

TRANSPORTATION, STORAGE, HANDLING, AND DISPOSAL OF HAZARDOUS MATERIALS AND SPILL RESPONSE

The purpose of this chapter is to provide information to prevent petroleum and chemical spills, ensure spills are responded to, or spills are isolated from surface and ground waters of the state. Petroleum and chemicals of concern include, but are not limited to, gasoline, diesel, heating oil, motor oil, rock drill oil, hydraulic fluid, antifreeze, paint, cyanide, mercury, lime, ANFO (ammonium nitrate and fuel oil{explosive}), chlorine, mineral processing compounds, and laboratory supplies. Items discussed are general action and facility guidelines which will reduce the cost and efforts that operators would otherwise incur during compliance with federal and state regulations of non-excluded wastes such as petroleum or chemical contaminated soils. Regulations for cleanup requirements similar to these guidelines are being developed by the Department of Health and Welfare, Division of Environmental Quality.

The United States National Environmental Protection Act and the Idaho Environmental Protection and Health Act authorize regulation for the protection of surface and ground water from contamination by waste materials. Although formal promulgation of regulations is incomplete, procedures and policies for handling petroleum waste exist at both the federal and state levels.

Subjects addressed are petroleum and chemical transportation, storage, handling, and disposal including spill responses and clean up plans, training, communications, safe operating habits, use of proper vehicles, equipment and containers, and use of proper routine collection containment, disposal techniques.

Every operator who transports hazardous materials to and from a mine over public road systems and stores them at the mine site should have a Spill Containment/Response Plan in place prior to commencing operations. The plan should include the following:

- 1) Who to contact if a spill occurs; and
- 2) Methods to contain and cleanup the spill.

Refer to the following publications for additional information: U.S. Department of Transportation Emergency Response Guidebook and the Idaho Hazardous Materials Incident Command and Response Support Plan.

A spill is defined as any discharge of hazardous material, oil, or petroleum products into or adjacent to the water of the State of Idaho that might have potentially harmful effects.

Spills are categorized into two levels:

Level 1 spills are minor events where there has been a discharge of hazardous materials or petroleum products, but where "no imminent hazard to human health and safety or the environment is apparent." Minor spills are classified as less than 55 gallons.

Level 2 spills are major events where there has been a discharge of hazardous materials or petroleum products that exceeds 55 gallons.

Spill Response, Containment and Cleanup Plans – Plans should help minimize contamination of waters and soils, and reduce the time and the financial burden of the operator in complying with state and federal regulations concerning spill management. Prompt implementation of such plans should minimize both environmental and economic impacts of spills.

Spill response, containment, and cleanup plans must:

1. Identify possible contaminations delivered to and used at an operation(s);
2. Provide for a chain of communications within the operation, the community, and to emergency response personnel;
3. Provide for personal safety of employees, the general public, and responders;
4. Provide for site security and isolation from the public and livestock or wildlife, which may spread contamination or impair response efforts;
5. Provide for containment of spilled materials and contaminated soils or water to prevent spreading of contamination by gravity; and
6. Provide for cleaning up and disposal of spilled and/or contaminated materials in accordance with established procedures.

Training -- Training orients employees and the community to the potential safety, health, and environmental hazards of spills. Training will increase efficiency of implementation of spill response, containment, and clean up plans, as well as reduce the routine costs of spills during operations. Training involves providing employees and local communities copies of spill response plans, and maintaining open communication so employees and the local community can assist in response or maintenance at a facility. This training coincides with the required MSHA training.

Training can be done as formally as an operator desires, but should at a minimum be designed to include orientation with the operations spill response and maintenance plans. Formal training is provided by independent contractors who specialize in emergency response and training. Additional information on formal training may be obtained from the Idaho State Police, U.S. Environmental Protection Agency, or the Idaho Department of Health and Welfare, Division of Environmental Quality.

Communications – Communication is important to prevent accidents and spills, implement rapid response to spills, provide for the safety of employees and the general public, categorize severity of spills, as well as provide for proper containment and cleanup. It is important to establish communications between operators, employees, local traffic, local communities, land management agencies, and emergency response agencies during routine operations and emergency situations.

Communication plans should address the following:

1. Employees and operators should discuss potentially hazardous conditions with each other;
2. Communications with CB radios can and should be used to maintain contact with local traffic such as logging trucks and other supply haulers;
3. Communications with local land managers regarding shipping schedules, as well as road and weather conditions may prevent vehicle accidents which result in spills;
4. Should spills occur, employees and the county sheriff should be notified immediately. The sheriff will call the Idaho Emergency Communications Center (208) 327-7422 to implement emergency response, but the operator should notify local authorities to verify the severity of the situation. Information in reports should include:
 - a. Name of Caller,
 - b. Name of Operator or Vendor,
 - c. Type of Injuries Sustained,
 - d. Is Medical Evacuation Necessary,
 - c. Type of Material Spilled,
 - d. Location of Spill,
 - e. Quantity of Spill,
 - f. Proximity to Ground or Surface Water,
 - g. Proximity to population centers or dwellings,
 - h. Immediate Containment, and
 - i. Availability of On-Site Response Equipment; and
5. In some situations the land management agency and Division of Environmental Quality must be notified of the spill by phone within twenty-four (24) hours and in writing within seven (7) days.

Safe Operating Procedures -- Safe operating procedures and maintenance assure quality performance of personnel, equipment, and containment facilities. Guidelines for safe operating procedures include MSHA and OSHA Training manuals, manufacturer equipment manuals, Idaho Department of Transportation and Bureau of Mines publications. Proper performance, operating, and maintenance standards assure reduction of accidents due to equipment failure and operator error:

1. Persons should never perform duties for which they have not been properly trained;
2. Equipment and containers should never be used for functions other than their designed purpose;

Use of Proper Vehicles, Equipment, and Containers – Proper equipment and operating procedures will reduce the number of spills during transportation:

1. Vehicles used for transportation of petroleum and/or other chemicals should always meet with DOT (Department of Transportation) safety requirements. Vehicles should also be equipped with first aid and spill containment equipment, or be piloted by a second vehicle with the first aid and containment equipment.

2. Containers for petroleum and chemicals should also meet DOT requirements and should be specifically designed for that transportation use. Fuels and most chemicals can be delivered in distributors' vehicles, and should never be delivered in fifty-five (55) gallon drums manufactured for lubricants.
3. Spill prevention containment and cleanup equipment is necessary to minimize the effects and costs of petroleum or chemical discharges. Spill response and cleanup equipment or supplies should be material specific, which means they are specifically designed to cleanup the types of materials which may be spilled. Most spill response equipment caches include; two-way radios, first aid kits, absorbent pads, pick axes, shovels, axes, fencing, flagging, plastic sheeting, nylon rope, and emergency lighting.
4. Spill response and cleanup equipment caches should be secured from casual use. Equipment should be readily accessible, however, it should not be used except to cleanup spills. Equipment should be returned to the cache when the cleanup is completed.

Use of Proper Routine Collection, Containment, and Disposal or Recycling Techniques – Proper storage and handling of petroleum and chemicals on site will reduce the need to handle contaminated materials which may impair surface and ground water quality. Proper storage and handling on site will also reduce the amount of time and money spent by operators to comply with state and federal regulations for disposal of regulated wastes. Separation of petroleum and chemicals from surface and ground waters and soil during storage or handling will reduce contaminated waste regulated by state and federal regulations. Separation may be achieved by containment of storage, processing, and maintenance facilities.

1. Proper collection of petroleum and chemical waste -- Petroleum and chemical waste are collected and stored in a segregated manner to avoid unnecessary and secondary handling as prescribed by RCRA Subtitle C Hazardous Waste Regulations. Almost all mining and mineral processing waste may be classified as non-Hazardous Wastes if they are promptly collected and kept separate.
 - a. Drums or other lined containers should be available to separately contain drain oil, parts solvents, wasted antifreeze, drained hydraulic fluid, used oil filters, paint, and sumpage from fuel and storage areas. These materials can be picked up or delivered to recyclers rather than land treating which may affect surface or ground water. Larger volumes of materials such as those from diesel spills may be excavated and land treated in accordance with state procedures and policies (DEQ, 1992).
 - b. Waste petroleum products, chemicals, and contaminated materials should be routinely removed from work areas and spill sites and temporarily stored for proper disposal. Temporary containment facilities should be constructed as lined and bermed areas with contingency plans made to cover such areas to prevent influence by precipitation.
2. Lined and bermed fuel, lubricant, and shop waste storage -- Bermed areas with polysynthetic lining systems can be used to contain supplies and wastes in such a manner as to reduce releases to the environment. Areas which are often bermed and lined include fuel storage, shop, and mill facilities.

Containment areas are constructed of a berm and lining system designed in accordance with the materials to be contained and the size of tanks or containers to be placed inside of the containment area.

a. Bermed areas should be constructed of sufficient height and strength to withstand the force of rapid release from and volume equal to or greater than the largest tank within the enclosure;

b. The base of the enclosure should be sloped such that minor spills and precipitation within the enclosure will collect in a sump;

c. A suitable fine grained material should be bedded on, above, and below lined areas to prevent puncturing of the liner during placement of containers or normal use;

d. A polysynthetic material, clay, or other impermeable liner (depending on the materials to be stored) should be placed over the base and berm, and toed in outside of the berm;

e. The side of an enclosure from which deliveries are made should be protected from heavy equipment so that berms and liners are not damaged from normal traffic;

f. Where several different types of materials are stored, cellular enclosures may be developed by segregating areas with internal berms. Preventing mixtures of different materials such as fuel and antifreeze avoids problems with disposal. Mixed materials are often required by law to be disposed of in certified hazardous waste facilities.

g. Storage facilities should be covered since precipitation may increase the volume of contamination an operator may have to handle; and

h. Storage facilities should be built with a sump. Contaminated water and materials should be removed and disposed of properly.

3. Proper disposal and recycling techniques -- Proper disposal of most mining and processing waste will protect surface and ground water and prevent most regulatory intervention. Several types of waste materials are common at mine sites and they need to be disposed of properly. Drain oils, hydraulic fluids, antifreeze, diesel used to clean parts, other used parts solvents, paint and filters may be handled by recyclers who will visit individual mines or districts to collect such materials. Chemical waste from milling operations and laboratories should be collected and disposed of in certified land fills. Large volume wastes such as soils contaminated from diesel and oil spills can either be incinerated in certified plants or land treated in accordance with specified procedures. The following guidelines should be followed when treating diesel, gasoline or waste oil contaminated soils.

a. Land treatment:

1) The volume of applied Petroleum Contaminated Soil (PCS) may not exceed 1500 cubic yards;

- 2) The PCS may not be applied to properties on which other PCSs have been previously applied;
- 3) The PCS shall not originate from more than three (3) sites, and all sites must be owned by the same entity;
- 4) The responsible party must process a land treatment application request with DEQ;
- 5) Temporary storage areas are defined as areas where materials will be stored for less than sixty (60) days, and should be adequately lined, bermed, and covered;
- 6) Areas must meet minimum site characteristics which include:
 - a) Maximum slope of 12%,
 - b) Minimum distance to surface water of 100 feet,
 - c) Minimum distance to nearest ground water well of 100 feet,
 - d) Minimum distance to nearest buildings to be determined by on-site review,
 - e) Minimum distance to ground water based on site by site characterization, and
 - f) Lands may not include former waste disposal sites, gravel pit, and quarries;
- 7) PCSs should be continually sampled from the period prior to excavation until the material is certified as having been depleted of toxic levels of contaminants;
- 8) Ground and surface water quality near the land treatment site may need to be monitored;
- 9) Air quality permits may also be required. These permits are issued by the Idaho Department of Health and Welfare, Division of Environmental Quality; and
- 10) Accurate and organized records should be maintained throughout the treatment process with respect to:
 - a) Laboratory results from screening and monitoring;
 - b) Soil surveys, soil sampling results, geologic and hydrogeologic conditions, climatic information, topographic maps, distances to surface water, Ground water, ground water wells, residences, etc.;
 - c) Loading rates;
 - d) Treatment operations, schedules, and actual implementation, and
 - e) Accurate plans and specifications.