



Protecting Lake Michigan & Our Waterways.

North Shore Water Reclamation District

Spill / Slug Prevention Plan Checklist

The Spill / Slug Prevention Plan should be a carefully thought-out plan, which has been prepared with the full approval of management at a level with authority to commit the necessary resources. If the plan calls for additional facilities or procedures, methods, or equipment not yet fully operational, these items should be discussed in separate paragraphs. This checklist will assist in determining necessary elements to include in the Spill / Slug Prevention Plan. The North Shore Water Reclamation District (NSWRD) recognizes that not all elements may be applicable to each company, but the six major areas (A through F) are to be addressed.

A. Spill / Slug Potential

1. Where experience indicates a reasonable potential for equipment failure (tank overflow, rupture, leakage, etc.), the plan should include a prediction of the direction, flow rate, and maximum quantity that could be lost. The plan should also address means to be taken to decrease or eliminate this potential in the future.
2. Containment and/or diversionary structures or equipment to prevent discharges should be provided. Consider one or more of the following:
 - Dikes, berms, or retaining walls
 - Curbing
 - Culverts, gutters, other drainage systems
 - Weirs, booms, or other barriers
 - Spill / Slug diversion, or retention ponds
 - Sumps, and collection systems
 - Sorbent material
 - Dispersant material
3. When it is determined that the installation of structures or equipment as listed above to prevent discharges is not practical the owner should: submit a written commitment of manpower, equipment and materials required to expeditiously control and remove any spilled substance.
4. Describe the Standard Operating Procedures (SOP) for handling of non-customary batches (if applicable).
5. The following is a partial listing of pollutant classes, which have the potential to result in a slug loading.
 - Biological Wastes: (e.g. antibiotics, whey solids, etc.)
 - Chemical Feedstock: (e.g. aniline, cyclohexane, nitrobenzene, phenol, etc.)
 - Corrosives: (e.g. Strong Acids – hydrochloric, sulfuric, nitric, chromic, etc.
(e.g. Strong Bases – caustic soda, lye, ammonia, etc.)
 - Detergents
 - Explosive Chemicals: (e.g. nitroglycerin, metallic sodium, ammonium nitrate, etc.)
 - Flammable Chemicals: (e.g. acetone, naphtha, hexane, isobutyl ketone, etc.)
 - Halogenated Solvents: (e.g. Freon, perchloroethylene, trichloroethane, etc.)
 - Metal Sludges: (e.g. metal hydroxide sludges from pretreatment operations, etc.)

- Nonhalogenated Solvents: (e.g. alcohols, methyl ethyl ketone, benzene, etc.)
- Noxious/Fuming Chemicals: (e.g. phosphorus pentachloride, cyanide, chloroform, etc.)
- Oils and Fuels: (e.g. diesel oil, gasoline, mineral oil, lubricants etc.)
- Oxidants (e.g. chlorine dioxide, potassium permanganate, sodium chloride, etc.)
- Paints, Pigments, Dyes, Inks, Thinners, Tanning Solutions
- Pesticides, Herbicides
- Plating Baths, Pickling Liquors
- Radioactive Materials
- Reductants (e.g. sodium borohydride, phosphine, methyl hydrazine, etc.)
- Resins (e.g. ABS resins, phenolic resins, vinyl resins, etc.)
- Varnishes, Lacquers, Waxes

B. Bulk Storage Tank Safety

1. No tank should be used for the storage of raw or waste materials unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.
2. All bulk storage tank installations should be constructed so that a secondary means of containment is provided for the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation if the tank is outside.
3. The outside of the tank should frequently be inspected by operating personnel for signs of deterioration, leakage, or accumulation of leaked material inside the diked area.
4. Above ground tanks should be subject to periodic integrity testing using such techniques as hydrostatic testing, visual inspection, or a system of non-destructive shell thickness testing.
5. Underground storage tanks should be protected from corrosion, and pressure tested on a regular basis.
6. Consider the following control measures and tank check points:
 - High liquid level alarms with an audible or visual signal at a constantly manned operation or high liquid level pump cutoff devices set to stop flow at a predetermined level,
 - Liquid level sensing devices should be regularly tested to ensure proper operation, and
 - Leaks which result from tank seams, gaskets, rivets and bolts should be promptly corrected.
7. Records, signed by operating personnel, should be kept of all inspections of tanks, alarms, and equipment, and dates.
 - Overflow equalizing lines between tanks should be considered. This makes it possible to overflow to adjacent tankage, if needed.
 - There should be adequate vacuum protection to prevent tank collapse during a pipeline run.

C. Transfer and Pumping Operations

1. Buried piping installations should have a protective wrapping and coating. If a section of buried line is exposed for any reason, it should be carefully examined for deterioration.
2. When a pipeline is not in service, or in standby service, the terminal connection at the transfer point should be capped.
3. Vehicular traffic granted entry into the facility should be warned verbally or by appropriate signs to be sure that the vehicle will not endanger above ground piping.
4. All valves and pipelines should be subjected to regular inspections by operating personnel. Such an inspection should include: flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and periodic pressure testing.

D. Liquid Drum or Tote Tank Storage

1. Drums and tote tanks used for storing small volumes of liquid (such as oil, chemicals or cleaning solvents) shall be inspected on a regular basis for possible leaks.
2. The immediate storage vicinity shall be protected from spills using items referenced in A 2.

E. Truck or Tank Car Loading and Unloading Areas

1. Tank car, tank truck and truck loading/unloading procedures should meet the minimum requirements and regulations established by the Department of Transportation.
2. A quick drainage system should be used for tank truck loading and unloading where area drainage does not flow into a catch basin or treatment facility designed to handle spills. The containment system should be designed to hold at least the maximum capacity of any single compartment of a tank car or truck.

F. Spill / Slug Notification Procedure

1. Inspections should be in accordance with written procedures developed for the facility by the owner or operator. These written procedures and a record of the inspections, signed by the appropriate supervisor or inspector, should be made part of the Spill / Slug Prevention Plan. Such records should be maintained for three years.
2. All facilities which handle, process, and store potentially dangerous materials should be fully fenced with locking entrance gates, or should be enclosed so that intrusion during closed periods is not possible.
3. Each facility should have a designated person who is accountable for spill / slug prevention and who reports to line management.

4. Owners or operators should schedule and conduct spill / slug prevention meetings for their operating personnel at intervals frequent enough to assure adequate understanding of the company's spill plan for that facility. Such meetings should include a description of historical spill events, typical failures or malfunctioning components, and recently developed precautionary measures.
5. The Spill / Slug Prevention Plan will include a list of agencies that will be contacted in the event of a accidental discharge or slug load. Included in this list will be names and phone numbers for (but not limited to) NSSD; USEPA; IEPA; local fire, building and public works departments, etc.
 - Include the NSWRD requirement that within 5 working days following an accidental discharge or slug load discharge which required immediate notification, the user shall submit to the NSWRD a detailed written report of the incident and what measures will be taken to prevent similar incidents in the future.