CHAPTER 10

ADMINISTRATION

10.1 INTRODUCTION

In addition to the spill prevention structures and equipment, an area must be run properly to minimize the human factor as the cause of a spill so that spills will be promptly detected and cleaned up. Proper administration involves appointing a installation-wide spill prevention coordinator to oversee SPCC issues, such as employee training and briefings, standard operating procedures and inspections, and necessary record keeping.

The critical elements of operational and administrative requirements of a spill prevention plan under the CWA (40 CFR 112) regulations can be categorized as follows:

- Spill Reporting
- Visual Inspections
- Preventive Maintenance
- Good Housekeeping
- Standard Operating Procedures
- Employee Training
- Documentation and Records

These practices are necessary and effective elements of any successful spill prevention program.

10.2 SPILL PREVENTION RESPONSIBILITIES 112.7(e)(10)

OPNAVINST 5090.1 states that the activity commanding officer is responsible for preparation and implementation of the SPCC plan; however, the commanding officer usually delegates the SPCC implementation to the activity's environmental coordinator. The responsibilities include insuring that facilities are surveyed, an SPCC plan is prepared, and a spill prevention coordinator has been appointed for each of the activity's oil facilities. In addition, the activity commanding officer or his delegate should update and amend the SPCC plan as required.

In accordance with 40 CFR 112.7 (e)(10)(ii), each oil area should have a person designated as the spill prevention coordinator. This person is responsible for oil spill prevention. The spill prevention coordinator must ensure that his personnel are properly briefed on the area's SPCC plan, that spill prevention procedures and inspections are being implemented, and that comprehensive and consistent spill prevention records are being maintained.

10.3 SPILL PREVENTION TRAINING

112.7(e)(10)(i)
112.7(e)(10)(iii)

The Area Spill Prevention Coordinator ensures that SPCC training is conducted. The objective of a spill control training program is to reduce the number and volume of spills. The training program should consist of a formal training session and regular follow-up briefings to update and reinforce the formal training. The training is to instruct area personnel on the SPCC plan and in the proper operation and maintenance of equipment and in the applicable pollution control laws, rules, and regulations.

Examples of overheads from a recent SPCC training course presented at a Navy facility is presented in Appendix L. The primary intent of SPCC training is to educate personnel on the purpose, site applicability, regulatory intent, operational requirements, inspection procedures and response mechanisms that embodies a well organized spill planning and response program. The example overheads presented in Appendix L meet the intent of this training in addition to providing site specific details that area operators and managers require in their daily implementation of spill prevention planning. It is suggested that these example overheads be employed as a first step in the development of a site specific training program by environmental managers at their area.

Personnel such as operators, security guards, and delivery truck drivers must be aware of the relationship between their daily activities and spill prevention. The training may be incorporated into the regular job training or it may be taught separately; however, to emphasize the importance of spill prevention, it should be a separate subject.

Semiannual briefings are recommended; however, some facilities may need monthly briefings. The frequency of briefings is influenced by the turnover and experience of personnel, the sophistication and mission of the area, the potential and history of discharges, the spill response capabilities, the potential environmental impact of a spill, the surrounding community, and mission readiness. When a new employee or piece of equipment arrives; daily briefings may be appropriate until the new employee or equipment has become fully incorporated into the operation.

The following topics should be addressed during area briefings:

- Area SPCC plan
- Recent spills at the area, or similar area, causes, and corrective actions taken

- New spill prevention measures, equipment, and safety procedures
- Upcoming new equipment installations that might impact spill control planning or implementation
- Chemical and physical properties of stored materials
- Emergency procedures
- Inspection procedures
- Overview of regulations
- Safety and health

10.3.1 Chemical and Physical Properties of Stored Materials

Personnel involved with the transportation, storage, or use of oil or HS should be familiar with the chemical and physical properties of these materials. The physical properties determine the care and attention necessary to prevent spills and to avoid potential hazards such as reactions between incompatible materials, fire, explosion, and adverse health reactions.

10.3.2 Emergency Procedures

The training program should familiarize personnel with emergency procedures, equipment, and systems which are applicable to their positions. Emergency response procedures to be taught to personnel include:

- Using, inspecting, repairing, and replacing emergency monitoring equipment.
- Key parameters for automatic shutoff systems.
- Communications equipment and alarm systems.
- Response to fires or explosions.
- Response to spills on land and spills reaching water.
- Evacuation and shutdown of operations.
- Whom to contact in the event of a spill and how to implement the activity spill contingency plan.
- Types of protective equipment or clothing to be worn.
- Basic first aid.
- Who to inform in the event of an emergency.

10.3.3 Inspection Procedures

Detailed inspection procedures are discussed in Section 10.5. Inspection procedures should be written and included in the SPCC plan. Supervisory personnel should be aware of the required inspections, while other activity personnel should be

briefed on the particular inspections they will be subject to or required to conduct. Inspection forms should be presented to personnel, and a sample inspection should be demonstrated.

10.3.4 Overview of Laws and Regulations

Area personnel should be aware of local and federal laws and regulations that impact their duties and responsibilities. The federal laws applicable to spills include:

- Federal Water Pollution Control Act (FWPCA); authorized the Environmental Protection Agency (EPA) to prepare the oil spill prevention regulations contained in 40 CFR 112.
- Occupational Safety and Health Act (OSHA); authorized the preparation of safety regulations included in 29 CFR Parts 1910, 1915-1917, 1926, and 1960.
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); authorized the EPA to promulgate the following regulations pertaining to the cleanup of oil and hazardous substance spills: 40 CFR Parts 300, 302, 305, and 306.
- Public Health Regulations, established by the Department of Health and Human Services, concerning occupational health and safety and included in Title 42 of Code of Federal Regulations.
- Hazardous waste regulations for generators and storage facilities as required in 40 CFR Parts 262, 264, and 265.
- Underground storage tank regulations in 40 CFR 280.
- State and local SPCC, HS, and fire regulations.

10.3.5 Safety and Health

Much of the training already discussed will incorporate safety and health concerns. However, personnel will also need to be trained in the proper use and operation of personal protective equipment, deluge showers and eyewashes, and monitoring systems. Area personnel should be familiar with all OSHA standards that apply to their job position.

10.4 STANDARD OPERATING PROCEDURES

Any standard operating procedures (SOPs) for individual facilities should be written, and in some cases posted. Both CWA (40 CFR 112) and RCRA (40 CFR Subparts I and J) regulations require that oil and HS facilities and equipment be designed and operated to prevent spills. Based on this broad definition, SOPs should apply best management practices and legal requirements to minimize spills.

The inspections required by 40 CFR 112.7(e)(8) include:

- releasing containment drainage without treatment;

- AST supports and foundations;
- visual inspections of ASTs;
- aboveground pipelines and valves; and
- buried pipelines when exposed for any reasons.

In addition to the specific SOPs identified in 40 CFR 112, area supervisors should identify additional operations, such as tank water draining that require standard procedures to avoid a spill.

Minimum written standard operating procedures are presented in Appendix G for the following operations: General Loading/Unloading Procedures; Specific Tank Truck Procedures; Specific Railroad Tank Car Loading/Unloading; Specific Ship/Shore Loading/Unloading Procedures; Containment Area Draining Procedures; and Tank Water Draining Procedures. Similar SOPs should be developed, when the situation warrants, for key operations and practices such as good housekeeping, inspection and maintenance of liquid level gauges, and record keeping.

10.5 INSPECTIONS

112.7(e)(1)(ii)
112.7(e)(2)(vi)
112.7(e)(2)(ix)
112.7(e)(3)(iv)
112.7(e)(8)

40 CFR 112 requires that inspections be a regular part of an SPCC program. The purpose of inspections is to detect potential equipment problems that can lead to spills. Inspection frequency varies depending on the use of the equipment, however, weekly and monthly inspections are common. Equipment items designated by 40 CFR 112 as requiring regular inspections include:

- Tanks
- Level Control Systems
- Drainage Control Systems
- Accumulated Rainwater
- Aboveground Pipelines and Valves

In addition to inspections required by 40 CFR 112, other storage and transfer systems and components should be inspected to assure that they are operating as designed; these additional inspections should be included in the SPCC plan as appropriate. These systems and components are:

- Transfer Systems Instrumentation Control
- Loading and Unloading Racks
- Spill Containment
- Oil/Water Separators

Inspection procedures should be added for additional equipment as required.

During inspections, area personnel may discover deficiencies in equipment or in procedures; these should be reported to the SPCC coordinator. A spill may not have occurred, but a potential spill hazard exists. Repair or maintenance will reduce the hazard.

A good preventive maintenance program at oil and HS storage and handling facilities ensures that the equipment and facilities are maintained in an operational and safe condition. SPCC preventive maintenance should not be a substitute for routine maintenance practices required on dynamic equipment such as lubrication of movable parts and replacement of bearings.

Preventive maintenance is an intrinsic part of a spill prevention inspection program. Through inspections, worn or damaged equipment can be identified before a failure occurs. Therefore, deficiencies noted during an inspection must be corrected and followed by preventive maintenance. Use the inspection forms in Appendix E to record any action taken to repair any deficiencies discovered during inspection. This form serves as a record to show that repairs were made.

10.5.1 Visual Inspections

Visual inspection is the simplest way to detect broken, corroded, or deteriorated facilities and equipment. Since faulty or deteriorated conditions lead to failure and spillage, their early detection and correction is necessary to prevent spills. Visual inspection is also effective as a monitoring tool to evaluate procedural practices.

Oil and HS facilities and equipment must be visually inspected at specified intervals for leaks or conditions that could lead to releases. In particular, visual inspections should at a minimum include examining the following elements:

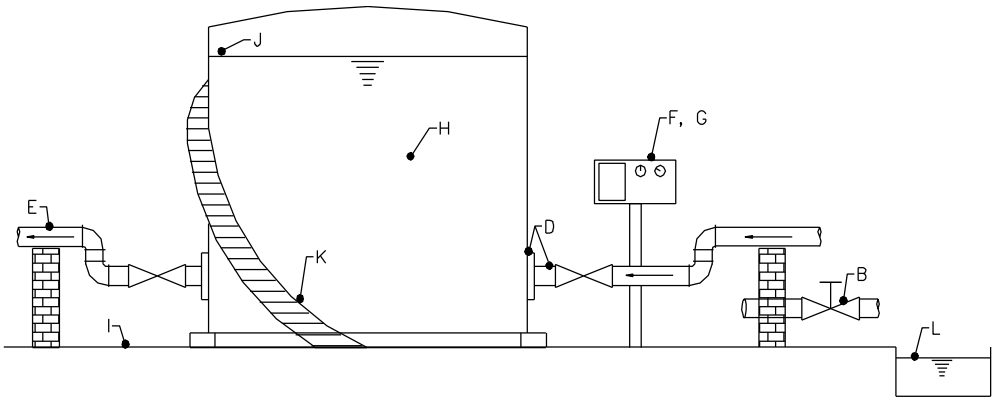
- Tanks, pipes, valves, fittings, pumps, and hoses
- Process and material handling areas and equipment
- Loading and unloading operations
- Spill control structures and materials
- Drainage treatment systems

These inspections should be incorporated into the facilities existing preventive maintenance program. The frequency of visual inspection should be based on the chemical involved, area or equipment age, secondary containment, and the potential impacts of a loss. Sometimes legal requirements will determine the frequency of inspection of a particular type of equipment or operation. Appendix E contains inspection checklists for the facilities and equipment discussed above. The checklists reflect Federal requirements and good engineering practices. These forms can be modified to reflect each activity's specific conditions.

10.5.2 Tanks

Under 40 CFR 112.7(e)(vi), aboveground tanks should be visually inspected at frequent intervals for deterioration. For RCRA HW tanks, daily inspections of aboveground tanks, areas around tanks and secondary containment, data from monitoring and leak detection equipment, and regular inspections of overfill control equipment are required. (40 CFR 264.195)

Visual inspections of tank exteriors should include tank walls, foundations, protective coatings, pipe connections, ground connections, and valves. Figure 10-1 and Figure 10-2 show the major areas of concern for aboveground tanks.



Code	Legend
A	Tank fill valve should be in the closed position and locked when not in use.
B	The gate valve used for emptying the dike containment area should be of the hand–operated variety only and should be closed and locked at all times.
C	All valves should be inspected for signs of leakage or deterioration.
D, E	Inlet and outlet piping, as well as tank flanges should be checked for leakage and to insure that adequate support is provided.
F, G	Automated fill control and discharge control equipment should be checked to see that it is operating properly.

Code	Legend
H	The tank shell surface should be visually inspected for areas of rust, or other deterioration. Particular attention should be paid to peeling area, welds and seams.
I	The ground surface inside the diked area should be checked for obvious signs of leakage or spillage.
J	The liquid level sensing device should be checked to insure that there is adequate freeboard.
K	External stairways and walkways should be checked to insure that they are unobstructed and sound.
L	The oil/water separator should be checked for adequate freeboard and to insure that it is operating properly.

Figure 10-1
Areas Of Concern In Typical Aboveground Vertical Tank System

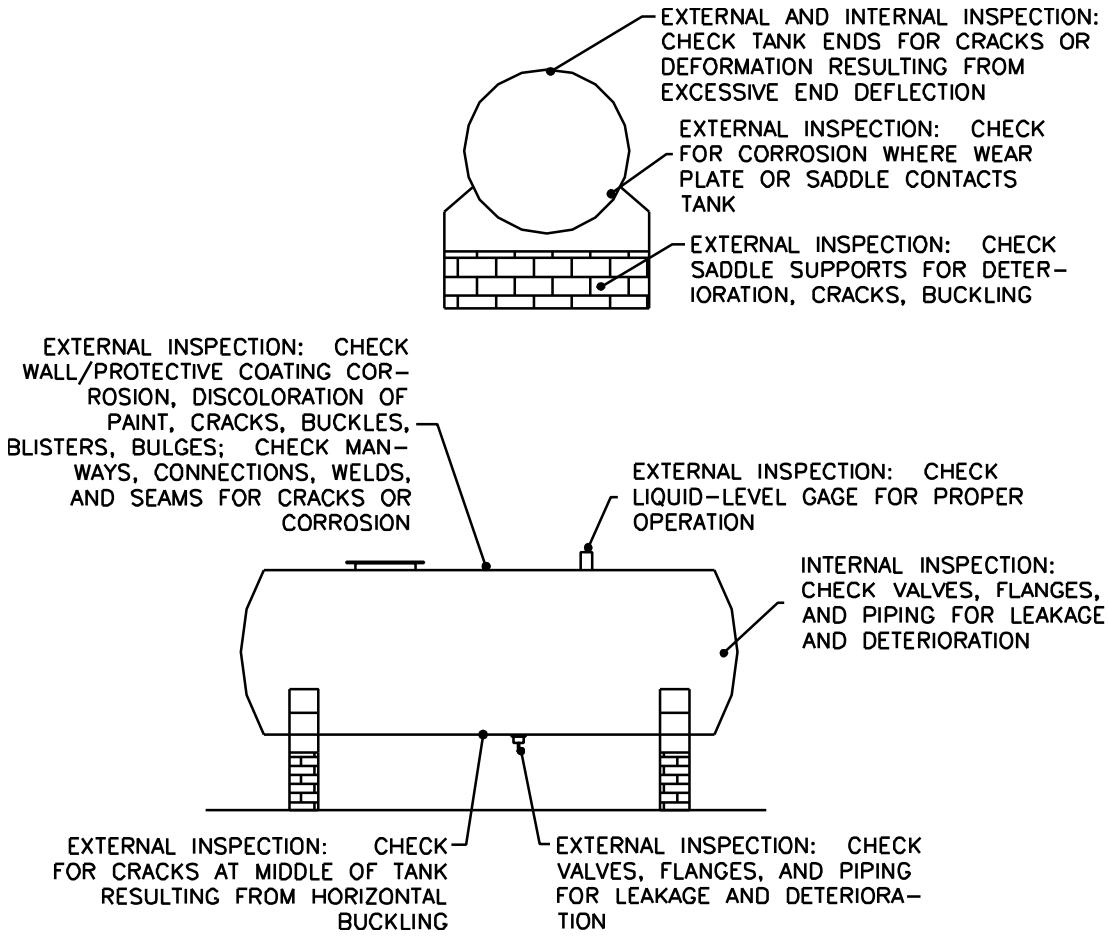


Figure 10-2
Areas Of Concern In Typical Horizontal Tank System

Tank walls should be inspected for leaks, cracks, buckles, and bulges. Leaks can be spotted by a discoloration of paint in the area below the leak. Cracks are found at nozzle connections, in welded seams, access manholes, and underneath rivets. The seating surface of valve connections on the tank should be in good condition and free of corrosion. If a deficiency is evident from an inspection, integrity testing techniques discussed in Section 4 should be used to determine the extent of the problem. If the situation appears serious, the tank should be taken out of service immediately and the necessary repairs made.

Deterioration of supports and foundations, such as erosion and uneven settlement, should be detected and corrected before serious damage occurs. Figure 10-3 shows the major areas of concern for a typical tank foundation. Figure 10-4 shows the adverse effects of differential settlement on the operation of tank level gauges and high-level alarms.

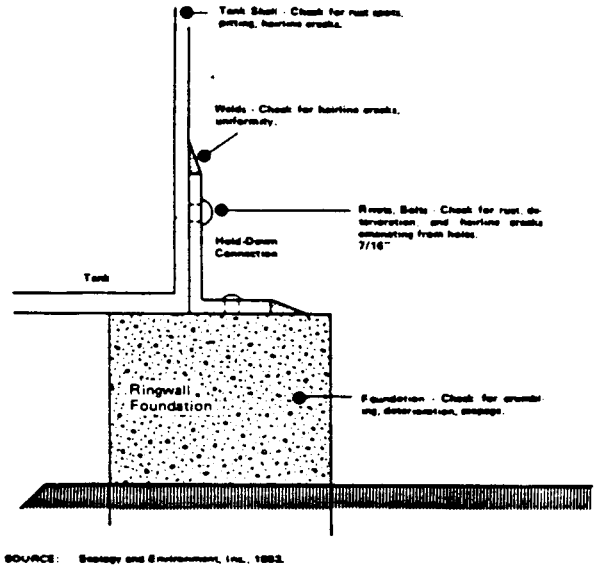


Figure 10-3
Areas Of Concern In Typical Tank Foundation

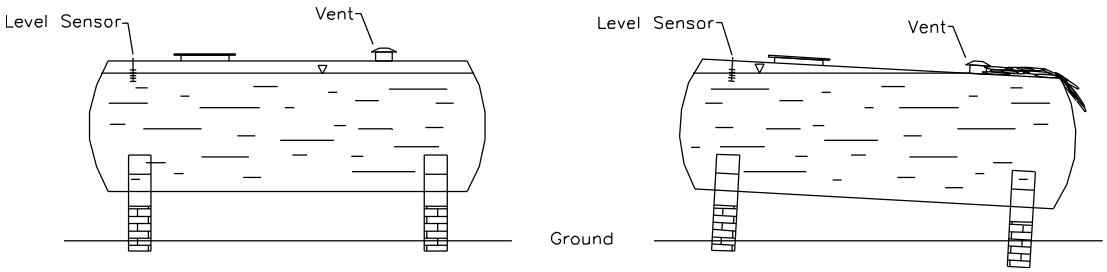


Figure 10-4
Effect Of Differential Settlement On Overfill Protection Devices

Concrete pads, base rings, and piers should be checked for cracks and spalling. The joint between tank bottom and concrete pad or base ring should also be checked for integrity and proper seal against water seepage. Wooden tank supports should be inspected for rot by hammering.

For horizontal tanks, give special attention to saddle supports for deterioration, cracks or buckling, wear plate or saddle contacts with the tank for possible corrosion, and tank ends for cracks or deformation due to excessive end deflection. Serious foundation settlement is usually indicated by distortion of anchor bolts, buckling of columns or supports, and excessive concrete cracking.

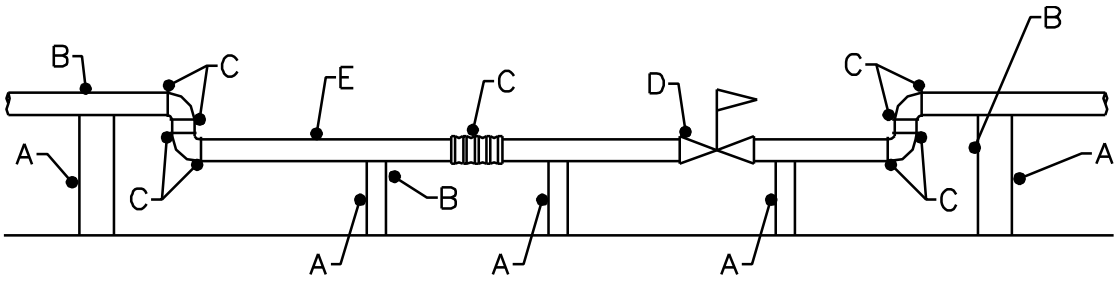
Level sensing devices should be checked at least weekly (daily for HW tanks) by operating them. These devices must be tested on a regular basis and the results recorded. Also, an operator must monitor each filling operation.

Internal visual inspections require that a tank be empty, safe to enter, and a

confined space entry permit has been issued. Tanks should be examined internally (walls and bottom) for holes, cracks, splits, or similar deterioration. Red-flagged conditions should be assessed and confirmed by testing and repaired accordingly.

10.5.3 Pipes, Valves, Fittings, Pumps, and Hoses.

Both 40 CFR 112.7(e)(3) and 40 CFR 264 require visual inspection of aboveground piping systems and recommend periodic examination and preventive maintenance for pumps. HW pipes associated with tanks or incinerators require daily inspections. Figure 10-5 shows the major items which should be visually inspected for aboveground piping systems.



A – CHECK PIPE SUPPORTS FOR DAMAGE/DETERIORATION

B – CHECK CONTACT POINTS AT SUPPORTS FOR EXCESSIVE WEAR AND CORROSION

C – CHECK FITTINGS, FLANGES, JOINTS, EXPANSION DEVICES FOR SIGNS OF LEAKS, BROKEN OR MISSING PARTS, LOOSE NUTS AND BOLTS, CORROSION, TIGHTNESS, MISALIGNMENT

D – CHECK PRESSURE RELIEF VALVE FOR TIGHTNESS, INTEGRITY, EXCESSIVE WEAR, CORROSION, CALIBRATION (SEE FIGURE 3–9)

E – CHECK PIPING FOR DETERIORATION OF COATING, CORROSION, PHYSICAL DAMAGE BY OUTSIDE FORCES, EXCESSIVE MOVEMENT, VIBRATIONS

Figure 10-5
Areas of Concern In Typical Aboveground Piping System

Pipes and appurtenances are subject to erosion or wear due to the effects of high liquid turbulence or velocity and abrasion on pipe supports from expansion and contraction. Leaks frequently occur around bends, elbows, tees, orifice plates and throttling valves. inspections include checking for misalignment, unsound supports, corrosion, vibration and swaying during operation, liquid accumulations, and thickness testing.

Visual inspection of pumps should include checking for foundation cracks and uneven settling, leaky pump seals, excessive vibration and noise, excessive dirt or corrosion, deteriorating insulation, and burning odor or smoke. All assembly bolts, gaskets, cover plates, and flanges should be checked for leaks and cracks. Vibration levels should be measured periodically using an electronic vibration meter to avoid harmful levels.

Figure 10-6 through Figure 10-12 show critical areas of various types of valves which should be inspected.

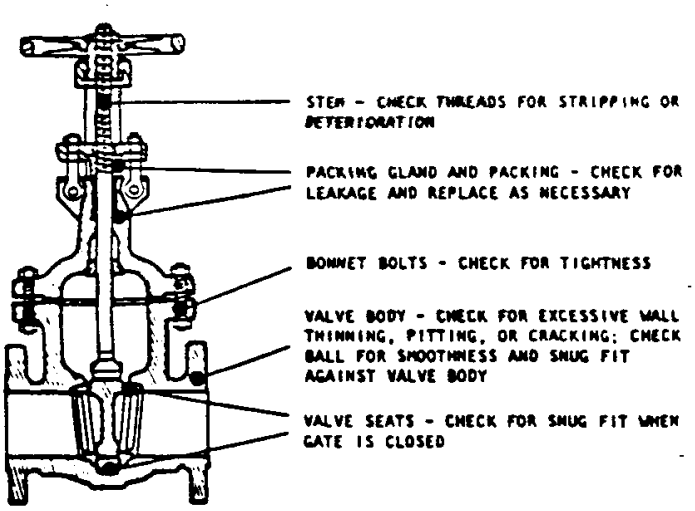


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Figure 10-6
Critical Areas Of Gate Valves

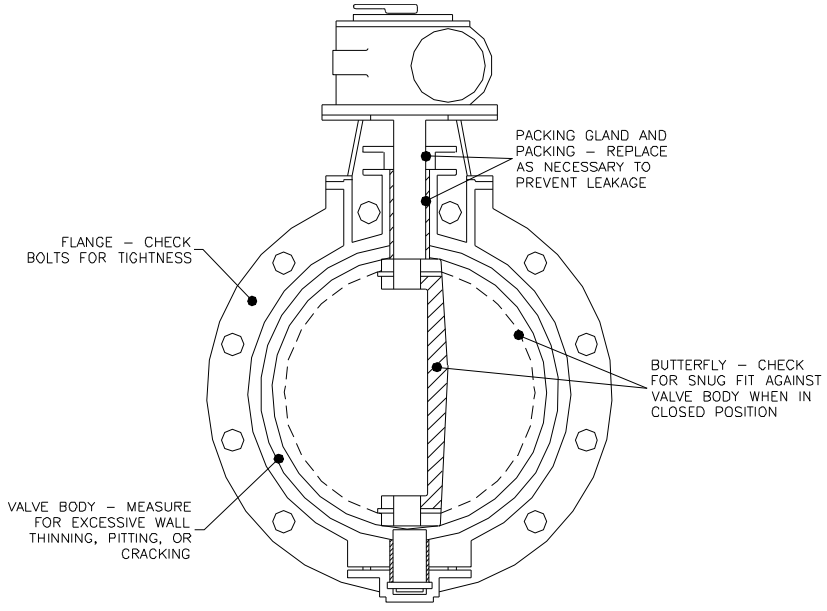

Figure 10-7
Critical Areas Of Butterfly Valves

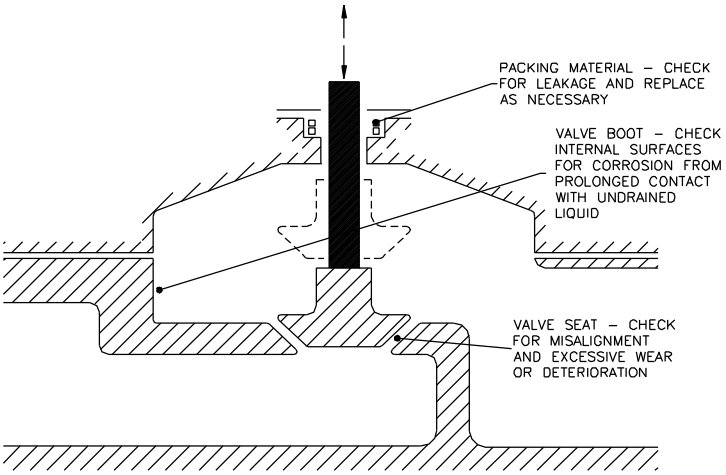

Figure 10-8
Critical Areas Of Globe Valves

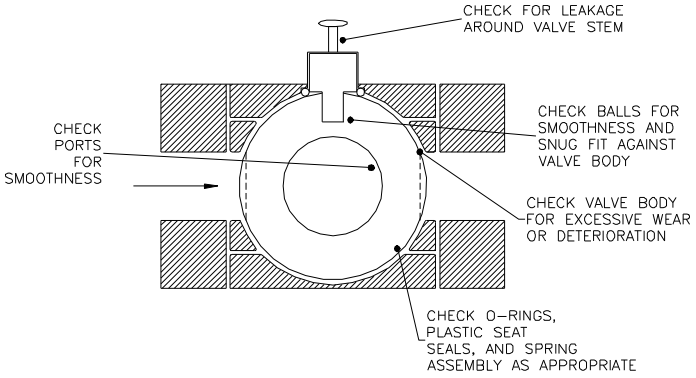

Figure 10-9
Critical Areas Of Ball Valves

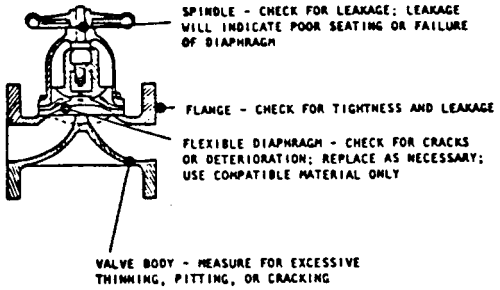

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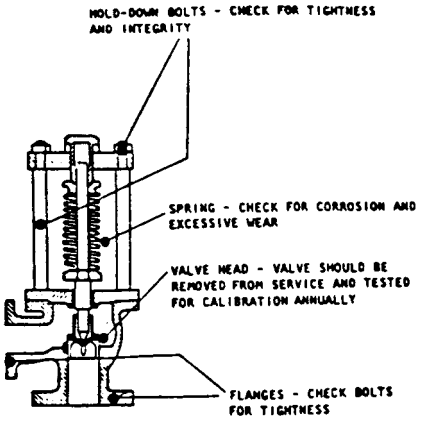
Figure 10-10
Critical Areas Of Pressure Relief Valves



Source: Toxic Substances Storage Tank Containment, Ecology and Environment, Inc., Copyright 1983. Used by permission of Garon Publications.

Figure 10-11
Critical Areas Of Diaphragm Valves

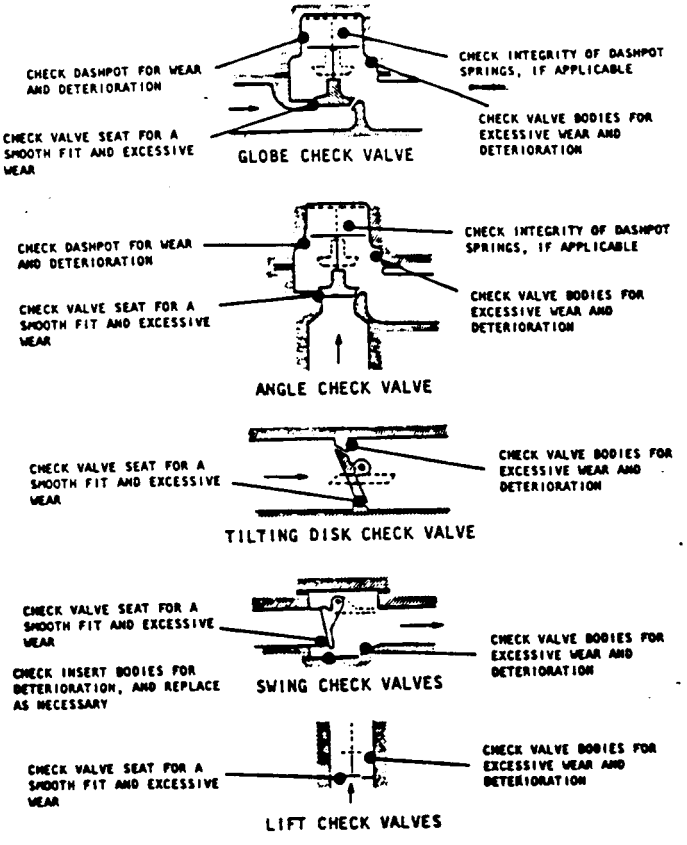


Figure 10-12
Critical Areas Of Check Valves

Hoses used in loading or unloading operations should also be inspected for wear and tear or damage caused by vehicles.

10.5.4 Drums and Smaller Container Areas

RCRA (40 CFR 264.174) requires weekly visual inspections for deterioration, leaks, and spills of drums and small container storage areas. These areas should be inspected for:

- Proper and compatible storage of chemicals,
- Integrity of containers, floors, racks, pallets, walls and containment structures,
- Protection against accelerated corrosion and weathering,
- Proper condition and use of material handling and transfer equipment,
- Orderly and clean storage and work areas,
- Proper and unobstructed aisle space, and
- Proper handling of chemicals.

10.5.5 Spill Control Structures and Materials.

Secondary containment and drainage structures should be inspected for liquid accumulations or spills, vegetation growth, cracks, breaches or erosion on the impermeable coating, obstructions, and closed release valves. The general condition of sumps, drains, catch basins, drip pans, valves, sorbents, and permanent booms in ditches and open waters should be assessed.

Surface impoundments regulated under RCRA must be routinely inspected to identify problems with dikes and level control systems before failure occurs. Impoundments should be inspected weekly and after a heavy storm event to detect severe erosion, deterioration of dikes, malfunctions, or improper operation of overtopping control systems.

10.5.6 Specialized Equipment and Operations

Corrosion protection systems are also required, by 40 CFR 112, 40 CFR 264, and DM-22, to be inspected and maintained on a regular basis. Visual inspection, study of maintenance records, soil resistivity measurements, structure-to-soil voltage measurements, and cathodic protection current requirements are established procedures. The date the corrosion protection system was last inspected or maintained should also be noted. Cathodic protection systems must be inspected at least once a year (6 months after installation). Additional information on corrosion protection can be found in DM-22, API Publication 1632, NACE RP-02-85 (1995), NACE RP-01-69 (1992), STI P3 (1993), Underwriters Laboratories Standard 1746, and Underwriters Laboratories of Canada CAN4-G03.1-M85.

10.6 RECORD KEEPING REQUIREMENTS 112.3(e) 112.7(e)(2)(iii)(D) 112.7(e)(8)

Record keeping is a vital aspect of the SPCC plan. Good record keeping is essential for compliance with the legal requirements of 40 CFR 112 and 264 and for protection against possible litigation arising from a spill. Records are also a valuable source of information reevaluating spill prevention methods, equipment, and procedures. 40 CFR 112.7(e)(8) requires record keeping in the form of the original SPCC plan and all updates and supplements, inspection and test records, containment draining records, and spill reports. These records must be well organized and must be readily accessible at the area.

40 CFR 112.3(e) requires owners and operators to maintain a copy of the SPCC plan at the area if it is normally attended 8 hours per day, or at the nearest field office if the area is not attended. The SPCC plan must be available on-site during working hours.

Adequate records should be maintained to document when in-plant drainage or rainwater is discharged from the area without treatment. Drainage and inspection records should be signed by the appropriate supervisor or inspector and made a part of the SPCC plan. Records should be maintained for testing of corrosion protection systems, spill control monitoring equipment, tank and pipe components, and spill control structures. 40 CFR 112.7(e)(8) requires that all applicable written inspection records, signed and dated by the person conducting the inspection and the authorizing supervisor, be maintained for a period of 3 years.

Record keeping is of extreme importance in keeping track of the age, lifespan, and condition of spill control and prevention equipment, so that adjustment, repair, or replacement can be done at the proper intervals. The existing piping pressure testing procedures and records should be reviewed when the annual testing is performed. Lack of testing procedures or records of annual testing may constitute a deficiency.

The existing records should be checked for completeness and accuracy. If any required records have not been kept, procedures for keeping them should be instituted as soon as possible. If records have not been kept together, make an effort to locate and consolidate them. When record keeping responsibilities are scattered among different commands make sure these are coordinated, particularly when record keeping is required by law.

While not required by the SPCC regulation, it is to the advantage of the spill prevention coordinator to maintain the following types of records:

Operational Security Patrol Records. Security personnel should be aware of the need for SPCC security inspections and should maintain appropriate records of their patrols and observations.

Training Documentation. It is not the responsibility of the spill coordinator to maintain SPCC training documentation; however, the spill coordinator should ensure that the training office is aware of the need to maintain SPCC training documentation to indicate compliance with the SPCC training requirements. It may be useful for the SPCC coordinator to maintain simplified training records for ready reference.

Employee training records of the type, extent, and frequency of training each employee has received, must be kept for all HW personnel under 40 CFR 264.16. Training records must be kept until closure of the regulated area, or until three years after the date the employee last worked at the site. All contractor personnel working at the facilities must provide evidence of any training required by law prior to being allowed to work. Contractor personnel training is the responsibility of the contractor and should be designated so in the contract documents.

Repair Records. The staff Civil Engineer should maintain all SPCC-related equipment repair records. However, it may be useful to keep a copy of the repair record for spill control devices with the SPCC records.

Preventative Maintenance. Most SPCC preventative maintenance should be done with routine maintenance, and the records kept with area maintenance records. The SPCC coordinator should keep a copy of the maintenance records.

10.7 SPILL REPORTING

Spill reporting is required under Section 311(b)(5) of the FWPCA and is an essential tool for spill prevention and expeditious response to potential or actual spills. A spill reporting system serves the following purposes:

- Notify appropriate area personnel to initiate immediate action.
- Ensure timely notification to all Navy commands and regulatory agencies.
- Identify and correct causes to prevent or minimize recurrence.
- Identify necessary revisions to the SPCC plan.

The names, titles, and duty/off-duty telephone numbers of key area and activity personnel to whom spills must be reported is included in the SPCC plan. A similar list contains contacts at regulatory agencies and other concerned authorities/organizations to be notified and the circumstances that require their notification.

10.8 PREVENTIVE MAINTENANCE

Visual inspections help identify the need for preventive maintenance. Preventive maintenance under the SPCC plan provides the mechanisms for systematically correcting problems.

All Navy installations must perform periodic maintenance of mission support facilities and equipment to insure their safe and effective operation. Maintenance and repairs to correct spill prevention deficiencies should be made an integral part of the existing preventive maintenance program. Maintenance and repairs of spill prevention

deficiencies should include:

- Confirmation and assessment of deficiencies red-flagged during visual inspections (through testing or other means)
- Replacement or repair of deteriorated parts and equipment to prevent potential or imminent failure
- Periodic nondestructive testing of tanks and piping systems

10.9 GOOD HOUSEKEEPING

Good housekeeping reduces the possibility of accidental spills caused by mishandling of equipment and materials, facilitates detection of spills and leaks, and reduces safety hazards.

Good housekeeping practices are applicable to all material storage and handling areas, and should at least include:

- Neat and orderly storage of chemicals
- Separate storage of incompatible chemicals
- Proper and immediate labeling of all materials and containers
- Closed containers except when adding or removing from the container
- Maintenance of dry and clean floors
- Maintenance of spill response equipment
- Prompt and thorough removal of small spillage
- Segregation of waste streams
- Routine garbage and rubbish pickup and disposal
- Provisions for storage of containers or drums to keep them from protruding into open walkways or pathways
- Vehicular routes and aisle spaces kept clear at all times

Figure 10-13 illustrates common areas of concern relevant to good housekeeping practices.

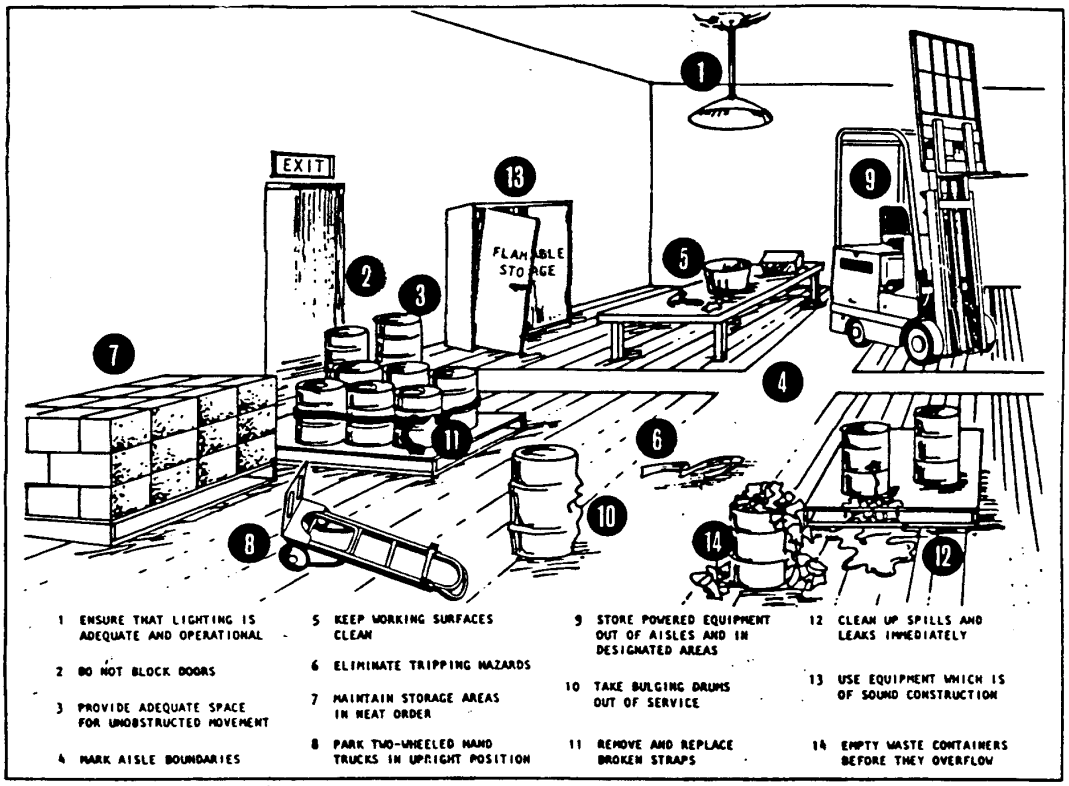


Figure 10-13
Areas Of Concern Relevant To Good Housekeeping Practices

Supervisors should stress employee awareness of potential environmental and safety hazards from improper housekeeping practices. Discussing good housekeeping during inspections and at employee orientation meetings, and publicizing the program through the use of posters, suggestion boxes, and publications, are effective ways to maintain employee interest in good housekeeping practices.

10.10 EMPLOYEE TRAINING

Employee training is a specific requirement of spill prevention under both 40 CFR 264.16 and 40 CFR 112.7(e)(10). All personnel, including contractors working at potential spill sites, must take part in periodic spill prevention and response training programs. The SPCC plan should designate the major features of the programs, including basic and specialty training for spill sensitive operations. Training should consist of formal classroom training (preferably a course approved by the regulatory agency), on-the-job training, spill exercises and employee briefings, and an awareness program.

10.10.1 Basic Training

Personnel working with oil and HS, at all levels of responsibility, must have a minimum knowledge of spill prevention:

- The content and use of the SPCC plan.
- Processes and oil and HS with which they work, SOPs, and safety practices required.
- Evacuation procedures and First Aid.
- Personal protective equipment requirements, use and maintenance.
- Use and maintenance of alarms and monitoring equipment that impact spill prevention and response.
- Chemical compatibility, potential results of mixing incompatible chemicals, and use of compatibility matrices.
- Visual inspection requirements, as described in Section 10.5.1 (supervisors must be fully cognizant of the particulars of every required inspection).
- Good housekeeping requirements as outlined in Section 10.9.

SPCC training can often be combined with other training programs, such as fire or safety. RCRA regulations (40 CFR 264.16) mandate the following training schedules:

- Once a year for all personnel.
- Within six months for all personnel starting in a supervised position.
- Before starting work for personnel entering an unsupervised position.

In addition, employee training should be considered when the following occurs:

- After revision of training requirements in applicable laws.
- After significant area modifications in oil and HS and processes, which could affect spill prevention and response.
- After spill response operations in which training deficiencies were noted.

Employee briefings should also be performed to assure adequate understanding of the SPCC plan and each employee's individual responsibilities. These briefings should highlight known spill events or failures, malfunctioning components, recently developed precautionary measures, and the SPCC plan.

10.10.2 Specialty Training

Knowledge of spill occurrences is important in reducing human errors or process upsets that can lead to spills. Specialty training should be provided for highly-sensitive jobs such as tank end loading/unloading (pump) equipment operators, HW area operators, industrial processes personnel, maintenance workers, and vehicle (tank truck) operators. Many of these trades require licenses and/or passing examinations to operate.

The following considerations should be kept in mind regarding specialty training:

a) Maintenance workers are vital to the spill prevention program. Because of their knowledge and exhaustive coverage of facilities and operations, they are (or

should become) the eyes and ears in spill prevention and advanced detection of potential leak sources. They should have intimate knowledge of weak areas in the program. Alternating maintenance workers to conduct inspections and maintenance surveys is recommended to gain different viewpoints.

b) RCRA regulations require all personnel working with HW to complete classroom or on-the-job training on performing their job in compliance with RCRA requirements. This training shall be conducted or overseen by someone familiar with oil and HS spill prevention and response as required by RCRA.

c) HS transport vehicle operators should be knowledgeable about DOT regulations (49 CFR 171) governing HM transport in public highways and RCRA regulations (40 CFR 263) for transporting HW. RCRA requires a permit and identification number to transport HW over public highways and certification of truck operators. Oil and HS transport vehicle operators should, at minimum, be trained in procedures to inspect their vehicle daily and prior to every shipment, loading/unloading SOPs, and emergency response actions to minimize or contain a spill during transport. New operators should be supervised closely until they have successfully completed a number of loading/unloading operations and other critical tasks.

d) Emergency response personnel should have special training in emergency procedures and protective equipment for response to spills, fires and explosions, standard operating safety procedures, personnel decontamination procedures, and cleanup techniques. They should also be familiar with the area or site emergency response plan, evacuation plan, and the location of communication or alarm systems, process controls and shutoff valves, fire extinguishers, sorbents, neutralizing agents, and other equipment as appropriate.

e) HW workers require training in health and safety aspects of handling HW. These include the application and use of personnel protective equipment (PPE), limitations of PPE, and personnel decontamination procedures. They should be familiar with chemical hazards, exposure limits and toxicology of chemicals, incompatible chemicals and the hazards of mixing incompatible chemicals. They should be familiar with chemical handling procedures, chemical monitoring equipment, and emergency response procedures.