permissible exposure limit, a legal limit established by OSHA.

23.0 *% Volatile* means percent volatile by volume; the percentage of a liquid or solid, by volume, that will evaporate at an ambient temperature of 70°F, unless otherwise stated.

24.0 *Polymerization* means a chemical reaction in which one or more small molecules combine to form larger molecules. A hazardous polymerization is one which takes place at a rate which releases large amounts of energy. If a hazardous polymerization can occur with a given material, the MSDS usually contains a polymerization inhibitor, the expected time period before the inhibitor is used up.

25.0 *Reaction* means a chemical transformation or change; the interaction of two or more substances to form new substances.

26.0 *Reactivity* means a description of the tendency of a substance to undergo chemical reaction with the release of energy. Undesirable effects, such as pressure buildup, temperature increase, formation of noxious, toxic, or corrosive by-products, may occur because of the reactivity of a substance to heating, burning, direct contact with other materials, or other conditions in use or in storage. EPA

terms “reactivity” as a solid waste which exhibits a “characteristic of reactivity” and is regulated as a hazardous waste.

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KEY TERMS AND DEFINITIONS

SECTION III: MATERIAL SAFETY DATA SHEET (MSDS) TERMS

27.0 *Reducing Agent* means the chemical or substance which combines with oxygen or loses electrons in the reaction *(oxidation-reduction)*.

28.0 *Sensitizer* means a chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the substance.

29.0 *Solubility in Water* means the percentage of a material, by weight, that will dissolve in water at ambient temperature. Solubility information can be useful in determining spill cleanup methods and fire-extinguishing agents and methods. The terms used to express solubility are:
- 29.1 Negligible, or less than 0.1%;
- 29.2 Slight; 0.1-1.0%;
- 29.3 Moderate; 1-10%;
- 29.4 Appreciable; > 10%; and
- 29.5 Complete; soluble in all proportions.

30.0 *Specific Gravity* means the weight of a material compared to the weight of an equal volume of water; an expression of the density, or heaviness, of the material. Water is assigned a value of 1.0. Insoluble materials with specific gravity less than 1.0 will float in water *(e.g., oil, gasoline, most flammable liquids)*. This is an important consideration in fire suppression.

31.0 *Stability* means an expression of the ability of a material to remain unchanged. A material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Conditions which may cause instability are normally stated on an MSDS.

32.0 *STEL* means short-term exposure limit.

33.0 *Teratogen* means a substance or agent to which exposure of a pregnant woman can result in malformation in the unborn child.

34.0 *TLV* means threshold limit value; ACGIH defines 3 categories of TLV's:
- 34.1 **TLV/TWA**, the time weighted average for a normal 8-hour workday and a 40-hour workweek to which nearly all persons may be exposed day after day without adverse effects;
- 34.2 **TLV/STEL**, the short term exposure limit; a 15 minute time weighted average which should not be exceeded at any time during a work day and with at least 60 minutes between successive 15 minute exposures.
- 34.3 **TLV/C**, the ceiling limit; the concentration that should not be exceeded at any time during the workday.

35.0 *Vapor Density* means the weight of a vapor or gas compared to the weight of an equal volume of air; an expression of the density of the vapor or gas. Materials lighter than air have vapor densities less than 1.0, such as hydrogen, hydrogen cyanides, acetylene, helium, propane, etc. Heavier vapors tend to settle in low points such as trenches, manholes, and ditches where they may create fires or displace oxygen.

36.0 *Vapor Pressure* means the pressure exerted by a saturated vapor above its own liquid in a closed container. When quality control tests are performed on products, the test temperature is usually 100°F, and the vapor pressure is expressed as psi. Vapor pressures reported on MSDS sheets are in millimeters of mercury (mm HG) at 68°F *(20°C)*, unless otherwise stated. When considering the effects of vapor pressure, remember that:
- 36.1 Vapor pressure of a substance at 100°F will always be higher than the vapor pressure of the substance at 68°F.
- 36.2 Vapor pressures reported on MSDS in mm Hg are usually very low pressures; 760 mm Hg is equivalent to 14.7 psia or 0 psig.

36.3 The lower the boiling point of a substance, the higher its vapor pressure.

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SECTION IV: <u>WASTE TERMS</u>

1.0 *Authorized Agency* means the Participating Agency (PA), Certified Unified Program Agency (CUPA), or Department of Toxic Substances Control (DTSC).

2.0 *Authorized Representative* means the person responsible for the overall operation of a facility or an operational unit (i.e., part of a facility).

3.0 *Background Monitoring Point* means a well, device or location specified in the facility permit at which monitoring for background water, soil, air, or soil-vapor quality is conducted.

4.0 *Bulk Container* means any container or container-like vehicle, other than a vessel or a barge, with a capacity greater than 110-gallons, which is used to transport hazardous waste, hazardous materials, hazardous substances, or recyclable materials in bulk by air, highway, rail, or water, including, but not limited to, cargo tanks, vacuum trucks, roll-off bins, rail tank cards, and intermodal containers.

5.0 *Closure Device* means a cap, hatch, lid, plug, seal, valve, or other type of fitting that blocks an opening in a cover such that when the device is secured in the closed position it prevents or reduces air pollutant emissions to the atmosphere.

6.0 *Concentration Limit* means the value for a constituent specified in the water quality protection standard or environmental protection standard including, but not limited to, values for concentration, temperature, pH, conductivity, and resistivity.

7.0 *Consolidated Manifest* means a hazardous waste manifest used by a milkrun or consolidated transporter to combine hazardous waste shipments from multiple generators on one consolidated manifest pursuant to Health and Safety Code, Section 25160.2.

8.0 *Container* means any device that is open or closed, and portable in which a material can be stored, handled, treated, transported, recycled, or disposed of.

9.0 *Contingency Plan* means a document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents, which could threaten human health or the environment.

10.0 *Cover* means a device that provides a continuous barrier over the hazardous waste managed in a unit to prevent or reduce air pollutant emissions to the atmosphere. A cover may have openings for operation, inspection, maintenance, and repair of the unit on which the cover is used.

11.0 *Covered Container* means any container that is equipped with a cover or other device that will prevent the escape of a liquid or solid substance when closed.

12.0 *Day* means a calendar day. Time periods are calculated by excluding the first day and including the last day, except the last day is a normal working or business day.

13.0 *Debris* means solid material exceeding a 60-millimeter particle size that is intended for disposal and that is a manufactured object, plant or animal matter, or natural geologic material, except for other materials for which a treatment standard is provided.

14.0 *Department* means California Environmental Protection Agency (Cal/EPA) - Department of Toxic Substances Control (DTSC).

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SECTION IV: <u>WASTE TERMS</u>

15.0 *Dike* means an embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, or other materials.

16.0 *Discharge* means the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or onto any land or water.

17.0 *Disposal* means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any waste or hazardous waste into or onto any land or water so that such waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters. Disposal also means the abandonment of any waste.

18. *Disposal Facility* means a facility or part of a facility at which hazardous waste is intentionally placed into or onto any land or water, and at which waste will remain after closure.

19.0 *Drip Pad* means an engineered structure consisting of a curbed, free-draining base, constructed of non-earthen materials and designed to convey preservative kick-back or drippage from treated wood, precipitation, and surface water run-on to an associated collection system at wood preserving plants.

20.0 *End-user* means any person who receives a hazardous waste from an unaffiliated third party and who intends to, or does, use or reuse that as:

20.1 An ingredient in an industrial process to make a product, provided that distinct components of the material are not recovered as separate end products; or

20.2 A substitute for a raw material in a process that uses raw materials as principal feedstocks; or

20.3 A substitute for a commercial product in a particular function or application.

21.0 *Fine Powder* means a metal in dry, solid form having a particle size smaller than 100-micrometers in diameter.

22.0 *Free Liquids* means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure.

23.0 *Groundwater* means water below the land surface in a zone of saturation.

24.0 *Handling* means the transporting or transferring from one place to another, or pumping, processing, storing or packaging of hazardous waste, but does not include the handling of any substance before it becomes a waste.

25.0 *Hauler* means a transporter.

26.0 *Liner* means a continuous layer of natural or man-made materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate.

27.0 *Manifest* means the shipping document DHS 8022A, or equivalent, required by the state to which the waste will be shipped, which is originated and signed by the hazardous waste generator.

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SECTION IV: <u>WASTE TERMS</u>

28.0 *Non-RCRA Hazardous Waste* means all hazardous waste regulated in the state, other than RCRA hazardous waste.

29.0 *Permit –by-Rule* means a provision of Title 22, California Code of Regulations stating that a facility or activity is deemed to have a permit if it meets the requirements of the provision.

30.0 *Physical Parameter* means any measurable physical characteristic of a substance including, but not limited to , temperature, electrical conductivity, pH and specific gravity.

31.0 *Pile* means any non-containerized accumulation of solid, non-flowing hazardous waste that is used for treatment or storage and that is not a containment building.

32.0 *Point of Waste Origination* means the point where a solid waste produced by a system, process, or waste management unit is determined to be a hazardous waste.

33.0 *RCRA Hazardous Waste* means federal listed waste (40 CFR Part 261).

34.0 *Recyclable Material* means a material that is capable of being recycled.

35.0 *Representative Sample* means a sample of a universe or whole that can be expected to exhibit the average properties of the universe or whole.

36.0 *Restricted Hazardous Waste* means any hazardous waste that is subject to land disposal restrictions in accordance with Health and Safety Code Section 25179.6 or Title 22, California Code of Regulations, Chapter 18.

37.0 *Small Quantity Generator* means a generator who generates less than 1,000-kilograms of hazardous waste in a calendar month.

38.0 *Sorbent* means a material that is used to soak up free liquids by either adsorption or absorption, or both.

39.0 *Special Waste* means a waste that is a hazardous waste only because it contains an inorganic substance or substances that cause it to pose a chronic toxicity hazard to human health or the environment and that meets all of the criteria and requirements of Section 66261.122 and has been classified a special waste pursuant to Section 66261.124 of Titled 22, California Code of Regulations.

40.0 *Treatment* means any method, technique, or process that changes or is designed to change the physical, chemical, or biological character or composition of any hazardous waste or any material contained therein, or removes or reduces its harmful properties or characteristics for any purpose, including, but not limited to, energy recovery, materials recovery or reduction in volume.

41.0 *Wastewaters* means wastes that contain less than 1% by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (TSS).

APPENDIX I

DEVELOPMENTAL RESOURCES

1. Title 8, California Code of Regulations, Division 1, Chapter 4, Subchapter 7, General Industry Safety Orders

2. Title 22, California Code of Regulations, Division 4, Environmental Health

3. Title 26, California Code of Regulations, Toxics Supplement

4. National Research Council, Prudent Practices for Handling Hazardous Chemicals in Laboratories, National Academy Press, Washington, DC, 1981

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7. Fundamentals of Industrial Hygiene, National Safety Council, 1995

8. NFPA-10, Standard for Portable Fire Extinguishers, 1990

9. NFPA-30, Flammable and Combustible Liquids Code, 1993

10. NFPA-471, Responding to Hazardous Materials Incidents, 1992

11. National Fire Rating System Reference Guide, Lab Safety Supply, Inc., 1995

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13. Sax's Dangerous Properties of Industrial Materials, Van Nostrand Reinhold Co., ISBN 0-442-01276-4

14. 1995/1996 Hazardous Materials, Substances & Wastes Compliance Guide, Hazardous Materials Publishing Co., Inc.

15. Genium's Handbook of Safety, Health, and Environmental Data for Common Hazardous Substances, McGraw-Hill, 1999

16. Los Angeles Municipal Code, Los Angeles Industrial Waste Control Ordinance, 11/95

LOS ANGELES PIERCE COLLEGE

PART 8 – Site Plans and Storage Areas

HAZARDOUS MATERIAL CONTROL PLAN