

Accidental Spill Prevention Plan
for the
Bioproducts Sciences and Engineering Laboratory
At
Washington State University Tri-Cities

July 2011

**Prepared for
City of Richland
Richland, Washington 99353**

Executive Summary

This Accidental Spill Prevention Plan (ASPP) describes the measures taken to prevent, control, and mitigate the effect of accidental releases of hazardous materials from the Bioproducts Sciences and Engineering Laboratory (BSEL) at Washington State University Tri-Cities (WSUTC) facilities to the City of Richland sewer system. This ASPP has been developed for wastewater discharged from BSEL in accordance with City of Richland Industrial Wastewater Discharge permit CR-IU009 and the City of Richland Municipal Code, Chapter 17.30. The purpose of this plan is to document WSUTC policies that provide for the safe handling of chemicals and the prevention of accidental releases of hazardous or toxic materials to the environment. This ASPP consists of six sections that include general information or existing WSUTC policies and procedures that address prevention, response, and spill reporting mechanisms:

- ❖ General Information
- ❖ Hazardous Materials Data
- ❖ Spill and Leak Prevention
- ❖ Response to Hazardous Material Spill
- ❖ Emergency Response Equipment and Procedures
- ❖ Spill Reporting and Accidental Spill Prevention Plan Modification
- ❖ Training
- ❖ References.

Various occupants manage the different research and support activities conducted within BSEL. The WSUTC Environmental Health (EHS), Safety and Emergency Response Office (ERO) assists occupants with safety advice and consultation for their particular activities. Each occupant provides primary leadership and supervision to achieve compliance with laboratory policies and procedures. EHS provides environmental compliance and chemical and waste management support to WSUTC research and maintenance staff. Other occupants provide their own similar services in coordination with EHS and ERO.

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1.0 General Information

This Accidental Spill Prevention Plan (ASPP) describes the measures taken to prevent, control, and mitigate the effect of accidental releases of hazardous materials to the City of Richland sewer system. The ASPP was written to fulfill the requirements of Part IV, “Accidental Spill Prevention Plan,” of the Bioproducts Sciences and Engineering Laboratory Industrial Wastewater Permit (CR-IU009) and the requirements cited in City of Richland Ordinance, City of Richland Municipal Code, Chapter 17.30. This permit specifies that Washington State University is authorized to discharge process wastewater from the facilities listed in Table 1.1 to the City of Richland sewer system.

The City of Richland has provided two guidance documents, *Identification of Spill and Slug Discharge Sites* and *Pathways and Industrial User ASPP Review Checklist*. These documents represent the foundation of the organization and content of this ASPP.

1.1 Facility Location and Contacts

Mailing Address

Washington State University Tri-Cities
2710 Crimson Way
Richland, Washington 99354

Primary Points-of-Contact

Craig Root, Coordinator
WSUTC Environmental, Health, and Safety
2710 Crimson Way
Richland, Washington 99354
(509)372-7163

Lori Selby, Vice Chancellor Fin & Adm
Emergency Management Officer
2710 Crimson Way
Richland, WA 99354
(509) 372-7261

1.2 Business Description and Operating Schedule

BSEL’s capabilities include biological and chemical sciences, and related engineering disciplines focused upon the production of liquid petroleum replacement fuels. Transferring technology to the public and private sector and contributing to science and engineering education are integral components of BSEL’s mission.

The facility provides space for a variety of activities and services, including space for R&D and teaching activities and administrative office space. BSEL houses approximately 50 permanent staff members, with the common hours of operation from 8:00 a.m. to 5:00 p.m., Monday through Friday; however 24-hour operations seven days per week are conducted.

1.3 Daily Wastewater Discharge Rates

BSEL discharges to the City of Richland sewer system via a single outfall which is monitored as required by Permit CR-IU009.

The quantity of wastewater generated in BSEL varies per month depending on research activities as well as the level of facility support needed.

1.4 Applicable Categorical Standards

The U.S. Environmental Protection Agency (EPA) has not developed any applicable wastewater pretreatment categorical standards for research and development laboratories. Therefore, categorical standards do not apply to BSEL.

1.5 Previous Spill Events

For the period beginning March 1, 2008 to present, there have been no spill-related environmental occurrences at BSEL.

1.6 Security and Warning Signs

Physical security systems (locks and keys) prevent unauthorized access to facilities and materials, and provide for the general protection of the facility.

In an emergency situation, standard fire alarm signals are used to evacuate BSEL. Response to these signals is part of all-staff training.

Warning signs bearing information regarding the hazards associated with the contents of each laboratory and chemical storage space are posted adjacent to entryway doors within the building and NFPA hazard warning signs are posted on the building perimeter.

2.0 Spill and Leak Prevention

2.1 Prevention Procedures

Each laboratory space is assigned to a principle investigator or laboratory manager who is responsible for development and implementation of hazardous materials use plan(s) and, user training adapted to their specific materials, equipment, and activities, and maintenance of the space in good working order in compliance with local, state and federal rules, regulations, and laws. Laboratory best management practices are followed with respect to spill and leak prevention. Only limited quantities of hazardous materials are allowed to be present in laboratories. All liquid hazardous materials stocks are stored in appropriate cabinetry with secondary containment provisions. Only trained personnel or those under direct supervision by a trained person are allowed to utilize hazardous materials.

All laboratory faculty and staff shall be trained in spill prevention, spill and leak reporting, and minor spill cleanup procedures.

Prior to commencing work with hazardous materials in each space, users must:

- Have permission from the responsible principle investigator or laboratory manager
- Be trained on laboratory specific spill and leak prevention, containment, cleanup, emergency response, and reporting procedures
- Be familiar with the properties of the materials and techniques which will be used or be under the direct supervision of a person who has such knowledge

2.2 Signs and Labels

Individual sinks and drains within the building are posted with warning signs directing faculty and staff to comply with discharge restrictions and report observed violations.

3.0 Hazardous Material Spill Response

3.1 Hazardous Material Spills

The following actions are prescribed in the event of a hazardous material spill

- If safe to do so, stabilize the material release within the limitations of your training and experience, isolate the area, and if appropriate, evacuate other potentially affected occupants
- From a safe location, summons assistance by calling 372-7234, or in situations involving immediate threat to life or health call 911
- Provide the following information (if known):
 - The nature and identity of materials involved
 - the quantity of material involved
 - any known hazards
 - where and when the spill occurred
 - any personal injuries
 - if any material was released to the environment (e.g., to the sewer system)
 - actions taken so far.
- The Environmental, Health, and Safety (EH&S), or the Emergency Response Officer (ERO) determines if the spill requires an immediate response (e.g., evacuation of area; contacting emergency response team). If an immediate response is not required, the EH&S or ERO will
 - implements recovery measures
 - after successful recovery from the spill, coordinate a review of the situation so that necessary follow-up actions are identified and corrective actions are assigned, as appropriate. Follow-up actions may include determining that chemicals and/or wastes are properly managed, correcting any deficiency in equipment, reviewing and revising operating procedures, reviewing and revising subject areas, and training of staff members.

If a significant injury or illness has occurred, first aid or medical assistance must be obtained for those afflicted. Faculty and staff who witness or become aware of an injury or illness must obtain help from first aid providers or emergency medical responders, by contacting the appropriate personnel.

A spill or release of a hazardous material is considered “minor” if ALL of the following are true.

- The spill is either contained or, if outside a containment such as a hood, is minor in quantity (can be cleaned up within 10 minutes).
- The composition of the material or waste is known and can be immediately determined from the label, manifest, MSDS, or other records.
- The spill does not threaten the health and safety of building occupants such that an area evacuation is necessary.
- Response personnel have appropriate training and equipment to expeditiously remediate the spill or release.
- Response does not require the use of a respirator.

For minor spills, ones where there is no adverse exposure situation and the spill can be cleaned up by a staff member or their work group/support team, the following actions are followed.

- Report the spill by calling 372-7234
- Notify building occupants if there are current or potential conditions that might have a negative effects such as odors which are not harmful but may be noticed by others

- Notify WSUTC EHS coordinator or the Emergency Response Officer (ERO) if any spilled material was released to the environment (e.g., into the sewer system).
- Clean up the spill and dispose of waste according to the laboratory procedures

3.3 Spill Containment

Hazardous materials are stored in cabinets with secondary containment. Hazardous materials in use are either limited in quantity to minimize the potential for release to the environment or used in areas where unprotected drains are not present. Hazardous wastes are accumulated in small containers and transported to a central accumulation area for management. The hazardous waste management facility is equipped with both secondary and tertiary containment systems to prevent releases to the environment.

3.3 Disposition of Wastes

All biological, chemical, and radiological wastes not approved for sewer discharge or disposal as municipal solid waste shall be managed in accordance with the WSUTC Hazardous Waste Management Plan for WSU employees. PNNL employees shall manage according to PNNL policy and procedures for waste management. All contaminated spill cleanup materials shall managed in the same manner.

4.0 Emergency Response Equipment and Procedures

4.1 Communication

Faculty or staff who notice any unusual conditions report these observations by calling 372-7234. The EHSERO will make the emergency response and management notifications necessary to mitigate the emergency conditions. Included in this response is the notification of staff who are responsible for notifying city and state regulators, if required. In an emergency situation, standard fire alarm signals are used within BSEL. These signals and their meaning are part of all-staff training.

4.2 Spill Containment Equipment

Spill kits are located in all laboratory spaces and the WSU 180-day hazardous waste storage area. The kits contain inert, absorbent material for cleaning up spills or leaks. The quantity and type of spill control materials will be based upon the type and quantity of chemicals maintained within the research or facility area. Mercury spill kits are available in locations where mercury is routinely used.

4.3 Protective Equipment

WSUTC requires that suitable clothing and equipment be used to protect anyone working with hazardous materials. Personal protective clothing and equipment (PPE) are intended to protect the body (including eyes, face, feet, hands, head, hearing, and respiratory system) from hazards capable of causing injury, illness, or impairment of any bodily function. However, no protective material will provide 100% protection against all hazards. PPE are, in fact, only to be considered as a hazard control strategy, after it has been determined that engineered and administrative controls are not feasible, or in the interim while engineered and administrative controls are being designed and implemented.

The level of protection selected must match the applicable hazards. The process for assessing workplace hazards and identifying the need to use PPE is defined in the applicable Laboratory Safety Manual.

The following are the general responsibilities and policies that apply to the use of safety equipment.

- The use of personal protective clothing and equipment is an administrative control measure that may be required to ensure adequate protection. The safe operating procedure will detail the clothing/equipment requirements for a project.
- Appropriate eye and face protection shall be worn by all staff members and visitors in work areas throughout facilities where the potential exists for solid, liquid, or gaseous materials to accidentally come in contact with the eyes or face and result in injury or illness.
- Protective clothing and equipment are provided to safeguard employees during normal and emergency operations.

5.0 Spill Reporting & ASPP Modification

This section summarizes the event and regulatory reporting requirements that will be implemented should a hazardous material be accidentally discharged to the City of Richland sewer system.

5.1 Regulatory Reporting

In the event of an accidental discharge of hazardous material to the City of Richland Publicly Owned Treatment Works (POTW), the reporting requirements specified in the RCHN Industrial Wastewater Permit CR-IU009 shall be followed. Hazardous material releases to the City of Richland POTW are reportable regardless of quantity unless such discharges are in conformance with permit limitations or have the concurrence of the City. Staff responsible for these reportable releases shall notify the EHS coordinator or the Emergency Response Officer (ERO) and provide the following information:

- description of the chemicals or materials involved
- the quantity and concentration of the substance released
- time and duration of the release
- where and when the release occurred
- any known or anticipated acute or chronic health risks associated with the released substance
- clean-up actions undertaken or planned
- name(s) and telephone number(s) of the person(s) to be contacted for further information.

The EHS coordinator or the ERO will notify the City of Richland Wastewater Treatment Facility immediately, either by person or by phone. In addition, within five days of occurrence, a detailed written report must be submitted to the City of Richland describing the cause of the discharge and the measures taken to prevent similar future occurrences.

5.2 Modifications to the Accidental Spill Prevention Plan

This ASPP will be updated as significant changes occur to BSEL, and/or policies that affect the operations of the Laboratory. The revised ASPP will be submitted to the City of Richland on a frequency determined by the significance of the update or as requested by the City of Richland Industrial Wastewater Pretreatment Program.

6.0 Training

Staff are trained on the hazards of the material present in their work areas. Information and training are provided at the time of initial staff assignment and at any time new exposure situations occur. This training and information aids staff in conducting all material handling, storage, and disposal operations in full compliance with acceptable practices and all applicable procedures and protocols.

6.1 Spill and Leak Prevention Training

Spill and leak prevention is one of the most important aspects of worker and environmental protection within the laboratory. Specific spill and leak prevention measures are detailed in the applicable Laboratory Safety Manual for each space. Prior to commencement of hazardous materials use within a space, each user must thoroughly familiarize themselves with:

- The specific hazards present within the space
- Materials permitted for sewer discharge and/or disposal as municipal solid waste
- Spill and leak prevention measures applicable to the space, equipment, techniques, and materials in use
- Response requirements and limitations for minor spill cleanup procedures in a worker's area.

6.2 Emergency Response Training

All faculty and staff receive orientation training when beginning employment with WSUTC. Upon assignment to BSEL faculty and staff receive specific training using posted emergency preparedness material. Visitors receive emergency response training as part of their orientation. WSUTC spill response policy is referenced in all laboratory safety training and in all Laboratory Safety Manuals.