DoD Manual 4715.05, Volume 4

Overseas Environmental Baseline Guidance Document: Hazardous Materials, Storage Tanks, Spills, and Pesticides

Originating Component:	Office of the Under Secretary of Defense for Acquisition and Sustainment
Effective:	June 29, 2020
Releasability:	Cleared for public release. Available on the Directives Division Website at http://www.esd.whs.mil/DD/.
Approved by:	W. Jordan Gillis, Assistant Secretary of Defense for Sustainment.

Purpose: This manual, known as the OEBGD, is composed of multiple volumes, each addressing specific areas of environmental management such as conservation; air and toxics; water; hazardous materials, storage tanks, spills, and pesticides; and waste. In accordance with the authority in DoD Directives (DoDDs) 5134.01 and 4715.1E and the July 13, 2018 Deputy Secretary of Defense memorandum, and the requirements in DoD Instruction (DoDI) 4715.05:

- This manual:
  - Implements policy, assigns responsibilities, and provides standards to protect human health and the environment on enduring installations under DoD control outside the United States.
  - Considers and, where relevant, incorporates generally accepted federal environmental standards applicable to DoD installations, facilities, and actions in the United States, and incorporates requirements of U.S. law that have extraterritorial application to the DoD.
  - Is used by DoD lead environmental components (LECs) to establish and update final governing standards (FGSs).
  - Establishes baseline environmental standards for installations in countries for which an FGS is not required or has not been developed.
- This volume identifies environmental standards for installations to ensure:
  - The safe handling and storage of hazardous materials.

- The prevention and control of pollution from the storage, transport, and distribution of petroleum, oil, and lubricants (POL).
- The prevention and control of pollution from POL and hazardous substances stored in underground storage tank (UST) systems.
- The planning, prevention, control, and reporting of POL and hazardous substance spills.
- The safe storage and use of pesticides.

TABLE OF CONTENTS

TABLES

FIGURES

SECTION 1: GENERAL ISSUANCE INFORMATION

1.1. APPLICABILITY.

This volume:

a. Applies to:

(1) OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff (CJCS) and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (referred to collectively in this issuance as the "DoD Components").

(2) Actions of the DoD Components on installations, as defined in DoDI 4715.05, under DoD control outside the United States.

(3) Support functions for U.S. military vessels, ships, aircraft, and space vehicles provided by the DoD Components, including management and disposal of off-loaded waste or hazardous materials.

b. Does not apply to:

(1) U.S. military vessels, ships, aircraft, or space vehicles.

(2) Off-installation training.

(3) Contingency locations, which are addressed in DoDI 4715.22.

(4) Facilities and activities associated with the Naval Nuclear Propulsion Program, in accordance with Executive Order (E.O.) 12344 and conducted pursuant to Section 7158 of Title 42, United States Code.

(5) Actions to remediate environmental contamination, which are addressed in DoDI 4715.08.

(6) Environmental analyses conducted in accordance with E.O. 12114.

(7) DoD installations that do not have the potential to affect the natural environment (e.g., activities that are primarily administrative) or where, in consultation with the Assistant Secretary of Defense for Sustainment (ASD(Sustainment)), the geographic Combatant Commander has determined that no significant force health protection or environmental threats exist.

(8) Activities, systems, operations, and areas where DoD has no authority or responsibility including Cooperative Security Locations.

c. Does not create any rights or obligations enforceable against the United States, DoD, or any of its components, nor does it create any standard of care or practice for individuals. Although this manual refers to other DoDDs, DoDIs, and DoD manuals (DoDMs), it is intended only to coordinate the requirements of those issuances as required to implement the policies in DoDI 4715.05. This manual does not change other DoDDs, DoDIs, or DoDMs or alter DoD policies. Conflicts, issues, or concerns related to the country-specific FGS or this manual should be presented to the LEC or the Combatant Commander, as appropriate.

1.2. POLICY.

In accordance with the policy in DoDI 4715.05, the DoD:

a. Manages and applies installation assets to sustain the DoD national defense mission; uses environmental, safety, and occupational health management systems in mission planning and execution across all military operations and activities; and ensures all organizations plan, program, and budget to manage the environmental, safety, and occupational health risks that their activities generate in accordance with DoDD 4715.1E.

b. Establishes, maintains, and complies with the FGSs to protect human health and the environment for those foreign countries identified by the Under Secretary of Defense for Acquisition and Sustainment. The FGSs will reconcile the requirements of applicable international agreements and applicable host-nation environmental standards with E.O. 12088 and this manual.

1.3. INFORMATION COLLECTIONS.

DD Form 1532-1, "Pest Management Maintenance Record," referred to in Paragraph 8.7., has been assigned Office of Management and Budget control number 0704-0188 and report control symbol DD-AT&L(A,AR)1080 and is prescribed in Volume 1 of DoDM 4150.07. The expiration date of this information collection is listed in the DoD Information Collections System at https://apps.sp.pentagon.mil/sites/dodiic/Pages/default.aspx.

SECTION 2: RESPONSIBILITIES

2.1. DOD COMPONENT HEADS.

The DoD Component heads:

a. Implement the procedures in this volume when no FGS applies.

b. Plan, program, and budget to meet the standards contained in this volume.

2.2. COMBATANT COMMANDERS.

In addition to the responsibilities in Paragraph 2.1. and through the CJCS, the Combatant Commanders:

a. Provide general oversight and coordination with the DoD LECs, as necessary, to carry out their missions in accordance with this volume.

b. Adjudicate requests for exceptions to the requirements of this volume in accordance with DoDI 4715.05, when the Military Department requesting the exception is also the DoD LEC. When the Combatant Commander is the DoD LEC and requests an exception, the request is elevated to the ASD(Sustainment) for adjudication.

2.3. COMMANDER, UNITED STATES EUROPEAN COMMAND (USEUCOM).

The Commander, USEUCOM, is designated as the DoD Theater Environmental Coordinator for Europe due to the unique construct and influence of the European Union. In addition to the responsibilities in Paragraphs 2.1. and 2.2., the Commander, USEUCOM, oversees the consistent application of this volume at installations within the European Union and geographically located within the USEUCOM area of responsibility. Additional guidance is provided in Enclosure 4 of DoDI 4715.05.

SECTION 3: GENERAL OEBGD GUIDANCE

3.1. USE OF THIS VOLUME AND FGSS.

DoD LECs use this volume to conduct the comparative analysis of Hazardous Materials, Storage tanks, Spills, and Pesticides required to develop each country-specific FGS. The comparative analysis considers HN environmental standards, international agreements, and the standards found in this volume, with the more protective standard being used to establish the FGS. The FGSs ensure consistent application of environmental standards for all installations operated by DoD Components within an HN. Compliance with the standards of this volume is achieved by complying with the current FGSs, since the standards of this volume are reflected in the FGSs. In cases where updates or revisions to this volume have not yet been considered and incorporated into an FGS, installations must comply with the more protective standard, whether it is found in this volume or the FGS.

a. For DoD Components on DoD installations in foreign countries for which FGSs are not required, or have yet to be established, installations must comply with applicable international agreements, applicable HN environmental standards pursuant to Section 1-801 of E.O. 12088 and this volume. In cases of conflicting requirements, the DoD Components will normally comply with the standard that is more protective of human health and the environment.

b. DoD Components will consult with the DoD LEC or, if no DoD LEC is designated, with the applicable Combatant Commander on actions that could seriously affect mission, involve a substantial commitment of funds, or set a precedent.

3.2. HAZARDOUS MATERIALS, STORAGE TANKS, SPILLS, AND PESTICIDES MANAGEMENT.

This volume contains standards for the management of hazardous materials, storage tanks, spills, and pesticides on DoD installations outside the United States. These standards apply to all facilities, tenants, operations, and activities under DoD control on the installation.

3.3. EFFECTIVE DATES.

Standards identified in this manual are effective immediately upon publication. Installations and DoD Components must plan, program, and budget in accordance with Section 6 of Enclosure 3 of DoDI 4715.05.

3.4. NONCOMPLIANCE TERMINOLOGY. Terms such as “noncompliance,” “out of compliance,” “violation,” “exceedance,” “nonconformity,” and “nonconformance” are used synonymously to describe the condition of failing to meet a standard or a specific limit or value within a standard in this manual.

3.5. SAMPLING AND ANALYTICAL CONSIDERATIONS.

a. In many cases, standards of this manual are based on specific monitoring, sampling, and analytical methods that must be considered when determining compliance or comparing with HN standards.

b. Laboratory analyses necessary to implement the FGS or this volume must normally be conducted in a laboratory that has been certified by a U.S. or HN regulatory authority, or accredited through the DoD Environmental Laboratory Accreditation Program, for the applicable test method and follows required quality assurance and quality control protocol. In the absence of a certified laboratory, analyses may also be conducted at a laboratory that has an established reliable record of quality assurance compliance with standards for the applicable test method that are generally recognized by appropriate industry or scientific organizations.

c. Field sample and data collection must be conducted by personnel with demonstrated experience in the applicable test method and sampling. All procedures used for testing, quality assurance, and reporting of results should be those commonly accepted in the field of air pollution control.

3.6. RECORDKEEPING.

All records generated while implementing the standards in this manual must be maintained by installations in accordance with the FGS, this manual, DoDI 5015.02, and DoD Component policies.

3.7. RELATED PROGRAMS.

Additional guidance about related programs and initiatives that may apply outside the United States is included in other DoD policies and issuances.

a. Pollution prevention is addressed in DoDD 4715.1E and DoDIs 4715.23 and 4150.07.

b. Sustainable procurement is addressed in DoDI 4105.72.

c. Hazard communication is addressed in DoDI 6050.05.

d. Safety and occupational health is addressed in DoDIs 6055.01 and 6055.05.

SECTION 4: HAZARDOUS MATERIALS

4.1. INTRODUCTION.

This section contains standards on the safe handling and storage of hazardous materials. It addresses some of the hazard communication, safety, and occupational health topics covered more fully in DoDI 6050.05. It does **not** cover:a. Solid, medical, and hazardous waste, which are covered in Volume 5 of this manual.

b. Storage of POL, UST systems, and related spill planning and response requirements, which are covered in Sections 5, 6, and 7.

c. Transportation of hazardous materials, which is covered in Parts I, II, III, and IV of Defense Transportation Regulation (DTR) 4500.9-R.

d. Ammunition and explosives, which are covered in DoD 6055.09-M.

e. Radioactive materials, which are covered in DoD 4715.6-R.

4.2. GENERAL.

a. Materials that exhibit any of the characteristics in Table 1 are considered hazardous.

Table 1. Typical Characteristics of Hazardous Materials

TYPE OF HAZARD	CHARACTERISTICS
Physical	Explosive, flammable (gases, aerosols, liquids, or solids), oxidizer (liquid, solid or gas), self-reactive, pyrophoric (liquid or solid), self-heating, organic peroxide, corrosive to metal, gas under pressure, or when in contact with water emits flammable gas.
Health	Acute toxicity (any route of exposure), skin corrosion or irritation, serious eye damage or eye irritation, respiratory or skin sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity, specific target organ toxicity (single or repeated exposure), or aspiration hazard.
Asphyxiant	Simple asphyxiant that displaces oxygen in the ambient atmosphere, and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death.
Combustible Dust	Solid particles of a substance or mixture suspended in a gas (usually air) that are combustible.
Pyrophoric Gas	A gas that will ignite spontaneously in air at a temperature of 54.4 degrees Celsius [130 degrees Fahrenheit] or below.
HN Regulated	The item or its disposal is regulated by the HN because of its hazardous nature.

b. All personnel who use, handle, or store hazardous materials must be trained in accordance with, and comply with, DoDI 6050.05.

c. DoD installations should reduce the use of hazardous materials where practical through reissuance, resource recovery, recycling, source reduction, sustainable procurement, substitution, or other minimization strategies in accordance with Service guidance on improved hazardous material management processes and techniques.

d. All hazardous materials excess to the installation must be processed through the Defense Logistics Agency Disposition Services in accordance with the procedures in Volume 4 of DoDM 4160.21. This section is not intended to prohibit the transfer of usable hazardous materials between DoD activities.

4.3. STORAGE AND HANDLING.

a. Installations must store hazardous materials in such a way as to prevent exposure to precipitation, facilitate spill response, and provide appropriate secondary containment. Hazardous material facility requirements are outlined in Unified Facilities Criteria (UFC) 4-440-01 and DLAI 4145.11/TM 38-410/NAVSUP PUB 573/AFJMAN 23-209/MCO 4450.12A.

b. Each installation must maintain a master listing of all hazardous material storage locations as well as an inventory of all hazardous materials contained therein. See Paragraph 7.2.c.(3) for details regarding hazardous substance inventory.

c. The installation must prevent the unauthorized entry of persons or livestock into hazardous material storage areas.

d. All hazardous materials on DoD installations must have a hazardous material warning label in accordance with DoDI 6050.05, or comparable HN requirements. Hazardous materials must also have safety data sheet (SDS) information either available or in the Hazardous Material Information Resource System (HMIRS) in accordance with DoDI 6050.05 and other DoD Component instructions. Materials containing ozone depleting substances must be labelled in accordance with Paragraph 4.9.b. of Volume 2. These requirements apply throughout the life-cycle of these materials.

e. Each work center must maintain a file of SDSs for each hazardous material procured, stored, or used at the work, center that's accessible to personnel. SDSs that are not contained in the HMIRS and SDSs prepared for locally purchased items must be submitted by the installation for addition into the HMIRS. SDSs must be submitted through HMIRS points of contact as identified at http://www.dla.mil/HQ/InformationOperations/Offers/Products/LogisticsApplications/HMIRS.aspx. Each SDS must be in both English and the predominant language in the workplace and include information on:

(1) Identification.

(2) Hazard(s) identification.

(3) Composition and information on ingredients.

(4) First-aid measures.

(5) Firefighting measures.

(6) Accidental release measures.

(7) Handling and storage.

(8) Exposure control and personal protection.

(9) Physical and chemical properties.

(10) Stability and reactivity.

(11) Toxicology information.

(12) Preparation or last revision.

(13) Ecological information (optional).

(14) Disposal considerations (optional).

f. Hazardous material dispensing areas must be properly maintained. Installations must:

(1) Ensure drums and containers are not leaking.

(2) Provide appropriate secondary containment and place drip pans and absorbent materials under containers, as necessary, to collect drips or spills.

(3) Clearly mark container contents.

(4) Locate dispensing areas away from catch basins and floor and storm drains.

4.4. PRE-TRANSPORT REQUIREMENTS.

Installations must ensure that before each hazardous material shipment:a. The shipment is accompanied by shipping papers that clearly describe the quantity and identity of the material and includes an SDS.

b. All drivers:

(1) Have the appropriate valid driver's license in accordance with Part II of DTR 4500.9- R.

(2) Are trained on the hazardous material included in the shipment, including health risks of exposure and the physical hazards of the material, including potential for fire, explosion, and reactivity.

(3) Are trained on spill control and emergency notification procedures.

(4) Perform a walk-around inspection before and after the hazardous material is loaded.

c. Hazardous material containers are labeled in accordance with Paragraph 4.3.d.

d. The requirements for transport outlined in Part II of DTR 4500.9-R have been met before releasing the shipment.

SECTION 5: POL

5.1. INTRODUCTION.

This section contains standards on the prevention and control of pollution resulting from the storage, transport, and distribution of POL. a. Standards for UST systems containing POL or hazardous substances are addressed in Section 6, except:

(1) USTs that are considered storage vessels and covered in Paragraph 5.4.d.

(2) Specialty UST systems that also are considered aboveground storage containers or below ground storage containers. Those systems may also be subject to the standards of this section. Installations must evaluate such UST systems to determine applicability of standards and comply with such standards, as practicable.

b. POL spill prevention and response standards are contained in Section 7.

5.2. GENERAL.

Installations that are considered POL facilities must comply with the applicable requirements of this section based on the type and capacity of POL storage and the type of POL transport and distribution activities. All installations, whether considered POL facilities or not, must comply with the spill prevention and response requirements of Section 7 and the requirements of Paragraphs 5.6.c. and 5.6.d., as applicable.

5.3. PERSONNEL TRAINING.

At a minimum, all personnel handling POL must be trained annually on:a. General facility operations.

b. Operation and maintenance (O&M) of equipment to prevent accidental discharges.

c. Spill response procedures.

d. Contents of the Spill Prevention and Response Plan.

5.4. POL STORAGE CONTAINERS.

a. Design and Construction.

(1) All POL Storage Containers.

POL storage containers must be designed or modernized in accordance with industry standards and practices to prevent unintentional discharges.

(a) The material and construction of POL storage containers must be compatible with the material stored.

(b) Design must be in accordance with industry standards and practices.

(c) Except for mobile refuelers, POL storage containers must have adequate spill and leak prevention options (such as overfill alarms and flow shutoff or restrictor devices).

(2) Below Ground and Partially Buried Aboveground Storage Containers.

Completely and partially buried metallic POL containers and piping must be protected from corrosion in accordance with industry standards and practices.

b. Inspections and Testing.

(1) All POL Storage Containers.

(a) All containers must be inspected and tested and results documented in accordance with industry standards and practices, such as American Petroleum Institute (API), Steel Tank Institute (STI), and UFC.

(b) All aboveground valves, piping, and equipment associated with POL storage containers must be inspected in accordance with industry standards and practices.

(c) Except for mobile refuelers and mobile aboveground storage containers, liquid level sensing devices must be tested to ensure proper operation.

(2) Buried Piping.

Buried piping associated with POL storage containers must be tested for integrity and leaks at the time of installation, modification, construction, relocation, or replacement.

(3) Below Ground Storage Containers.

Below ground storage containers must be tested for leaks regularly and at the time of installation, modification, construction, relocation, or replacement.

c. Secondary Containment.

(1) All POL Storage Containers.

If a professional engineer or HN equivalent determines that secondary containment methods are impractical, they may waive these standards while implementing and documenting alternative measures of protection taken to prevent and contain oil discharges.

(a) POL storage containers must be provided with a sized secondary means of containment (e.g., dike) capable of holding the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation and expansion of product. This does not include mobile refuelers and mobile aboveground storage containers. POL storage containers that are equipped with adequate engineered spill and leak prevention options (such as overfill alarms and flow shutoff or restrictor devices) may provide secondary containment by using a double-wall container.

(b) POL storage containers (fixed and mobile) must have a general secondary containment analysis to identify and contain likely releases from all parts of the container system. This includes transfer of POL into and out of the container as well as leakage or rupture of all valves and aboveground and underground pipes. Appropriate general secondary containment measures must be identified and put in place.

(2) Below Ground Storage Containers.

Completely buried containers not subject to UST standards can alternatively meet the secondary containment standards by using a leak barrier with leak detection equipment and basin.

(3) Mobile Refuelers and Mobile Aboveground Storage Containers.

Mobile refuelers and mobile aboveground storage containers must be provided general secondary containment when parked and positioned to prevent discharges into waters of the HN.

(4) Containment Area Permeability.

Permeability for containment areas may not exceed 10^{-7} centimeters per second.

(5) Containment Area Drainage.

Drainage of stormwater from containment areas must be controlled by a valve that is locked closed when not in active use. Stormwater must be inspected and documented for petroleum sheen before being drained from containment areas. If a petroleum sheen is present, it must be collected with sorbent materials before drainage or treated using an oil-water separator. Sorbent materials exhibiting the hazardous characteristics in Appendix 5A of Volume 5 must be managed and disposed of in accordance with Section 5 of Volume 5.

d. Additional Requirements for Storage Vessels.

(1) Storage vessel designs must comply with the requirements listed in Table 2.

(2) Storage vessels and emission controls must follow industry standards and practices for proper O&M.

Table 2. Storage Vessels Requirements for Petroleum Liquids

DATES	STORAGE CAPACITY	REQUIREMENT
Construction after March 8, 1974 and before May 19, 1978	Greater than 151,416 liters [40,000 gallons] but not exceeding 246,052 liters [65,000 gallons]	If vapor pressure equal to or greater than 10.3 kPa [1.5 psia] but not greater than 76.6 kPa [11.1 psia], the storage vessel must be equipped with: • A floating roof; • A vapor recovery system; or • Their equivalents. If vapor pressure is greater than 570 millimeters of mercury [11.1 psia], the storage vessel must be equipped with a vapor recovery system or its equivalent.
Construction or modification after June 11, 1973 and before May 19, 1978	Greater than 246,052 liters [65,000 gallons]	
Began construction after May 18, 1978 and before July 23, 1984	Greater than 151,416 liters [40,000 gallons][a]	If vapor pressure equal to or greater than 10.3 (kPa) [1.5 psia)] but not greater than 76.6 kPa [11.1 psia], the storage vessel must be equipped with: • An external floating roof; • A fixed roof with an internal floating type cover equipped with a continuous closure device between the tank wall and the cover edge; or • A vapor recovery system and a vapor return or disposal system.
Began construction, reconstruction, or modification after July 23, 1984	Greater than or equal to 75,000 liters [19,813 gallons] but less than 151,000 liters [39,890 gallons]	If maximum vapor pressure equal to or greater than 27.6 kPa [4.0 psia] but less than 76.6 kPa [11.1 psia], then each storage vessel must be equipped with: • A fixed roof in combination with an internal floating roof; • An external floating roof; or • A closed vent system and control device.
Began construction, reconstruction, or modification after July 23, 1984	Greater than or equal to 75,000 liters [19,813 gallons]	If maximum vapor pressure equal to or greater than or equal to 76.6 kPa [11.1 psia], then each storage vessel must be equipped with: • A closed vent system and control device, or its equivalent
Began construction, reconstruction, or modification after July 23, 1984	Greater than or equal to 151,000 liters [39,890 gallons]	If maximum vapor pressure equal to or greater than 5.2 kPa [0.75 psia] but less than 76.6 kPa [11.1 psia], then each storage vessel must be equipped with: • A fixed roof in combination with an internal floating roof; • An external floating roof; or • A closed vent system and control device.
kPa = kilopascal; psia = pounds per square inch absolute		

e. Storage Container Wastes.

(1) POL storage container wastes (e.g., sludges, residues, and bottom waters) must be characterized in accordance with Paragraph 5.4. of Volume 5 to determine if they are hazardous. If a waste exhibits a characteristic of hazardous waste as defined in Appendix 5A of Volume 5, it must be handled and disposed of in accordance with the requirements of Section 5 of Volume 5.

(2) If testing confirms that a storage container waste does not exhibit a characteristic and is not hazardous, it must be managed and disposed of in accordance with the solid waste requirements of Section 4 of Volume 5 or the wastewater requirements of Section 5 of Volume 3, as appropriate.

5.5. OIL-FILLED OPERATIONAL EQUIPMENT.

General secondary containment must be provided for oil-filled operational equipment. This general secondary containment is not required for facilities that have not had a single discharge from oil-filled operational equipment greater than 3,785 liters [1,000 gallons] or two discharges greater than 159 liters [42 gallons] within the past 12 months. If general secondary containment is not provided, the facility must:a. Have a written inspection and monitoring program to detect oil-filled equipment failure or discharges.

b. Have a written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged.

c. Include this information in the facility Spill Prevention and Response Plan.

5.6. TRANSPORT AND DISTRIBUTION.

a. Loading and Unloading Racks and Transfer Areas.

(1) Secondary Containment.

(a) Loading and Unloading Racks. Sized secondary containment must be provided that is designed to handle discharges of at least the maximum capacity of any single compartment of a rail car or tank truck loaded or unloaded at the loading or unloading rack.

(b) Transfer Areas. General secondary containment, appropriate containment or diversionary structures like dikes, berms, culverts, spill diversion ponds, or equipment such as sorbent materials, weirs, booms, other barriers, must be provided at transfer areas to prevent a discharge of POL.

(2) Departing Vehicle Warning Systems and Barriers.

At loading and unloading racks, an interlocked warning light or physical barrier system, warning signs, wheel chocks, or vehicle break interlock system must be provided to prevent vehicles from departing before complete disconnection of flexible or fixed oil transfer lines.

(3) Vehicle Inspections.

At both loading and unloading racks and transfer areas, before departure of any tank car or tank truck, the lowermost drain and all outlets of such vehicles must be closely inspected for discharges and, if necessary, tightened, adjusted, or replaced to prevent liquid discharge while in transit.

b. POL Pipeline Facilities.

All pipeline facilities carrying POL must be inspected, tested, and maintained in accordance with industry standards and practices, including:(1) Each pipeline operator handling POL must prepare and follow a procedural manual for operations, maintenance, and emergencies.

(2) Each new pipeline facility, and each facility in which piping has been replaced or relocated, must be tested in accordance with industry standards and practices, without leakage, before being placed in service.

(3) All new POL pipeline facilities must be designed and constructed to meet industry standards and practices such as API, STI, or UFC.

c. Bulk Gasoline Plants.

The following requirements apply to the loading of gasoline into storage tanks with a capacity of 946 liters [250 gallons] or more, or the loading of gasoline into all cargo tanks. Bulk gasoline plant requirements do not apply to loading of aviation gasoline into storage tanks at airports or the subsequent transfer of aviation gasoline within the airport. (1) Gasoline Handling.

Gasoline must not be handled in a manner that results in vapor release to the atmosphere for an extended period of time. Measures to be taken include, but are not limited to:

(a) Minimize gasoline spills and clean up spills as expeditiously as practicable.

(b) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use.

(c) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil and water separators.

(2) Submerged Filling.

Gasoline must only be loaded into storage tanks and cargo tanks using submerged filling.

(3) Inspections.

Monthly leak inspection of all equipment in gasoline service at the facility must be performed. Document each inspection in a log book. Include a list, summary description, or diagram in the log book showing the location of all equipment in gasoline service.

(4) Leak Repair.

Initial repair must be performed as soon as possible, but no later than 5 calendar days after the leak is detected. Repair or replacement of leaking equipment must be completed within 15 calendar days after detection, if practicable.

d. Gasoline Dispensing Facilities (GDFs).

The following requirements apply to the loading of gasoline storage tanks at a GDF, based on monthly throughput of the GDF. If an installation has two or more GDFs at separate locations within the installation, each GDF must be treated separately. GDF requirements do not apply to loading of aviation gasoline into storage tanks at airports or the subsequent transfer of aviation gasoline within the airport. Installations must ensure that each gasoline storage tank located at a GDF and gasoline cargo tank (i.e., tanker truck or railcar) that deliver gasoline to or from a GDF complies with the following requirements:(1) GDF with Monthly Throughput Less Than 37,854 Liters [10,000 Gallons]. Gasoline must not be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to:

(a) Minimizing gasoline spills and cleaning up spills as expeditiously as practicable.

(b) Covering all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use.

(c) Minimizing gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

(2) GDF with Monthly Throughput Greater Than or Equal to 37,854 Liters [10,000 Gallons]. Measures to be taken include, but are not limited to:

(a) Complying with the requirements of Paragraph 5.6.d.(1).

(b) Only loading gasoline into storage tanks using submerged filling.

(3) GDF with Monthly Throughput Greater Than or Equal to 378,541 Liters [100,000 Gallons]. Measures to be taken include, but are not limited to:

(a) Complying with the requirements of Paragraphs 5.6.d.(1) and 5.6.d.(2).

(b) Installing and operating a vapor balance system on each storage tank at the GDF. At a minimum, each vapor balance system must meet all of these design standards:

1. All vapor connections and lines on the storage tank must be equipped with closures that seal upon disconnect.

2. The vapor line from the gasoline storage tank to the gasoline cargo tank must be vapor-tight.

3. The pressure in the tank truck must not exceed 4.5 kPa [18 inches water] pressure or 1.5 kPa [5.9 inches water] vacuum during product transfer.

4. The vapor recovery and product adaptors, and the method of connection with the delivery elbow, must prevent the overtightening or loosening of fittings during normal delivery operations.

5. If a gauge well separate from the fill tube is used, it must be provided with a submerged drop tube.

6. Liquid fill connections for all systems must be equipped with vapor-tight caps.

7. Pressure/vacuum vent valves must be installed on the storage tank vent pipes. The pressure specifications for pressure/vacuum vent valves must be a positive pressure setting of 0.6 to 1.5 kPa [2.5 to 6.0 inches of water] and a negative pressure setting of 1.5 to 2.5 kPa [6.0 to 10.0 inches of water].

8. Storage tanks constructed after November 9, 2006, must be equipped with a dual-point vapor balance system (i.e., a vapor balance system in which the storage tank is equipped with an entry port for a gasoline fill pipe and a separate exit port for a vapor connection).

(c) Ensuring cargo tanks unloading at a GDF where the storage tanks are equipped with vapor balance systems comply with certain management practices. These practices require meeting all of these conditions before transferring gasoline from the cargo tank to the storage tank:

1. All hoses in the vapor balance system are properly connected.

2. The adapters or couplers that attach to the vapor line on the storage tank have closures that seal upon disconnect.

3. All vapor return hoses, couplers, and adapters used in the gasoline delivery are vapor-tight.

4. All tank truck vapor return equipment must be compatible in size and form a vapor-tight connection with the vapor balance equipment on the GDF storage tank.

5. All hatches on the tank truck are closed and securely fastened.

6. The filling of storage tanks at GDFs is limited to unloading from vapor-tight gasoline cargo tanks.

5.7. RECORDKEEPING.

Installations must maintain records associated with POL design and construction, inspections and testing, secondary containment, and other standards of this section. Such recordkeeping may be performed as part of the spill prevention and response standards in Section 7.

SECTION 6: USTS

6.1. INTRODUCTION.

This section contains standards on the prevention and control of pollution resulting from POL and hazardous substances stored in UST systems.

6.2. GENERAL.

a. The standards in this section apply to all UST systems, except for the following excluded UST systems:

(1) Any UST system holding hazardous waste. See Section 5 of Volume 5.

(2) Any wastewater treatment tank that is part of a wastewater treatment facility.

(3) Equipment or machinery (operational tanks) that contains hazardous substances or POL for operational purposes such as hydraulic lift tanks and electrical equipment tanks.

(4) Any UST system whose capacity is 416 liters [110 gallons] or less. If greater than or equal to 208 liters [55 gallons], this is a below ground storage tank subject to the requirements in Section 5 of this volume.

(5) Any UST system that contains *de minimis* concentration of hazardous substances or POL.

(6) Any emergency spill or overflow containment UST system that is expeditiously emptied after use.

b. Some specialty UST systems may also be considered aboveground storage containers or below ground storage containers and subject to the standards of Section 5. Installations must evaluate such UST systems to determine applicability of standards and comply, as practicable.

c. Owners and operators of UST systems must implement the requirements of this section. Installation commanders and their representatives must oversee implementation and ensure compliance with these requirements, regardless of whether the installation is the owner or operator of the UST system.

6.3. NEW AND EXISTING UST SYSTEMS.

New UST systems include UST systems where installation began after April 11, 2016. Existing UST systems include UST systems where installation began on or before April 11, 2016.

6.4. DESIGN, CONSTRUCTION, AND INSTALLATION.

Owners and operators must ensure that all UST systems are properly designed and installed, protected from corrosion, provided with spill and overfill prevention, and incorporate release detection. Specialty UST systems must meet the requirements of this paragraph as prescribed in Paragraph 6.7., which describes the applicability of the design, construction, and installation requirements of this paragraph. These requirements must be addressed in accordance with manufacturer's specifications and applicable design criteria such as UFC 3-460-01 and UFC 3-460-03 (or similar) and industry standards and practices.

a. Tank Design, Construction, and Installation.

Tanks must have secondary containment and corrosion protection, and be constructed of, or lined with, a material that is compatible with the substances stored.

(1) Secondary Containment for Tanks.

New and replaced POL tanks, as well as existing, new, and replaced hazardous substance tanks, must be secondarily contained and use interstitial monitoring.

(2) Corrosion Protection for Tanks.

Any portion of a tank that routinely contains hazardous substances or POL, and is in contact with the ground, must be protected from corrosion in accordance with industry standards and practices. Tanks must be constructed of one of the following:

(a) A non-corrodible material such as fiberglass-reinforced plastic.

(b) Steel that is coated and cathodically protected. The corrosion-resistant coating must be a suitable dielectric material. Asphalt does not meet this requirement. Field-installed cathodic protection systems must be designed by a corrosion expert and installed, operated, and maintained in accordance with industry standards and practices. Impressed current systems must be designed to allow determination of current operating status.

(c) Steel and clad (enclosed or jacketed) with a non-corrodible material that completely isolates the steel from contact with the surrounding soil.

(3) Compatibility for Tanks.

Tanks must be constructed of, or lined with, materials that are compatible with the substance stored.

(4) Release Detection for Tanks in Existing UST Systems.

(a) Existing POL tanks must use at least one of the following release detection methods: automatic tank gauging, groundwater monitoring, interstitial monitoring, statistical inventory reconciliation, or vapor monitoring. Existing POL tanks that meet the requirements of

Paragraph 6.4.(a) may use tank tightness testing if used in combination with monthly inventory control.

(b) Existing hazardous substance tanks must, at a minimum, use interstitial monitoring.

(5) Release Detection for Tanks in New UST Systems.

New POL and hazardous substance tanks must be monitored for releases using at least interstitial monitoring.

(6) Standards for Methods of Release Detection for Tanks.

Tanks must be monitored for releases at least every 30 days or properly closed. Owners and operators must use the release detection method, or combination of methods, specified for new or existing UST systems that:

(a) Can detect a release from any portion of the tank that routinely contains hazardous substances or POL.

(b) Is installed and calibrated in accordance with the manufacturer's specifications.

(c) Is capable of detecting a leak rate or quantity of at least 0.76 liters [0.2 gallons] per hour or 568 liters [150 gallons] in 1 month or the rate or quantity for that method as specified in the standards. All must have a probability of detection of 0.95 and a probability of false alarm of 0.05.

(d) Meets the performance requirements for these specific release detection methods:

1. Automatic tank gauging must meet industry standards and practices, including those for inventory control and be capable of detecting a 0.76 liter [0.2 gallon] per hour leak rate from any portion of the tank that routinely contains POL or hazardous substances. Automatic tank gauging is performed with the system operating in either in-tank static mode or a continuous in-tank release detection that allows a leak status to be measured at least every 30 days.

2. Groundwater monitoring must be consistent with industry standards and practices.

3. Interstitial monitoring may only be used if the system is designed, constructed, and installed to detect a leak from any portion of the tank that routinely contains product.

4. Statistical inventory reconciliation must meet industry standards and practices and report a quantitative result with a calculated leak rate. It must be capable of detecting a leak rate of .76 liters [0.2 gallon] per hour or a release of 568 liters [150 gallons] within 30 days. The threshold must not exceed one-half the minimum detectible leak rate.

5. Vapor monitoring must be consistent with industry standards and practices. There must be sufficient porosity of the backfill and volatility of the stored substance or tracer

compound. Monitoring must assure that known interferences from rain, groundwater, soil moisture, or similar will not allow a release to go undetected for more than 30 days.

6. Tank tightness testing must be capable of detecting a 0.38 liter [0.1 gallon] per hour leak rate from any portion of the tank that routinely contains product. Tests must account for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.

b. Piping Design, Construction, and Installation.

(1) Secondary Containment for Piping.

(a) For all new and replaced UST systems, all piping must be secondarily contained and use interstitial monitoring, except for suction piping that meets the definition of safe suction piping. Safe suction piping may be single walled.

(b) For existing hazardous substance UST systems, underground piping must have secondary containment and interstitial monitoring. Existing underground piping that conveys hazardous substances under pressure must have automatic line leak detectors.

(c) When 50 percent or more of the piping connected to a single tank is removed and replaced, the entire piping run must be replaced with piping that has secondary containment and interstitial monitoring.

(2) Corrosion Protection for Piping.

Piping that routinely contains hazardous substances or POL—and is in regular contact with the ground—must be properly designed, constructed, and protected from corrosion in accordance with industry standards and practices. Piping must be constructed of:

(a) A non-corrodible material; or

(b) Steel that is coated and cathodically protected. The corrosion-resistant coating must be a suitable dielectric material. Asphalt does not meet this requirement. Field-installed cathodic protection systems must be designed by a corrosion expert and be installed, operated, and maintained in accordance with industry standards and practices. Impressed current systems must be designed to allow determination of current operating status.

(3) Compatibility for Piping.

Piping must be constructed of, or lined with, materials that are compatible with the substance stored.

(4) Release Detection for Piping.

(a) Release Detection Methods.

Owners and operators must use a release detection method, or combination of methods specified for the particular type of piping, as detailed in Paragraphs 6.4.b.(4)(b) through 6.4.b.(4)(e), that:

1. Can detect a release from any portion of the connected underground piping that routinely contains hazardous substances or POL.

2. Is installed and calibrated in accordance with the manufacturer's specifications.

3. Meets the performance requirements for the specific release detection method.

a. Automatic line release detectors must be capable of detecting leaks of 11.36 liters [3 gallons] per hour at 68.9 kPa [10 pounds per square inch] line pressure within 1 hour.

b. Groundwater monitoring must be consistent with industry standards and practices.

c. Line tightness testing must be capable of detecting a leak rate of 0.38 liters [0.1 gallons] per hour at one and one-half times the operating pressure.

d. Interstitial monitoring may only be used if the system is designed, constructed, and installed to detect a leak from any portion of the piping that routinely contains product.

e. Vapor monitoring must be consistent with industry standards and practices. There must be sufficient porosity of the backfill and volatility of the stored substance or tracer compound. Monitoring must assure that known interferences from rain, groundwater, soil moisture, or similar interferences will not allow a release to go undetected for more than 30 days.

f. Other methods including, but not limited to, electronic pressurized line leak detection may be used if they can detect a 0.2 gallon per hour leak rate with a probability of detection of 0.95 and a probability of false alarm of 0.05.

(b) Existing Pressurized Piping.

Existing piping that conveys:

1. Hazardous substances under pressure must use interstitial monitoring and automatic line release detection.

2. POL under pressure must be equipped with an automatic line release detector and have an annual line tightness test conducted or be monitored monthly.

(c) New Pressurized Piping.

New and replaced underground pressurized piping for POL and hazardous substance UST systems must be monitored for releases at least every 30 days via interstitial monitoring and be equipped with an automatic line release detector.

(d) Existing Suction Piping.

Existing underground suction piping for POL and hazardous substance UST systems is not required to have release detection if the piping meets the definition of safe suction. Non-safe suction piping must meet one of these conditions:1. Conduct line tightness testing at least every 3 years; or

2. Use monthly monitoring methods: automatic tank gauging, groundwater monitoring, interstitial monitoring, or vapor monitoring.

(e) New Suction Piping.

New underground suction piping for POL and hazardous substance UST systems is not required to have release detection if the piping meets the standards for safe suction. If it cannot meet these standards, then it must meet the same requirements as new pressurized piping and be monitored for releases at least every 30 days using interstitial monitoring.

c. Spill and Overfill Protection Equipment Design, Construction, and Installation.

Except where transfers are made in the amounts of 95 liters [25 gallons] or less, owners and operators must ensure all UST systems have:

(1) Spill prevention equipment, such as spill buckets or catchment basins that prevents the release of product into the environment when the transfer hose is detached from the fill pipe.

(2) Overfill prevention equipment. Ball float valves can no longer be used as overfill prevention equipment for new UST systems. Overfill prevention equipment must be either:

(a) An automatic shut-off device set at 95 percent of tank capacity; or

(b) A high-level alarm set at 90 percent of tank capacity that alerts the transfer operator.

d. Dispenser System Design, Construction, and Installation.

Owners and operators must ensure that each UST system is equipped with under-dispenser containment for new dispenser systems (where installation began after April 11, 2016). A dispenser system is considered new when both the dispenser and the equipment needed to connect the dispenser to the UST system are installed. Under-dispenser containment must be liquid tight on its sides and bottom, and at any penetrations. The containment must allow for visual inspection and access to the components or be periodically monitored for leaks.**6.5. O&M.**

Owners and operators must ensure that O&M is performed in accordance with industry standards and practices. These requirements are intended to protect the environment and do not serve as a replacement for comprehensive fuel storage system O&M manuals. Owners and operators must ensure that these requirements are incorporated into the overall O&M manuals.

a. Spill and Overfill Prevention O&M.

In addition to properly operating and maintaining spill and overfill prevention equipment, owners and operators must operate UST systems in a manner that prevents spills and overfills. Specifically, operators must continuously monitor transfer operations to prevent overfilling and spilling, ensure the available tank volume is greater than the volume of product to be transferred to the tank, and periodically inspect and test spill prevention and overfill equipment during O&M walkthrough inspections.(1) Repairs to Spill and Overfill Prevention Equipment. Within 30 days following repair to spill or overfill prevention equipment, owners and operators must test the repaired equipment in accordance with industry standards and practices to ensure proper operation.

(2) Inspection and Testing of Spill Prevention Equipment, Overfill Prevention Equipment, and Containment Sumps. Owners and operators must ensure that walkthrough inspections and tests are conducted that include:

(a) Inspecting spill prevention equipment at least every 30 days. UST systems receiving deliveries at intervals greater than every 30 days may be checked before each delivery. Inspections must include:

1. Visually checking for damage.

2. Removing liquid and debris.

3. Checking for and removing obstructions in the fill pipe.

4. Checking the fill cap to ensure it is securely on the fill pipe.

5. Checking for leaks in interstitial areas of double-walled spill prevention equipment with interstitial monitoring.

6. Monitoring the integrity of both walls of the double-walled spill prevention equipment by using the vacuum, pressure, or liquid interstitial integrity indicator, if so equipped.

(b) Inspecting containment sumps annually. Inspections must include:

1. Visually inspecting for damage.

2. Checking for leaks to the containment area or releases to the environment.

3. Removing liquid or debris.

4. Checking for a leak in the interstitial area for double-walled sumps with interstitial monitoring.

(c) Using vacuum, pressure, or liquid testing to test spill prevention equipment used for interstitial monitoring of piping at least once every 3 years to ensure the equipment is liquid tight. All single-walled spill prevention equipment and containment sumps as well as double-walled spill prevention equipment and containment sumps not monitored in accordance with Paragraph 6.5.a.(2)(a)6. require this triennial testing.

(d) Inspecting overfill prevention equipment at least every 3 years to ensure proper operation and prevention of overfills. At a minimum, the inspection must ensure that overfill prevention equipment is set to the correct level and will activate when the POL or hazardous substance reaches that level.

(e) Maintaining records for O&M inspections in accordance with the requirements in Paragraph 6.10.

(f) Maintaining records demonstrating compliance for spill and overfill prevention equipment in accordance with the requirements in Paragraph 6.10.

b. Corrosion Protection O&M.

Until permanent closure of an UST system, owners and operators must prevent releases due to corrosion by ensuring all of the following are performed:(1) Properly operating and maintaining UST systems (including cathodic protection systems) to continuously provide corrosion protection to the metal components of tanks and piping in contact with the ground.

(2) Within 6 months of installation of cathodic protection systems, and at least every 3 years thereafter, inspecting cathodic protection systems for proper operation using qualified cathodic protection experts and in accordance with industry standards and practices.

(3) Every 60 days, inspecting UST systems with impressed current cathodic protection systems to validate the equipment is running properly.

(4) Within 6 months of repairs to cathodically protected UST systems, testing cathodic protection system in accordance with industry standards and practices to ensure proper operation. Maintain records for cathodic protection tests as described in Paragraph 6.10.

c. Compatibility O&M.

If the contents of the UST systems are changed, owners and operators must ensure compatibility between the new substance stored and the UST system.

d. Release Detection System O&M.

Owners and operators must maintain and operate release detection systems in accordance with manufacturer's specifications and industry standards and practices. Operators must:

(1) Conduct O&M walkthrough inspections of release detection equipment at least every 30 days to confirm:

(a) Proper operation and no alarms.

(b) Hand-held release detection equipment is properly functioning.

(c) Release detection records are reviewed and current.

(2) Conduct testing of release detection systems at least annually to verify proper operation in accordance with manufacturer's specifications and industry standards and practices.

(3) Conduct annual line tightness testing or monthly monitoring for existing underground piping that conveys POL under pressure. After tanks and piping have been replaced with double-walled systems by October 2018, only monthly monitoring of the interstitial space is allowed.

(4) Maintain records on release detection systems to demonstrate equipment and operational compliance. Detailed recordkeeping requirements for release detection systems are identified in Paragraph 6.10.

(5) Report failure of release detection systems and suspected releases in accordance with Service-specific guidance.

e. Repairs to UST Systems.

Owners and operators must ensure that repairs to UST systems will prevent releases due to structural failure or corrosion as long as the UST system is used to store hazardous substances or POL.

(1) UST System Repairs.

(a) Pipe Sections and Fittings. Metal pipe sections and fittings that have released product as a result of corrosion or other damage must be replaced. Non-corrodible pipes and fittings that are corroded or damaged may be repaired.

(b) All UST System Repairs. Repairs must be completed in accordance with manufacturer's specifications and industry standards and practices.

(2) Testing of Repaired UST Systems.

(a) Secondary Containment Repairs. Within 30 days of repairs to secondary containment areas or containment sumps used for interstitial monitoring of piping, a tightness test of the containment area or sump must be conducted.

(b) Other Repairs. Within 30 days following the date of repair to tanks or piping components, a tightness test of the UST system must be conducted. This test is not required when:

1. The repaired tank is internally inspected in accordance with industry standards and practices; or

2. The repaired portion of the UST system is monitored monthly for releases.

(3) Documentation of Repairs.

Records of each repair and testing will be maintained until the UST system is permanently closed.

f. Inventory.

Installations must maintain an updated UST system inventory for the entire installation that includes the following items for each UST:

(1) Location.

(2) Installation date.

(3) Capacity.

(4) Tank and piping attributes, such as material, protection, secondary containment.

(5) Piping delivery type (safe suction, pressurized).

(6) Spill and overfill protection equipment details.

(7) Under-dispenser containment.

(8) Substance stored and confirmation of compatibility.

(9) Release detection details for tanks and pipes.

(10) Removal details.

(11) Replacement details.

(12) Closure details, including closure date, location, and related information for all historic UST systems on the UST inventory.

6.6. OPERATOR TRAINING.

Installations must ensure that the requirements for operator designation, training, and recordkeeping are met for all UST systems. These requirements apply to all UST systems, including specialty UST systems.

a. Designation of Class A, B, and C Operators.

Owners and operators must designate:(1) At least one Class A and one Class B operator for each UST system or group of UST systems at a facility; and

(2) Each individual who meets the definition of Class C operator at the UST facility as a Class C operator.

b. Operator Training Content.

Owners and operators must ensure all operators receive the required training, by operator class, as specified in Table 3.

Table 3. UST System Operator Training Requirements

OPERATOR CLASS	MINIMUM TRAINING REQUIREMENTS
Class A	Training must include the purpose, method, and function of: • Spill and overfill prevention. • Release detection. • Corrosion protection. • Emergency response. • Product and equipment compatibility and demonstration. • Temporary and permanent closure. • Related reporting, recordkeeping, testing, and inspections. • Environmental and regulatory consequences of releases. • Training requirements for Class B and C operators. The training program must evaluate Class A operators to determine if these individuals have the knowledge and skills to make informed decisions regarding compliance. The program also will evaluate whether appropriate individuals are fulfilling the operation, maintenance, and recordkeeping requirements for UST systems.

Table 3. UST System Operator Training Requirements, Continued

OPERATOR CLASS	MINIMUM TRAINING REQUIREMENTS
Class B	Training must include the purpose, method, and function of: • O&M. • Spill and overfill prevention. • Release detection and related reporting. • Corrosion protection. • Emergency response. • Product and equipment compatibility and demonstration. • Reporting, recordkeeping, testing, and inspections. • Environmental and regulatory consequences of releases. • Training requirements for Class C operators. The training program must evaluate Class B operators to determine if these individuals have the knowledge and skills to implement applicable UST system regulatory requirements. These requirements apply in the field on the components of typical UST systems or, as applicable, site-specific equipment used at an UST facility.
Class C	Training must include appropriate emergency response actions, including notification procedures, in response to emergencies or alarms caused by spills or releases resulting from UST system operations. The training program must evaluate Class C operators to determine if these individuals have the knowledge and skills to take appropriate action (including notifying appropriate authorities) in response to emergencies or alarms caused by spills or releases from an UST system.

c. Timing of UST System Operator Training.

(1) New Class A and B operators must meet requirements within 30 days of assuming duties.

(2) New Class C operators must be trained before assuming duties of a Class C operator.

d. Retraining of UST System Operators.

(1) Class A and B operators must take annual refresher training that covers all the required content in Table 3.

(2) No later than 30 days after a non-compliance issue is identified, Class A and B operators must be retrained. At a minimum, the training must cover the specific area(s) determined to be out of compliance. Annual refresher training can be used to fulfill this requirement if it includes the non-compliance topics.

e. Documentation.

For as long as operators are designated, UST system owners and operators must maintain records regarding designation and training.

6.7. SPECIALTY UST SYSTEMS.

a. Specialty UST System Requirements.

Specialty UST systems (i.e., airport hydrant fuel distribution systems and UST systems with field-constructed tanks (FCT)) must meet the standards in this section. Owners and operators must use industry standards and practices for design, installation, O&M, and closure of specialty UST systems. Except for the specific exceptions and alternatives described in this paragraph, specialty UST systems are subject to the same requirements as other UST systems, as described in Paragraphs 6.4., 6.5., 6.6., 6.8., 6.9., and 6.10.

b. Exceptions and Alternatives for Specialty UST Systems.

(1) Pressurized Piping Exceptions.

(a) Pressurized piping associated with FCTs greater than 189,271 liters [50,000 gallons] and piping associated with airport hydrant systems may use single-walled piping when installing or replacing piping.

(b) Pressurized piping associated with UST systems with FCTs less than or equal to 189,271 liters [50,000 gallons] and not part of an airport hydrant system must meet the secondary containment requirements for UST systems in Paragraph 6.4.b.(1) when installed or replaced.

(c) Existing piping must comply upon replacement.

(2) Additional Corrosion Protection Standards for Specialty UST Systems.

In addition to complying with UST system corrosion protection standards in Paragraphs 6.4.a.(2) and 6.4.b.(2), owners and operators of specialty UST systems must meet these additional requirements:

(a) Specialty UST systems must be equipped with cathodic protection as a means of corrosion protection.

(b) Before adding cathodic protection to specialty UST systems, owners and operators must assess tanks greater than 10 years old to ensure the tank is structurally sound and free of corrosion holes. The assessment must be made by an internal inspection or another industry standard or practice that adequately assesses the tank's structural integrity for soundness and corrosion holes.

(3) Additional O&M Requirements for Specialty UST Systems.

Owners and operators of specialty UST systems must meet the UST system O&M requirements in Paragraph 6.5., including walkthrough inspections, reporting, recordkeeping, guidance on repairs, and other standards in Paragraph 6.5. In addition, owners and operators of specialty UST systems must also inspect hydrant pits and vaults at least every 30 days. If

confined space entry is required, inspections may be performed no less frequently than annually. The additional inspections must include:

(a) Hydrant Pits. Visually check for damage, remove liquid or debris, and check for leaks.

(b) Hydrant Piping Vaults. Check for hydrant piping leaks.

(4) Release Detection Requirements for FCTs.

(a) Owners and operators of FCTs with a capacity less than or equal to 189,271 liters [50,000 gallons] must meet the release detection requirements for UST systems in Paragraph 6.4.a.(4).

(b) Owners and operators of new and existing FCTs with a capacity greater than 189,271 liters [50,000 gallons] and airport hydrant systems must provide release detection through one of the following options:

1. Meet the release detection requirements for new UST systems in Paragraph 6.4.a.(5);

2. Meet the release detection requirements for existing UST systems in Paragraph 6.4.a.(4) with two exceptions. Use of vapor monitoring and groundwater monitoring must be combined with an inventory control method conducted at least every 30 days and capable of detecting a release of less than 0.5 percent of flow-through; or

3. Monitor for releases using one or a combination of the following:

a. Conduct an annual tank tightness test that can detect a 1.9 liter [0.5 gallon] per hour leak rate;

b. Use automatic tank gauging at least every 30 days that can detect a leak rate less than or equal to 3.8 liters [1 gallon] per hour. This method must be combined with a tank tightness test that can detect a 0.76 liter [0.2 gallon] per hour leak rate, performed at least every 3 years;

c. Use automatic tank gauging at least every 30 days that can detect a leak rate less than or equal to 7.6 liters [2 gallons] per hour. This method must be combined with a tank tightness test that can detect a 0.76 liter [0.2 gallon] per hour leak rate, performed at least every 2 years;

d. Perform vapor monitoring capable of detecting a 0.38 liter [0.1 gallon] per hour leak rate at least every 2 years; or

e. Perform inventory control at least every 30 days that can detect a leak equal to or less than 0.5 percent of flow-through. Using this method also requires a tank tightness test (1.89 liter [0.5 gallon] per hour leak rate minimum) every 2 years or vapor monitoring or groundwater monitoring at least every 30 days.

(5) Release Detection Requirements for Piping.

(a) Owners and operators of pressurized piping for new and existing FCTs with a capacity less than or equal to 189,271 liters [50,000 gallons] must meet the UST system release detection requirements in Paragraph 6.4.b.(4).

(b) Owners and operators of underground pressurized piping associated with airport hydrant systems and FCTs greater than 189,271 liters [50,000 gallons] must follow either the requirements in Paragraph 6.4.b.(4) (except vapor monitoring and groundwater monitoring, which must be combined with inventory control) or use at least one of the following alternative methods of release detection:

1. Perform a semiannual or annual line tightness test at or above the piping operating pressure in accordance with Table 4. Piping segment volumes greater than or equal to 378,541 liters [100,000 gallons] not capable of meeting the maximum 11.4 liters [3.0 gallons] per hour leak rate for the semiannual test may be tested at a leak rate up to 22.7 liters [6.0 gallons] per hour according to the schedule in Table 5.

2. Perform vapor monitoring capable of detecting a 0.38 liter [0.1 gallon] per hour leak rate at least every 2 years.

3. Perform inventory control at least every 30 days that can detect a leak equal to or less than 0.5 percent of flow-through and perform either a line tightness test at least every 2 years or perform vapor monitoring or groundwater monitoring at least every 30 days.

Table 4. Specialty UST System Maximum Release Detection Rate per Test Section Volume

PIPING TEST SECTION VOLUME	SEMIANNUAL TEST – LEAK DETECTION RATE NOT TO EXCEED	ANNUAL TEST – LEAK DETECTION RATE NOT TO EXCEED
liters [gallons]	liters [gallons] per hour	
Less than 189,271 [50,000]	3.8 [1.0]	1.9 [0.5]
Greater than or equal to 189,271 [50,000] and less than 283,906 [75,000]	5.7 [1.5]	2.8 [0.75]
Greater than or equal to 283,906 [75,000] and less than 378,541 [100,000]	7.6 [2.0]	3.8 [1.0]
Greater than or equal to 378,541 [100,000]	11.36 [3.0]	5.7 [1.5]

Table 5. Specialty UST System Phase-in for Piping Segments Greater Than or Equal to 378,541 Liters [100,000 Gallons] in Volume

TEST	FREQUENCY	LEAK RATE
First Test	As soon as possible but no later than 24 months after publication of this manual.	May use up to 22.7 liters [6.0 gallons] per hour leak rate.
Second Test	Within 36 months after first test.	May use up to 22.7 liters [6.0 gallons] per hour leak rate.

Table 5. Specialty UST System Phase-in for Piping Segments Greater Than or Equal to 378,541 Liters [100,000 Gallons] in Volume, Continued

TEST	FREQUENCY	LEAK RATE
Third Test	Within 12 months after second test.	Must use up to 11.36 liters [3.0 gallons] per hour leak rate.
Subsequent Tests	Semiannual or annual testing (based on the date of the third test) according to maximum leak detection rate per test section volume as specified in Table 4.	

6.8. RELEASE RESPONSE.

a. Installations must ensure proper response to suspected and confirmed releases from UST systems.

b. Owners and operators must:

(1) Investigate suspected leaks, including conducting confirmation sampling, as appropriate.

(2) Notify appropriate authorities of verified leaks.

(3) Ensure that any verified leaking tanks or piping are immediately removed from service.

(4) Repair or replace UST systems that are still required.

(5) In accordance with Paragraph 6.9., properly close and remove from the ground UST systems that are no longer required. When a leaking UST system is removed, exposed free product and obviously contaminated soil in the immediate vicinity of the tank must be appropriately removed and managed in accordance with the spill response requirements in Section 7.

c. Installations must maintain records of releases and response actions until the installation is permanently closed.

6.9. OUT-OF-SERVICE SYSTEMS AND CLOSURE.

Installations must properly close UST systems using the following standards.

a. Temporary Closure. When an UST system is temporarily closed, corrosion protection and release detection systems (if the UST system is not empty) must be operated and maintained. If an UST system is temporarily closed for 3 months or greater, the following requirements must be met:

(1) Vent lines must be left open and functioning.

(2) All other lines, pumps, manways, and ancillary equipment must be secured and capped.

b. Change in Service. When the product stored in an UST system is changed to a product that is neither a hazardous substance nor a POL, the UST system must be emptied and cleaned by removing all liquid and accumulated sludge.

c. Permanent Closure. When an UST system has not been used or has been temporarily closed for 1 year, or is determined to no longer be required, all of the product and sludge must be emptied and the UST system removed from the ground. All components must be drained, cleaned, and monitored, as applicable, during the closure process. Under extenuating circumstances, such as large FCTs and where the UST system is located under a building, the UST system can be cleaned and filled with an inert material and closed in place. Examples of acceptable inert material include sand, soil, foam, concrete, and grout. If there is a confirmed or suspected release, installations must undertake the release response activities in Paragraph 6.8.

d. Disposal of UST System Wastes. Liquids, sludges, and other wastes generated from change of service or closure of UST systems must be characterized in accordance with Paragraph 5.4 of Volume 5 to determine if they are hazardous. If a waste exhibits a characteristic of hazardous waste as defined in Appendix 5A of Volume 5, it must be handled and disposed of in accordance with the requirements of Section 5 of Volume 5. If testing confirms that a waste does not exhibit a characteristic and is not hazardous, it must be managed and disposed of in accordance with the solid waste requirements of Section 4 of Volume 5 or the wastewater requirements of Section 5 of Volume 3, as appropriate.

e. Closure Records. After permanent UST system closure or change-in-service, the installation must ensure records on the previous tank system, including previous location and closure reports, are maintained for the duration of the installation operations.

6.10. RECORDKEEPING.

Owners and operators must maintain records of UST system design, construction, and installation; O&M; release response; and closure. They must make UST system records available upon request during inspections. Table 6 identifies specific UST system recordkeeping requirements.

Table 6. UST System Recordkeeping Requirements

TYPES OF RECORDS		RETENTION PERIOD
UST System Inventory	UST system inventory for the entire installation that includes the items listed in Paragraph 6.5.f.	Life of installation
Spill and Overfill Prevention	Testing and inspection records for spill and overfill prevention equipment and containment sumps used for interstitial monitoring of piping.	3 years
	Documentation showing spill prevention equipment and containment sumps used for interstitial monitoring of piping is double-walled and the integrity of both walls is periodically monitored.	For as long as periodic monitoring is conducted
Corrosion Protection	Records of 60-day inspections for impressed current corrosion protection system.	Three most recent inspections
	Records of cathodic protection tests for corrosion protection system.	Two most recent tests
Release Detection	30-day monitoring results.	1 year
	Tightness test results.	Until the next test
	Records for annual release detection equipment operability tests.	3 years
	Copies of performance claims provided by release detection equipment manufacturers or equipment installers.	Life of system
	Schedules of required calibration and maintenance provided by release detection equipment manufacturers.	5 years after installation
	Records of maintenance, repair, and calibration of on-site release detection equipment.	1 year after servicing is completed
	Records of releases and response actions.	Life of installation
	If using vapor monitoring or groundwater monitoring, records of a site assessment showing that the monitoring system is set up properly.	As long as vapor monitoring or groundwater monitoring is used
Walkthrough Inspections	Records showing performance of periodic walkthrough inspections. Records must include: • A list of the areas checked. • Whether each area was acceptable or needed action. • A description of actions taken to correct an issue. • Delivery records if spill prevention equipment is checked less frequently than every 30 days due to infrequent deliveries.	1 year
Operator Training	Records for each designated Class A, B, and C operator showing they have been trained.	As long as the operator is designated at the facility
Repairs	Records showing that a repaired UST system was properly repaired.	Until the UST system is permanently closed
Closure	Records for permanent closure, including: • Closure reports. • Decommissioning reports. • Sampling records (when applicable).	Life of the installation

SECTION 7: SPILL PREVENTION AND RESPONSE

7.1. INTRODUCTION.

This section contains standards for planning, prevention, control, and reporting of spills of POL and hazardous substances. Sections 4, 5, and 6 provide related standards for hazardous materials, POL, and USTs. Remediation beyond that required for the initial response is conducted in accordance with DoDI 4715.08.

7.2. SPILL PREVENTION AND RESPONSE PLANS.

All DoD installations must prepare, maintain, and implement a spill prevention and response plan that provides for the prevention and control of all POL and hazardous substance spills, and for the reporting of all significant spills. The spill prevention and response plan is referred to as "the plan" in this section. The plan must provide measures to prevent and, to the maximum extent practicable, remove a worst-case discharge (WCD) from the facility. Appendix 7A provides guidance for determining the WCD planning volume. The plan should be kept in a location easily accessible to the facility incident commander (FIC) and facility response team (FRT).

a. Plan Updates.

The plan must be updated at least every 5 years or:

(1) Within 6 months of any significant changes to operations.

(2) When there have been two significant spills to waters of the HN in any 12-month period.

(3) When there has been a spill of 3,785 liters [1,000 gallons] or greater.

b. Plan Certification.

The plan must be certified by a registered professional engineer or HN equivalent who is familiar with spill prevention and response requirements. The plan must consider industry standards and practices for spill prevention and environmental protection, be prepared in accordance with good engineering practice, and be adequate for the facility. Technical changes (i.e., non-administrative changes) to the plan require recertification.

c. Prevention Section.

At a minimum, the prevention section of the plan must include:

(1) Name, title, responsibilities, duties, and telephone number of the designated FIC and an alternate.

(2) General information on the installation including name, type or function, location and address, charts of drainage patterns, designated water protection areas, maps showing locations of facilities described in Paragraph 7.2.c.(3), critical water resources, land uses, and possible migration pathways.

(3) An inventory that identifies:

(a) Storage, handling, transfer areas, loading and unloading racks, and areas that have one or more POL storage containers.

(b) Storage, handling, or transfer areas where POL and hazardous waste or hazardous substances could possibly produce a significant spill. For each listing, using maps as appropriate, a prediction of the direction and rate of flow should be included, as well as the total quantity of POL or hazardous substances that might be spilled as a result of a major failure.

(c) POL and hazardous substance containers with capacities of 208 liters [55 gallons] or more at the locations described in Paragraphs 7.2.c.(3)(a) and 7.2.c(3)(b), including the total capacity of each container and the substance stored.

(4) Procedures for the periodic integrity testing of storage containers in accordance with Paragraph 5.4.b.(1).

(5) Procedures for the periodic integrity testing of aboveground valves in accordance with Paragraph 5.4.b.(1)(b).

(6) Procedures for testing buried piping associated with POL storage containers for integrity and leaks in accordance with Paragraph 5.4.b.(2).

(7) Procedures for performing leak tests for below ground storage containers in accordance with Paragraph 5.4.b.(3).

(8) A detailed description of the facility's prevention, control, and countermeasures, including sized secondary containment and general secondary containment as required by Paragraph 5.4.c. for diversion and containment of spills, for each site listed in the inventory. Measures should permit, as far as practical, reclamation of spilled substances. Sections governing hazardous waste (Section 5 of Volume 5), POL (Section 5 of this volume), USTs (Section 6 of this volume), and polychlorinated biphenyls (Section 7 of Volume 2) provide specific standards for containment structure requirements.

(9) When secondary containment is not feasible for any container listed in the inventory, the plan must include a detailed explanation of measures that will be taken to prevent spills (e.g., pre-booming, integrity testing, frequent inspection) as determined by the licensed or certified technical authority.

(10) A description of deficiencies in spill prevention and control measures at each site listed in the inventory, including required corrective measures, procedures to be followed to correct listed deficiencies, and any interim control measures in place. Corrective actions must be implemented within 24 months of the date of the plan preparation or revision.

(11) Written procedures for:

(a) Operations to preclude spills of POLs and hazardous substances.

(b) Inspections.

(c) Testing for integrity and leaks.

(d) Recordkeeping requirements.

(12) Site-specific procedures should be maintained at each site on the facility where significant spills could occur.

(13) Installations with hazardous waste storage areas or hazardous material storage areas capable of producing a significant spill, or aboveground storage containers with a combined capacity of greater than or equal to 4,997 liters [1,320 gallons], must have a plan that contains:

(a) A list of all emergency equipment at the facility such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), decontamination equipment, and medical first-aid kit, where this equipment is required. This list must be kept up-to-date. In addition, the plan must include the location and a physical description of each item on the list and a brief outline of its capabilities.

(b) An evacuation plan for facility personnel where there is a possibility that evacuation would be necessary. This plan must describe signals used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of hazardous waste or fires).

d. Spill Control Section.

The control section of the plan (which may be considered a contingency plan) must identify resources for cleaning up spills at installations and activities, and provide assistance to other agencies when requested. At a minimum, this section of the plan must contain:

(1) Provisions specifying the responsibilities, duties, procedures, and resources to be used to contain and clean up spills.

(2) A description of immediate response actions that should be taken when a spill is first discovered.

(3) The responsibilities, composition, and training requirements of the FRT.

(4) The command structure that will be established to manage a WCD including an organization chart and the responsibilities and composition of the organization.

(5) Procedures for FRT alert and response to include provisions for:

(a) Access to a reliable communications system for timely notification of a POL spill or hazardous substance spill.

(b) Public affairs involvement.

(c) A current roster of the persons and alternates who must receive notice of a POL or hazardous substance spill, including a Defense Energy Support Center representative, if applicable. The roster must include name, organization mailing address, and current telephone numbers (work, home, mobile). Without compromising security, the plan must include provisions for the notification of the emergency coordinator after normal working hours.

(6) A description of arrangements with installation and local police departments, fire departments, hospitals, contractors, and emergency response teams to coordinate emergency services.

(7) A telephone number or other means to contact the appropriate emergency service provider (e.g., installation fire department) on a 24-hour basis.

(8) A requirement to notify the FIC, installation commander, and local authorities in the event of hazard to human health or environment.

(9) Assignment of responsibilities for making the necessary notifications, including notification to the emergency services providers.

(10) Surveillance procedures for early detection of POL and hazardous substance spills.

(11) A prioritized list of various critical water and natural resources that will be protected in the event of a spill.

(12) Other resources addressed in pre-arranged agreements that are available to the installation to respond to a large spill due to DoD activities, if the spill exceeds the response capability of the installation.

(13) Spill response methods, including procedures and techniques used to identify, contain, disperse, reclaim, and remove POL and hazardous substances used in bulk quantity on the installation.

(14) Procedures for the proper reuse and disposal of recovered substances, decontamination wastes, contaminated POL and absorbent materials, and procedures to be accomplished before resumption of operations.

(15) A description of general health, safety, and fire prevention precautions for spill response actions.

(16) A public affairs section that describes the procedures, responsibilities, and methods for releasing information in the event of a spill.

e. Reporting Section.

The reporting section of the plan must address how the required reporting contained in Paragraph 7.4. will be accomplished, including recordkeeping when emergency procedures are invoked.

f. Training Section.

The training section of the plan must identify and describe how the required training and response drills required in Paragraph 7.5. will be accomplished.

7.3. SPILL RESPONSE.

a. In the event of a spill, installations must respond immediately to control the source, contain any free product (for spills to water, "free product" means floating POL), and remove and manage the spill. Prompt response should reduce and mitigate substantial threat to human and environmental health and welfare of the HN from the discharge. Potential casualties include, but are not limited to, fish, shellfish, wildlife, other natural resources, public and private beaches, shorelines, and cultural or historic properties of the HN.

b. After the spill has been contained and is under control, any remaining free product and obviously contaminated soil resulting from the spill must be appropriately removed and managed. Installations should perform sampling, if necessary, to confirm obviously contaminated soil has been removed. Any byproducts of the initial spill response that are being disposed of must be characterized in accordance with Paragraph 5.4. of Volume 5 to determine if they are hazardous. If a waste exhibits a characteristic of hazardous waste as defined in Appendix 5A of Volume 5, it must be handled and disposed of in accordance with the requirements of Section 5 of Volume 5. If testing confirms that a waste does not exhibit a characteristic and is not hazardous, it must be managed and disposed of in accordance with the solid waste requirements of Section 4 of Volume 5 or the wastewater requirements of Section 5 of Volume 3, as appropriate.

c. Any off-installation spill response must be coordinated with appropriate HN authorities before taking action outside the installation.

d. Remediation of environmental contamination that remains after completion of initial spill response actions must be performed in accordance with applicable international agreements and DoDI 4715.08.

7.4. REPORTING.

a. Concurrent with undertaking a spill response, any significant spill must be reported to the FIC immediately.

b. The FIC must immediately notify the installation commander who will report to the appropriate LEC and In-Theater Component Commander or Defense Agency and submit a follow-up written report when:

(1) The spill occurs inside a DoD installation and cannot be contained within any required berm or secondary containment;

(2) The spill exceeds 416 liters [110 gallons] of POLs;

(3) A water resource has been polluted; or

(4) The FIC has determined that the spill is significant.

c. When a significant spill occurs inside a DoD installation and cannot be contained within the installation boundaries or threatens the local HN drinking water resource, the appropriate In-Theater Component Commander or Defense Agency, LEC, and HN authorities must be notified immediately.

d. If a significant spill is caused by DoD installation personnel or activities outside of the installation property, the person in charge at the scene must immediately notify the authorities listed in Paragraph 7.2.d.(5)(c). The FIC will perform further notifications of local emergency personnel, as appropriate, and immediately notify the appropriate In-Theater Component Commander and/or Defense Agency, LEC, and HN authorities.

7.5. PERSONNEL TRAINING.

Installations must provide necessary training and accidental release response drills, in accordance with the plan, to ensure the effectiveness of personnel, equipment, and protective measures. Oil-handling personnel must be identified by job title, responsibilities, or job duties, and trained annually as required by Paragraph 5.3.

7.6. RECORDKEEPING.

Installations must maintain records associated with spill prevention and response. Appropriate records include plans, procedures, inspection results, records of spills and response activation, and reports. Recordkeeping must be consistent with the procedures established by the plan (see Paragraph 7.2.c.(11)).

APPENDIX 7A: DETERMINATION OF WCD PLANNING VOLUME

7A.1. This appendix provides standards to determine:

a. On an installation-specific basis, the extent of a WCD.

b. The volume of POL or hazardous substance to be used in planning for a WCD. Installations should calculate the WCD volume that applies to the installation's design and the WCD volume that applies to operation, and use the larger of the two as the WCD planning volume.

7A.2. For installations transferring POL to and from vessels with tank capacities of 39,747 liters [10,500 gallons] or more, the WCD planning volume is calculated as follows:

a. Where applicable, the loss of the entire capacity of all in-line and break-out tank(s) needed for the continuous operation of the pipelines used for the purposes of handling or transporting POL, in bulk, to or from a vessel regardless of the presence of secondary containment; plus

b. The discharge from all piping carrying POL between the marine transfer manifold and the valve or manifold adjacent to the POL storage container. The discharge from each pipe is calculated as shown in Figure 1.

Figure 1. Pipe Discharge Calculation

Discharge = (the maximum time to discover the release from the pipe in hours + the maximum time to shut down flow from the pipe in hours[a]) x (the maximum flow rate expressed in gallons per hour[b] + the total line drainage volume expressed in gallons for the pipe between the marine transfer manifold and the valve or manifold adjacent to the POL storage container)

[a] Based on historic discharge data or the best estimate in the absence of historic discharge data for the installation.

[b] Based on the maximum relief valve setting or maximum system pressure when relief valves are not provided.

7A.3. For installations with POL or hazardous substance storage containers:

a. Facilities with a Single Storage Container.

For facilities containing only one aboveground POL or hazardous substance storage container, the WCD planning volume equals the capacity of the POL or hazardous substance storage container. If adequate secondary containment exists for the POL storage container, multiply the capacity of the container by 0.8. Adequate secondary containment is that which is sufficiently large to contain the capacity of the aboveground POL or hazardous substance storage container, plus sufficient freeboard to allow for precipitation.

b. Facilities with Multiple Storage Containers.

(1) Facilities Having No Secondary Containment.

If none of the aboveground storage containers at the facility have adequate secondary containment, the WCD planning volume equals the total aboveground POL and hazardous substance storage capacity at the facility.

(2) Facilities Having Complete Secondary Containment.

If every aboveground storage container at the facility has adequate secondary containment, the WCD planning volume equals the capacity of the largest single aboveground POL or hazardous substance storage container.

(3) Facilities Having Partial Secondary Containment.

If some, but not all aboveground storage containers at the facility have adequate secondary containment, the WCD planning volume equals the sum of:

(a) The total capacity of the aboveground POL and hazardous substance storage container that lacks adequate secondary containment; plus

(b) The capacity of the largest single aboveground POL or hazardous substance storage container that has adequate secondary containment. Secondary containment is considered adequate when it includes an impervious containment system such as a dike, berm, containment curb, drainage system, or other device that prevents the escape of spilled material into the surrounding soil.

SECTION 8: PESTICIDES

8.1. INTRODUCTION.

This section contains standards on the prevention of threats to human health and the environment from the storage and use of pesticides. This section does not address the personal use of pesticides by individuals in residences or gardens. It does not cover:

a. The storage of pesticides as hazardous materials, which is addressed in Section 4, and requirements for spill prevention and response, which are addressed in Section 7.

b. The details of DoD policy implementation, assigned responsibilities, and prescribed standards and procedures that apply outside the United States as part of the DoD Integrated Pest Management (IPM) Program covered in DoDI 4150.07.

8.2. IPM PLANS.

Installations must prepare, implement, and maintain an IPM plan that includes measures for all installation activities that perform pest control, consistent with the program elements in Enclosure 5 of DoDI 4150.07. This written plan must:

a. Include IPM procedures to control pests and minimize the use of pesticides.

b. Include appropriate security procedures to prevent unauthorized access to, or use of, pesticides.

c. Identify the designated coordinator to oversee all aspects of implementation.

d. Be implemented using trained personnel and certified pesticide applicators.

e. Be reviewed, updated, and approved annually by a designated pest management consultant and reviewed, revised as necessary, and approved by the installation commander every 5 years.

8.3. IPM COORDINATOR.

Each installation must have a designated IPM coordinator to oversee the installation's pest management program including development, implementation, maintenance, and annual update of the IPM plan. The IPM coordinator must have the educational background, training, technical knowledge, and management skills to implement and oversee the pest management program.

8.4. PEST MANAGEMENT CONTRACTORS.

All pest management contractors must use IPM and comply with certification, licensing, registration, and other requirements in accordance with Section E4.6. of Enclosure 4 of DoDI 4150.07.

8.5. REQUIREMENTS FOR PESTICIDE APPLICATORS.

Installations must ensure:

a. All pesticides are applied by pesticide applicators certified for the specific application category in accordance with Enclosure 4 of DoDI 4150.07, with the following exceptions:

(1) New DoD employees who are not certified may apply pesticides during an apprenticeship period not to exceed 2 years and only under the supervision of a certified pesticide applicator.

(2) Arthropod repellents applied to skin and clothing.

(3) Pesticides applied as part of an installation's self-help program.

b. All pesticide applicators are included in a medical surveillance program to monitor the health and safety of persons occupationally exposed to pesticides in accordance with DoDI 6055.05 and DoD 6055.05-M.

c. All pesticide applicators are provided with personal protective equipment appropriate for the work they perform and the types of pesticides to which they may be exposed.

8.6. STORAGE, USE, AND DISPOSAL OF PESTICIDES.

Installations must ensure:

a. Pesticides are included in the installation spill prevention and response plan. See Section 7 for spill prevention and response plan requirements.

b. Pest management facilities, including mixing and storage areas, comply with design requirements of Armed Forces Pest Management Board (AFPMB) Technical Guide 17.

c. SDSs and labels for all pesticides are available at the storage facility. Labels must comply with the guidelines in Paragraph 4.3.d. Labels must bear the appropriate use instructions and precautionary message based on the toxicity category of the pesticide. If foreign nationals will be using the pesticides, the precautionary messages and use instructions must be in English and in the predominant language of the workplace.

d. Pesticide storage areas contain a readily visible current inventory of all items in storage, including items awaiting disposal, and should be regularly inspected and secured to prevent unauthorized access.

e. Only registered pesticides approved in writing by the appropriate pest management consultant and procured from the Federal Supply System or other approved commercial sources are used. This may be documented as part of the approval of the IPM plan.

f. All pesticides are applied in accordance with the procedures established in Section E4.7. of Enclosure 4 of DoDI 4150.07 for specific pest management operations and consistent with the label.

g. The unintended discharge of pesticides to waters of the HN is minimized by implementing the following measures:

(1) Use only the amount of pesticide and frequency of pesticide application necessary to control the target pest, using equipment and application procedures appropriate for this task.

(2) Maintain pesticide application equipment in proper operating condition by calibrating, cleaning, and repairing such equipment to prevent leaks, spills, or other unintended discharges.

(3) Assess weather conditions (e.g., temperature, precipitation, wind speed) in the treatment area to ensure application is consistent with industry standards and practices related to the application of pesticides, and other prudent provisions to reduce or eliminate pesticide discharges to waters of the HN.

h. Unless otherwise restricted or canceled, pesticides in excess of installation needs are redistributed within the supply system or disposed of in accordance with procedures outlined below:

(1) The generator of pesticide wastes must determine whether or not the waste is hazardous in accordance with Section 5 of Volume 5.

(2) Pesticide waste determined to be hazardous waste must be disposed of in accordance with the standards for hazardous waste disposal in Section 5 of Volume 5.

(3) Pesticide waste that is determined not to be a hazardous waste must be disposed of in accordance with the label instructions as a solid waste. Empty pesticide containers that have been triple rinsed are not considered hazardous waste, and can be disposed of as normal solid waste. Pesticide containers must be handled in accordance with AFPMB Technical Guide 21.

8.7. REPORTS AND RECORDKEEPING.

For recordkeeping, Volume 1 of DoDM 4150.07 prescribes DD Form 1532-1 available at http://www.esd.whs.mil/Directives/forms/. A computer-generated equivalent may be used in its place. Daily records report all in-house, formally contracted and government purchase card-procured pest control activities conducted anywhere on the installation, to include such sites as out-leased land, golf courses, and natural resources. Records must be submitted to the designated pest management consultant at least monthly. Installation commanders must ensure these records are archived after 2 years for permanent retention.

GLOSSARY

G.1. ACRONYMS.

ACRONYM	MEANING
AFPMB	Armed Forces Pest Management Board
API	American Petroleum Institute
ASD(Sustainment)	Assistant Secretary of Defense for Sustainment
CJCS	Chairman of the Joint Chiefs of Staff
DLAI	Defense Logistics Agency instruction
DoDD	DoD directive
DoDI	DoD instruction
DoDM	DoD manual
DTR	Defense transportation regulation
E.O.	Executive order
FCT	field-constructed tank
FGS	final governing standard
FIC	facility incident commander
FRT	facility response team
GDF	gasoline dispensing facility
HMIRS	Hazardous Material Information Resource System
HN	host nation
IPM	integrated pest management
kPa	kilopascal
LEC	lead environmental component
MCO	Marine Corps order
NAVSUP PUB	Naval Supply Systems Command publication
O&M	operation and maintenance
POL	petroleum, oil, and lubricants
Psia	pounds per square inch absolute

ACRONYM	MEANING
SDS	safety data sheet
STI	Steel Tank Institute
TM	technical manual
UFC	unified facilities criteria
USEUCOM	United States European Command
UST	underground storage tank
WCD	worst-case discharge

G.2. DEFINITIONS.

Unless otherwise noted, these terms and their definitions are for the purposes of this volume.

TERM	DEFINITION
aboveground storage container	A type of POL storage container that includes those exempt from UST standards that are normally placed on or above the surface of the ground. POL storage containers located above the floor and contained in vaults or basements, bunkered containers, and partially buried containers are considered aboveground storage containers. For the purposes of Section 5, this includes any mobile or fixed structures or tanks.
AFPMB	Authorized by DoDD 4715.1E, this organization recommends policy, provides guidance, and coordinates the exchange of information on all matters related to pest management throughout the DoD.
airport hydrant fuel distribution system	Also called an airport hydrant system, a type of specialty UST system that operates under high pressure with large diameter piping that typically terminates into one or more hydrants (fill stands). The airport hydrant system begins where fuel enters one or more tanks from an external source such as a pipeline, barge, rail car, or other motor fuel carrier.
applicable HN environmental standards	Defined in DoDI 4715.05.
automatic line release detectors	A release detection method for piping that alerts the operator to the presence of a leak by either restricting or shutting off POL or hazardous substance flow-through piping or by triggering an audible or visual alarm.

TERM	DEFINITION
automatic tank gauging	Equipment that tests for the loss of POL or hazardous substance and conducts inventory control.
below ground storage container	A type of POL storage container that is completely buried, including deferred USTs, that are exempt from all standards in Section 6 either because they do not meet the definition of an UST or they are specifically excluded from UST requirements. For the purposes of POL management in Section 5, only below ground storage containers that are exempt from the UST requirements of Section 6 are counted toward the aggregate thresholds defined under "POL facility."
bulk gasoline plant	Any gasoline storage and distribution facility that receives gasoline by pipeline, ship or barge, or cargo tank and subsequently loads the gasoline into gasoline cargo tanks for transport to gasoline dispensing facilities, and has a gasoline throughput of less than 75,708 liters [20,000 gallons] per day.
certified pesticide applicators	Any certified individual who applies pesticides or, in the case of DoD employees, supervises the use of pesticides during apprenticeship training. Certification must be by DoD, a State of the United States, or the HN in accordance with Volumes 1 through 3 of DoDM 4150.07 (which accepts HN certification in appropriate circumstances).
Class A operator	The individual who has primary responsibility to operate and maintain the UST system. Typically manages resources and personnel, such as establishing work assignments, to achieve and maintain compliance with applicable requirements. This would normally be the owner of the system, the supervisor of operations at a bulk terminal, or a comparable manager at the site.
Class B operator	An individual who has day-to-day responsibility for implementing applicable requirements. Typically implements in-field aspects of operation, maintenance, and associated recordkeeping for the UST system.
Class C operator	An individual responsible for initially addressing emergencies presented by a spill or release from an UST system. Typically controls or monitors the dispensing or sale of hazardous substances or POL and generally includes workers who are handling fuel as their primary job.

TERM	DEFINITION
containment sump	A liquid-tight container that protects the environment by containing leaks and spills of hazardous substances or POL from piping, dispensers, pumps, and related components in the containment area. Containment sumps may be single walled or secondarily contained and located at the top of the tank (tank top or submersible turbine sump), underneath the dispenser (under-dispenser containment sump), or at other points in the piping run (transition or intermediate sump).
decontamination wastes	Waste materials generated during the decontamination of equipment and personnel used during spill response including, but not limited to, purging water, rinsing water, plastic containers, rags, and gloves and other personal protective equipment.
dispenser	Equipment located aboveground that dispenses hazardous substances or POL from an UST system.
dispenser system	Includes both the dispenser and any equipment necessary to connect the dispenser to an UST system. Equipment includes check valves, shear valves, unburied risers or flexible connectors, and other traditional components that are underneath the dispenser and connect the dispenser to the underground piping.
enduring location	Defined in DoDI 4715.05.
excluded UST systems	UST systems that are not subject to the requirements of Section 6.
existing UST system	An UST system where installation began on or before April 11, 2016.
FCT	A tank constructed in the field such as a tank constructed of concrete that is poured in the field, or a steel or fiberglass tank primarily fabricated in the field.
FGS	Defined in DoDI 4715.05.
FIC	(Also known as installation on-scene coordinator). The official, designated by the installation commander, who coordinates and directs DoD control and cleanup efforts at the scene of a POL or hazardous substance spill due to DoD activities on or near the installation.
FRT	(Also known as installation response team). A team performing emergency functions as defined and directed by the FIC.

TERM	DEFINITION
GDF	Any stationary facility that dispenses gasoline into the fuel tank of a motor vehicle, motor vehicle engine, non-road vehicle, or non-road engine.
general secondary containment	Containment and diversionary structures intended to prevent a most likely discharge into waters of the HN. This can be either active or passive and needs to consider the typical failure mode and most likely discharge quantity.
groundwater monitoring	Testing or monitoring for POL or hazardous substances on the groundwater.
hazardous material	Any material that exhibits any of the characteristics of a physical hazard, a health hazard, a simple asphyxiant, combustible dust, or pyrophoric gas, or is HN regulated. See Table 1.
hazardous material shipment	Any movement of hazardous materials either from an installation to a final destination off the installation, or from a point of origin off the installation to a final destination on the installation, in which certification of the shipment is involved.
hazardous material warning label	A label, tag, or marking on a container that provides information about the material and its hazards, usually provided by the manufacturer.
hazardous substance	Any substance having the potential to do serious harm to human health or the environment if spilled or released in reportable quantity. A list of these substances and the corresponding reportable quantities is provided in Table 3 of Appendix 5A of Volume 5. Hazardous substances do not include: Petroleum, including crude POL or any fraction thereof, that is not otherwise specifically listed or designated in Table 3 of Appendix 5A of Volume 5 as a hazardous substance. Natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).
hazardous substance UST system	An UST system that contains a hazardous substance (not including hazardous waste as defined in Section 5 of Volume 5) or any mixture of such hazardous substances and POL, and which is not a POL UST system.

TERM	DEFINITION
hazardous waste	A waste that may be solid, semi-solid, liquid, or contained gas, and either exhibits a characteristic of a hazardous waste as detailed in Paragraph 5A.1. of Volume 5 or is listed as a hazardous waste in Tables 3 through 6 of Volume 5. Does not include domestic sewage sludge, household wastes, and medical wastes.
hazardous waste storage area	Any location on a DoD installation where hazardous waste is collected before shipment for treatment or disposal. A hazardous waste storage area may store more than the equivalent of a 208-liter [55-gallon] drum of hazardous waste, or a 1-liter [1-quart] container of an acute hazardous waste, from each waste stream.
HMIRS	The computer-based information system developed to accumulate, maintain, and disseminate important information on hazardous materials.
industry standards and practices	Applicable or recognized standards and practices relevant to the design, construction, installation, O&M, inspection, and repair of facilities and equipment. Industry standards and practices can include those established by the following organizations: API, American Society for Testing and Materials, NACE International, Petroleum Equipment Institute, and STI.
installation	Defined in DoDI 4715.05.
international agreement	Defined in DoDI 4715.05.
interstitial monitoring	Monitoring between the UST system and a secondary barrier immediately around or beneath it.
inventory control	Tracking of POL or hazardous substances to compare what is in a tank versus what should be in the tank to reconcile the inputs and outputs of POL or hazardous substances with the volume remaining in the tank.
IPM	A planned program, incorporating continuous monitoring, education, recordkeeping, and communication, to prevent pests and disease vectors from causing unacceptable damage to operations, people, property, materiel, or the environment. IPM uses targeted, sustainable (effective, economical, environmentally sound) methods, including education, habitat modification, biological control, genetic control, cultural control, mechanical control, physical control,

TERM	DEFINITION
	regulatory control and, where necessary, the judicious use of least-hazardous pesticides.
loading and unloading racks	A fixed structure (e.g., platform, gangway) necessary for loading or unloading a tank truck or tank car. Includes a loading or unloading arm.
mobile refueler	POL storage container onboard a vehicle or towed by a vehicle, that is designed or used solely to store and transport fuel for transfer into or from an aircraft, motor vehicle, locomotive, vessel, ground service equipment, or other oil storage container.
monthly throughput	For GDFs, the total volume of gasoline loaded into, or dispensed from, all the gasoline storage tanks located at a single GDF.
new dispenser system	A dispenser system where installation began after April 11, 2016.
new UST system	An UST system where installation began after April 11, 2016.
oil	Oil of any kind or in any form, including, but not limited to, petroleum, fuel POL, lube oils, animal fats, vegetable oil, sludge, POL refuse, and POL mixed with wastes other than dredged spoil.
oil-filled operational equipment	Equipment that includes an oil storage container (or multiple containers) in which the oil is present solely to support the function of the apparatus or the device. Oil-filled operational equipment is not considered a POL storage container, and does not include oil-filled manufacturing equipment (flow-through process). Examples of oil-filled operational equipment include, but are not limited to, hydraulic systems, lubricating systems (e.g., those for pumps, compressors and other rotating equipment, including pumpjack lubrication systems), gear boxes, machining coolant systems, heat transfer systems, transformers, circuit breakers, electrical switches, and other systems containing oil solely to enable the operation of the device.
overfill prevention equipment	Devices that either shut off product flow, restrict product flow, or alert the delivery operator with an alarm when the tank is close to being full.
pest management consultant	A DoD pest management professional who provides technical and management guidance on using IPM to prevent and control pests and disease vectors. The Director, AFPMB, approves pest management consultants as certifying officials of pesticide applicators.

TERM	DEFINITION
pesticide	Any substance or mixture of substances, including biological control agents that may prevent, destroy, repel, or mitigate pests or that is used as a plant regulator, defoliant, desiccant, disinfectant, or biocide.
pesticide waste	Materials subject to pesticide disposal restrictions, including: Any pesticide that has been identified by the pest management consultant as cancelled under U.S. or HN authority and which cannot be safely used. Any pesticide that does not meet specifications, is contaminated, has been improperly mixed, or otherwise unusable, whether concentrated or diluted. Any material used to clean up a pesticide spill. Any containers, equipment, or material contaminated with pesticides.
pests	Arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds, and other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.
pipeline facility	Includes new and existing pipes, pipeline rights of way, auxiliary equipment (e.g., valves and manifolds), and buildings or other facilities used in the transportation of POL.
POL	Refined POLs, including, but not limited to, petroleum, fuel, lubricant oils, synthetic oils, mineral oils, animal fats, vegetable oil, sludge, and POL mixed with wastes other than dredged spoil.
POL facility	An installation with: An aggregate aboveground storage container capacity (excluding below ground storage containers) of 5,000 liters [1,320 gallons] or greater, counting only containers with a capacity of 208 liters [55 gallons] or greater; or An aggregate below ground storage container capacity of 159,091 liters [42,000 gallons] or greater; or A pipeline facility.

TERM	DEFINITION
POL storage container	Containers with capacities greater than or equal to 208 liters [55 gallons]. They include mobile and fixed containers as well as those located above and below ground. In the context of USTs in Section 6, USTs required to meet all of the requirements of Section 6 are excluded from the definition of POL storage containers. Motive power containers (vehicle fuel tanks), containers of heating oil used solely at a single-family residence, pesticide application equipment and related mix containers, and milk/milk-product containers are also excluded.
registered pesticide	A pesticide registered and approved for sale or use within the United States or the HN.
release detection method	A method, or combinations of methods, for determining whether a release of a hazardous substance or POL has occurred from an UST system into the environment or a leak has occurred into the interstitial space between an UST system and its secondary barrier or secondary containment. Methods of release detection include automatic line release detectors, automatic tank gauging, groundwater monitoring, interstitial monitoring, and inventory control.
repair	In the context of USTs in Section 6, to restore to proper operating condition a tank, pipe, spill prevention equipment, overfill prevention equipment, corrosion protection equipment, release detection equipment, or other UST system component that has caused a release of product from the UST system or has failed to function properly.
replace	In the context of USTs in Section 6, to replace a tank means to remove and install another tank. To replace piping means to remove 50 percent or more of piping and install other piping, excluding connectors, connected to a single tank. For tanks with multiple piping runs, this definition applies independently to each piping run.
safe suction piping	Piping that is designed, constructed, and can be readily determined to meet these standards: below-grade piping that operates at less than atmospheric pressure, is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released, has only one check valve included in each suction line, and the check valve is located directly below and as close as practical to the suction pump.
SDS	A form prepared by manufacturers or importers of chemical products to communicate to users the chemical and physical properties and

TERM	DEFINITION
	hazardous effects of a particular product. Formerly known as material safety data sheet.
secondary containment or secondarily contained	In the context of POL standards in Section 5 and spill standards in Section 7, a system that provides temporary containment of discharged POL in the event of a failure of the primary containment. This is intended to prevent the migration of POL until appropriate actions can be taken. Secondary containment can include impervious dikes, berms, or retaining walls; curbing or drip pans; sumps and collection systems; culverting and gutters; weirs, booms, or other barriers; spill diversion ponds; retention ponds; or sorbent materials. There are two types of secondary containment, general and sized. In the context of UST standards in Section 6, a form of release prevention for tanks or piping. A secondary containment system has an inner and outer barrier with an interstitial space that can be monitored for leaks and includes containment sumps when used for interstitial monitoring of piping. Secondary containment must be able to contain hazardous substances or POL leaked from the primary containment until they are detected and removed, and prevent releases of the hazardous substances or POL into the environment at any time during the operational life of an UST system.
significant spill	For hazardous wastes or hazardous substances identified as a result of inclusion in Table 6 of Appendix 5A of Volume 5, any quantity in excess of the reportable quantity listed in that table; For POL or liquid or semi-liquid hazardous material, hazardous waste, or hazardous substances in excess of 416 liters [110 gallons]; For other solid hazardous material in excess of 225 kilograms [500 pounds]; or For combinations of POL and liquid, semi-liquid, and solid hazardous materials, hazardous waste, or hazardous substance in excess of 340 kilograms [750 pounds]. If a spill is contained inside an impervious berm, on a nonporous surface, or inside a building and is not volatilized and is cleaned up, the spill is considered a contained release and is not considered a significant spill.

TERM	DEFINITION
sized secondary containment	An impervious (permeability less than or equal to 10^{-7} centimeters per second) secondary means of containment capable of holding the entire contents of the POL storage container plus sufficient freeboard.
specialty UST systems	Also referred to as "previously deferred UST systems." Airport hydrant fuel distribution systems and UST systems with FCT that were previously deferred from UST requirements.
spill prevention equipment	Containment around the fill pipe that catches small drips or spills that occur when the delivery hose is disconnected from the fill pipe. The containment is typically called a spill bucket, catchment basin, or spill containment manhole. It must be large enough to contain what may spill when the delivery hose is uncoupled from the fill pipe.
standards	Substantive elements of U.S. laws applicable and federal regulations to DoD installations, facilities, and actions in the United States that have extraterritorial application or are determined necessary to protect human health and the environment on installations outside the United States.
storage vessel	Any tank, reservoir, or container used for the storage of petroleum, but does not include: Pressure vessels that are designed to operate in excess of 103 kPa [15 psia] gauge without emissions to the atmosphere, except under emergency conditions. Subsurface caverns or porous rock reservoirs. Process tanks.
transfer areas	Also known as loading and unloading areas. Any location, other than a fixed loading and unloading rack, where POL is authorized to be loaded or unloaded to or from a POL storage container.
United States	Defined in DoDI 4715.05.
UST system	A tank and connected underground piping that is used to contain POL products or hazardous substances and the volume of which, including the volume of connected pipes, is 10 percent or more beneath the surface of the ground, but does not include:

TERM	DEFINITION
	Tanks containing heating oil used for consumption on the premises where it is stored. These tanks are considered below ground storage tanks; see Section 5 for requirements. Septic tanks. Stormwater or wastewater collection systems. Flow-through process tanks. Surface impoundments, pits, ponds, or lagoons. Storage tanks located in an accessible underground area (e.g., basement, vault) if the storage tank is situated on or above the surface of the floor. These tanks meet the definition of an aboveground storage tank; see Section 5 for requirements. Any pipes connected to a tank that is not considered an UST system.
tank or line tightness testing	A test that identifies breaches in a tank or line that could result in a release. While different methods exist, all tightness tests must detect leaks from any portion of the tank or line that routinely contains product while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.
vapor balance system	A combination of pipes and hoses that creates a closed system between the vapor spaces of an unloading gasoline cargo tank and a receiving storage tank such that vapors displaced from the storage tank are transferred to the gasoline cargo tank being unloaded.
vapor monitoring	Testing or monitoring for vapors within the soil gas of the excavation zone.
wastewater treatment tank	A tank that is designed to receive and treat an influent wastewater through physical, chemical, or biological methods.
waters of the HN	Surface water including the territorial seas recognized under customary international law, including: All waters that are currently used, were used in the past, or may be susceptible to use in commerce. Waters that are or could be used for recreation or other purposes.

TERM	DEFINITION
	Waters where fish or shellfish are or could be taken and sold. Waters that are used or could be used for industrial purposes by industries. Waters including lakes, rivers, streams (including intermittent streams), sloughs, prairie potholes, or natural ponds. Tributaries of waters identified in this definition. Exclusions to waters of the HN are domestic or industrial waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of Section 5 of Volume 3. This exclusion applies to only manmade bodies of water that were neither originally waters of the HN nor resulted from impoundment of waters of the HN.
WCD	The largest foreseeable discharge from the facility, under adverse weather conditions, as determined using the WCD planning volume standards in Appendix 7A as a guide.

REFERENCES

Armed Forces Pest Management Board, Technical Guide 17, "Military Handbook – Design of Pest Management Facilities," August 2009

Armed Forces Pest Management Board Technical Guide 21, "Pesticide Disposal Guide for Pest Control Shops," July 2002

Defense Transportation Regulation 4500.9-R-Part I, "Defense Transportation Regulation – Passenger Movement," current edition

Defense Transportation Regulation 4500.9-R-Part II, "Defense Transportation Regulation – Cargo Movement," current edition

Defense Transportation Regulation 4500.9-R-Part III, "Defense Transportation Regulation – Mobility," current edition

Defense Transportation Regulation 4500.9-R-Part IV, "Defense Transportation Regulation – Personal Property Movement," current edition

Deputy Secretary of Defense Memorandum, "Establishment of the Office of the Under Secretary of Defense for Research and Engineering and the Office of the Under Secretary of Defense for Acquisition and Sustainment," July 13, 2018

DLAI 4145.11/TM 38-410/NAVSUP PUB 573/AFJMAN 23-209/MCO 4450.12A, "Storage and Handling of Hazardous Materials," January 13, 1999, as amended

DoD 4715.6-R, "Low-Level Radioactive Waste Disposal Program," January 17, 2001

DoD 6055.05-M, "Occupational Medical Examinations and Surveillance Manual," May 2, 2007, as amended

DoD 6055.09-M, Volumes 1-8, "DoD Ammunition and Explosives Safety Standards," February 29, 2008, as amended

DoD Directive 4715.1E, "Environment, Safety, and Occupational Health (ESOH)," March 19, 2005

DoD Directive 5134.01, "Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L))," December 9, 2005, as amended

DoD Instruction 4105.72, "Procurement of Sustainable Goods and Services," September 7, 2016

DoD Instruction 4150.07, "DoD Pest Management Program," May 29, 2008, as amended

DoD Instruction 4715.05, "Environmental Compliance at Installations Outside the United States," November 1, 2013, as amended

DoD Instruction 4715.08, "Remediation of Environmental Contamination Outside the United States," November 1, 2013, as amended

DoD Instruction 4715.22, "Environmental Management Policy for Contingency Locations," February 18, 2016, as amended

DoD Instruction 4715.23, "Integrated Recycling and Solid Waste Management," October 24, 2016

DoD Instruction 5015.02, "DoD Records Management Program," February 24, 2015, as amended

DoD Instruction 6050.05, "DoD Hazard Communication (HAZCOM) Program," August 15, 2006, as amended

DoD Instruction 6055.01, "DoD Safety and Occupational Health (SOH) Program," October 14, 2014

DoD Instruction 6055.05, "Occupational and Environmental Health (OEH)," November 11, 2008, as amended

DoD Manual 4150.07, Volumes 1 through 3, "DoD Pest Management Training and Certification Program," May 23, 2013, as amended

DoD Manual 4160.21, Volume 4, "Defense Materiel Disposition: Instructions for Hazardous Property and Other Special Processing Materiel," October 22, 2015

Executive Order 12088, "Federal Compliance with Pollution Control Standards," October 13, 1978, as amended

Executive Order 12114, "Environmental Effects Aboard of Major Federal Actions," January 4, 1979

Executive Order 12344, "Naval Nuclear Propulsion Program," February 1, 1982

Unified Facilities Criteria 3-460-01, "Design: Petroleum Fuel Facilities," August 16, 2010, as amended

Unified Facilities Criteria 3-460-03, "O&M: Maintenance of Petroleum Systems," January 21, 2003

Unified Facilities Criteria 4-440-01, "Warehouses and Storage Facilities," October 1, 2014

United States Code, Title 42, Section 7158