



SBG O&M SPILLAGE CONTROL OPERATIONS





INTRODUCTION

In industrial production, spillage is the loss of production output due to production of a series of defective or unacceptable products which must be rejected. Spillage is an often costly event which occurs in manufacturing when a process degradation or failure occurs that is not immediately detected and corrected, and in which defective or reject product therefore continues to be produced for some extended period of time.

Spillage results in costs due to lost production volume, excessive scrap, delayed delivery of product, and wastage of human and capital equipment resources. Minimization of the occurrence and duration of manufacturing spillage requires that closed-loop control and associated process monitoring and metrology functions be integrated into critical steps of the overall manufacturing process. The extent to which process control is complete and metrology is high resolution so as to be comprehensive determines the extent to which spillages will be prevented.

SCOPE

SBG O&M is committed to overcome the spillage and apply the optimizing controls for the efficient spillage control in the perspective of Health, safety and environment. Following are the scope aspects of the SBG O&M Spillage control operations.

- Containing and controlling incidents so as to minimize the effects and to limit danger to persons, the environment and property;
- Implementing the measures necessary to protect persons and the environment;
- Description of the actions which should be taken to control the conditions at events and to limit their consequences, including a description of the safety equipment and resources available;
- Arrangements for training staff in the duties they will be expected to perform;
- Arrangements for informing local authorities and emergency services; and
- Arrangements for providing assistance with off-site mitigatory action.



CONTROL PROCEDURES

In the event of a fuel, oil, or chemicals spill the following steps should apply:

- 1. Stop work, shut down equipment.
- 2. Move personnel to safe area.
- 3. Identify the substance spilled and refer to MSDS for appropriate safety procedures.
- 4. Conduct a hazard assessment and implement controls.
- 5. Minimize and safely contain spill.
- 6. Immediately notify supervisor.
- 7. Alarm others if lives are in danger.
- Contain spill by attempting to stop the flow at the source. Use pails, tarpaulins, barrels, dikes or berms
- immediately once safe to enter spill area. A shallow excavation may be made to contain or stop the flow
- of the product. Spills adjacent to or on waterways must be cleaned up as quickly as possible to prevent
- them from entering the water body.
- Once area is safe and spill has been contained start clean up. Sorbent materials may be used to both
- contain and cleanup spilled material. Ensure traffic is minimized on and around contaminated areas. The
- use of a vacuum truck may be appropriate to skim off contaminants.



CLEAN UP MATERIALS AND TOOLS

1. Spill pads, absorbent materials (warehouse, trucks).
2. Shovels.
3. Sand, dirt etc.
4. Personnel.
5. Pails, tarpaulins, barrels
6. Safety gloves and goggles

WASTE HANDLING

1. If unsure of waste disposal requirements, ask.
2. Remove waste material from spill site only with consent of supervisor.
3. Documentation is required for removal of waste by the Person-in-Charge of the spill (oil, fuel or chemicals are not domestic waste).
4. If using barrels for storage of waste ensure barrels are empty and bungs are in.
5. Clearly mark the barrel or container of what residue or waste is inside.
6. Once spilled material is cleaned up they will be incinerated, if safe to do so, or disposed of at an approved waste facility (Km 90 Nuisance Grounds)

1. A command and control center may be needed.
2. Temporary access roads may be needed.
3. Establish Zones may be needed.

Minor Leak Small Leak Large Leak

- Record names and functions of all personnel on site.
- Establish an evacuation area.
- Implement a safety indoctrination procedure for spill site.
- Establish a communication system.
- Set up 24-hour supervision of maintenance site.





AREA EVACUATION

Evacuation of areas in the event of fire or toxic gas emission should be addressed in an emergency evacuation procedure. This should specify designated safe areas, assembly points and toxic gas shelters. The procedure should also identify responsible personnel whose duties during area evacuation include:

- Responsibility for a specific area;
- Collecting ID badges from plant racks;
- Ensuring roll calls are undertaken to identify missing persons;
- Communication of missing persons to central emergency services.

FIRE FIGHTING

A firefighting strategy should consider:

- Appointment of fire wardens, with subsequent training;
- Location plans of fire hoses, extinguishers and water sources;
- Access for emergency services;
- Provision of firewater lagoons.

REMOVAL OF SUBSTANCE TO SAFE PLACE

The emergency spill control procedure should include the following key sections:

Spills involving hazardous materials should first be contained to prevent spread of the material to other areas. This may involve the use of temporary diking, sand bags, dry sand, earth or proprietary booms / absorbent pads;

Wherever possible the material should be rendered safe by treating with appropriate chemicals (refer to Stabilization / dilution to safe condition);



Hazardous materials in a fine dusty form should not be cleared up by dry brushing. Vacuum cleaners should be used in preference, and for toxic materials one conforming to type H (BS 5415) should be used;

Treated material should be absorbed onto inert carrier material to allow the material to be cleared up and removed to a safe place for disposal or further treatment as appropriate;

Waste should not be allowed to accumulate. A regular and frequent waste removal procedure should be adopted.

STABILISATION / DILUTION TO SAFE CONDITION

Once the hazardous material has been contained to prevent spread of the material to other areas, the material should be treated wherever possible to render it safe. Acids and alkalis may be treated with appropriate neutralizing agents. Due to the differing properties of the various groups of chemical, an appropriate treatment strategy with suitable chemicals should be established in each case. For example, highly concentrated hydrochloric acid will fume when spilled so prior to neutralization the spill should be diluted with a water spray.

Once the material has been treated the cleared up the area should be washed with large volumes of water. Most chemical plants and associated areas are serviced by chemical drains that feed to the effluent treatment plant. The washing operation will represent an abnormal loading on the effluent treatment plant, and it is vital that in any situation where this is likely to happen the staff responsible for operation of the effluent treatment plant are notified so that appropriate measures can be adopted. The effluent treatment plant operatives are likely to require the following information:

Approximate quantity of hazardous material;

Approximate composition of hazardous material;

Physical properties of hazardous material;



State of hazardous material (whether neutralized etc.).

In the case of fire water runoff, much larger volumes of water are employed and the provision of firewater lagoons to contain potentially toxic firewater is required.

AVAILABILITY OF NEUTRALISING SUBSTANCES / FOAM

Process specific emergency spill kits (acid, alkali, solvent, toxic etc) and appropriate personal protective equipment should be readily available with supporting procedures. These spill kits should be maintained on a regular basis to ensure that they are always available and fit for purpose. This ensures that the most appropriate measure is at hand to deal with a spill or fire in the most effective way.

- Issues that should also be addressed include:
- Containment;
- Maintenance and condition of fire hoses, extinguishers.

STATUS OF GUIDANCE

Existing guidance provides comprehensive information with respect to best practice for emergency response and spill control procedures.

Guidance for emergency responses for chlorine, anhydrous ammonia, LPG, nitrocellulose, flammable dusts, and flammable liquids storage plants and chemical warehouses are given in the specific guidance notes listed below.

Additional material providing much insight into analysis of offsite consequences through a risk management program is now available from the United States Environmental Protection Agency. This provides guidance on offsite consequence analysis for toxic gases, toxic liquids, and flammable substances. The risk management analysis will have a significant impact on the format and content of an emergency response or spill control procedure.