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SPILL CONTAINMENT	
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1. PURPOSE AND SCOPE

This policy applies to environmental field activities. Typical construction field projects generally pose a relatively minor danger for environmental damage from spills of hazardous materials. For projects, which present greater hazards, such as those that handle concentrated and/or large volumes of hazardous materials, a specialized and project-specific spill containment plan must be developed.

Many program components will be managed by the client or a site facility contract operations and maintenance organization. For this reason, the project procedures must outline the appropriate responsibilities for MAPP employees in relation to the responsible client personnel. In many cases, responsibilities such as reporting the spill to regulatory agencies will be handled entirely by client personnel.

2. RESPONSIBILITIES

Specific HSE Program implementation responsibilities are stated in the Safety Management & Responsibilities policy. Additional management, staff, employee, and subcontractor responsibilities are stated in individual procedures that address responsibilities specific to the HSE topic.

3. PROCEDURE

The hazard analysis in the Project Site Safety Plan (PSSP) shall state potential reportable spill hazards associated with each phase of the site's scope of work. For each spill hazard, methods to avoid spillage and spill response procedures will be presented.

Names of personnel for site-specific notifications, and their phone numbers, shall be provided.

Personal protective equipment, decontamination, and air monitoring procedures required for each spill response hazard shall be incorporated in the site HSP in the appropriate topical section.

3.1. Spill Response

If a spill of material occurs, the following actions will be taken:

- Notify the MAPP Superintendent, Site Safety Manager and Client Representative.
- Take immediate measures to control and contain the spill within site boundaries. It is especially important to protect water sources from contamination. For this reason drains, manholes, ditches into streams, etc. should be protected with dikes, dams, or other methods to minimize water contamination.
- Keep unnecessary personnel away, isolate the hazardous area, and deny entry to unauthorized personnel.
- Stay upwind and keep out of low-lying areas.
- Allow no flares, smoking, or flames in hazard area.
- Keep spilled liquids away from combustible materials, such as lumber, dry vegetation or trash, etc.
- Take necessary steps to clean up the spill and all contaminated material.
- Spill response kits shall be kept on site appropriate for the potential spill that could occur.

3.1.1. Small Dry Spill

Isolate the area immediately to minimize the tracking of dust into clean areas.

Don an appropriate respiratory protection if necessary, gloves, and booties. Shovel the spilled material into a dry container and cover. Care should be taken to minimize dust generation. Do not hose-down the material into a sump. (An exception might be the spillage of a very toxic bioactive agent where dilution might be the best course of action. Plan ahead.)

Label the container according to the contents and remove to a designated staging area. Determine whether the material is still usable and, if so, use this material first.

With the bulk of the dry material collected and removed from the area, it may be suitable to now wash down the area to remove any dust. Methods for management of this wash water will depend on the material spilled.

3.1.2. Small Liquid Spill

As with dry powders, try to contain the liquid and collect it for future use. Don an appropriate respiratory protection if necessary, gloves, and booties. A sponge may help in soaking up the liquid and transferring it to a container.

Absorb the remaining liquid with vermiculite, sand, clean fill, or other noncombustible, absorbent material.

Place contaminated material in a container and label the contents prior to transporting to the designated staging area. Also, label the container of recovered liquid.

As a final step, it may be suitable to wash down the area so as to remove any remaining absorbent. Methods for management of this wash water will depend on the material spilled.

3.2. Notification

In many cases spills may need to be reported to environmental or transportation regulatory agencies. Reporting procedures shall be developed on a project specific basis in cooperation with the appropriate client representatives and defined in the project PSSP.

In most cases, the client will choose to handle the required reports to outside agencies.

Each project-specific reporting procedure must include the name and emergency contact number for the client representative and alternate personnel.

3.3. Disposal

Disposal of waste generated as a result of a material spill shall be in accordance with project specific procedures.

Every effort shall be taken to prevent the mixing of incompatible wastes.

Disposal methods shall have client and regulatory agency approval prior to waste disposal.

3.4. Spill Avoidance

Proper housekeeping is essential to spill prevention. All material shall be stored securely when not in use out of the work way. 3

Always store dry powders and liquids in appropriate containers and make sure that lids are on tight.

Contents should be transferred to a new container if any sign of leakage is noticed.

Containers should be properly stored and away from high traffic areas. Bags should be held on pallets and the pallets kept away from the aisle way so as to avoid accidental puncture by forklift.

Proper dispensing equipment should be employed so as to prevent spillage and reduce excessive use.

Secondary containment measures shall be used around storage of hazardous and large quantity materials.

Material shall be stored away from mobile equipment areas where accidental contact may occur.

Material should be stored in appropriate containers, and flammable material in self-closing containers.

4. TRAINING

All employees shall be trained on basic spill response upon hire. Subcontractor employees who would be performing spill cleanup on their respective material shall be trained in appropriate spill prevention and response procedures. Documentation of this training shall be made available to MAPP and the client upon request.

5. FIGURES

[Spill Containment Techniques](#)

Figure 1
Spill Containment Techniques

1. Introduction

The selection of a good spill containment strategy is critical for the protection of people and the environment. In choosing the proper containment technique, several factors should be considered.

This provides basic information to assist with the development of adequate and project specific spill containment protocols for inclusion in the site HSP. As is generally the case, prevention is the best approach. For this reason emphasis should be given to the safe use and transportation of hazardous materials in order to prevent spills. For example, glass containers of solvents should be placed in approved carriers prior to use.

Pre-planning is also critical. Absorbent materials and clean up tools should be readily available in areas in which hazardous materials are handled.

2. Spill Movement

Spills may occur with materials in any of the primary states of matter: solid, liquid, or gas. The material may even be in a combination of these states of matter as is often the case with highly volatile solvents. Depending on the matter state of the spilled material and the characteristics of the spill location, a number of migration pathways are possible.

3. Containment Land

The complexity of spill containment increases dramatically if a body of water is affected. For this reason, land containment of the spill is important; priority should be given to preventing the spill from reaching a water source.

Water sources, including sewers, storm drains, ditches, streams, etc., must be protected. Contain the spill on land if possible.

Covering

Spills of solid materials can be contained by placing plastic sheeting over the spill area and securing it with sandbags. This prevents the material from being dispersed by wind prior to cleanup.

Ensure that static electricity build-up and discharge do not pose an explosion hazard.

Vapor Knockdown or Suppression

Flammable or toxic vapors being emitted from a spill can be "knocked down" or suppressed with application of a water or foam spray. Care must be taken to provide for containment of the vapor suppressant in these applications.

4. Land Containment Methods

- Dams — Dams of various sizes may be constructed of earth, clay, sandbags, water inflatable bags, boards, concrete, and many absorbent materials.
- Trenches — trenching is often used in place of damming. The trenches are usually lined with plastic sheeting to form a collection area.

- Dikes — Permanent dikes are often found in storage facilities to aid in the containment of a large spills.

5. Containment by Trenching

Trenching is often advantageous if the spill occurs on the soil surface. Generally, this method provides a holding area and can minimize seepage into groundwater.

- Large trenches — machinery will be needed for construction
- Small trenches — this method is often preferred because small trenches can be constructed with hand tools. The most common practice is to trench around the overturned or leaking container.

Wind direction, type of material, geographical slope, condition of containers, and many other variables will dictate the location of the trenches.

6. Containment in Road Areas

A spill on a land surface near roads often warrants concern when near areas of water entries. Storm sewers, manholes, and gutters are a few such water entry possibilities.

Tarps, polyurethane foams, dirt dams, and other methods may be used to divert the product from these areas of concern.

7. Containment of Contaminated Groundwater

If a spilled material moves downward through the soil horizons and reaches the groundwater table, then it may be necessary to contain and recover the material as well as the contaminated water.

If groundwater is shallow, a possible solution might be an interrupter ditch. The backside of the ditch is lined with polyethylene sheeting material. The lined trench thus serves as a product/water separator. The groundwater is then allowed to continue in its movement.

If the contaminated area is large and slow moving, an open trench may not be the answer. A deflecting barrier is a structure which is more permanent than the interrupter ditch and moves the skimmed floating product to a recovery crock. The crock is an upright culvert with slits cut in the sides to allow the product to move inside and filter through the rocks or other media with which the separator is packed.

Deep groundwater recovery is accomplished by developing a hydraulic cone of depression, which is created by the use of significant groundwater pumping. By placing a well suction beneath the floating material and producing a funnel type of effect, the product is concentrated in a general area. A second product recovery well is placed in the area of material concentration in order to facilitate recovery.

8. Containment on Water

Four general ways are used to contain a material on water. These methods include booms, weirs, underflow dams, and physical barriers.

9. Small Stream and Ditch Containment

Most spills tend to end up in small runoff waterways. Some practical containment methods are: a board skimming device, earth dam and weir, wire fence filter boom, culvert weir, and an

underflow dam. These methods are simple to construct and effective in small, moving waterways.

10. Containment of a Sinking Product

Containment of a sinking product is difficult due to the inability to visually monitor movement and location of the spill. Some methods of containment for a sinking product are dikes, dams, curtain barriers, air barriers, seines, and submersible barriers. These devices rely upon the concept of dividing the area of spilled material from the other water.

The selection of method is dependent upon the nature, viscosity, and other properties of the material. For example, seines may work better with one spilled material than with another.

11. Containment of a Soluble Product

When a material is water soluble, the containment of the entire water source is generally required. In many cases the existing controls such as locks, tide gates, and weirs may be used to contain the spill. If these are not available, dikes and dams may be constructed. A water soluble material is not easily separated from the water itself, and complete containment is a must.