FORT KNOX, KENTUCKY

SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

Prepared for:
Fort Knox
Directorate of Public Works
Environmental Management Division

Final

December 2020

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Acronyms and Abbreviations

AAFES	Army and Air Force Exchange System
ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
AST	aboveground storage tank
ATG	Automatic Tank Gauge
CFR	Code of Federal Regulations
COCO	Contractor-owned, contractor-operated
DOT	United States Department of Transportation
DPW	Directorate of Public Works
DSA	drum storage area
EMD	Environmental Management Division
EPA	United States Environmental Protection Agency
ERB	Emergency Response Branch
ERG	Environmental Research Group, LLC
EO	Environmental Officer
FRP	Facility Response Plan
ft	feet
gal/ft^3	gallons per cubic feet
GIS	geographic information system
GBT	generator base tank
GRI	Guidance for Regional Inspectors
HEMTT	Heavy Expanded Mobility Tactical Truck
IAHC	Ireland Army Health Clinic
IC	Incident Commander
KAR	Kentucky Administrative Regulations
KRS	Kentucky Revised Statutes
KDEP	Kentucky Department of Environmental Protection
KPDES	Kentucky Pollutant Discharge Elimination System
MATES	Maneuver Area Training Equipment Site
N/A	not applicable
NFPA	National Fire Protection Association
NRC	National Response Center
OFOE	oil-filled operational equipment
OPV	overfill prevention valve
OSRO	Oil Spill Response Organization

OWS	oil-water separator
PCB	polychlorinated biphenyl
PE	Professional Engineer
PEI	Petroleum Equipment Institute
PIV	post indicator valve
POL	petroleum, oil, and lubricant
SOP	standard operating procedure
SPCC	Spill Prevention, Control, and Countermeasure
STI	Steel Tank Institute
SWGWPPP	Stormwater/Groundwater Pollution Prevention Plan
UFC	Unified Facilities Criteria
UL	Underwriters Laboratories
U.S.	United States
U.S.C.	United States Code
UST	Underground Storage Tank
Vol	volume
WWTP	wastewater treatment plant

SECTION 1

Plan Administration

1.1 Executive Summary

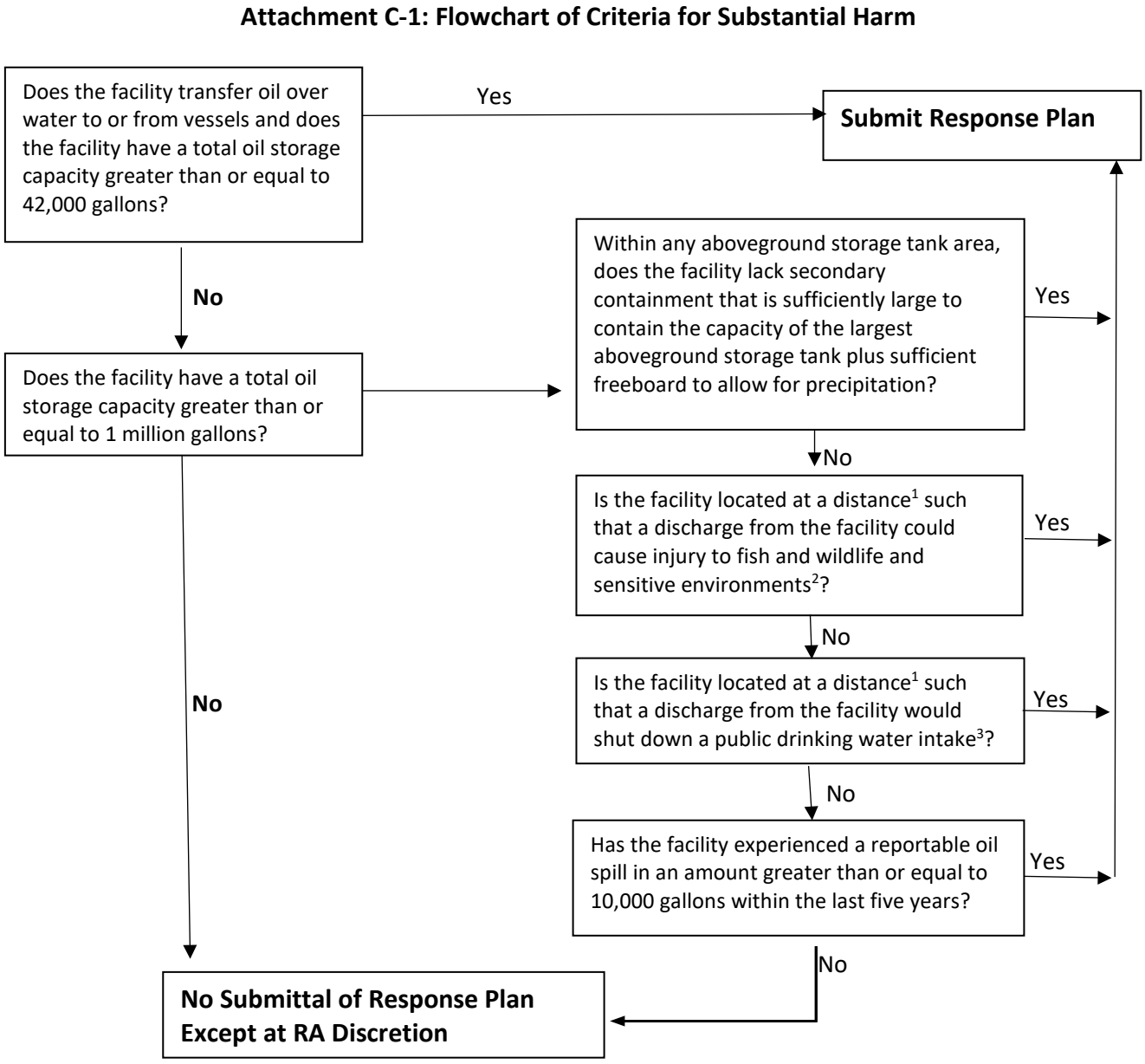
As most recently amended in 2009, title 40 Code of Federal Regulations (CFR) 112.1(d)(2)(ii) requires a Spill Prevention, Control, and Countermeasure (SPCC) Plan to be written if the facility has greater than 1,320 gallons of total aboveground fuel /oil storage capacity. This includes all fixed aboveground storage tanks (ASTs), mobile refuelers, used cooking oil containers, portable containers, drums, and oil-filled operational equipment (OFOE), such as transformers and hydraulic elevator containers, with at least 55 gallons capacity. Fort Knox (also known as the "garrison") exceeds the 40 CFR 112 threshold capacity as detailed in **Table 2-1**, and so is required to maintain a SPCC Plan. This SPCC Plan was prepared following the most current version of the Oil Pollution Prevention regulations, which can be found in the electronic CFR: https://www.ecfr.gov/.

The purpose of this SPCC Plan is to identify all containers, containments, procedures, methods, and equipment used at Fort Knox to prevent the discharge of oil into the environment. This plan is applicable to all facilities and organizations located at Fort Knox that store or handle new or used fuel or oil products, in regulated containers. Contractor-owned, contractor-operated (COCO) fuel point facilities (currently operated by Louis Berger Services, Inc.) are not included in the Fort Knox SPCC Plan. Louis Berger Services, Inc. maintains their own SPCC Plan specific for the 9th Calvary Regiment non-tactical retail terminal and the Frazier Road tactical bulk retail terminal. Similarly, GBTs owned and operated by cellular communications companies are not included in the Fort Knox SPCC Plan. Fort Knox does not have access to these areas and these organizations have implemented their own inspection and spill control program. Fort Knox personnel can visually observe discharges and report them to the respective organizations.

Fort Knox previously maintained an SPCC Plan in accordance with these regulations. This revised plan is a technical update to address facility oil storage changes during the past five years and to maintain compliance with 40 CFR 112. Environmental Research Group, LLC (ERG) performed evaluations at Fort Knox in March 2020 and collected available information and data for inclusion in the SPCC Plan. This included the visual evaluation of all ASTs, visible portions of underground storage tanks (USTs), and connected fuel piping. In addition to container inspections, fuel truck parking and transfer locations, drum storage areas (DSAs), and inspection procedures were evaluated for effectiveness and industry best management practices.

Fort Knox has an inspection program for storage containers and transfer areas; and if needed, deficiencies are noted and programmed for correction. Fort Knox also has an effective program for improving regulated containers through replacements and equipment upgrades to meet regulatory and industry standards. Fort Knox is not subject to 40 CFR 112.20 and is not required to maintain a Facility Response Plan (FRP). Refer to the Substantial Harm Criteria Flowchart in **Figure 1-1** and the accompanying Certification of Substantial Harm.

FIGURE 1-1: Substantial Harm Criteria Flowchart *(from 40 CFR 112, Appendix C)*



[1] Calculated using the appropriate formula in Attachment C-III to this appendix or comparable formula.

[2] For further description of fish and wildlife and sensitive environments, see Appendix I, II, and III to DOC/NOAA's "Guidance for Facility and vessel response Plans: Fish and Wildlife and Sensitive Environments" (59 FR 14713 March 29, 1994) and the applicable Area Contingency Plan.

[3] Public drinking water intakes are analogous to public water systems as described at CFR 143.2(c).

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA

FACILITY NAME: Fort Knox, Kentucky

FACILITY ADDRESS: Garrison Commander, Fort Knox, 111 East Chaffee Avenue, Fort Knox, Kentucky 40121

1. Does the facility have an oil storage capacity that is greater than or equal to 42,000 gallons and conduct operations that include over-water transfers to or from vessels?

   Yes (No, *proceed to next question*)

2. Does the facility have an oil storage capacity greater than or equal to one million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation with any aboveground storage area?

   Yes (No, *proceed to next question*)

3. Does the facility have an oil storage capacity greater than or equal to one million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C–III to this appendix or a comparable formula[1]) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to this part, section 13, for availability) and the applicable Area Contingency Plan.

   Yes (No, *proceed to next question*)

4. Does the facility have an oil storage capacity greater than or equal to one million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake[2]?

   Yes (No) *proceed to next question*

5. Does the facility have an oil storage capacity greater than or equal to one million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last 5 years?

   Yes (No)

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: Daniel S. Musel Date: 12/6/2021

Name: (type or print): Daniel S. Musel Title: Chief, Environmental Management Division

[1] If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.

[2] For the purposes of 40 CFR part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(c).

This SPCC Plan, along with other environmental management plans (e.g., Resource Conservation and Recovery Act [RCRA] Contingency Plan and Stormwater/Groundwater Pollution Prevention Plan [SWGWPPP]) form the core of Fort Knox's contingency and response procedures for discharges of oil into or onto navigable waters of the United States (U.S.).

The Environmental Management Division (EMD) is pro-active with respect to training and ensures the garrison meets federal, state, and local regulations. Garrison personnel have been identified and trained for spill prevention and response, and written procedures guide personnel performing inspections and monitoring of regulated activities. Because the garrison is dynamic by nature, it is important to continue the practices of training and monthly inspections for spill prevention as equipment degrades, and personnel rotate through the installation.

Fort Knox is presently in substantial conformance with SPCC requirements. However, there are a few existing conditions that should be addressed to ensure full compliance with 40 CFR 112. Refer to **Table 3-1**. The EMD records SPCC inspections and corrective actions taken to rectify deficiencies.

The U.S. Environmental Protection Agency (EPA) definition of "Facility" is subject to interpretation, but it usually includes all buildings, structures, or properties, which are contiguously located, and owned or operated by the same organization (such as an Army post). There are no geographically separated units associated with Fort Knox.

1.2 Cross-Reference with SPCC Provisions

"112.7: If you do not follow the sequence specified in this section for the Plan, you must prepare an equivalent Plan acceptable to the Regional Administrator that meets all of the applicable requirements listed in this part, and you must supplement it with a section cross-referencing the location of requirements listed in this part and the equivalent requirements in the other prevention plan."

TABLE 1-1: Regulatory Cross-Reference Matrix

Regulation Citation (40 CFR 112)	Regulatory Requirement Description	SPCC Plan Section
112.3(d)	Professional Engineer Certification	Section 1.4
112.3(e)(1)	Location of SPCC Plan	Section 1.6
112.4	Amendments by Regional Administrator	Section 1.8.2
112.5(a)	Amendments	Section 1.8, Appendix E
112.5(b)	SPCC Plan Review	Section 1.7
112.7	Management Approval	Section 1.3
112.7	Facilities or Equipment Not Yet Fully Operational	Section 3.3
112.7(a)(1)	Conformance with Requirements	Section 3.1
112.7(a)(2)	Environmental Equivalence	Section 3.2

Regulation Citation (40 CFR 112)	Regulatory Requirement Description	SPCC Plan Section
112.7(a)(3)	Facility Description	Section 2.1, Appendix B
112.7(a)(3)(i)	Oil Storage Containers	Section 2.2
112.7(a)(3)(ii)	Discharge Prevention Measures	Section 9.2, Table 2-2
112.7(a)(3)(iii)	Discharge or Drainage Controls	Section 4.3
112.7(a)(3)(iv)	Discharge Discovery Countermeasures	Section 4.1
112.7(a)(3)(v)	Disposal of Recovered Materials	Section 4.4; RCRA Contingency Plan
112.7(a)(3)(vi)	Contact List	Section 4.1
112.7(a)(4)	Discharge Notification	Section 4.1
112.7(a)(5)	Discharge Response Procedures	Section 4.1
112.7(b)	Predicted Spill Scenarios	Section 4.2, Appendix F
112.7(c)	Secondary Containment Requirements	Section 5.1
112.7(d)	Impracticability of Secondary Containment	Section 5.7
112.7(e)	Inspections Schedule and Recordkeeping	Section 6.1
112.7(f)(1)	Initial SPCC Training	Section 7.1
112.7(f)(2)	Designated Person	Section 1.5
112.7(f)(3)	Discharge Prevention Briefings	Section 7.2
112.7(g)	Security	Section 8
112.7(h)(1-3)	Transfer Procedures for Loading and Unloading Racks	Section 9.1
112.7(i)	Brittle Fracture Evaluation	Section 10
112.7(j)	Conformance with Applicable State and Local Requirements	Section 11
112.7(k)	Oil-Filled Operational Equipment	Section 5.6
112.8(b)(1-2)	Containment Dike Inspections	Section 6.6
112.8(b)(3-4)	Facility Drainage: Design and Equipment	Section 12.10
112.8(b)(5)	Facility Drainage: Pump Transfer	Section 12.11
112.8(c)(1)	Container Construction	Section 12.1
112.8(c)(2)	Secondary Containment for Stationary Bulk Storage Tanks	Section 5.2

Regulation Citation (40 CFR 112)	Regulatory Requirement Description	SPCC Plan Section
112.8(c)(3)(i-iv)	Containment Dike Inspections	Section 6.6
112.8(c)(4 - 5)	Corrosion Protection for Buried, Partially Buried, and Bunkered Storage Tanks	Section 12.2
112.8(c)(6)	Stationary Bulk Storage Tank Inspections	Section 6.2
	Mobile and Portable Container Inspections	Section 6.3
112.8(c)(7)	Heating Coils	Section 12.4
112.8(c)(8)(i-v)	Liquid Level Sensing Device, Overfill Prevention	Section 6.4, 12.5
112.8(c)(9)	Effluent Treatment Facilities	Section 12.6
112.8(c)(10)	Correct Visible Discharges	Section 4.3
112.8(c)(11)	Secondary Containment for Mobile or Portable Containers	Section 5.3
112.8(d)(1)	Corrosion Protection for Buried Piping	Section 12.3
112.8(d)(2)	Terminal Connections	Section 12.7
112.8(d)(3)	Pipe Supports	Section 12.8
112.8(d)(4)	Aboveground Piping Inspections	Section 6.5
112.8(d)(5)	Vehicle Warning	Section 12.9
112.20(e)	Applicability of the Substantial Harm Criteria	Section 1.1

1.3 Management Approval

"112.7: The Plan must have the full approval of management at a level of authority to commit the necessary resources to fully implement the Plan."

This SPCC Plan has the full approval of management at Fort Knox, at a level of authority to commit the necessary resources for full implementation of the Plan. Management will use personnel, equipment, and materials necessary to prevent and control spills, and to implement SPCC requirements set forth in this Plan. By virtue of my office, I have authority to approve this document on behalf of the facility, and to commit resources to implement the corrective actions and improvements needed, to comply with applicable federal and state laws.

The implementation of and compliance with this SPCC Plan are subject to the provisions of the Anti-Deficiency Act, as amended, 31 United States Code (U.S.C.) section 1341 et seq, and requisite regulations which control funding of operations and activities. Nothing in this plan is intended to make or authorize an expenditure or obligation, exceeding an amount or purpose available in a U.S. Government appropriation or fund, for an expenditure or obligation in violation of the Anti-Deficiency Act. Further, this plan is not intended to involve the U.S. Government in a contract or obligation for payment or any other expense, before an appropriation is adopted, unless otherwise authorized by law.

Signature

20210127

Date Signed

CJ KING
COL, LG, Commanding

Garrison Commander

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1.4 Professional Engineer Certification

"112.3(d): Except as provided in §112.6, a licensed Professional Engineer must review and certify a Plan for it to be effective to satisfy the requirements of this part. (1) By means of this certification the Professional Engineer attests: (i) That he is familiar with the requirements of this part ; (ii) That he or his agent has visited and examined the facility; (iii) That the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of this part; (iv) That procedures for required inspections and testing have been established; and (v) That the Plan is adequate for the facility. (vi) That, if applicable, for a produced water container subject to §112.9(c)(6), any procedure to minimize the amount of free-phase oil is designed to reduce the accumulation of free-phase oil and the procedures and frequency for required inspections, maintenance and testing have been established and are described in the Plan. (2) Such certification shall in no way relieve the owner or operator of a facility of his duty to prepare and fully implement such Plan in accordance with the requirements of this part."

In accordance with 40 CFR 112.3(d), I hereby certify that I or my agent has visited and examined the facility, and being familiar with the provisions of 40 CFR 112, attest that the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of this part, the procedures for required inspections and testing have been established, and that the Plan is adequate for the facility.

This certification in no way relieves the owner or operator of the Facility of his or her duty to prepare and fully implement this Plan in accordance with the requirements of 40 CFR 112. This Plan is valid only to the extent that the Facility owner or operator maintains, tests, and inspects equipment, containment, and other devices as prescribed in this Plan.

Desiree S Halsor
Signature

35101
License Number

Desiree S Halsor
Name

23 December 2020
Date

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1.5 Designated Person

"112.7(f)(2): Designate a person at each applicable facility who is accountable for discharge prevention and who reports to facility management."

The Directorate of Public Works (DPW), EMD Chief, telephone (502) 624-6684 is the primary Designated Person, described in 40 CFR 112.7(f)(2), who reports to garrison management and is accountable for discharge prevention. The first backup Designated Person is the SPCC/Tank Manager, telephone (502) 624-2072.

1.6 Location of SPCC Plan

"112.3(e)(1): Maintain a complete copy of the Plan at the facility if the facility is normally attended at least four hours per day or at the nearest field office if the facility is not so attended, and Have the Plan available to the Regional Administrator for on-site review during normal working hours."

In accordance with 40 CFR 112.3(e)(1), a complete copy of this Plan is maintained at DPW – EMD at 126 6th Avenue, Suite 224, Fort Knox, Kentucky 40121. The EMD is generally attended 0700 to 1600, except during lunch breaks, five days per week (closed on Saturdays and Sundays).

1.7 SPCC Plan Review

"112.5(b): Notwithstanding compliance with paragraph (a) of this section**, complete a review and evaluation of the SPCC Plan at least once every five years from** the date your facility becomes subject to this part; or, if your facility was in operation on or before August 16, 2002, five years from the date your last review was required under this part. As a result of this review and evaluation, you must amend your SPCC Plan within six months of the review to include more effective prevention and control technology if the technology has been field-proven at the time of the review and will significantly reduce the likelihood of a discharge as described in §112.1(b) from the facility. You must implement any amendment as soon as possible, but not later than six months following preparation of any amendment. You must document your completion of the review and evaluation, and must sign a statement as to whether you will amend the Plan, either at the beginning or end of the Plan or in a log or an appendix to the Plan. The following words will suffice, "I have completed review and evaluation of the SPCC Plan for (name of facility) on (date), and will (will not) amend the Plan as a result."

The Designated Person identified in **Section 1.5** is responsible for initiating and coordinating reviews of the SPCC Plan. The Facility Owner/Operator must complete a review and evaluation at least once every five (5) years or when changes in the Facility occur. The completed review and evaluation must be followed by a signed statement as to whether the Plan will be amended. A registered Professional Engineer (P.E.) must certify technical amendments in accordance with 40 CFR 112.3(d). The record of the SPCC Plan Five-Year Reviews and Amendments is contained in **Appendix E**.

The Facility Owner/Operator must amend the SPCC Plan within six (6) months of the review and evaluation to include more effective field-proven prevention and control technology that will significantly reduce the likelihood of a discharge from regulated oil containers, oil transfers, or the use of regulated oil. The site must implement any amendment as soon as possible, but not later than six (6) months following the preparation of any amendment.

1.8 Amendments of SPCC Plans

1.8.1 Periodic Amendments

"112.5(a): Amend the SPCC Plan for your facility in accordance with the general requirements in §112.7, and with any specific section of this part applicable to your facility, when there is a **change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge as described in §112.1(b)**. Examples of changes that may require amendment of the Plan include, but are not limited to: commissioning or decommissioning containers; replacement, reconstruction, or movement of containers; reconstruction, replacement, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operation or maintenance procedures at a facility. An amendment made under this section must be prepared within six months, and implemented as soon as possible, but not later than six months following preparation of the amendment."

In accordance with 40 CFR 112.5(a), the Plan will be periodically reviewed and evaluated for any change in the Facility design, construction, operation, or maintenance that materially affects the facility's potential for an oil discharge, including, but not limited to:

- Commissioning or decommissioning containers.
- Replacement, reconstruction, or movement of containers.
- Reconstruction, replacement, or installation of piping systems.
- Construction or demolition that might alter secondary containment structures.
- Changes of product or service.
- Revision of standard operation, inspection, or maintenance procedures.

An amendment made under this section must be made within six (6) months, and implemented as soon as possible, but not later than six (6) months following preparation of the amendment. Amendments to the Plan made to address changes of this nature are considered technical amendments and must be certified by a registered P.E.

Non-technical amendments can be made by the Designated Person and must be documented in the appropriate section of the Plan. Non-technical amendments include a change in the name or contact information (such as telephone numbers) of individuals responsible for the implementation of the Plan and/or a change in the name or contact information of spill response or cleanup contractors.

The record of SPCC Plan Five-Year Reviews and Amendments are contained in **Appendix E**.

1.8.2 Amendment by Regional Administrator

"112.4(a): Notwithstanding compliance with §112.3, whenever your facility has discharged **more than 1,000 U.S. gallons of oil in a single discharge** as described in §112.1(b), or discharged **more than 42 U.S. gallons of oil in each of two discharges** as described in §112.1(b), occurring **within any twelve month period**, submit the following information to the Regional Administrator **within 60 days** from the time the facility becomes subject to this section:

- Name of the facility.
- Name of the owner or operator of the facility.
- Location of the facility.
- Date of initial facility operation.
- Maximum storage or handling capacity of the facility and current normal daily throughput.

- Description of the facility, including maps, flow diagrams, and topographical maps.
- A complete copy of the SPCC Plan with any amendments.
- The cause of such spill, including a failure analysis of the system or subsystem in which the failure occurred.
- The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements.
- Additional preventive measures taken or contemplated to minimize the possibility of reoccurrence.
- Such other information as the EPA Regional Administrator may require."

When EPA proposes to require an amendment to the SPCC Plan, the facility will be notified by certified mail or by personal delivery. The EPA will specify the terms of such amendment.

Within 30 days from receipt of the notice, the facility may submit written information, views, and arguments on the proposed amendment. After considering all material presented, EPA will either notify the facility that an amendment is required or will rescind the notice.

Any EPA proposed amendment becomes a part of the SPCC Plan 30 days after such notice unless the facility appeals. The amendment should be implemented as soon as possible, but not later than six (6) months after the amendment becomes a part of the SPCC Plan.

Fort Knox **did not** discharge more than 1,000 U.S. gallons of oil in a single discharge as described in §112.1(b), or discharge more than 42 U.S. gallons of oil in each of two discharges as described in §112.1(b), occurring within any twelve month period. Fort Knox maintains a list of reportable spills tracked at EMD. As such, Fort Knox **was not required** to submit their SPCC Plan with any amendments to the EPA for review.

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SECTION 2

General Facility Information

Facility Owner/Operator:	U.S. Army
Facility Name:	Fort Knox
Address:	Garrison Commander Fort Knox 111 East Chaffee Avenue Fort Knox, Kentucky 40121
Telephone:	502-624-1000 (Operator)

2.1 Facility Description

"112.7(a)(3): Describe in your Plan the physical layout of the facility and include a facility diagram, which must mark the location and contents of each container. The facility diagram must include completely buried tanks that are otherwise exempted from the requirements of this part under §112.1(d)(4). The facility diagram must also include all transfer stations and connecting pipes."

Fort Knox is on a 109,000-acre plot about 35 miles southwest of Louisville, Kentucky. Fort Knox stretches into Bullitt, Meade, and Hardin Counties with the cantonment area located primarily in Hardin County. The towns of West Point, Radcliff, Vine Grove, and Lebanon Junction are in the immediate vicinity of the installation. The City of Muldraugh is within the installation boundaries and the City of Elizabethtown is 15 miles south of Fort Knox. The garrison is in central Kentucky which straddles the Mississippian (or Pennyroyal) Plateau and Blue Grass Regions. The Mississippian Plateau is characterized by karst topography, including rolling hills, caves, and natural springs. The Blue Grass Region is similar in characterization.

The electrical system at Fort Knox has been privatized and is owned, operated, and maintained by the Nolin Rural Electric Cooperative Corporation (or simply Nolin). Nolin has implemented an inspection, testing, and maintenance program for regulated ASTs under their control (including electrical transformers). Nolin follows Fort Knox's spill response procedures, is responsible for any spills or discharges originating from their equipment, and closely coordinates spill prevention and response activities with EMD.

There are two COCO fuel points on Fort Knox operated by Louis Berger Services, Inc.: 9th Calvary Regiment non-tactical retail terminal and the Frazier Road tactical bulk retail terminal. Louis Berger Services, Inc. maintains an SPCC Plan for these locations and is responsible for any spills or discharges originating from their equipment. Louis Berger Services, Inc. closely coordinates spill prevention and response activities with EMD.

There are five ASTs that serve emergency generators associated with telecommunications equipment. This equipment is owned by several different telecommunications companies who have established spill reporting policies posted on the exterior of their properties. EMD does not have access to this equipment and can only report observed discharges.

Fort Knox is a non-transportation-related facility that does not transfer any petroleum products over water and does not store more than 1,000,000 gallons of petroleum products. Because of these characteristics, Fort Knox is not required to prepare an FRP. If Fort Knox answered "yes" to any questions in the Applicability of Substantial Harm Criteria, an FRP would be required. FRPs are required under 40 CFR 112, Subpart D to demonstrate a facility's preparedness and capability to respond to a worst-case oil discharge. Required elements in an FRP include:

- Owner/operator and facility information
- Emergency notification protocols
- Hazard analysis
- Discussion of small to worst-case discharges and associated response
- Description of discharge detection equipment and procedures
- Implementation of response, containment, and disposal procedures
- Procedures for self-inspection, exercises, and drills
- Facility diagrams, including drainage and evacuation routes
- A discussion of facility security.

Fort Knox stores the following types of petroleum products in ASTs, USTs, and containers 55 gallons or greater in capacity:

- Gasoline
- Diesel fuel
- F-24 / Jet-A
- Various grades of engine oil, greases, hydraulic oils, and used oils
- Used cooking oil
- Mineral oil

Petroleum products are stored in ASTs, drums, and mobile containers located throughout the garrison; mainly diesel for emergency generators, diesel and gasoline for Government vehicle fueling, and used oils from vehicle maintenance activities. In addition, there are two USTs at the Army and Air Force Exchange System (AAFES) Wilson Road station. **Table 2-2** contains a listing of ASTs and USTs at Fort Knox. **Appendix A** contains a listing of mobile and portable containers, DSAs, OFOE, and used cooking oil containers. **Appendix B** contains facility diagrams that depict the locations of all regulated oil containing equipment at Fort Knox. Fort Knox maintains site-specific response maps as part of their geographic information system (GIS) as well as site-specific site plans that support stormwater pollution prevention program implementation.

There are numerous diesel-powered emergency generators located on Fort Knox. These are used to supply electricity during electrical emergencies. Diesel fuel for these generators is stored in either an exterior AST near the generator or an AST beneath the generator unit. Part of Fort Knox's contingency electrical operations include six large Energy Security facilities, or small power plants designed to compartmentalize and provide emergency power to specific locations at Fort Knox. The Energy Security facilities are comprised of large ASTs that supply smaller day tanks which provide fuel to the generators.

The Fort Knox cantonment area is bounded on its eastern side by Mill Creek (tributary to the Salt River) and the western side by Otter Creek. Both flow north and are tributaries to the Ohio River,

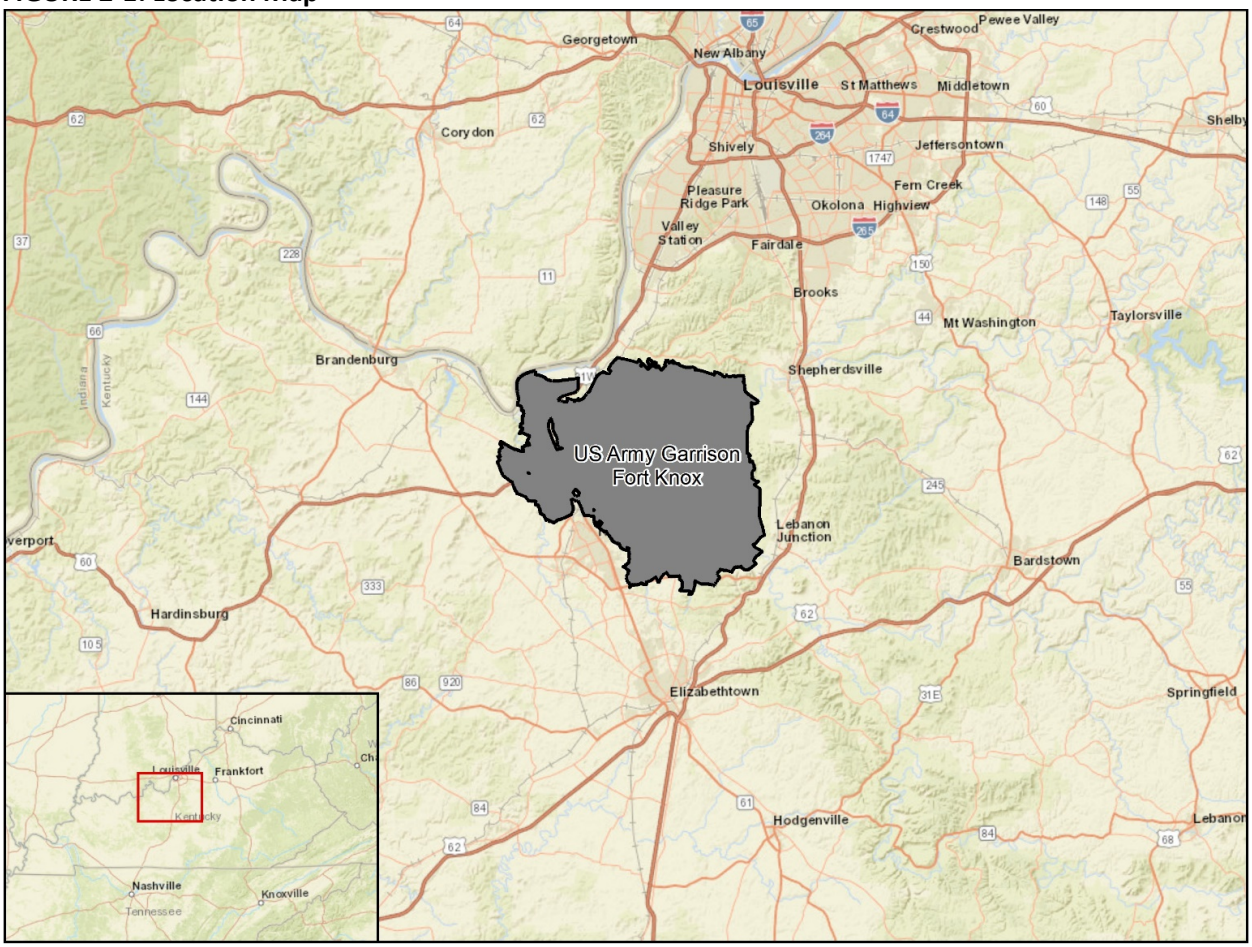
which flows southwest to the Mississippi River. The Range Areas drain to the Salt River (sometimes via one of its tributaries, Mill Creek or Rolling Fork). Refer to the Fort Knox SWGWPPP for specific information on drainage areas and associated watersheds.

Potable water and wastewater at Fort Knox are privatized and are operated and managed by Hardin County Water District No. 1. There is one wastewater treatment plant and two drinking water plants (Central and Muldraugh); however, the Central drinking water plant is currently not in operation. Fort Knox maintains separate stormwater and sanitary sewer systems. Discharges into the sanitary system would eventually reach the Wastewater Treatment Plant.

Spills which directly enter stormwater grates drain into the underground system and are likely to be released into drainage conveyances that flow towards an installation outfall. Spills that flow into surface drainage ditches can most likely be contained before flowing off Fort Knox or entering the underground system. Stormwater is conveyed through grassy drainage ditches, catchment basins, culverts, oil-water separators (OWSs), and underground concrete pipes.

Refer to the Vicinity Map, **Figure 2-1**, for a depiction of Fort Knox's location and to **Appendix B** for facility diagrams.

FIGURE 2-1: Location Map



2.2 Oil Storage Containers

"112.7(3)(i): You must also address in your Plan the type of oil in each fixed container and its storage capacity. For mobile or portable containers, either provide the type of oil and storage capacity for each container or provide an estimate of the potential number of mobile or portable containers, the types of oil, and anticipated storage capacities; (**capacities of 55 gallons or greater**)"

Fort Knox stores a variety of POLs for use in ground vehicles, aircraft, mechanical, and electrical equipment. These POLs are stored in a variety of shop-fabricated ASTs, mobile/portable containers, and USTs throughout the garrison. In addition, drums and mobile/portable containers storing animal/vegetable cooking oils are situated at locations throughout Fort Knox. Various types of OFOE (electrical transformers and hydraulic oil reservoir containers) are found on Fort Knox. In addition, 55-gallon drums containing engine oils (new and used) are located throughout the garrison. Other oil storage containers or transport areas such as mobile equipment, loading areas, OWSs, and facility piping are found at Fort Knox and are also discussed in this Plan, where appropriate. Fort Knox maintains an extensive GIS database that contains specific descriptions related to each individual storage container. The types of information included in the GIS database include items like construction material, capacity, contents, overfill protection, alarms, leak detection spill flow direction, etc. Refer to the GIS database for additional information. The term "container" applies to all regulated ASTs, refuelers, OFOE, and mobile/portable storage containers at Fort Knox.

Total oil storage capacity is summarized in **Table 2-1**. **Table 2.2** contains detailed information about each individual AST and UST. **Appendix A** provides detailed listings of all storage containers not included in Table 2-2. **Appendix B** contains facility diagrams of all oil storage containers at Fort Knox. Procedures for inspection and testing of the various types of containers are in **Section 6**. Secondary containment is discussed in **Table 2-2** and **Section 5**. There are many individual units, tenants, and organizations at Fort Knox who have the responsibility for adding or removing POL from a storage container. **Section 9** contains recommended transfer procedures for filling or emptying storage containers at Fort Knox.

Each of the items listed in **Table 2-1** is addressed in this Plan, in the following order:

1. Shop-fabricated Tanks
2. Mobile Refuelers
3. Used Cooking Oil Containers
4. DSAs
5. Facility Piping
6. USTs
7. Oil-Filled Operational Equipment
    - Elevator Hydraulic Oil Tanks
    - Electrical Transformers
8. Oil-Water Separators
9. Other Containers (Out of Service, Permanently Closed, or Temporary Contractor Containers)

TABLE 2-1: Summary of Oil Storage Containers and Capacities

Container Type	Quantity	Total Oil Storage Capacity (gallons)	Additional Details
GBTs	53	37,874	Table 2-2 & Fort Knox GIS
ASTs*	124	331,215	Table 2-2 & Fort Knox GIS
Mobile Refuelers	25	63,500	Appendix A & Fort Knox GIS
Drum Storage	65	3,575	Appendix A & Fort Knox GIS
OFOE (Hydraulic Oil Containers)	59	16,005	Appendix A & Fort Knox GIS
OFOE (Pad-mounted Transformers)	410	136,517	Appendix A & Fort Knox GIS
Used Cooking Oil	50	15,000	Appendix A & Fort Knox GIS
Total Aboveground Oil Storage Capacity		**603,686**	
Underground Storage Tanks	2	45,000	Table 2-2 & Fort Knox GIS
Total Oil Storage Capacity (with UST)		**648,686**	

*Includes eight portable containers. Refer to Table 2-2 for locations.

2.2.1 Shop-fabricated Tanks

All ASTs at Fort Knox are of shop-fabricated construction, meaning they are fabricated in an assembly facility and installed on-site as one piece of equipment. Fort Knox classifies their shop-fabricated tanks as either a generator base tank (GBT) or stand-alone AST. When this SPCC Plan discuses requirements for shop-fabricated tanks, they apply equally to GBTs and ASTs (note, the term “AST” is used to collectively refer to GBTs and ASTs).

GBTs are associated with emergency power generators and together considered integral generator sets. The GBT is the base of the generator which the engine component sits on top. Stand-alone ASTs (referred to as ASTs) are not part of an emergency generator set. These ASTs are associated with fueling operations, used oil collection, or are piped directly into generators or boilers.

GBTs and ASTs are typically built to Underwriters Laboratories (UL) 142 or UL 2085 Standards.

2.2.2 Mobile Refuelers

Mobile refuelers at Fort Knox can include vehicles such as 3,000-gallon military refuelers and Heavy Expanded Mobility Tactical Trucks (HEMTTs) configured with 2,500-gallon portable storage containers. The exact number will vary depending on operational tempo and training activities.

2.2.3 Used Cooking Oil Containers

"112.12: If you are the owner or operator of an onshore facility, you must: (a) Meet the general requirements for the Plan listed under §112.7, and the specific discharge prevention and containment procedures listed in this section."

Used cooking oil containers with at least 55 gallons capacity, are a type of portable container for inspection purposes. The requirements contained in 40 CFR 112.12 for animal fats and vegetable oils are implemented through compliance with 40 CFR 112.7 and 40 CFR 112.8. Fort Knox generates used cooking oil (grease) at dining facilities and retail operations which are stored in containers specific for used cooking oil. Used cooking oil containers can be found throughout the garrison and are managed by various entities. For example, the Post Exchange, AAFES, and the garrison's Qualified Recycle Program.

2.2.4 Drum Storage Areas

Drums or plastic containers with at least 55 gallons capacity are a type of portable container for inspection purposes. All are provided with adequate secondary containment via the use of drum containment pallets, containment dikes, or being located inside of a building.

2.2.5 Facility Piping

Most of the piping associated with ASTs is 2 inches or less in diameter. Piping associated with fueling operations at Godman Army Airfield range in size from 2 to 4 inches. POLs transferred within this piping include:

- Unleaded gasoline
- Jet-A/F-24
- Diesel fuel
- Used oil

2.2.6 Underground Storage Tanks

There are two active USTs located at AAFES Wilson Road. Though the USTs are exempt from the SPCC rules, since they meet the requirements of 40 CFR 280, the transfer of oil aboveground during the UST fill process is regulated by 40 CFR 112, and this requires their inclusion in the SPCC Plan. Each UST's fill port sump (spill bucket) drains back to the UST itself. Fuel is typically delivered multiple times per week. Prior to delivery of fuel, AAFES personnel provide the fuel delivery driver with a printout from the Veeder-Root system, which is located inside the facility's main office. The printout indicates the instantaneous volume of fuel in each UST or compartment. In addition, each UST is leak tested daily.

The USTs utilize a Veeder-Root automatic tank gauge (ATG) system that is equipped with sensors that liquid level, UST and piping leak detection, and provide high level alarms. The Veeder-Root system is also equipped with audible and visual alarms both inside and outside of AAFES Wilson Road.

2.2.7 Oil-Filled Operational Equipment

2.2.7.1 Hydraulic Oil Storage Containers

There are numerous elevators at Fort Knox and a complete list is provided in **Appendix A.** Since the hydraulic oil containers have a capacity greater than 55 gallons, they are regulated by 40 CFR 112.

2.2.7.2 Electrical Transformers

There are numerous pad-mounted, oil-filled transformers that contain 55 gallons or more of non-polychlorinated biphenyl (non-PCB) mineral oil. The transformers are regulated by 40 CFR 112. Additional electrical transformers are located on Fort Knox; however, they contain less than 55 gallons of oil, not regulated, and are not part of this SPCC Plan.

Oil transfer operations into or out of electrical transformers is not generally conducted on-site at Fort Knox. When a transformer is required to be filled or emptied, it is conducted off-site. Nolin has established a storage area for new and out of service transformers inside of a maintenance warehouse that does not have any floor drains.

2.2.8 Oil-Water Separators

Fort Knox utilizes OWSs throughout the garrison as pre-treatment device for wastewater or stormwater. Since the OWSs are used for water treatment, but not as secondary containment or bulk storage containers, they are not required to be listed in the SPCC Plan. The OWS are slow flow, gravity separation chambers used either for primary treatment of industrial wastewater (treated effluent discharges to the sanitary sewer system) to remove free oil, grease, and fuel or for treatment of stormwater runoff prior to direct discharge. The collected oil is periodically removed by a contractor.

Refer to the Fort Knox SWGWPPP for an inventory and information about OWS located at Fort Knox. In the future, if any OWS or other type of collection basin can be used for spill control purposes, then the secondary containment capacity should be listed in this plan.

2.2.9 Other Containers (Out of Service, Permanently Closed, or Temporary Contractor Containers)

"112.2: Permanently closed means any container or facility for which:
(1) All liquid and sludge has been removed from each container and connecting line; and
(2) All connecting lines and piping have been disconnected from the container and blanked off, all valves (except for ventilation valves) have been closed and locked, and conspicuous signs have been posted on each container stating that it is a permanently closed container and noting the date of closure."

"112.1(b)(3): [The SPCC Rule also applies to] Any container that is used for standby storage, for seasonal storage, or for temporary storage, or not otherwise "permanently closed" as defined in 112.2"

There are several ASTs at Fort Knox that are out of service, but not permanently closed in accordance with 40 CFR 112.2. They include: 1730.G3, 1730.G4, 1730.G5, 2952-T1, 2952-T8, and 5242-T3 – T6.

The following ASTs at Fort Knox are permanently closed in accordance with 40 CFR 112.2: 2747-T1 – T5, 2770-T1, 2770-T2, 2798-T1, 2807-T3, 2807-T4, 2952-T11, 3008.G2, 5946-T1, 6135-T1 – T3, and 9357-T1.

TABLE 2-2: Regulated Oil Storage Container Inventory and Summary of Conditions

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
GBT	17	Chaffee Gate	17.G1	Diesel	77	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	18	Chaffee Gate	18.G2	Diesel	214	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	121	Commissary	121-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Mechanical	Interstitial Gauge	None	Yes	Yes	Radial
AST	136	11th Avenue Generator Station	136-T1	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	Dial Gauge, ATG	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	136	11th Avenue Generator Station	136-T2	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	Dial Gauge, ATG	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	136	11th Avenue Generator Station	136-T3	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
AST	136	11th Avenue Generator Station	136-T4	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
Portable Container	136	11th Avenue Generator Station	136-T5	Used oil	385	DW	N/A	2013	Plastic (Poly)	Dial Gauge	Sight Glass	None	None	Yes	Inside
AST	136	11th Avenue Generator Station	136-T6	Lube oil	500	DW	Inside Building	2013	Carbon Steel	Dial Gauge	Interstitial Alarm	HLA, LLA	None	No	Inside
GBT	203	Accessions Command	203.G1	Diesel	145	DW	N/A	2006	Carbon Steel	Dial Gauge	Stick	None	None	No	East toward stormwater inlet
AST	612	Nolin RECC	612-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	None	No	Radial
AST	612	Nolin RECC	612-T2	Gasoline	1,000	DW	Active Measures	UNK	Carbon Steel	Dial Gauge	Interstitial Gauge	None	None	No	Radial
AST	851	IAHC	851-T1	Diesel	10,000	DW	Active Measures	UNK	Carbon Steel	ATG	Interstitial Alarm	HLA, LLA	Unknown	Yes	Radial
AST	851	IAHC	851-T2	Diesel	300	DW	Inside building	UNK	Carbon Steel	ATG	Interstitial Alarm	HLA	Unknown	No	Inside
AST	851	IAHC	851-T3	Diesel	100	Dike (Steel)	Inside building	UNK	Carbon Steel	Pop-up	Interstitial Alarm	None	Unknown	No	Inside
AST	860	IAHC	860-T1	Diesel	12,000	DW	Active Measures	UNK	Carbon Steel	Dial Gauge	Interstitial Gauge	HLA, Overfill	Unknown	No	Radial
GBT	860	IAHC	860.G2	Diesel	200	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Radial
AST	862	IAHC	862-T1	Lube oil	500	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	HLA, LLA	None	No	Inside
Portable Container	862	IAHC	862-T2	Used oil	385	DW	N/A	UNK	Plastic (Poly)	Dial Gauge	Sight Glass	None	None	Yes	Inside
AST	869	IAHC	869-T1	Diesel	200	Dike (Steel)	Inside trench	UNK	Carbon Steel	Pop-up	None	HLA, LLA	Unknown	No	Inside containment

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
AST	869	IAHC	869-T2	Diesel	200	Dike (Steel)	Inside trench	UNK	Carbon Steel	Pop-up	None	HLA, LLA	Unknown	No	Inside containment
AST	869	IAHC	869-T3	Diesel	10,000	DW	Active Measures	UNK	Carbon Steel	ATG	Interstitial Alarm	HLA, LLA	Unknown	Yes	Radial to storm drain, 6 ft west
GBT	1002	Cadet Command	1002.G1	Diesel	280	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	1006	Veterinary Clinic	1006-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Pop-up, Mechanical	Interstitial Gauge	None	Unknown	Yes	Radial
AST	1054	Auto Craft	1054-T1	Used oil	1,000	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	None	No	Radial
AST	1205	Central Water Treatment Plant	1205-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	Yes	Radial
AST	1227	NEC	1227-T1	Diesel	1,000	DW	Active Measures, trench	UNK	Carbon Steel	Mechanical	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	1227	NEC	1227-T2	Diesel	75	DW	Inside building	2019	Carbon Steel	Pop-up	Interstitial Gauge	HLA, LLA	Unknown	No	Interior
GBT	1307	USAREC	1307.G1	Diesel	1,500	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	HLA, LLA	None	No	Radial
GBT	1307	USAREC	1307.G2	Diesel	1,500	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	LLA	None	No	Radial
GBT	1308	USAREC	1308.G1	Diesel	875	DW	N/A	2009	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	1467	TSC Headquarters	1467.G1	Diesel	693	DW	N/A	UNK	Carbon Steel	Dial Gauge, ATG	Interstitial Alarm	None	None	No	Radial
AST	1722	Harmon Hall	1722-T1	Diesel	187	DW	Inside building	UNK	Carbon Steel	Pop-up	Stick	None	Unknown	No	Inside
GBT	1730	The Ginn Group	1730.G1	Diesel	77	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	1730	The Ginn Group	1730.G2	Diesel	290	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	1730	The Ginn Group	1730.G3	Out of service	130	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	N/A	No	East downhill
GBT	1730	The Ginn Group	1730.G4	Out of service	100	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	None	N/A	No	Radial
GBT	1730	The Ginn Group	1730.G5	Out of service	100	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	None	N/A	No	Into stormwater inlet
GBT	2021	In/Out-Processing	2021.G1	Diesel	516	DW	N/A	2016	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	2190	Brandenburg Generator Station	2190-T1	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	ATG, Dial Gauge	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	2190	Brandenburg Generator Station	2190-T2	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	ATG, Dial Gauge	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	2190	Brandenburg Generator Station	2190-T3	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
AST	2190	Brandenburg Generator Station	2190-T4	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
Portable Container	2190	Brandenburg Generator Station	2190-T5	Used oil	385	DW	N/A	2013	Plastic (Poly)	Dial Gauge	Sight Glass	None	None	Yes	Inside
GBT	2341	Natcher Gym/PEC	2341.G1	Diesel	785	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	2370	Gaffey Hall	2370.G1	Diesel	331	DW	N/A	2009	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	2389	IBCT Brigade Headquarters	2389.G1	Diesel	1,200	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	South to trench drain
AST	2741	Wilson Road / Disney Generator Station	2741-T1	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	ATG, Dial Gauge	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	2741	Wilson Road / Disney Generator Station	2741-T2	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	ATG, Dial Gauge	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	2741	Wilson Road / Disney Generator Station	2741-T3	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
AST	2741	Wilson Road / Disney Generator Station	2741-T4	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
Portable Container	2741	Wilson Road / Disney Generator Station	2741-T5	Used oil	385	DW	N/A	2013	Plastic (Poly)	Dial Gauge	Sight Glass	None	None	Yes	Inside
AST	2767	Hurley Motorpark	2767-T1	Used oil	660	DW	N/A	1996	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
AST	2770	Boatwright Maintenance Area	2770-T3	Off-spec fuel	660	DW	N/A	2018	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial into stormwater inlet
AST	2770	Boatwright Maintenance Area	2770-T4	Used oil	660	DW	Active Measures	2003	Carbon Steel	Mechanical	Interstitial Gauge	HLA	None	Yes	Radial, Northeast
AST	2770	Boatwright Maintenance Area	2770-T5	Used oil	2,000	DW	Active Measures	UNK	Carbon Steel	Mechanical	Interstitial Gauge	HLA	None	Yes	Northeast
AST	2807	Mansfield Maintenance Complex	2807-T1	Contaminated fuel	500	DW	N/A	UNK	Carbon Steel	Mechanical	Interstitial Gauge	None	Unknown	Yes	Radial
AST	2807	Mansfield Maintenance Complex	2807-T2	Used oil	660	DW	N/A	2018	Carbon Steel	None	Interstitial Gauge	None	None	Yes	Inside

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
AST	2807	Mansfield Maintenance Complex	2807-T7	Used oil	660	DW	N/A	2018	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
AST	2807	Mansfield Maintenance Complex	2807-T8	Used oil	660	DW	N/A	2020	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
GBT	2835	IBCT Mess Hall	2835.G1	Diesel	2,000	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	2862	St. John Tank Motorpark	2862-T1	Diesel	120	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Gauge	LLA	Unknown	No	Inside
AST	2862	St. John Tank Motorpark	2862-T2	Diesel	120	DW	N/A	2013	Carbon Steel	Pop-up	Interstitial Gauge	LLA	Unknown	No	Inside
AST	2942	Colby Tank Motorpark	2942-T1	Diesel	120	Dike (Concrete)	Trench	UNK	Carbon Steel	Pop-up	None	None	Unknown	No	Dike
AST	2942	Colby Tank Motorpark	2942-T2	Used oil	528	DW	N/A	2004	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
AST	2943	Colby Tank Motorpark	2943-T1	Used oil	660	DW	N/A	2005	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
AST	2944	Colby Tank Motorpark	2944-T1	Used oil	528	DW	N/A	1996	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
AST	2944	Colby Tank Motorpark	2944-T2	Used oil	528	DW	N/A	1996	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
AST	2944	Colby Tank Motorpark	2944-T3	Used oil	660	DW	N/A	2018	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
AST	2952	QRP – Recycling	2952-T1	Empty	650	DW	N/A	UNK	Carbon Steel	Stick	Stick	None	N/A	No	Radial
AST	2952	QRP – Recycling	2952-T4	Off-spec fuel	660	DW	N/A	1999	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	West
AST	2952	QRP – Recycling	2952-T5	Used oil	660	DW	N/A	1999	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	West
AST	2952	QRP – Recycling	2952-T6	Used oil	660	DW	N/A	1999	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	West
AST	2952	QRP – Recycling	2952-T7	Used oil	660	DW	N/A	1999	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	West
AST	2952	QRP – Recycling	2952-T8	Out of service	750 / 250	DW	N/A	UNK	Carbon Steel	Stick	Stick	None	N/A	No	Radial
Portable Container	2952	QRP – Recycling	2952-T9	Used oil	385	DW	N/A	UNK	Plastic (Poly)	Mechanical	Sight Glass	None	None	Yes	South
AST	2958	St. John Motorpark	2958-T1	Used oil	660	DW	N/A	2004	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Inside
AST	3008	Muldraugh Water Treatment	3008-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	Yes	West
AST	3075	ASP	3075-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	Yes	Radial
AST	4012	Lindsey Golf Course	4012-T1	Diesel	2,000	DW	Concrete	UNK	Carbon Steel	Pop-up	Interstitial Alarm	HLA	Unknown	Yes	Northeast to berm
AST	4012	Lindsey Golf Course	4012-T2	Gasoline	500	DW	Concrete	UNK	Carbon Steel	Pop-up	Interstitial Alarm	HLA	Unknown	Yes	Same as T1

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
GBT	4015	701st Tank Destroyer Battalion	4015.G1	Diesel	235	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	4210	Chaffee Avenue Lift Station	4210.G1	Diesel	472	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	None	None	No	Radial
GBT	4249	CDC Daycare	4249.G1	Diesel	1,700	DW	N/A	2010	Carbon Steel	Dial Gauge	Interstitial Alarm	HLA, LLA	None	No	Radial
GBT	4250	CDC Daycare	4250.G1	Diesel	1,700	DW	N/A	2009	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial the southeast
AST	4995	AAFES West Chaffee Ave.	4995-T1	Premium unleaded	10,000	DW	DW	UNK	Carbon Steel	Dial Gauge, ATG	Interstitial Alarm	HLA, LLA	Yes	Yes	North to gulley
AST	4995	AAFES West Chaffee Ave.	4995-T2	Unleaded gasoline	10,000	DW	DW	UNK	Carbon Steel	Dial Gauge, ATG	Interstitial Alarm	HLA, LLA	Yes	Yes	North to gulley
AST	4995	AAFES West Chaffee Ave.	4995-T3	Unleaded gasoline	10,000	DW	DW	UNK	Carbon Steel	Dial Gauge, ATG	Interstitial Alarm	HLA, LLA	Yes	Yes	North to gulley
AST	4997	Chaffee Avenue Generator Station	4997-T1	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	Dial Gauge, ATG	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	4997	Chaffee Avenue Generator Station	4997-T2	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	Dial Gauge, ATG	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	4997	Chaffee Avenue Generator Station	4997-T3	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
AST	4997	Chaffee Avenue Generator Station	4997-T4	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
Portable Container	4997	Chaffee Avenue Generator Station	4997-T5	Used oil	385	DW	N/A	2013	Plastic (Poly)	Dial Gauge	Sight Glass	None	None	Yes	Inside
AST	4997	Chaffee Avenue Generator Station	4997-T6	Lube oil	500	DW	Inside building	2013	Carbon Steel	Dial Gauge	Interstitial Alarm	HLA, LLA	None	No	Inside
GBT	5220	Godman Army Airfield	5220.G2	Diesel	500	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	5220	Godman Army Airfield	5220-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Mechanical	Interstitial Alarm	HLA	Unknown	Yes	Radial
AST	5222	Godman Army Airfield	5222-T1	Used oil	500	DW	N/A	UNK	Carbon Steel	Mechanical	Interstitial Gauge	None	Unknown	Yes	Inside containment
AST	5222	Godman Army Airfield	5222-T2	Contaminated F-24	500	DW	N/A	UNK	Concrete/Protected	Pop-up	Interstitial Gauge	None	Unknown	Yes	Secondary containment
AST	5231	Godman Army Airfield	5231-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Mechanical	Interstitial Alarm	HLA	Unknown	Yes	Radial
AST	5232	Godman Army Airfield	5232-T1	Diesel	572	DW	Inside building	UNK	Carbon Steel	Pop-up, ATG	Interstitial Alarm	None	Unknown	No	Inside
AST	5232	Godman Army Airfield	5232-T2	Diesel	572	DW	Inside building	UNK	Carbon Steel	ATG, Pop-up	Interstitial Alarm	None	Unknown	No	Inside
AST	5242	Godman Army Airfield	5242-T1	F-24	10,000	Steel	Concrete	UNK	Carbon Steel	ATG	Stick	HLA, LLA, Overfill	N/A	No	Radial

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
AST	5242	Godman Army Airfield	5242-T2	F-24	10,000	Steel	Concrete	UNK	Carbon Steel	ATG	Stick	HLA, LLA, Overfill	N/A	No	Radial
AST	5242	Godman Army Airfield	5242-T3	Out of service	15,000	Steel	Concrete	UNK	Carbon Steel	ATG	Visual	HLA, LLA, Overfill	N/A	No	Concrete
AST	5242	Godman Army Airfield	5242-T4	Out of service	15,000	Steel	Concrete	UNK	Carbon Steel	ATG	Visual	HLA, LLA, Overfill	N/A	No	Concrete
AST	5242	Godman Army Airfield	5242-T5	Out of service	15,000	Steel	Concrete	UNK	Carbon Steel	ATG	Visual	HLA, LLA, Overfill	N/A	No	Concrete
AST	5242	Godman Army Airfield	5242-T6	Out of service	15,000	Steel	Concrete	UNK	Carbon Steel	ATG	Visual	HLA, LLA, Overfill	N/A	No	Concrete
Portable Container	5242	Godman Army Airfield	Diesel trailer	Diesel	995	DW	N/A	UNK	Carbon Steel	Pop-up	None	None	None	Yes	Radial
GBT	5259	Godman Army Airfield	5259.G1	Diesel	336	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	5592	Conroy Avenue Lift Station	5592.G1	Diesel	194	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	5898	VanVoorhis Pump House	5898-T1	Diesel	300	DW	Active Measures	UNK	Carbon Steel	Mechanical	Interstitial Alarm	LLA	Unknown	Yes	Radial
GBT	5917	Disney Mess Hall	5917.G1	Diesel	278	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	5931	Brigade Headquarters (Disney)	5931.G1	Diesel	331	DW	N/A	2009	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	6151	Potts TMP Lift Station	6151.G1	Diesel	250	DW	N/A	UNK	Carbon Steel	Sight Glass	Interstitial Alarm	LLA	None	No	Radial
GBT	6434	HRC Maude Complex	6434.G6	Diesel	2,350	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	HLA, LLA	None	No	Radial
GBT	6434	HRC Maude Complex	6434.G7	Diesel	2,350	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	LLA	None	No	Radial
GBT	6434	HRC Maude Complex	6434.G8	Diesel	2,350	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	HLA, LLA	None	No	Radial, Southwest downhill
GBT	6434	HRC Maude Complex	6434.G9	Diesel	2,350	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	HLA, LLA	None	No	Radial
GBT	6434	HRC Maude Complex	6434.G10	Diesel	2,350	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	HLA, LLA	None	No	Radial
GBT	6434	HRC Maude Complex	6434.G11	Diesel	2,750	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	HLA, LLA	None	No	Radial
GBT	6434	HRC Maude Complex	6434.G12	Diesel	875	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	LLA	None	No	Radial
AST	6434	HRC Maude Complex	6434-T1	Diesel	10,000	DW	Sump	2008	Concrete/Protected	ATG	Interstitial Alarm	HLA, LLA	Unknown	Yes	Radial
AST	6434	HRC Maude Complex	6434-T2	Diesel	175	DW	Inside building	UNK	Carbon Steel	None	Interstitial Alarm	HLA, LLA	Unknown	No	Inside
AST	6434	HRC Maude Complex	6434-T3	Diesel	175	DW	Inside building	UNK	Carbon Steel	None	Interstitial Alarm	HLA, LLA	Unknown	No	Inside
AST	6434	HRC Maude Complex	6434-T4	Diesel	175	DW	Inside building	UNK	Carbon Steel	None	Interstitial Alarm	HLA, LLA	Unknown	No	Inside

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
AST	6434	HRC Maude Complex	6434-T5	Diesel	175	DW	Inside building	UNK	Carbon Steel	None	Interstitial Alarm	HLA, LLA	Unknown	No	Inside
GBT	6435	North Huron Street	6435.G1	Diesel	875	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Southwest
AST	6576	Farmers Tank Motorpark	6576-T1	Used oil	660	DW	N/A	1999	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Southwest
AST	6605	North Huron Street / HRC Generator Station	6605-T1	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	ATG, Dial Gauge	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	6605	North Huron Street / HRC Generator Station	6605-T2	Diesel	10,000	DW	Active Measures	2013	Carbon Steel	ATG, Dial Gauge	Interstitial Alarm	HLA, Overfill	Unknown	Yes	Radial
AST	6605	North Huron Street / HRC Generator Station	6605-T3	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
AST	6605	North Huron Street / HRC Generator Station	6605-T4	Diesel	300	DW	Inside building	2013	Carbon Steel	Pop-up	Interstitial Alarm	HLA, LLA	None	No	Inside
Portable Container	6605	North Huron Street / HRC Generator Station	6605-T5	Used oil	385	DW	N/A	2013	Plastic (Poly)	Dial Gauge	Sight Glass	None	None	Yes	Inside
AST	6605	North Huron Street / HRC Generator Station	6605-T6	Lube oil	500	DW	Inside building	2013	Carbon Steel	Dial Gauge	Interstitial Alarm	HLA, LLA	None	No	Inside
GBT	7102	Cold Storage Warehouse	7102.G1	Diesel	130	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	None	None	No	North to stormwater drainage
GBT	7102	Cold Storage Warehouse	7102.G2	Diesel	278	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	LLA	None	No	Northeast downhill
AST	7207	WWTP	7207-T1	Diesel	500	DW	Partial double wall, Concrete	UNK	Carbon Steel	ATG	Interstitial Alarm	HLA	Unknown	Yes	Radial
AST	7207	WWTP	7207-T2	Diesel	275	Dike (concrete)	Inside building	UNK	Carbon Steel	Pop-up	None	LLA	Unknown	No	Inside
GBT	7226	Salt Shed	7226.G1	Diesel	100	DW	N/A	UNK	Carbon Steel	Pop-up	Stick	None	None	No	Radial then east downhill
GBT	7235	Marine Corps Reserve Center	7235.G1	Diesel	120	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
GBT	7235	Marine Corps Reserve Center	7235.G2	Diesel	120	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	7238	Marine Corps Motorpark	7238-T1	Used oil	120	DW	N/A	2018	Carbon Steel	Pop-up	Interstitial Gauge	None	None	Yes	Inside

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
AST	N/A	Mowing Contractor	7329-T1	Gasoline	1,000	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	No	Radial
AST	N/A	Mowing Contractor	7329-T2	Diesel	1,000	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	No	Radial
AST	7422	School Bus Depot	7422-T1	Diesel	3,000	Dike (Steel)	Concrete	UNK	Carbon Steel	Mechanical	Visual	None	None	No	Radial
GBT	7501	Ft. Knox High School	7501.G1	Diesel	200	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	7873	Estrada Avenue Lift Station	7873-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Mechanical	Interstitial Alarm (not functional)	HLA	Unknown	Yes	Northeast to ditch
GBT	8057	HCWD #1 Pump Station	8057.G1	Diesel	2,183	DW	N/A	2016	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	8928	Snow Mountain Communications	8928-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Mechanical	Interstitial Gauge	None	Unknown	Yes	Radial then west downhill
GBT	8928	Snow Mountain Communications	8928.G2	Diesel	245	DW	N/A	UNK	Carbon Steel	Pop-up	Interstitial Alarm	LLA	None	No	Radial then west downhill
AST	9009	Otter Creek Pump House	9009-T1	Diesel	500	DW	Active Measures	UNK	Carbon Steel	Stick	Interstitial Alarm	None	Unknown	Yes	Radial
GBT	9066	Wilson Gate	9066.G1	Diesel	200	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	East downhill
GBT	9066	Wilson Gate	9066.G2	Diesel	214	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	East downhill
GBT	9101	Camp Carlson Lift Station	9101.G1	Diesel	113	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	LLA	None	No	Radial
GBT	9309	Hill Hall	9309.G1	Diesel	100	DW	N/A	UNK	Carbon Steel	Dial Gauge	Stick	LLA	None	No	Radial
AST	9359	Baker Landfill	9359-T1	Diesel	2,000	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	None	No	Radial onto concrete
AST	9359	Baker Landfill	9359-T3	Used oil	500	Dike (Steel)	N/A	UNK	Carbon Steel	Stick	Visual	None	None	No	Into Containment
AST	9359	Baker Landfill	9359-T4	Engine oil	275	Dike (Steel)	Containment dike	UNK	Carbon Steel	Mechanical	Visual	None	None	No	Into Containment
AST	9359	Baker Landfill	9359-T5	Hydro oil	275	Dike (Steel)	Containment dike	UNK	Carbon Steel	Pop-up	Visual	None	None	No	Into Containment
GBT	9385	Brandenburg Gate	9385.G1	Diesel	100	DW	N/A	UNK	Carbon Steel	Dial Gauge	Interstitial Alarm	LLA	None	No	Radial
AST	9387	Kentucky MATES	9387-T1	Diesel	10,000	Dike (Steel)	Active Measures	UNK	Carbon Steel	ATG	Visual	HLA, LLA	Unknown	No	Into containment
AST	9387	Kentucky MATES	9387-T2	Diesel	10,000	Dike (Steel)	Active Measures	UNK	Carbon Steel	ATG	Visual	HLA, LLA	Unknown	No	Into Containment
AST	9387	Kentucky MATES	9387-T3	Used oil	480	DW	Active Measures	1996	Carbon Steel	Pop-up	Interstitial Gauge	None	None	Yes	Radial
AST	9387	Kentucky MATES	9387-T4	Used oil	480	DW	Inside building	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	None	No	Inside
AST	9387	Kentucky MATES	9387-T5	Used oil	480	DW	Inside building	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	None	No	Inside

Container Type	Facility No.	Facility Name	Tank ID	Contents	Tank Capacity (gal)	Secondary Containment	Piping Secondary Containment	Date Installed	Tank Material	Level Gauge	Leak Detection	Level Alarm	Automatic Shut-off	Spill Bucket	Drainage Direction
AST	9387	Kentucky MATES	9387-T6	Used oil	480	DW	Active Measures	1996	Carbon Steel	Pop-up	Interstitial Gauge	None	None	Yes	Radial
AST	9387	Kentucky MATES	9387-T7	Used oil	480	DW	Inside building	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	None	No	Inside
AST	9387	Kentucky MATES	9387-T8	Used oil	480	DW	Inside building	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	None	No	Inside
GBT	9399	Zussman-Wilcox NEC	9399.G1	Diesel	132	DW	N/A	2018	Carbon Steel	Dial Gauge	Interstitial Alarm	None	None	No	Northwest downhill
AST	9555	Wilcox DMPTR	9555-T1	Diesel	1,000	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	Yes	Southwest downhill
AST	9717	Baum & St. Vith Ranges	9717-T1	Diesel	1,000	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	Yes	South
AST	9779	Yano Range	9779-T1	Diesel	1,000	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	Yes	Radial
GBT	9816	Yano Range Communication	9816.G1	Diesel	170	DW	N/A	UNK	Carbon Steel	Pop-up	Interstitial Alarm	LLA	None	No	Radial
AST	9829	Zussman	9829-T1	Used oil	660	DW	N/A	2005	Carbon Steel	Mechanical	Interstitial Gauge	None	None	Yes	Radial
AST	9845	Zussman MOUT	9845-T1	Diesel / Gasoline	1,000 (Gasoline) / 2,000 (Diesel)	DW	Active Measures	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	Yes	Radial
AST	9855	Heins Range	9855-T1	Diesel / Gasoline	500 (Gasoline) / 1,000 (Diesel)	DW	Concrete	UNK	Carbon Steel	Pop-up	Interstitial Gauge	None	Unknown	Yes	Into Containment
GBT	N/A	Anaconda/Alpha Zussman	9996.G1	Diesel	210	DW	N/A	UNK	Carbon Steel	Pop-up	Interstitial Alarm	LLA	None	No	Northwest downhill
UST	711	AAFES Wilson Road	711-U1	Gasoline	20,000	DW	DW	2009	FRP	ATG	ATG	HLA	Yes	Yes	Radial and then south
UST	711	AAFES Wilson Road	711-U2/U3	Diesel / Gasoline	10,000 (Diesel) / 15,000 (Gasoline)	DW	DW	2009	FRP	ATG	ATG	HLA	Yes	Yes	Radial and then south

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SECTION 3

Conformance and Environmental Equivalence

3.1 Conformance with Requirements

"112.7(a)(1): Include a discussion of your facility's conformance with the requirements listed in this part."

The oil storage containers, OFOE, fuel transfer operations, portable containers and mobile refuelers, and all associated management processes included in this Plan conform to the SPCC requirements, except as noted in **Table 3-1**, below. Recommended corrective actions are also included in this table. Fort Knox's EMD tracks and maintains documentation on the completion of corrective actions.

3.2 Environmental Equivalence

"112.7(a)(2): Comply with all applicable requirements listed in this part. Except as provided in 112.6, your Plan may deviate from the requirements in paragraphs (g), (h)(2) and (3), and (i) of this section and the requirements in subparts B and C of this part, except the secondary containment requirements in paragraphs (c) and (h)(1) of this section, and 112.8(c)(2), 112.8(c)(11), 112.9(c)(2), 112.9(d)(3), 112.9(d)(3), 112.10(c), 112.12(c)(2), and 112.12(c)(11), where applicable to a specific facility, if you provide equivalent environmental protection by some other means of spill prevention, control, or countermeasure. Where your Plan does not conform to the applicable requirements in paragraphs (g), (h)(2), and (3), and (i) of this section, or the requirements of subparts B and C of this part, except the secondary containment requirements in paragraph (c) and (h)(1) of this section, and 112.8(c)(2), 112.8(c)(11), 112.9(c)(2), 112.10(c), 112.12(c)(2), and 112.12(c)(11), you must state the reasons for nonconformance in your Plan and describe in detail alternate methods and how you will achieve equivalent environmental protection. If the Regional Administrator determines that the measures described in your Plan do not provide equivalent environmental protection, he may require you to amend your Plan, following the procedures in 112.4(d) and (e)."

The P.E. certifying this plan is not deviating from any requirements applicable to the facility. **Table 3-1** lists deficiencies requiring corrective action to attain compliance.

3.3 Facilities or Equipment Not Yet Fully Operational

112.7: If the Plan calls for additional facilities or procedures, methods, or equipment not yet fully operational, you must discuss these items in separate paragraphs, and must explain separately the details of installation and operational start-up."

ASTs 5242-T3 – T6 are out of service and are pending replacement. There is no expected timeline for this project.

TABLE 3-1: Summary of Conditions

AST ID	Facility / Location	Owner/ Operator	Deficiencies	Recommendations	Completion Status
9387-T1 9387-T2	KY MATES	KY MATES	40 CFR 112.8(c)(10) You must promptly remove any accumulations of oil in diked areas.	Remove accumulated POL and pressure wash interior of containment. Remove oil/water mixture. Consider replacement with enclosed double-walled ASTs or utilize COCO fueling point.	29 April 2020 Oil/water mixture was removed from containment.
Two unknown ASTs	Contractor Laydown	H.F. McClure	40 CFR 112.8(c)(2) provide a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation.	Provide secondary containment for these ASTs. If that is not feasible, the containers should be removed from Fort Knox.	17 April 2020 Subject ASTs were removed from Fort Knox.
9359-T3 9359-T4 9359-T5	Baker Landfill	EMD	40 CFR 112.8(c)(2) provide a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation.	Miscellaneous items should be removed from the containment dikes at the Baker Landfill. It is understood that this area may be decommissioned and cleared in the coming months.	18 June 2020 Miscellaneous items have been removed from containment dikes. Area to remain in service.
2807-T2	Mansfield Maintenance Complex	EMD	40 CFR 112.8(c)(8) Insufficient overfill prevention methodology	Provide appropriate gauging methodology during tank filling to ensure proper overfill prevention. Install a direct read level gauge, visible to delivery personnel. If gauge is positioned with no clear eyesight from the tank loader two personnel must be used with reliable communication methodology; one loader and one pumper.	16 Sept 2020 Work Order submitted to address gauge.
McClure-T1 McClure T2	Contractor Laydown	H.F. McClure	40 CFR 112.8(c)(8) Insufficient overfill prevention methodology	Remove from Fort Knox.	17 April 2020. Subject ASTs were removed from Fort Knox.

AST ID	Facility / Location	Owner/ Operator	Deficiencies	Recommendations	Completion Status
Two unknown ASTs	Contractor Laydown	H.F. McClure	40 CFR 112.8(c)(8) Insufficient overfill prevention methodology	Remove from Fort Knox.	17 April 2020. Subject ASTs were removed from Fort Knox.
3008.G2	Muldraugh Water Plant	DPW	40 CFR 112.8(c)(1) Container is not used for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature.	Permanently close container until it can be removed as part of the Muldraugh Water Plant renovation.	14 July 2020 Container marked as Permanently Closed.

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SECTION 4

Predicted Spills as Result of Equipment Failure

4.1 Discharge Notification and Response Procedures

"112.7(a)(4): Unless you have submitted a response plan under 112.20, provide information and procedures in your Plan to enable a person reporting a discharge as described in 112.1(b) to relate information on the exact address or location and phone number of the facility;"

"112.7(a)(5): Unless you have submitted a response plan under 112.20, organize portions of the Plan describing procedures you will use when a discharge occurs in a way that will make them readily usable in an emergency, and include appropriate supporting material as appendices."

"112.7(a)(3)(iv): Countermeasure for discharge discovery, response, and cleanup (both facility's capability and those that might be required of a contractor);"

"112.7(a)(3)(vi): Contact list and phone numbers for the facility response coordinator, National Response Center, cleanup contractors with whom you have an agreement for response, and all appropriate Federal, State, and local agencies who must be contacted in case of a discharge as described in 112.1(b)."

All discharges of POL must be immediately reported to EMD at (502) 624-3629 and the Fort Knox Fire Department at 911. Discharges of POL on range/training areas must be immediately reported to Range Control at (502) 624-2125. Fort Knox Fire Department is the primary spill responder for the garrison.

Fort Knox maintains spill contingency plan and response procedure placards that are attached to ASTs and POL storage/accumulation areas. These placards identify necessary steps to be taken for *Incidental Spills* (i.e., small amounts of POL), *Significant Spills* (i.e., measurable quantities with the potential to impact the environment), and *Major Spills* (i.e., large quantities with a definite impact to the environment). **Figures 4-1 and 4-2** present Fort Knox's Spill Contingency Plan Procedures.

For discharges into the environment (or into secondary containment), the following must be immediately reported, once observed, to the Kentucky Department of Environmental Protection (KDEP) Emergency Response Branch (ERB):

- 25 gallons or more of petroleum or petroleum product in a 24-hour period.
- 75 gallons or more of diesel fuel in a 24-hour period.
- Any amount that creates a visible sheen on surface waters.

The location of the release, material released, and the approximate quantity or concentration of the release must be disclosed when notifying the KDEP ERB. If the primary AST and the secondary containment area are located inside a building that would not reach the outside environment, then the spill is not reportable to the ERB.

EMD will make any required notifications to the National Response Center (NRC) at (800) 424-8802 and KDEP, ERB at (800) 928-2380 or (502) 564-2380. EMD will make an evaluation if

notification needs to be made to the Kentucky Emergency Response Commission at (800) 255-2587.

Hardin County Water District No. 1 shall be notified at (502) 624-1171 of spills into the Fort Knox sanitary sewer system.

Refer to **Section 1.5** for Fort Knox's Designated Person, who is accountable for discharge prevention and who reports to facility management. **Table 4-1** provides a listing of organizations who may require notification of any spill or discharge.

After initial notification, organizations will prepare and submit a Spill Incident Report to EMD. This form will be completed for all spills of POL and contains information like the date and time of the spill, the location of the spill, who is conducting the notification, and specific details related to the incident.

TABLE 4-1: List of Notification

Agency / Organization	Phone Number
Fort Knox Fire Department	911 or (502) 642-6016 (non-emergency)
DPW – EMD	(502) 624-3629/4654
Range Control	(502) 624-2125/2135
NRC	(800) 424-8802
KDEP ERB	(800) 928-2380 or (502) 564-2380
KERC	(800) 255-2587
Hardin County Water District No. 1 Fort Knox Wastewater Treatment Plant	(502) 799-1114
Hardin County Emergency Management	(270) 765-5978
Bullitt County Emergency Management	(502) 955-7580
Meade County Emergency Management	(270) 422-2776
Telecommunications company	1 (800) KNOW-EHS
IMCOM – Report online through AEDB-EQ or HQAES	

Spill response equipment and material must be stored throughout the installation. Most ASTs have some sort of spill response equipment located nearby and it could include stand-alone spill kits or stockpiles of dry sweep, absorbent pads, or absorbent boom. Specific locations and building numbers with stockpiles of spill response equipment include:

- Fort Knox Fire Departments: 469, 1609, and 5223
- HazWaste Storage: 2946
- Hunt Control: 9297
- Heard Motor Park: 485

In a response, the Fort Knox Fire Chief (or senior officer) will serve as the Incident Commander (IC). The Fort Knox Fire Department response trucks contain sufficient materials to respond to,

safely contain, and completely clean-up a spill of up to 300 gallons. HazMat response trucks are adequate for spills of 1,000 gallons. For larger spills, the DPW and EMD have stockpiles of absorbent materials, steel/plastic and overpack drums, non-sparking tools, and earthmoving equipment. Response operations will follow guidelines specified in the Fort Knox RCRA Contingency Plan.

The IC, working with other stakeholders like DPW, EMD, and the Garrison Commander may decide that an Oil Spill Response Organization (OSRO) is required. OSROs can be notified for large-scale response and cleanup if the incident is outside of the control of Fort Knox. Potential OSROs include the following:

- Clean Harbors (Louisville, KY): (502) 368-0322 or (800) 645-8265
- Moran Environmental Recovery (Louisville, KY): (502) 637-5100 or (800) 264-6482
- HEPACO (Louisville, KY): (502) 473-6435 or (800) 888-7689

Fire and Emergency Services from nearby counties may also be requested, if necessary.

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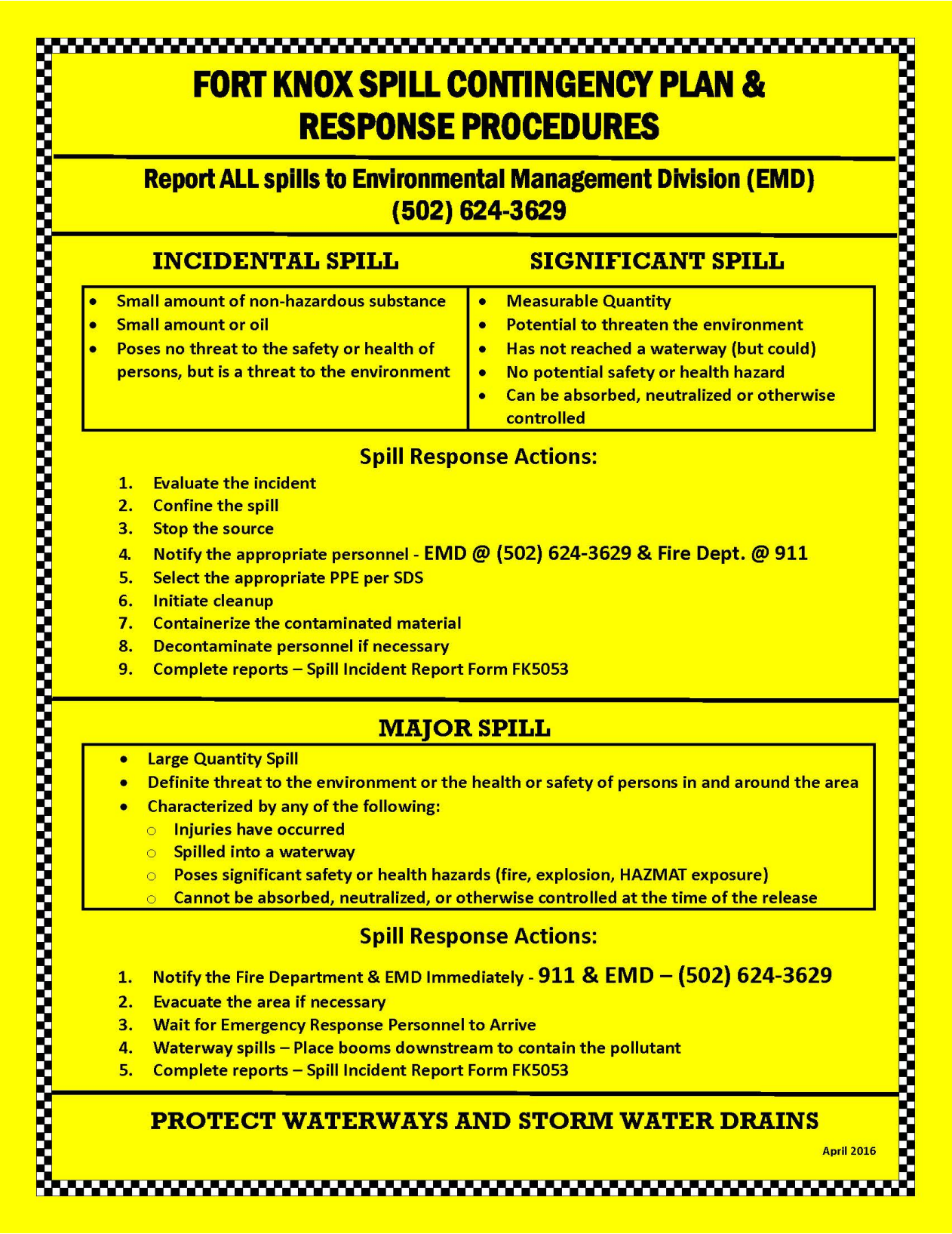
FIGURE 4-1: Cantonment Spill Contingency Plan



FORT KNOX SPILL CONTINGENCY PLAN & RESPONSE PROCEDURES

Report ALL spills to Environmental Management Division (EMD) (502) 624-3629

INCIDENTAL SPILL

- Small amount of non-hazardous substance
- Small amount or oil
- Poses no threat to the safety or health of persons, but is a threat to the environment

SIGNIFICANT SPILL

- Measurable Quantity
- Potential to threaten the environment
- Has not reached a waterway (but could)
- No potential safety or health hazard
- Can be absorbed, neutralized or otherwise controlled

Spill Response Actions:

1. Evaluate the incident
2. Confine the spill
3. Stop the source
4. Notify the appropriate personnel - EMD @ (502) 624-3629 & Fire Dept. @ 911
5. Select the appropriate PPE per SDS
6. Initiate cleanup
7. Containerize the contaminated material
8. Decontaminate personnel if necessary
9. Complete reports – Spill Incident Report Form FK5053

MAJOR SPILL

- Large Quantity Spill
- Definite threat to the environment or the health or safety of persons in and around the area
- Characterized by any of the following:
  - Injuries have occurred
  - Spilled into a waterway
  - Poses significant safety or health hazards (fire, explosion, HAZMAT exposure)
  - Cannot be absorbed, neutralized, or otherwise controlled at the time of the release

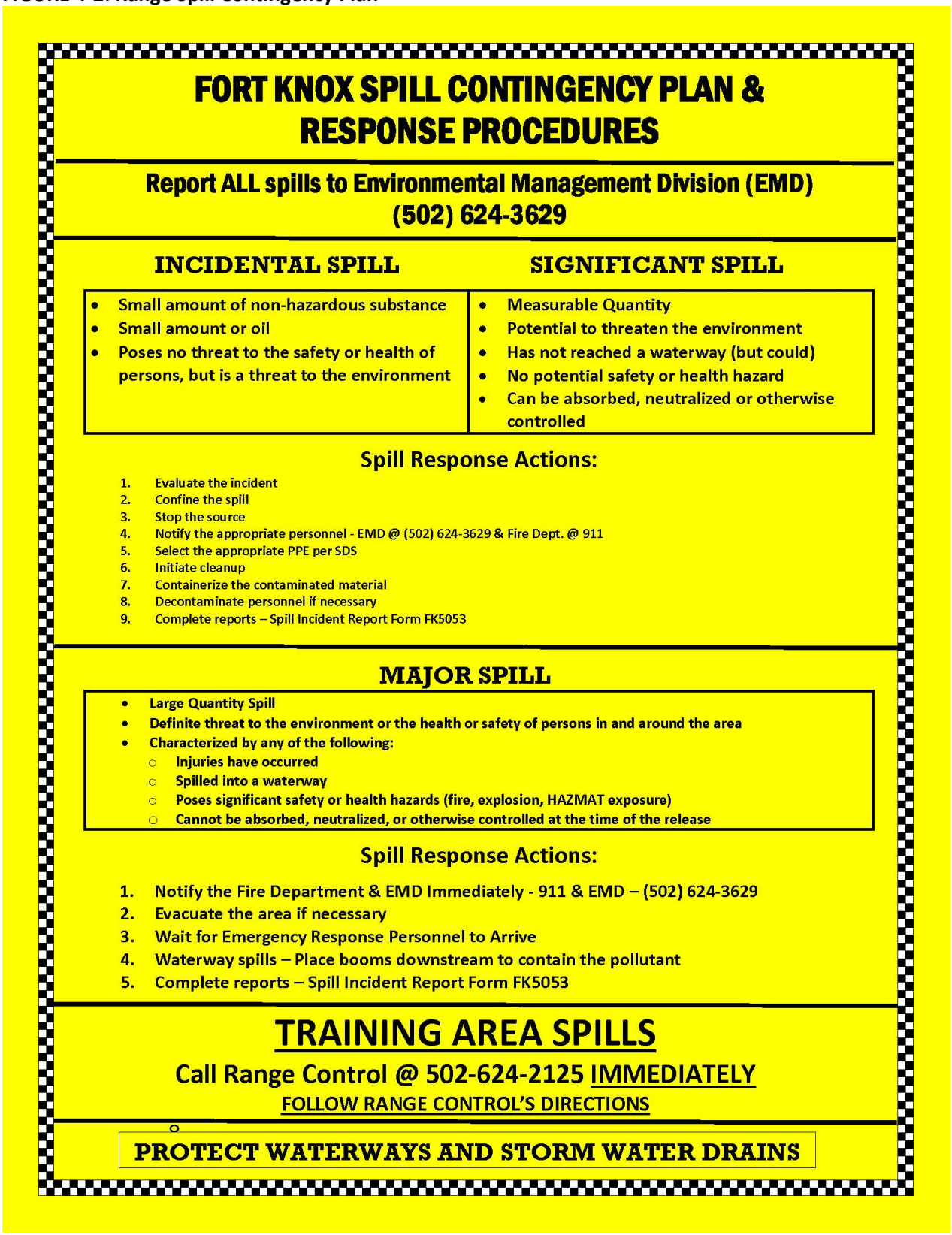
Spill Response Actions:

1. Notify the Fire Department & EMD Immediately - 911 & EMD – (502) 624-3629
2. Evacuate the area if necessary
3. Wait for Emergency Response Personnel to Arrive
4. Waterway spills – Place booms downstream to contain the pollutant
5. Complete reports – Spill Incident Report Form FK5053

PROTECT WATERWAYS AND STORM WATER DRAINS

April 2016

FIGURE 4-2: Range Spill Contingency Plan



FORT KNOX SPILL CONTINGENCY PLAN & RESPONSE PROCEDURES

Report ALL spills to Environmental Management Division (EMD) (502) 624-3629

INCIDENTAL SPILL

- Small amount of non-hazardous substance
- Small amount or oil
- Poses no threat to the safety or health of persons, but is a threat to the environment

SIGNIFICANT SPILL

- Measurable Quantity
- Potential to threaten the environment
- Has not reached a waterway (but could)
- No potential safety or health hazard
- Can be absorbed, neutralized or otherwise controlled

Spill Response Actions:

1. Evaluate the incident
2. Confine the spill
3. Stop the source
4. Notify the appropriate personnel - EMD @ (502) 624-3629 & Fire Dept. @ 911
5. Select the appropriate PPE per SDS
6. Initiate cleanup
7. Containerize the contaminated material
8. Decontaminate personnel if necessary
9. Complete reports – Spill Incident Report Form FK5053

MAJOR SPILL

- Large Quantity Spill
- Definite threat to the environment or the health or safety of persons in and around the area
- Characterized by any of the following:
  - Injuries have occurred
  - Spilled into a waterway
  - Poses significant safety or health hazards (fire, explosion, HAZMAT exposure)
  - Cannot be absorbed, neutralized, or otherwise controlled at the time of the release

Spill Response Actions:

1. Notify the Fire Department & EMD Immediately - 911 & EMD – (502) 624-3629
2. Evacuate the area if necessary
3. Wait for Emergency Response Personnel to Arrive
4. Waterway spills – Place booms downstream to contain the pollutant
5. Complete reports – Spill Incident Report Form FK5053

TRAINING AREA SPILLS

Call Range Control @ 502-624-2125 IMMEDIATELY

FOLLOW RANGE CONTROL'S DIRECTIONS

PROTECT WATERWAYS AND STORM WATER DRAINS

4.2 Predicted Spill Scenarios

"112.7(b): Where experience indicates a reasonable potential for equipment failure (such as loading or unloading equipment, tank overflow, rupture, or leakage, or any other equipment known to be a source of a discharge), include in your Plan a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each type of major equipment failure."

Experience indicates there is a reasonable potential for spills to occur, which are usually caused by operator error, or some type of equipment failure (e.g., loading or unloading equipment misconnection, tank overflow, rupture, line leakage, etc.). Therefore, typical spill scenarios that apply to each category of AST or equipment and operation are discussed in **Appendix F**. In addition, a prediction of the spill flow direction is shown in **Table 2-2** and the Fort Knox GIS.

Appendix F includes assumptions and calculations used to determine potential spill rate-of-flow, most likely discharge, and maximum most probable discharge for each type of spill scenario. For ASTs and other regulated containers, the worst-case spill scenario is a catastrophic rupture of the container, which could be caused by collision with a moving vehicle or other heavy object. This could result in an instantaneous release of the entire fuel contents, which is not considered a likely spill scenario. Worst-case spill scenarios for the previously identified oil storage sites and piping types are discussed below. Response procedures outline in **Section 4.1**, the Fort Knox RCRA Contingency Plan, and the Fort Knox SWGWPPP would be activated if any of the discharge scenarios were to occur.

4.2.1 Shop-fabricated Tanks

There are typically three potential spill scenarios for ASTs (excluding piping failures): tank rupture, overfill, and hose retrieval. Details related to potential spill rate-of-flow and total quantity of oil which could be discharged are presented in **Appendix F**.

A tank rupture is not considered likely, as most ASTs are double-walled and/or are protected from vehicle impact damage, which is considered a primary cause of rupture. ASTs which are not double-walled are constructed so that secondary containment is provided for the largest single tank plus sufficient freeboard to allow for precipitation. **Table 5-1** summarizes the secondary containment capacities measured for each single-walled tank.

Conducting refueling activities at ASTs outside of bermed areas requires the use of strong active measures for containment. This may include having spill kits nearby or the use of portable mats or coverings over storm drains. The type of active measures depends on the local conditions at the ASTs. In addition, mobile refuelers should contain spill kits or supplies. Recommended procedures for fuel transfers are outlined in **Section 9.2.**

Overfill is a potential discharge scenario for ASTs without a working level gauge, an overfill prevention valve (OPV), or spill bucket. An OPV is a piece of equipment that activates at a certain level (for example, 95% capacity) and prevents additional fuel from entering the AST. A spill bucket is a measure to collect a discharge from AST overfilling or catching drips during hose disconnection. Refer to **Table 2-2** to see which ASTs have a level gauge, OPV, or spill bucket. This information is also contained in the Fort Knox GIS. If none of these items are present on a tank, an active method of containment is required in compliance with 40 CFR112.7(c); for example, a

spill kit is present in the immediate vicinity. Mobile refuelers should contain spill kits or supplies which may satisfy this requirement.

Hose retrieval following fuel transfer is a likely potential discharge scenario. The spill bucket is a measure that can be used to reduce spills by tipping the hose nozzle back into the spill bucket following transfer operations to contain any residual fuel left in the nozzle. Operators should cap the nozzle prior to taking the hose back to the mobile refueler and ensure the nozzle is not dragging on the ground. **Section 9.2** recommends the above steps be taken. Active containment may also provide compliance in these situations. To satisfy the need for active containment, mobile refuelers should contain spill kits or supplies.

4.2.2 Mobile Refuelers

There are typically four potential spill scenarios for mobile refuelers: rupture on refueler, filling, defueling, and hose retrieval. Details related to potential spill rate of flow and total quantity of oil which could be discharged are presented in **Appendix F**.

A rupture on a mobile refueler during fuel transfer operations is not likely, as mobile refuelers are inspected on a regular basis. However, many of the locations being serviced do not have a passive method of containment for mobile refuelers. Therefore, the Fort Knox Fire Department and EMD must be called should a mobile refueler rupture at these locations. Should a mobile refueler rupture while in its parking area (Godman Army Airfield), there is adequate secondary containment to contain the most likely spill which may occur, the entire refueler capacity.

Filling a contractor mobile refueler is a likely discharge scenario, which could result in an overfill. Follow the fuel transfer procedures in **Section 9.1**. If a spill occurs, the concrete containment will hold the fuel until it is cleaned up.

Defueling a contractor mobile refueler, aircraft, or helicopter is a likely discharge scenario. The transfer hose is attached to the mobile refueler via a cam-lock type connection and fuel is emptied into one of two possible tanks: either into a product recovery tank (if the product is reclaimable), a waste oil tank (if the product is not reclaimable), or mobile refueler (defueling aircraft and helicopters). This defueling operation can result in overfill of the receiving tank. During the transfer operation, the mobile refueler operator maintains flow control using a “dead man” control. Upon recognition of an overfill discharge, the operator will immediately release the “dead man” control, which will automatically close the flow control valve inside the truck pumping compartment and stop transfer operations. The spilled fuel could be collected with spill kits at the transfer site or with the mobile refueler.

Refer to **Section 4.2.1** for a discussion on hose retrieval.

4.2.3 Drum Storage Areas

There are three potential spill scenarios for DSAs: drum failure, drum filling, and emptying drum. Details related to potential spill rate of flow and total quantity of oil which could be discharged are presented in **Appendix F**.

The potential for a drum rupture is very low because the drums are not stored near vehicle traffic, do not stay outside long enough for corrosion to become significant, and are unlikely to be damaged during handling. The containment provided for DSAs (or individual drums) is of sufficient size to contain the standard 55-gallon drum, as required.

Filling or emptying a drum is a likely discharge scenario. Drums are stored in secondary containment or indoors, thus minimizing a release during an overfill situation. Absorbent materials are available at DSAs to address any release during filling operations.

4.2.4 Oil-Filled Operational Equipment

OFOE are considered low risk for potential spills based on their design, operation, and preventive maintenance program. Nolin's inspection program helps ensure that all equipment is maintained and monitored. Any identified leaks should be reported and corrected promptly. Nolin conducts regular inspections of electrical transformers which includes a preventive maintenance program. Refer to **Appendix A** for an inventory of regulated OFOE at the Fort Knox. Additional rationale for Fort Knox's ability to rely on spill response to satisfy this requirement is included below:

- There is no documented case of oil from an electrical transformer reaching navigable waters at Fort Knox. If an electrical transformer or other high-voltage electrical equipment were to fail, causing a leakage of oil, the affected electrical systems would be shut down. Thus, operating personnel would immediately know that transformer damage or oil leakage may have occurred and would react expeditiously to inspect the area and control any oil leaks.
- Secondary containment is not provided for outdoor high-voltage electrical equipment because it would represent a potential safety hazard for personnel who enter these areas. Standing rainwater, which is a common occurrence in diked areas, poses an unreasonable risk of electrical shock to maintenance employees.

Fort Knox is manned by law enforcement and fire and emergency services personnel, 24 hours per day, 365 days per year. Personnel are trained to make the proper notifications if an oil release is discovered (refer to **Section 4.1**). Fort Knox has an adequate spill response program for addressing such discoveries. Refer to **Section 4.1**, Fort Knox's RCRA Contingency Plan, and Fort Knox's SWGWPPP for more information pertaining to the manpower and resources available should there be a discharge from OFOE.

4.2.5 Piping

4.2.5.1 Aboveground Pipelines

There are typically two potential spill scenarios for aboveground pipelines (including container piping): rupture and corrosion. The potential for pipe failure depends upon the conditions at each site and the types of inspections performed. Pipeline inspections include monthly visual inspections. Refer to **Section 6** for details of these inspections. Most piping is in areas in where an AST and emergency electrical generator is located. These areas are provided with spill kits or stocked spill response material to provide active containment in accordance with §112.7(c). Details related to potential spill rate of flow and total quantity of oil which could be discharged are presented in **Appendix F**.

Pipe rupture from impact can result in a large spill quantity if the anti-siphon devices are damaged or not present at all. In this scenario, the size of the spill can be increased if the equipment is operating and fuel is being pumped through the breached return line.

A more likely scenario would be a pin-hole leak in the fuel supply or return line. This leak would be expected to drip fuel during equipment operation and leak the remaining contents left in the line after operation. Practices should include regular generator checks while equipment is in operation, thus mitigating the chance of a major discharge.

Pipe failure due to corrosion usually occurs at threaded or flanged connections or improperly welded joints. If the equipment is not being operated, the potential exists for the supply line quantity to drain from the equipment to the anti-siphon device. In the event the equipment is being operated at the time of the failure, the largest spill would occur when the return line fails causing the equipment to pump POL through the leaking piping until discovered, or the contents of the container are emptied. Corrosion failure is a likely occurrence if the maintenance is not performed as needed and usually results in a small spill rate.

DPW maintains procedures and contracted personnel to run regular generator checks during routine or emergency operations. These personnel and procedures are designed to ensure the equipment is properly operating, check for leaks, and ensure the equipment is in good shape. The operators performing these inspections will be equipped with spill kits and be trained on the appropriate response procedures. A combination of the pre-deployed on-site spill kits, and/or mobile spill kits will be used to control piping leaks which may occur. 40 CFR 112.7(c) applies to piping, and it requires either an active (spill response kit) or passive (structural) method of secondary containment, to address the typical failure mode, and the most likely quantity of oil that may be discharged. Refer to the assumptions and calculations in **Appendix F**.

4.2.5.2 Flexible Hoses

For ASTs with flexible piping and at fueling dispensers with flexible hoses, the two potential spill scenarios are the hose becoming disconnected, or the hose is leaking. ASTs that use fuel compatible hoses should utilize factory approved clamping systems to ensure tight connections from the AST to the generator.

The supply and return fuel lines or dispenser lines can be disconnected by a loose fitting or poorly applied clamping system. In this scenario, the greatest potential spill would result if the return line from the generator separated during operation. On ASTs that are equipped with a fuel dispenser, the flexible hose should be inspected prior to each use, to verify that it is not damaged, disconnected or leaking.

The supply and return fuel lines in the generator could start to leak due to cuts, cracks, or degradation of hose material. In this scenario, the greatest potential spill would result if the return line from the generator is leaking during operation.

Active spill control and containment measures are required for the various spill scenarios for piping and hoses associated with these remote containers. As stated in **Section 4.2.5.1**, DPW maintains procedures and personnel to inspect, run, and check emergency generators and associated ASTs for proper operation and leaks. The operators performing these inspections will

be equipped with spill kits and be trained on the appropriate response procedures. A combination of the pre-deployed on-site spill kits, and/or mobile spill kits on a refueler or maintenance truck, should be able to control the piping leaks which may occur. Refer to the assumptions and calculations in **Appendix F**.

4.3 Discharge or Drainage Controls

"112.7(a)(3)(iii): Describe in your Plan discharge or drainage controls such as secondary containment around containers and other structures, equipment, and procedures for the control of a discharge;"

"112.8(c)(10): Promptly correct visible discharges which result in loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts. You must promptly remove any accumulations of oil in diked areas."

Refer to **Table 2-2** and **Appendix B** for a description of containment, location, diversionary structures, discharge, and/or drainage controls. Generally, if an AST or transfer area is equipped with a containment dike, drainage is restricted by using a ball valve or post-indicator valve (or similar) that is maintained in the "closed" position. The valve is opened when there is no observed sheen and accumulated water is being released. In transfer areas, the post indicator valve (PIV) may be maintained open if the area drains to an OWS. The PIV is closed when fuel transfers are occurring. **Section 5** contains information on secondary containment for ASTs, fuel transfer areas, DSAs, piping, mobile refueler parking, and OFOE.

Procedures have been established for users to inspect diked areas for signs of petroleum contamination (e.g., odor, sheen) on a periodic basis (e.g., prior to draining the containment area or within one week of rainfall event). See **Appendix C** for sample checklists that may be used for secondary containment drainage. In addition, procedures are in place to repair leaking valves, bolts, or other components to prevent a spill or a discharge to navigable waters.

Fort Knox has multiple spill kits for a rapid response to mitigate and clean up small discharges only. For more information, refer to **Section 4.1** and the Fort Knox RCRA Contingency Plan and SWGWPPP. Fort Knox practices stringent discharge prevention protocols during transfer operations in accordance with local fuel procedures. These procedures are maintained by EMD.

All contractors providing service to Fort Knox that are regulated by this SPCC Plan will adhere to the minimum spill prevention practices during transfer operations as outlined in **Section 9.2.**

4.4 Disposal of Recovered Materials

"112.7(a)(3)(v): Describe in your Plan methods of disposal of recovered materials in accordance applicable legal requirements;"

The methods of disposal of recovered spill materials are outlined in the **Fort Knox RCRA Contingency Plan**.

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SECTION 5

Secondary Containment

5.1 Requirements

112.7(c): Provide appropriate containment and/or diversionary structures or equipment to prevent a discharge as described in §112.1(b). The entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank, will not escape the containment system before cleanup occurs. In determining the method, design, and capacity for secondary containment, you need only to address the typical failure mode, and the most likely quantity of oil that would be discharged. Secondary containment may be either active or passive in design. At a minimum, you must use one of the following prevention systems or its equivalent:

(1) For onshore facilities:
(i) Dikes, berms, or retaining walls sufficiently impervious to contain oil;
(ii) Curbing;
(iii) Culverting, gutters, or other drainage systems;
(iv) Weirs, booms, or other barriers;
(v) Spill diversion ponds;
(vi) Retention ponds; or
(vii) Sorbent materials."

There are four sections of 40 CFR 112 which specify requirements for secondary containment. 40 CFR 112.7(c) is the general containment requirement, with no specific size or capacity limits, which applies to all ASTs, equipment, and systems on a facility where a discharge could occur. This rule also applies to fuel piping, flexible hoses, fill pipes, fueling stations and other fuel transfer areas without a loading rack, mobile refuelers and their parking areas. Either an active or passive means of containment may be used to control the most likely quantity of oil that may be discharged. Active means the facility has a process or procedure, with trained personnel and spill response equipment available, which can be used for spill cleanup. Passive means the facility has a dike, berm, or other structure to contain the container, piping, or fuel transfer area. This general rule is supplemented by additional specific size containment requirements, which apply to certain types of containers and equipment as follows.

40 CFR 112.8(c)(2) is a containment requirement specifically for stationary ASTs (but NOT piping), which must include the maximum capacity of a AST, plus sufficient freeboard for precipitation (if the containment is exposed to rainfall). You must ensure that diked areas are sufficiently impervious to contain discharged oil. See **Section 5.2**.

40 CFR 112.8(c)(11) is a containment requirement specifically for portable oil storage containers (but NOT mobile refueler trucks), applicable to the 55-gallon DSAs and used cooking oil containers, which must include the capacity of the largest container in the area, plus sufficient freeboard for precipitation (if the containment is exposed to rainfall). See **Section 5.3**.

40 CFR 112.7(h)(1) is a containment requirement specifically for loading / unloading racks (as defined in 40 CFR 112.2), which must include the capacity of the largest mobile refueler truck but does NOT include freeboard for precipitation. See **Section 5.4**.

Secondary containment for fuel transfer piping and fuel transfer areas are addressed in **Section 5.5.** Secondary containment for OFOE is addressed in **Section 5.6**. Impracticability of Secondary Containment is discussed in **Section 5.7**.

5.2 Secondary Containment for ASTs

"112.8(c)(2) Construct all bulk storage tank installations (except mobile refuelers and other non-transportation-related tank trucks) so that you provide a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation. You must ensure that diked areas are sufficiently impervious to contain discharged oil. Dikes, containment curbs, and pits are commonly employed for this purpose. You may also use an alternative system consisting of a drainage trench enclosure that must be arranged so that any discharge will terminate and be safely confined in a facility catchment basin or holding pond."

5.2.1 Freeboard for Precipitation

Secondary containment must be sized to contain the entire contents (maximum shell capacity) of the largest AST, plus adequate freeboard to collect precipitation, for those open containment areas located outdoors. The SPCC Guidance for Regional Inspectors (GRI), Section 4.3.2 (2013 version), allows the certifying P.E. to consider either 110 percent of container capacity, or the inclusion of calculations relative to a 25-year, 24-hour storm as the defining volume required. Freeboard is measured as vertical inches of rainfall allowance within an open containment. For this Plan, the precipitation event has been chosen as the most conservative method of determining freeboard. The 25-year, 24-hour storm event for Fort Knox, Kentucky, is 5.58 inches, or 0.47 feet (https://hdsc.nws.noaa.gov/hdsc/pfds/index.html).

Table 5-1 provides freeboard volume calculations for open secondary containments for single-walled ASTs only.

Stormwater that may accumulate in the containment area must be inspected for contamination prior to discharge and documented on the log form in **Appendix C**.

5.2.2 Sufficiently Impervious

40 CFR 112.8(c)(2) states that diked areas must be sufficiently impervious to contain discharged oil. Materials used for making the containment should themselves not be impervious but must be made impervious to contain discharged oil. Double-walled ASTs have integral containments, which are assumed to be sufficiently impervious, unless external leaks or structural damage is found. The sufficiently impervious requirement is evaluated during monthly visual inspections by looking for leaks and by considering the ability of the containment material to retain oil so that a discharge will not escape the containment system before cleanup occurs. If the material is not impervious to oil, then an additional layer of spill protection must be added, such as oil proof membrane on top of natural earth berms. If concrete is used for containment, interior separated cracks or inadequately sealed joints, should be repaired with sealant as needed to retain oil. Excessive growth of weeds and vegetation in containment joints and cracks should be removed.

5.2.3 Shop-fabricated Tanks

Fort Knox utilizes various types of secondary containment for ASTs. The types of secondary containment include open berms and dikes, integral closed top dikes, double-walled ASTs with sealed containments, and single-walled ASTs with open containments. In cases where ASTs have sealed interstitial spaces, leak detection probes monitor the space for fuel or water. **Table 5-1** provides volume calculations for open secondary containments, for fixed position single-walled ASTs only. For ASTs located inside a building, mechanical room, or other walled enclosure, having adequate freeboard in the containment to collect precipitation is not applicable (N/A) if the AST is not exposed to rainfall. This table does not apply to mobile or portable containers, or used cooking oil containers, which are listed on **Table 5-2** or **Table 5-3**. Out of service and permanently closed ASTs are not listed for containment evaluation.

Double-walled ASTs are listed on **Table 2-2** and are manufactured such that the secondary containment wall or barrier is sufficiently impervious to hold leaked oil, and it will hold at least 110 percent of the primary container capacity. Double-walled ASTs are manufactured with an interstitial containment space, which is normally not accessible to be measured for volume. If the interstice is properly contained, having adequate freeboard to collect precipitation is not a factor to consider. ASTs with closed, steel containment dikes are assumed to be double-walled.

TABLE 5-1: Secondary Containment Volumes

AST Number	Volume[1]	Freeboard Volume[2,3,4]	Total Volume Required Including Freeboard	Total Existing Berm Volume[5]	Remarks
851-T3	100	N/A	100	152	Inside of a building
869-T1	200	N/A	200	332	Inside of a building
869-T2	200	N/A	200	332	Inside of a building
2942-T1	120	N/A	120	146	Inside of a building
7207-T2	250	N/A	250	300	Inside of a building
7422-T1	3,000	532	3,532	3,443	Meets 110 percent of shell capacity; does not meet 25-year, 24-hour storm event
9359-T3	500	N/A	500	591	Inside of a building.
9359-T4	275	N/A	275	546	Inside of a building.
9359-T5	275	N/A	275	546	Inside of a building.
9387-T1	10,000	1,519	11,519	11,848	Covered area, susceptible to rainwater accumulation
9387-T2	10,000	1,519	11,519	11,848	Covered area, susceptible to rainwater accumulation

Notes: All volume quantities in gallons. Calculations are provided in Appendix F.

1. Information on this page was gathered from the site visit in March 2020.
2. Required Freeboard Volume for a 25-year, 24-hour storm event based on NOAA's Precipitation Frequency Dat Server http://hdsc.nws.noaa.gov/hdsc/pfds/index.html.
3. N/A = not applicable as AST is under cover

Equations Used:

4. (Length) × (Width) × (Freeboard Volume of 0.47) × 7.48 gallons per cubic feet (gal/ft^3)
5. (Length)*(Width)*(Height)*7.48 gal/ft^3

Below is an example of the containment volume calculations for 7422-T1.

Required Freeboard Volume (Vol) for Precipitation

Equation Example: (Length × Width × Freeboard × 7.48)

Vol = 18.9 ft × 8 ft × 0.47 ft ×7.48 gal/ft^3

Vol = 532 gallons

Total Existing Berm Volume

Equation Example: (Length × Width × Height × 7.48) – Foundation Obstruction Volume

Vol = 18.92 ft × 8 ft × 3.04 ft × 7.48 gal/ft^3

Vol = 3,442 gallons

Total Required Volume w/Freeboard Volume

Vol = Volume (3,000) + Freeboard Volume (532)

Vol = 3,532 gallons

As shown in **Table 5-1**, 7422-T1 does not have adequate secondary containment volume to meet the expected rainfall associated with a 25-year, 24-hour storm event. It meets the 110 percent storage capacity allowed by the SPCC GRI. As a short-term corrective action, a spill kit has been placed in the vicinity of this AST. Long term corrective action would be to replace the AST when funding is available. All the remaining single-walled ASTs have satisfactory sized containments.

Industry Standard Considerations

(National Fire Protection Association [NFPA] 30 2012) 22.11.4 Secondary Containment–Type ASTs. Where a secondary containment–type tank is used to provide spill control, the tank will meet all the requirements of 22.11.4.1 through 22.11.4.10.

The capacity of the listed primary tank will not exceed the capacities given in the chart.

- All piping connections to the tank will be made above the maximum liquid level.
- Means will be provided to prevent the release of liquid from the tank by siphon flow.
- Means will be provided for determining the level of liquid in the tank. This means will be accessible to the delivery operator.
- Means will be provided to prevent overfilling by sounding an alarm when the liquid level in

Maximum Capacities for Secondary Containment-Type ASTs

Liquid Classification	Capacity	
	Gallons	Liters
I	12,000	45,424
II and IIIA	20,000	75,708

the tank reaches 90 percent of capacity and by automatically stopping delivery of liquid to the tank when the liquid level in the tank reaches 95 percent of capacity.
- In no case will these provisions restrict or interfere with the functioning of the normal vent or the emergency vent.
- Spacing between adjacent tanks will be not less than 3 feet (0.9 meter).
- The tank will be capable of resisting the damage from the impact of a motor vehicle, or collision barriers will be provided.
- Where the means of secondary containment is enclosed, it will be provided with emergency venting in accordance with NFPA 30 2012, Section 22.7.
- Means will be provided to establish the integrity of the secondary containment, in accordance with Chapter 21 of NFPA 30 2012.
- The secondary containment will be designed to withstand the hydrostatic head resulting from a leak from the primary tank of the maximum amount of liquid that can be stored in the primary tank.

5.3 Secondary Containment for Mobile and Portable Containers

"112.8(c)(11) Position or locate mobile or portable oil storage containers to prevent a discharge as described in 112.1(b). Except for mobile refuelers and other non-transportation-related tank trucks, you must furnish a secondary means of containment, such as a dike or catchment basin, sufficient to contain the capacity of the largest single compartment or container with sufficient freeboard to contain precipitation."

5.3.1 Portable Generators and Tanks

There are two portable ASTs located at Fort Knox. One (Diesel Trailer, no container number) is portable, double-walled and situated on top of a trailer. This AST is stored inside of a concrete containment berm at the Godman Army Airfield. The capacity is 995 gallons. The second portable AST (2952-T9) is double-walled and situated on top of a trailer. This AST is stored empty on an impervious parking area at the QRP. The capacity of this AST is 385 gallons. Refer to the Fort Knox GIS and **Table 2-2** for more information.

5.3.2 Mobile Refueler Trucks

40 CFR 112.7(c) is the general containment requirement with no specific size or capacity limits, which applies to all mobile refuelers while parked in their normal storage areas. Either an active or passive means of containment may be used to address the typical failure mode and to control the most likely quantity of oil that may be discharged. There is no freeboard for precipitation requirement. At Fort Knox, there are three areas where mobile refuelers are parked: Godman Army Airfield, Kentucky Maneuver Area Training Equipment Site (MATES), and the Mansfield Maintenance Complex.

At Godman Army Airfield, two mobile refuelers are parked at the covered and bermed fuel transfer area between Buildings 5220 and 5222. The mobile refuelers are 3,000 gallons in capacity and contain F-24. This is also the location of the Godman Army Airfield Fuel Farm.

Drainage from the area is contained within the secondary containment berm and then directed through an OWS before entering the stormwater drainage system and discharging to Otter Creek. Drainage of the containment area is controlled by nearby PIVs that are kept in the closed position. Emergency shut-offs and spill kits are available at the Godman Army Airfield Fuel Farm.

Other types of mobile refuelers (e.g., tactical refueler vehicles) are located at Kentucky MATES and Mansfield Maintenance Complex. Refer to **Appendix B** and the Fort Knox GIS for location-specific information about storage arrangements within each complex. The total number of tactical refuelers may change based on the operational tempo and training requirements of units at Fort Knox. Tactical refuelers are typically parked empty in paved lots where drainage is directed to on-site OWS. In instances where tactical refuelers are parked full, they are located inside pop-up containment dikes which do not have drain valves or on-top of steel, drive-on containment dikes, which do have drain valves.

Liquid level and overfill protection are further described in **Section 6.4.3**. When filling or emptying the contents of mobile and portable containers, the transfer process should be in accordance with **Section 9.2.**

Stormwater that accumulates in containment areas must be inspected for contamination prior to discharge and documented on the log form in **Appendix C**.

TABLE 5-2: Secondary Containment Volumes Mobile or Portable Containers

Area	Container Volume[1]	Freeboard Volume[2,3]	Total Volume Required Including Freeboard	Total Existing Volume[4]	Remarks
Godman Army Airfield Fuel Farm (Storage)	995	N/A	995	13,392	Adequate containment
Godman Army Airfield Fuel Farm (Transfer)	3,000	N/A	400[5]	8,984	Adequate containment
Kentucky MATES & Mansfield Maintenance Complex	2,500	N/A	2,500	≥ 2,500	Adequate containment

Notes: All volume quantities in gallons

1. Information on this page was gathered from the site visit in March 2020.
2. Required Freeboard Volume for a 25-year, 24-hour storm event based on NOAA's Precipitation Frequency Data Server http://hdsc.nws.noaa.gov/hdsc/pfds/index.html.

Equations Used:

3. For mobile refueler parking, freeboard volume is N/A.
4. (Length)*(Width)*(Height)*7.48 gal/ft^3
5. General secondary containment for the most likely quantity of oil spilled is required for mobile refuelers. This is calculated in **Appendix F**.

5.3.3 DSAs and Used Cooking Oil Containers

40 CFR 112.8(c)(11) is a containment requirement specifically for portable oil storage containers, including DSAs and used cooking oil containers. Secondary containment must include the capacity of largest container present, plus sufficient freeboard for precipitation (if the containment is exposed to rainfall). **Appendix A** contains a listing of DSAs as well as used cooking oil containers at Fort Knox.

Drums at Fort Knox are stored in a variety of configurations, such as indoors in containment dikes or on top of spill containment pallets or outdoors in covered containment areas or hazardous material sheds. Drums are 55 to 65 gallons in capacity and single-walled. Each storage area provides enough containment capacity for the single largest container. Outdoors storage areas are either enclosed or covered with enough capacity for minor rainwater accumulation. DSAs are permanently established at specific buildings or work centers at Fort Knox.

Used cooking oil containers are 300 gallons in capacity and double-walled. Used cooking oil containers are mobile and can be relocated, depending on the need and time of year.

5.4 Secondary Containment for Loading and Unloading Racks

"112.7(h)(1) Where loading/unloading rack drainage does not flow into a catchment basin or treatment facility designed to handle discharges, use a quick drainage system for tank car or tank truck loading/unloading racks. You must design any containment system to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the facility."

This section does not apply at Fort Knox, as there are no loading and unloading racks on site. See **Section 9.1** for EPA definition of a loading/unloading rack.

5.5 Secondary Containment for Piping and Fuel Transfer Areas

40 CFR 112.7(c) is the general containment requirement with no specific size or capacity limits, which applies to all fuel piping, flexible hoses, fill pipes, gas stations, and other fuel transfer areas without a mechanical loading rack. Either an active or passive means of containment may be used to address the typical failure mode and to control the most likely quantity of oil that may be discharged. There is no freeboard for precipitation requirement.

Various sections of aboveground single-walled pipe exist at areas that are not contained within passive secondary containment. Areas that have aboveground piping or flexible hoses without complete passive containment require active countermeasures for secondary containment. Major fuel transfer locations at Fort Knox include the AAFES Stations, Godman Army Airfield Fuel Farm, and the Energy Security locations, as shown in the facility diagrams in **Appendix B**.

At the AAFES Stations, fuel is transferred via double-walled underground piping to standard commercial fuel dispensers. At AAFES Wilson Road, the UST fill ports are set within a concrete slab. A release in this area would gradually flow south and east until it entered Wilson Road and

any nearby stormwater culverts or inlets. Surface flow would discharge into an unnamed tributary of Mill Creek. At AAFES West Chaffee Ave., the AST fill ports are in an elevated spill control box in front of the ASTs. A release at this area would spread radially and move into an unnamed tributary of Dry Branch (west) and east towards the fuel dispensers and Chaffee Avenue. The maximum potential spill volume of the for both AAFES Stations is up to 500 gallons, depending on the reaction time of personnel overseeing fuel deliveries. Both locations have ample spill kits and response supplies. Active spill control measures (such as using the fuel truck spill kit) must be used to respond to any spills, in compliance with 40 CFR 112.7(c).

At Godman Army Airfield, only ASTs 5242-T1 and T2 are in active service. Fuel is transferred via single-walled aboveground piping from the fuel transfer area to ASTs 5242-T1 and T2 (and vice versa). Transfer piping is either located within the bermed transfer area (refer to **Section 5.3.2**) or in the concrete containment berm that surrounds the ASTs. The concrete containment berm is sized to provide 15,213 gallons of containment capacity. Drainage from these bermed areas is controlled via PIV to a nearby OWS. A release in this area would migrate into stormwater drains and eventually discharge into an unnamed tributary of Otter Creek. The maximum potential spill volume in this area is between 150 and 600 gallons, depending on the reaction time of personnel overseeing fuel deliveries. The Godman Army Airfield Fuel Farm is equipped with both passive (bermed areas) and active (spill kits) spill control measures in compliance with §112.7(c).

Fuel transfer activities at the Energy Security locations are conducted via elevated single-walled, elevated piping. There is transfer piping from the loading port into large ASTs and then from large ASTs into day tanks located inside of each facility. Releases in these areas would be largely captured in the gravel covered areas. Releases outside of the gravel covered areas would migrate via natural flow into nearby stormwater features. The maximum potential spill volume in these areas is from loading the ASTs, and ranges between 240 and 20 gallons, depending on the reaction time of personnel overseeing fuel deliveries. All locations have spill kits and response supplies. Active spill control measures (such as using the fuel truck spill kit) must be used to respond to any spills, in compliance with 40 CFR 112.7(c).

For the remaining ASTs, fuel piping is outside of passive containment, and so active countermeasures would be needed for spill control. Active measures include the transfer procedures outlined in **Section 9.2,** for all fuel transfers to or from an AST or UST to minimize fuel spills; along with a combination of pre-deployed and/or mobile spill kits, in the event a spill occurs at locations where piping is not protected by passive measures.

Most AST locations do not have a passive method of containment for mobile refuelers. These fuel transfer areas may be on a concrete or asphalt surface without any berms, or they may be on a grass or dirt surface. Therefore, an active spill response procedure will be needed in case of a spill. As listed in **Table 2-2**, many ASTs have a fill port spill bucket and/or OPV that will contain or prevent an overfill during fuel transfer. If neither of these devices are present, then an active method of containment will be needed, such as a small spill kit on a mobile refueler, a large spill kit placed in the immediate vicinity, or covers for nearby stormwater drains.

Most fuel transfers are manned and visually observed to reduce the likelihood of an undetected release in accordance with **Section 9.2**. In addition, spill kits are located near fuel dispensing ASTs

with secondary containment. Mobile refuelers and contractor maintenance trucks are equipped with limited spill clean-up supplies should a minor leak or spill occur.

The only transfers that are not typically manned are automatic emergency generator startup operations. ASTs associated with emergency generators utilize single-walled piping or flexible hose fittings to transfer oil to and from the generator, and these ASTs require active countermeasures for secondary containment. ASTs that are located inside of containment berms provide passive containment measures for piping, provided any remote fill piping does not extend beyond the containment. Active spill control and containment measures are required for the various failure scenarios for piping and hoses associated with these generators. Fort Knox should ensure that all generators be manned and observed at the start of operation and during operation to ensure equipment is operating properly, with special attention to the return line of each generator. The operators performing these activities will be equipped with spill kits and be trained on the appropriate response procedures.

5.6 Oil-Filled Operational Equipment

"112.7(k): The owner or operator of a facility with oil-filled operational equipment that meets the qualification criteria in paragraph (k)(1) of this sub-section may choose to implement for this qualified oil-filled operational equipment the alternate requirements as described in paragraph (k)(2) of this sub-section in lieu of general secondary containment required in paragraph (c) of this section.

112.7(k)(2): Alternate Requirements to General Secondary Containment. If secondary containment is not provided to qualified oil-filled operational equipment pursuant to paragraph (c) of this section, the owner or operator of a facility with qualified oil-filled operational equipment must: (i) Establish and document the facility procedures for inspections or a monitoring program to detect equipment failure and/or a discharge;"

OFOE includes electrical equipment such as oil cooled transformers, as well as any hydraulic equipment that utilizes oil as an operating fluid, such as elevator hydraulic reservoirs. Fort Knox has oil-filled transformers and hydraulic oil elevator containers.

40 CFR 112.7(k)(1) allows the garrison to set alternate requirements in lieu of general secondary containment for qualified OFOE. These requirements have been met by Fort Knox by having no reportable discharges from OFOE within any 12-month period for the previous three (3) years; Nolin has a written procedure for inspecting the equipment; and Fort Knox maintains contingency procedures in this SPCC Plan (and Fort Knox's RCRA Contingency Plan) as a written commitment of manpower and resources, to mitigate any discharge from OFOE that may occur.

EPA allows flexibility in managing stormwater runoff from undiked OFOE containers. Their minimum criterion is to prevent oil from being released from the facility. This can be done by installation of drainage barriers and other diversionary structures. However, it can also be done using spill response equipment and procedures. Fort Knox has a monitoring program of external inspections, operational checks, and preventive maintenance to ensure that all OFOE is monitored for leaks. Nolin maintains electrical transformers and off-site contractors maintain elevator systems in a satisfactory state of repair to ensure equipment functions properly. Drainage near OFOE is to be monitored closely, and spill equipment should be readily available in the event of a leak.

Nearly all hydraulic oil containers are enclosed in buildings and have passive secondary containment provided by concrete floors. The most likely spill would occur when the container is initially filled with hydraulic oil, or if an oil connection leaks during operation. Unless severe damage occurs, hydraulic equipment should not have to be refilled with oil during normal operation. Hydraulic oil containers are considered a low risk for spills based on the location (typically in maintenance closets with no outlet for discharge) and recurrence of inspection activities. This program helps ensure that all hydraulic oil containers are maintained and monitored. Any identified leaks would be reported and corrected promptly. Fort Knox enlists off-site contractors to conduct routine equipment inspections (or as problems are identified) and has an inventory of all hydraulic oil containers which includes oil capacity (refer to the Fort Knox GIS and **Appendix A**).

Transformers are considered low risk for potential spills based on their design, operation, and preventive maintenance program completed by Nolin. This program helps ensure that all electrical equipment is maintained and monitored. Any identified leaks would be reported and corrected promptly. Nolin conducts routine equipment inspections (or as problems are identified) and has an inventory of all transformers which includes oil capacity (refer to the Fort Knox GIS and **Appendix A**). Refer to **Section 4.2.4** for additional information.

5.7 Impracticability of Secondary Containment

"112.7(d): Provided your Plan is certified by a licensed Professional Engineer under §112.3(d), or, in the case of a qualified facility that meets the criteria in §112.3(g), the relevant sections of your Plan are certified by a licensed Professional Engineer under §112.6(d), if you determine that the installation of any of the structures or pieces of equipment listed in paragraphs (c) and (h)(1) of this section, and §§112.8(c)(2), 112.8(c)(11), 112.9(c)(2), 112.10(c), 112.12(c)(2), and 112.12(c)(11) to prevent a discharge as described in §112.1(b) from any onshore or offshore facility is not practicable, you must clearly explain in your Plan why such measures are not practicable; for bulk storage containers, conduct both periodic integrity testing of the containers and periodic integrity and leak testing of the valves and piping; and, unless you have submitted a response plan under §112.20, provide in your Plan the following:

(1) An oil spill contingency plan following the provisions of part 109 of this chapter.
(2) A written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful."

There are no bulk storage containers at Fort Knox where this provision of 40 CFR 112.7 has been applied.

SECTION 6

Inspections and Testing

6.1 Inspection Schedule and Recordkeeping

"112.7(e): Conduct inspections and tests required by this part in accordance with written procedures that you or the certifying engineer develop for the facility. You must keep these written procedures and a record of the inspections and tests, signed by the appropriate supervisor or inspector, with the SPCC Plan for a period of three years. Records of inspections and tests kept under usual and customary business practices will suffice for purposes of this paragraph.

112.8(c)(6): Test or inspect each aboveground container for integrity on a regular schedule and whenever you make material repairs. You must determine, in accordance with industry standards, the appropriate qualifications for personnel performing tests and inspections, the frequency and type of testing and inspections, which take into account container size, configuration, and design (such as containers that are: shop-built, field-erected, skid-mounted, elevated, equipped with a liner, double-walled, or partially buried). Examples of these integrity tests include, but are not limited to: visual inspection, hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, or other systems of non-destructive testing. You must keep comparison records and you must also inspect the container's supports and foundations. In addition, you must frequently inspect the outside of the container for signs of deterioration, discharges, or accumulation of oil inside diked areas. Records of inspections and tests kept under usual and customary business practices satisfy the recordkeeping requirements of this paragraph."

Fort Knox is required to conduct periodic inspections and testing of ASTs, mobile and portable containers, liquid level sensing devices, aboveground and underground piping, containment dikes, OWS, and OFOE. The subsequent sections, and **Table 6-1**, outline the inspection and testing schedule for the regulated equipment at Fort Knox. Integrity testing requirements must also be met, depending on the AST construction, and depending on whether they have ground contact, are single-walled or double-walled, have cathodic protection, and alternative secondary containment. **Table 6-2** provides the AST category and inspection requirements for each AST at Fort Knox and **Table 6-3** outlines the periodic integrity testing requirements defined by STI SP001. Inspections and testing may be conducted by EMD, on-site units and tenants, on-site contractors, or off-site contractors. Records are required to be maintained for a period of three years, unless otherwise noted in **Table 6-1**. Records can be maintained by EMD, DPW, or the on-post organization that conducts the inspection.

The EPA's recognized inspection standard for ASTs, mobile and portable containers, and aboveground piping is STI SP001 which Fort Knox has used to develop the schedule of periodic inspections and testing. If STI SP001 cannot be used to determine the inspection schedule, then manufacturer's instructions or other industry standards are used. **Appendix C** contains recommended, sample forms that may be used for monthly and annual inspections of ASTs and monthly inspections of mobile and portable containers. STI allows their monthly and annual checklists to be used as models as long as the locally developed checklist is "substantially equivalent." Fort Knox has multiple on-post organizations and contractors that have developed their own monthly inspection checklists. Those forms are acceptable for use and are not provided in **Appendix C**. To ensure continuity of inspections and testing, it is recommended that EMD review and approve sample inspection forms prior to use by any unit, tenant, or organization.

This Plan provides guidance on inspection actions and retention criteria that Fort Knox must perform to comply with the SPCC rule; see **Table 6-1** for additional information.

- Complete all inspections as outlined in the Inspection and Recordkeeping procedures using the inspection checklists included in **Appendix C**.
- Perform preventive maintenance of equipment, secondary containment systems, and discharge prevention systems described in this Plan, as needed, to maintain proper operating conditions.
- Conduct initial and annual employee training as outlined in the personnel training and spill prevention procedures section of this Plan and document.

TABLE 6-1: Inspection Schedule

Type of Inspection[1]	Frequency	Inspection Performed By[1]	Regulatory Driver	Inspection Form	Record Retention
Product Piping					
External Visual (routine)	Monthly [2]	EMD or designee	40 CFR 112	Appendix C	3 years
Pressure Testing (Underground Piping)	5-year	Qualified contractor	UFC 3-460-03	Contractor-provided	Indefinite
Secondary Containment					
External Visual (non-routine)	Recommended within 7 days of rain event	EMD or designee	40 CFR 112	Appendix C	3 years
External Visual (routine)	Monthly [2]	EMD or designee	40 CFR 112	Appendix C	3 years
Fuel Transfer Areas					
External Visual (non-routine)	As needed (based on weather and/or oil release)	Contractor and/or organizational user	40 CFR 112	Refer to locally generated form	3 years
External Visual (routine)	Monthly	Contractor and/or organizational user	40 CFR 112	Refer to locally generated form	3 years
ASTs					
External Visual	Monthly [2]	EMD or designee	40 CFR 112	Appendix C	3 years
External Visual	Annual	EMD or contractor	40 CFR 112	Appendix C	3 years

Type of Inspection[1]	Frequency	Inspection Performed By[1]	Regulatory Driver	Inspection Form	Record Retention
Integrity Testing and Formal Inspections (STI)	Refer to Table 6-2	Qualified Inspector	40 CFR 112	Contractor-provided	3 years
Operations Check (generators only)	Monthly	DPW Contractor	40 CFR 112	Refer to locally generated form	3 years
Liquid Level Sensing Device	Annually or per manufacturer instructions	EMD or Contractor	40 CFR 112	Contractor-provided	3 years
UST Containment Sumps					
External Visual (routine)	During fuel transfers	AAFES Wilson Road Station Manager	40 CFR 112	Appendix C	3 years
OFOE					
Transformer External Visual (routine)	Annually	Nolin	40 CFR 112	Refer to locally generated form	3 years
Elevator Container External Visual (routine)	Annually	Contractor	40 CFR 112	Contractor-provided	3 years
Drums (Portable Containers)					
External Visual (routine)	Monthly	Organizational user	40 CFR 112	Appendix C	3 years
Used Cooking Oil Containers					
Examination	Monthly	Operator	40 CFR 112	Appendix C	3 years

Notes:

1. While various facility personnel or contracted professionals perform the inspections, it is Fort Knox's responsibility to ensure all inspections are scheduled and performed in accordance with this Plan.
2. It is recommended that a period of no more than 35 days passes between inspections.

6.2 Stationary Storage Container Inspections

6.2.1 Shop-fabricated Tanks

To effectively minimize the risk of AST failure, monthly and annual visual inspections must be performed to satisfy the regulatory requirements of 40 CFR 112 and the periodic inspection requirements of STI SP001, which is the applicable industry standard recognized by EPA for

inspection of ASTs. These inspections include externally examining the AST and inspecting ground surfaces for signs of leakage, spillage, or stains. Indicators for additional investigation of the primary container include, but are not limited to, impact damage, corrosion and structural damage to the primary containers, cracking, calcareous deposits on the outer container, regulated oil or water in the interstice, etc. **Appendix C** contains three forms that Fort Knox can use to satisfy the monthly and annual inspection requirements:

- STI SP001 Monthly Inspection Checklist
- Monthly Tank Inspection Checklist Record (condensed form based off STI SP001's Monthly Inspection Checklist.
- STI SP001 Annual Inspection Checklist

STI SP001 allows organizations the independence to utilize STI's formal checklists as a model. Fort Knox may use these forms or any other organization-derived form if each form is substantially equivalent to the STI SP001 Monthly or Annual Inspection Checklists. Monthly and annual inspections are conducted by the AST's owning organization, EMD, or authorized contractor and records of monthly and annual inspections are maintained by EMD.

Prior and post transfer, it is recommended that the organizational user or designated contractor perform a brief spot check to ensure there have been no incidental spills of POL. These checks do not need to be documented on an inspection form.

In addition to the inspections listed in **Table 6-1**, additional periodic inspection and testing of ASTs may be conducted in accordance with STI SP001 and at the discretion of EMD. **Table 6-2** outlines the STI SP001 AST category (i.e., 1, 2, or 3) which determines the inspection and integrity testing schedule or frequency. Note that permanently closed ASTs are not listed for inspection and integrity testing requirements. STI classifies ASTs based on the presence of spill control and a continuous release detection method (CRDM):

- Category 1: ASTs with spill control and continuous release detection method (CRDM).
- Category 2: ASTs with spill control, and without CRDM.
- Category 3: ASTs without spill control.

According to STI SP001, if an AST is equipped with spill control, it is considered to have "a means of preventing a release of liquid to the environment, including adjoining property and waterways." Further, if an ASTs is equipped with CRDM, it is considered to have "a means of detecting a release of liquid through inherent design. CRDM is passive because it does not require sensors or power to operate. Liquid releases are visually detected by facility operators."

TABLE 6-2: Shop Fabricated Tank Category and Inspection Requirements

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
17.G1	Unknown	77	DW w/overfill prevention	DW	1	M & A	N/A
18.G2	Unknown	214	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
121-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
136-T1	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
136-T2	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
136-T3	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
136-T4	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
136-T5	2013	385	DW w/overfill prevention	DW	1	M	N/A, portable container
136-T6	2013	500	DW w/overfill prevention	DW	1	M & A	N/A
203.G1	2006	145	DW w/overfill prevention	DW	1	M & A	N/A
612-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
612-T2	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A
851-T1	Unknown	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
851-T2	Unknown	300	DW w/overfill prevention	DW	1	M & A	N/A
851-T3	Unknown	100	Open top steel diked AST	Steel dike AST	1	M & A	N/A
860-T1	Unknown	12,000	DW w/overfill prevention	DW	1	M & A	E(20)
860.G2	Unknown	200	DW w/overfill prevention	DW	1	M & A	N/A
862-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
862-T2	2013	385	DW w/overfill prevention	DW	1	M	N/A, portable container
869-T2	Unknown	200	Open top steel diked AST	Steel dike AST	1	M & A	N/A
869-T3	Unknown	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
1002.G1	Unknown	280	DW w/overfill prevention	DW	1	M & A	N/A
1006-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
1054-T1	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A
1205-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
1227-T1	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A
1227-T2	2019	75	DW w/overfill prevention	DW	1	M & A	N/A
1307.G1	Unknown	1,500	DW w/overfill prevention	DW	1	M & A	N/A
1307.G2	Unknown	1,500	DW w/overfill prevention	DW	1	M & A	N/A
1308.G1	2009	875	DW w/overfill prevention	DW	1	M & A	N/A
1467.G1	Unknown	693	DW w/overfill prevention	DW	1	M & A	N/A
1722-T1	Unknown	187	DW w/overfill prevention	DW	1	M & A	N/A
1730.G1	Unknown	77	DW w/overfill prevention	DW	1	M & A	N/A
1730.G2	Unknown	290	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
1730.G3	Unknown	130	DW w/overfill prevention	DW	1	M & A	N/A
1730.G4	Unknown	100	DW w/overfill prevention	DW	1	M & A	N/A
1730.G5	Unknown	100	DW w/overfill prevention	DW	1	M & A	N/A
2021.G1	2016	516	DW w/overfill prevention	DW	1	M & A	N/A
2190-T1	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
2190-T2	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
2190-T3	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
2190-T4	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
2190-T5	2013	385	DW w/overfill prevention	DW	1	M	N/A, portable container
2341.G1	Unknown	785	DW w/overfill prevention	DW	1	M & A	N/A
2370.G1	2009	331	DW w/overfill prevention	DW	1	M & A	N/A
2389.G1	Unknown	1,200	DW w/overfill prevention	DW	1	M & A	N/A
2741-T1	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
2741-T2	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
2741-T3	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
2741-T4	2013	300	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
2741-T5	2013	285	DW w/overfill prevention	DW	1	M	N/A, portable container
2767-T1	1996	660	DW w/overfill prevention	DW	1	M & A	N/A
2770-T3	2018	660	DW w/overfill prevention	DW	1	M & A	N/A
2770-T4	2003	660	DW w/overfill prevention	DW	1	M & A	N/A
2770-T5	Unknown	2,000	DW w/overfill prevention	DW	1	M & A	N/A
2807-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
2807-T2	2018	660	DW w/overfill prevention	DW	1	M & A	N/A
2807-T7	2018	660	DW w/overfill prevention	DW	1	M & A	N/A
2807-T8	2020	660	DW w/overfill prevention	DW	1	M & A	N/A
2835.G1	Unknown	2,000	DW w/overfill prevention	DW	1	M & A	N/A
2862-T1	2013	120	DW w/overfill prevention	DW	1	M & A	N/A
2862-T2	2013	120	DW w/overfill prevention	DW	1	M & A	N/A
2942-T1	Unknown	120	Secondary containment dike/berm	Elevated AST, with release prevention barrier	1	M & A	N/A
2942-T2	2004	528	DW w/overfill prevention	DW	1	M & A	N/A
2943-T1	2005	660	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
2944-T1	1996	528	DW w/overfill prevention	DW	1	M & A	N/A
2944-T2	1996	528	DW w/overfill prevention	DW	1	M & A	N/A
2944-T3	2018	660	DW w/overfill prevention	DW	1	M & A	N/A
2952-T1	Unknown	650	DW w/overfill prevention	DW	1	M & A	N/A
2952-T4	1999	660	DW w/overfill prevention	DW	1	M & A	N/A
2952-T5	1999	660	DW w/overfill prevention	DW	1	M & A	N/A
2952-T6	1999	660	DW w/overfill prevention	DW	1	M & A	N/A
2952-T7	1999	660	DW w/overfill prevention	DW	1	M & A	N/A
2952-T8	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A
2952-T9	Unknown	385	DW w/overfill prevention	DW	1	M	N/A, portable container
2958-T1	2004	660	DW w/overfill prevention	DW	1	M & A	N/A
3008-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
3075-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
4012-T1	Unknown	2,000	DW w/overfill prevention	DW	1	M & A	N/A
4012-T2	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
4015.G1	Unknown	235	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
4210.G1	Unknown	472	DW w/overfill prevention	DW	1	M & A	N/A
4249.G1	2010	1,700	DW w/overfill prevention	DW	1	M & A	N/A
4250.G1	2009	1,700	DW w/overfill prevention	DW	1	M & A	N/A
4995-T1	Unknown	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
4995-T2	Unknown	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
4995-T3	Unknown	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
4997-T1	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
4997-T2	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
4997-T3	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
4997-T4	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
4997-T5	2013	285	DW w/overfill prevention	DW	1	M	N/A, portable container
4997-T6	2013	500	DW w/overfill prevention	DW	1	M & A	N/A
5220.G2	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
5220-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
5222-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
5222-T2	Unknown	500	CE-AST with overfill prevention	CE-AST with an integral secondary containment and interstitial monitoring opening	1	M & A	N/A
5231-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
5232-T1	Unknown	572	DW w/overfill prevention	DW	1	M & A	N/A
5232-T2	Unknown	572	DW w/overfill prevention	DW	1	M & A	N/A
5242-T1	Unknown	10,000	Closed top steel diked AST with overfill prevention	Steel dike AST	1	M & A	E(20)
5242-T2	Unknown	10,000	Closed top steel diked AST with overfill prevention	Steel dike AST	1	M & A	E(20)
5242-T3	Unknown	15,000	Open top steel diked AST	Steel dike AST	1	M & A	E(20)
5242-T4	Unknown	15,000	Open top steel diked AST	Steel dike AST	1	M & A	E(20)
5242-T5	Unknown	15,000	Open top steel diked AST	Steel dike AST	1	M & A	E(20)
5242-T6	Unknown	15,000	Open top steel diked AST	Steel dike AST	1	M & A	E(20)
Trailer	Unknown	995	Open top steel diked AST	DW	1	M	N/A, portable container
5259.G1	Unknown	336	DW w/overfill prevention	DW	1	M & A	N/A
5592.G1	Unknown	194	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
5898-T1	Unknown	300	DW w/overfill prevention	DW	1	M & A	N/A
5917.G1	Unknown	278	DW w/overfill prevention	DW	1	M & A	N/A
5931.G1	2009	331	DW w/overfill prevention	DW	1	M & A	N/A
6151.G1	Unknown	250	DW w/overfill prevention	DW	1	M & A	N/A
6434.G6	Unknown	2,350	DW w/overfill prevention	DW	1	M & A	N/A
6434.G7	Unknown	2,350	DW w/overfill prevention	DW	1	M & A	N/A
6434.G8	Unknown	2,350	DW w/overfill prevention	DW	1	M & A	N/A
6434.G9	Unknown	2,350	DW w/overfill prevention	DW	1	M & A	N/A
6434.G10	Unknown	2,350	DW w/overfill prevention	DW	1	M & A	N/A
6434.G11	Unknown	2,750	DW w/overfill prevention	DW	1	M & A	N/A
6434.G12	Unknown	875	DW w/overfill prevention	DW	1	M & A	N/A
6434-T1	2008	10,000	CE-AST with overfill prevention	CE-AST with an integral secondary containment and interstitial monitoring opening	1	M & A	E(20)
6434-T2	Unknown	175	DW w/overfill prevention	DW	1	M & A	N/A
6434-T3	Unknown	175	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
6434-T4	Unknown	175	DW w/overfill prevention	DW	1	M & A	N/A
6434-T5	Unknown	175	DW w/overfill prevention	DW	1	M & A	N/A
6435.G1	Unknown	875	DW w/overfill prevention	DW	1	M & A	N/A
6576-T1	1999	660	DW w/overfill prevention	DW	1	M & A	N/A
6605-T1	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
6605-T2	2013	10,000	DW w/overfill prevention	DW	1	M & A	E(20)
6605-T3	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
6605-T4	2013	300	DW w/overfill prevention	DW	1	M & A	N/A
6605-T5	2013	385	DW w/overfill prevention	DW	1	M	N/A, portable container
6605-T6	2013	500	DW w/overfill prevention	DW	1	M & A	N/A
7102.G1	Unknown	130	DW w/overfill prevention	DW	1	M & A	N/A
7102.G2	Unknown	278	DW w/overfill prevention	DW	1	M & A	N/A
7207-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
7207-T2	Unknown	275	Secondary containment dike/berm	Release prevention barrier	1	M & A	N/A
7226.G1	Unknown	100	DW w/overfill prevention	DW	1	M & A	N/A
7235.G1	Unknown	120	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
7235.G2	Unknown	120	DW w/overfill prevention	DW	1	M & A	N/A
7238-T1	2018	120	DW w/overfill prevention	DW	1	M & A	N/A
7329-T1	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A
7329-T2	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A
7422-T1	Unknown	3,000	Open top steel diked AST	Steel dike AST	1	M & A	N/A
7501.G1	Unknown	200	DW w/overfill prevention	DW	1	M & A	N/A
7873-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
8057.G1	2016	2,183	DW w/overfill prevention	DW	1	M & A	N/A
8928-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
8928.G2	Unknown	245	DW w/overfill prevention	DW	1	M & A	N/A
9009-T1	Unknown	500	DW w/overfill prevention	DW	1	M & A	N/A
9066.G1	Unknown	200	DW w/overfill prevention	DW	1	M & A	N/A
9066.G2	Unknown	214	DW w/overfill prevention	DW	1	M & A	N/A
9101.G1	Unknown	113	DW w/overfill prevention	DW	1	M & A	N/A
9309.G1	Unknown	100	DW w/overfill prevention	DW	1	M & A	N/A
9359-T1	Unknown	2,000	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
9359-T3	Unknown	500	Open top steel diked AST	Steel dike AST	1	M & A	N/A
9359-T4	Unknown	275	Open top steel diked AST	Steel dike AST	1	M & A	N/A
9359-T5	Unknown	275	Open top steel diked AST	Steel dike AST	1	M & A	N/A
9385.G1	Unknown	100	DW w/overfill prevention	DW	1	M & A	N/A
9387-T1	Unknown	10,000	Open top steel diked AST	Steel dike AST	1	M & A	E(20)
9387-T2	Unknown	10,000	Open top steel diked AST	Steel dike AST	1	M & A	E(20)
9387-T3	1996	480	DW w/overfill prevention	DW	1	M & A	N/A
9387-T4	Unknown	480	DW w/overfill prevention	DW	1	M & A	N/A
9387-T5	Unknown	480	DW w/overfill prevention	DW	1	M & A	N/A
9387-T6	1996	480	DW w/overfill prevention	DW	1	M & A	N/A
9387-T7	Unknown	480	DW w/overfill prevention	DW	1	M & A	N/A
9387-T8	Unknown	480	DW w/overfill prevention	DW	1	M & A	N/A
9399.G1	2018	132	DW w/overfill prevention	DW	1	M & A	N/A
9555-T1	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A
9717-T1	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A
9779-T1	Unknown	1,000	DW w/overfill prevention	DW	1	M & A	N/A

AST ID	Year Installed	Capacity	Spill Control	CRDM	STI Category	Inspection Required[1]	Formal Inspection Date[2, 3]
9816.G1	Unknown	170	DW w/overfill prevention	DW	1	M & A	N/A
9829-T1	2005	660	DW w/overfill prevention	DW	1	M & A	N/A
9845-T1	Unknown	3,000	DW w/overfill prevention	DW	1	M & A	N/A
9855-T1	Unknown	1,500	DW w/overfill prevention	DW	1	M & A	N/A
9996.G1	Unknown	210	DW w/overfill prevention	DW	1	M & A	N/A

1. Inspection Required Abbreviations: M=Monthly, A=Annual, E= Formal External inspection by STI certified inspector, (Yr.) interval of the leak test.
2. As shown in Table 6-3, For Category 1 shop-built tanks, with less than or equal to 5,000-gallon capacity, no STI certified formal External inspection is required.
3. As shown in Table 6-3, For Category 1 shop-built tanks, with greater than 5,000-gallon capacity, an STI certified Formal External inspection is required every 20 years, plus a baseline inspection should be performed following installation.

Table 6-3 outlines the different types of STI AST categories, as defined by STI, as well as the periodic and formal inspection schedule recommended by STI. This information is replicated from Section 5 of STI SP001.

TABLE 6-3: STI SP001 Periodic Testing Requirements

Size (gallons)	Category 1	Category 2	Category 3
0 – 1,100	P	P	P, E&L(10)
1,101 – 5,000	P	P, E&L(10)	[P, E&L(5), I(10)] or [P, E(5) & L(2)]
5,001 – 30,000	P, E(20)	[P, E(10)& I(20)] or [P, E(5) & L(10)]	[P, E&L(5), I(10)]or [P, E(5) & L(1)]
30,001 – 50,000	P, E(20)	P, E&L(5), I(15)	P, E&L(5), I(10)
Portable containers	P	P	P **

Notes:
P = Periodic inspection (monthly and/or annual)
E = Formal external inspector by certified inspector
I = Formal Internal inspection by certified inspector
L = Leak test by owner or owner's designee
( ) = maximum inspection interval, in years
** Containers must be tested to DOT requirements every 12 years (steel) or 7 years (plastic)

Following any recurring inspection, if deficiencies are noted that related to the integrity of the primary AST or its containment, it is recommended that Fort Knox perform manufacturer-

specified pressure testing, testing in accordance with Section 9.1.1 of STI SP001, or a vacuum test specifically developed and certified for testing small ASTs.

6.2.2 Industry Standard Considerations

The criteria for the STI SP001 inspection schedule are based on the AST capacity, known dates of installation, and known standard of construction. The requirement for integrity testing of each of the containers should be based upon the following criteria.

A. If installation date is known and the AST has a manufacturer's label, testing date is scheduled based upon the STI Category and corresponding schedule.

B. If manufacturer information is unavailable and the AST is not labeled to standard conformance, inspection is to be performed as soon as possible following SPCC Plan approval. The stringent testing date is based on the lack of sufficient knowledge that exists for the construction procedures and materials used in the assembly of the container. The level of risk for discharges associated with AST constructed with no known standard can be high and require the immediate evaluation of AST construction and material properties to ensure industry standards are being implemented as required by the rule.

For any new ASTs that may be installed in the future, Fort Knox will obtain certification of integrity testing from the manufacturer or installer prior to placing the AST into service.

Fort Knox will recommend new ASTs be installed in accordance with manufacturer instructions, or STI Standard R912 (Installation Instructions for Shop Fabricated Stationary Aboveground Storage Tanks for Flammable or Combustible Liquids).

Fort Knox will recommend all ASTs be repaired in accordance with manufacturer instructions or STI SP031 (Standard for Repair of Shop-Fabricated Aboveground Tanks for Storage of Flammable or Combustible Liquids). If there is a material repair of the AST, in particular inner/outer shell, top/bottom, or AST supports, the integrity must be tested by an appropriate method before the AST is returned to service.

Section 4.1 of STI SP001 requires that an AST be taken out-of-service within 24 hours if a leak is found. The AST must then be repaired or replaced as required.

If the AST has been exposed to a fire or other means which could cause possible damage, it must be inspected by a certified inspector for serviceability and leaks prior to being put into service. Consult with the manufacturer prior to making any alterations or repairs of leaks.

Upon discovery of fuel in the interstice of a double-wall AST, performance of primary container pressure testing should be considered in accordance with the 9.1.1 of STI SP001, and STI R912, or manufacturer's recommendations.

6.3 Mobile and Portable Container Inspections

There are numerous storage areas throughout Fort Knox that contain mobile and portable containers such as mobile refuelers, drums of new and used POLs, and used cooking oil containers. Like ASTs, monthly inspections must be performed to satisfy the regulatory

requirements of 40 CFR 112 and the periodic inspection requirements of STI SP001. There is not an annual inspection requirement for mobile and portable containers. Inspections must verify that there are no signs of leaks or obvious damage, that fill and discharge connections are properly operating, and that mobile and portable containers are in good condition. Any secondary containment must be visually inspected to verify it is in good condition, can contain a spill, and does not actively contain POL.

Fort Knox has developed Fort Knox Form 5058 as the inspection form for all mobile and portable containers equal or greater than 55 gallons in capacity. Fort Knox may also use the STI SP001 Portable Container Monthly Inspection Checklist or any other locally developed forms as long as the form is substantially equivalent to SP001's Portable Container Monthly Inspection Checklist. One inspection form is sufficient for each storage area, regardless of how many mobile or portable containers are present. Refer to **Appendix C** for sample forms.

Inspections are conducted by the organization that owns or manages the mobile or portable containers. These organizations are also responsible for maintaining records of the monthly inspections. EMD can obtain inspection records from on-post organizations, when necessary.

Prior and post transfer, it is recommended that the organizational user or designated contractor perform a brief spot check to ensure there have been no incidental spills of POL. These checks do not need to be documented on an inspection form.

6.4 Liquid Level Sensing Device Inspections

"112.8(c)(8): You must engineer or update each container installation in accordance with good engineering practice to avoid discharges. You must provide at least one of the following devices:

(i) High liquid level alarms with an audible or visual signal at a constantly attended operation or surveillance station. In smaller facilities an audible air vent may suffice.
(ii) High liquid level pump cutoff devices set to stop flow at a predetermined container content level.
(iii) Direct audible or code signal communication between the container gauger and the pumping station.
(iv) A fast response system for determining the liquid level of each bulk storage container such as digital computers, telepulse, or direct vision gauges. If you use this alternative, a person must be present to monitor gauges and the overall filling of bulk storage containers.
(v) You must regularly test liquid level sensing devices to ensure proper operation."

6.4.1 Shop-fabricated Tanks

The ASTs on Fort Knox utilize manual, mechanical, and automatic methods for determining liquid levels.

The manual method involves using a measured dipping stick to determine the level of liquid in the container. If this method is used, the ullage level or available capacity should be determined before transfer of product into the container is initiated.

The mechanical methods use various types of direct vision liquid level gauges, which can be monitored at the site during the filling operations.

The automatic methods use various types of liquid level sensing devices, which are electrically connected from the AST to a remote reading instrument panel, such as the Veeder-Root system.

During monthly or annual AST inspections, the liquid level sensing device may be validated by manually gauging the AST and comparing the results with the indicated liquid level. If the liquid level shows significant variance, Fort Knox can choose to further test the device following the manufacturer's specification.

6.4.2 Mobile Refueler Trucks

Contractors use mobile refuelers to perform fuel transfers to fill ASTs at Fort Knox. A contractor also operates the Godman Army Airfield Fuel Farm and uses mobile refuelers to perform fuel transfers to fill aircraft and helicopters or ASTs in range aras. Military personnel use HEMTTs to perform fuel transfers to fill tactical equipment in the range areas.

Contractor operated mobile refuelers from the Godman Army Airfield Fuel Farm use an automatic system known as the Scully Intellitrol System that offers layered spill prevention. The system is equipped with a dead man switch and internal sensors to automatically shut off the flow of fuel. The dead man switch must be held and squeezed for fuel to flow. In an emergency, fuel flow stops once the operator releases the dead man switch. The Scully System's internal sensors operate separately from the dead man switch and will shut off fuel flow in the event of a system fault or if the high level on the refueler truck detects fuel moisture. If the operator were unable to release the handle, the high-level sensor would still prevent overfill of the mobile refueler's tank. The system is maintained by the contractor who operates the fuel farm and an operational check is performed every time the refueler truck is filled. The emergency cut-off procedures in place for refueler truck fueling are the following:

- Release trigger on nozzle
- Close valve on refueler truck
- Disengage pump
- Close valve handle "T" on refueler truck

Contractor operated mobile refuelers that fill ASTs are equipped with a quick connect hose or a fuel nozzle that must be held for fuel to flow. The type of fueling arrangement depends on the connection on each individual AST. In either case, before delivery, the volume of fuel to be delivered and the available capacity are verified using one of the methods in **Section 6.4.1**. Fuel transfers from tactical refuelers into tactical equipment is conducted in the same manner. In an emergency, personnel would release a dead man switch or release the fuel nozzle and fueling would stop.

6.4.3 Industry Standard Considerations

Fort Knox personnel should be cognizant of following the overfill protection guidelines outlined in American Petroleum Institute (API) 2350 Section 2.2.2:

- If an electrical or mechanical failure occurs that affects the level detectors, product receipt will stop and not recommence until the detectors are functioning properly or manual operations and procedures are implemented.

- When only one detector is used, this high-high level detector will be located at or above the safe fill levels and will alarm/signal to provide sufficient time to shut off or divert product flow before the overfill is reached.
- When used for overfill protection, the high-high level detector will be independent of the ATG system to provide greater reliability and to comply with the requirements of NFPA 30 (Section 2-10).
- If a tank is to be filled above its normal fill level (normal capacity) up to its safe fill level (tank rated capacity), a trained and qualified person will be assigned by the operator to be present at the tank. It is not recommended to routinely fill a tank above the safe fill level due to the increase in overfill risk.

Any shutdown or diversion procedures should be compatible with the transporter's operations to prevent consequential damage such as hydraulic shock or over-pressuring the piping system.

6.5 Aboveground Piping Inspections

"112.8(d)(4): Regularly inspect all aboveground valves, piping, and appurtenances. During the inspection you must assess the general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces. You must also conduct integrity and leak testing of buried piping at the time of installation, modification, construction, relocation, or replacement."

Aboveground piping, valves, and appurtenances at Fort Knox are regularly inspected by organizational users, contractors, and EMD. Records of the inspections are required to be documented and are maintained by EMD.

In accordance with STI SP001, frequencies include monthly and annual inspection periods. The general condition of fixtures, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, valve locks, and metal surfaces are assessed during these periodic inspections by qualified personnel.

Some organizational users may institute daily walkthroughs to observe for leaks around valves, joints, and fittings as well as during/after transfer operations. These observations check for piping misalignment, sagging, and to ensure that external coatings are in good shape. These walkthroughs may documented on locally maintained forms if the custodian chooses to do so.

Aboveground piping connected to ASTs will be inspected monthly and annually in accordance with STI SP001. All exposed piping, valves, and associated equipment must be inspected for corrosion, leakage, or failure. All surfaces demonstrating active corrosion must be cleaned and repainted.

6.6 Containment Dike Inspections

"112.8(b)(1): Restrain drainage from diked storage areas by valves to prevent a discharge into the drainage system or facility effluent treatment system, except where facility systems are designed to control such discharge. You may empty diked areas by pumps or ejectors; however, you must manually activate these pumps or ejectors and must inspect the condition of the accumulation before starting, to ensure no oil will be discharged."

"112.8(b)(2): Use valves of manual, open-and-closed design, for the drainage of diked areas. You may not use flapper-type drain valves to drain diked areas. If your facility drainage drains directly into a watercourse and not into

an on-site wastewater treatment plant, you must inspect and may drain uncontaminated retained storm water, as provided in 112.8(c)(3)(ii), (iii), and (iv)."

"112.8(c)(3): Not allow drainage of uncontaminated rainwater from the diked area into a storm drain or discharge of an effluent into an open watercourse, lake, or pond, bypassing the facility treatment system unless you:

(i) Normally keep the bypass valve sealed closed.
(ii) Inspect the retained rainwater to ensure that its presence will not cause a discharge as described in 112.1(b).
(iii) Open the bypass valve and reseal it following drainage under responsible supervision; and
(iv) Keep adequate records of such events, for example, any records required under permits issued in accordance with 122.41(j)(2) and 122.41(m)(3)of this chapter."

Diked areas are provided with manual ball-valves, manual drain valves, or PIVs that can be locked in the closed position to prevent accidental and unauthorized drainage. No flapper-type drain valves are utilized at Fort Knox. If diked areas are not equipped with a valve (containment has no drainage outlet), then qualified personnel or a contractor shall pump or vacuum out the water for disposal.

Personnel are to utilize local drainage log forms located in **Appendix C** when draining water. Water must be checked for oil sheen and remain in the immediate area when draining water. Refer to **Tables 5-1** and **5-2** for a list of containment areas susceptible to rainwater accumulation.

Secondary containment drainage valves at fuel transfer areas are kept in the closed position. Where equipped, secondary containment drainage valves at containment dikes are also kept in the closed position. They may be equipped with locks or located within secure, locked areas.

Stormwater retained in secondary containment structures is inspected for the presence of oil sheen or residual POL prior to discharge. Within one week following a precipitation event, the containment should be inspected. If a sheen is not observed, the containment drain valve is opened and water can be drained. If a sheen is present, EMD is notified and the facility operator must mitigate the contamination by either vacuuming out the oily water or using absorbent pads and booms to remove the POL. If containment structures or areas are equipped with an OWS, the water can be filtered prior to discharge to the stormwater system.

The integrity of containment dikes around fuel transfer areas receive the same type and frequency of inspections as those described for ASTs. Berms or diked areas are checked for excessive water accumulation and to ensure drain valves are secure. Personnel conduct regular inspections of valves, inlets, leak detection equipment, and outlet piping and flanges for leaks. Drainage of rainwater from diked areas into the stormwater system may be acceptable if:

- The bypass valve is normally maintained closed.
- Inspection of the run-off rainwater ensures compliance with applicable water quality standards and will not cause a harmful discharge as defined in 40 CFR 110.
- The bypass valve is opened and resealed following drainage under a responsible supervisor.
- Adequate records are kept of each discharge event.

6.7 Underground Piping Inspections

Underground piping at Fort Knox includes small-diameter piping at the AAFES Stations from the USTs and ASTs to vehicle fuel dispensers and from ASTs into nearby boilers and generators.

Underground piping is double-walled to contain leakage and is made of fiberglass / plastic to prevent corrosion. If piping is not made of fiberglass / plastic, it should be protected from corrosion.

Double-walled piping at the AAFES Stations is monitored via continuous leak detection and interstitial monitoring through on-site Veeder-Root systems. The piping is also pressure tested on an annual basis.

Several ASTs have short, small diameter runs of piping from the AST into a building or generator. As part of the monthly AST inspection process, surface conditions over and adjacent to where the pipeline runs underground are evaluated for indications of leaks. Indications of leaks include change in the surface contour of the ground, discoloration of the soil, softening of asphalt, pool formation, bubbling water puddles, or noticeable odor.

6.8 Oil-Water Separator Inspections

DPW conducts periodic inspections of OWS. Inspections may also be conducted when an OWS is cleaned. Cleaning is conducted by DPW Utility Maintenance personnel or its sub-contractor and the sub-contractor is responsible for disposal of any wastewater or sludge that is generated. Refer to the Fort Knox SWGWPPP for more information on OWS inspections.

6.9 OFOE Inspections

Nolin maintains a robust inspection, maintenance, and recordkeeping program for electrical transformers throughout Fort Knox. This program includes preventive maintenance checks, observation for signs of leakage, replacement of faulty transformers, and prompt maintenance when necessary. Records of inspection and maintenance activities are kept by Nolin and are available to EMD upon request to PWD.

Qualified contractors perform preventive maintenance checks of elevator hydraulic oil containers at Fort Knox. American Society of Mechanical Engineers (ASME) A17.1 (Safety Code for Elevators and Escalators) is the inspection and maintenance code utilized for these inspections. During inspections, elevator hydraulic oil containers are checked for signs of leakage. If an elevator needs repair or retrofit, it is taken out of service while repairs are completed. Records of inspections of elevator hydraulic oil containers are available to EMD upon request to DPW.

SECTION 7

Oil-Handling Personnel Training

There are two different training requirements for oil-handling personnel, as outlined in the following sections. Initial SPCC Training and Annual Discharge Prevention Briefings are required for all oil-handling personnel.

7.1 Initial SPCC Training

"112.7(f)(1): At a minimum, train your oil-handling personnel in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan."

At Fort Knox, staff who are designated as Environmental Officers (EO) receive a three-day course covering various environmental topics. SPCC training is included as a module within the three-day EO course. EOs perform spill training for personnel within their unit or organization. Contractors who are responsible for operation, maintenance, delivery, or oversight of POL equipment will be provided spill training (i.e., prevention, awareness, and response) by their employer. SPCC training topics include:

- Discussion of applicable pollution control laws, rules, and regulations.
- Operation and maintenance of equipment to prevent discharges of oil.
- Purpose and overview of SPCC Plan.
- Review of chemical and physical properties of materials transferred.
- Review of potential spill areas and drainage routes.
- Review of emergency response procedures.
- Review of locations and use of spill cleanup equipment.

A copy of the "Record of Initial Training and Annual Discharge Prevention Briefings" is in **Appendix D** or alternately, a local training attendance sheet may be used. EMD maintains records of initial SPCC training (via three-day EO courses) and EOs maintain records of initial SPCC training for their staff. Records shall be maintained for three years.

7.2 Annual Discharge Prevention Briefings

"112.7(f)(3): Schedule and conduct discharge prevention briefings for your oil-handling personnel at least once a year to assure adequate understanding of the SPCC Plan for that facility. Such briefings must highlight and describe known discharges as described in §112.1(b) or failures, malfunctioning components, and any recently developed precautionary measures."

Once initially trained, EO's receive an annual one-day refresher on the same topics covered in the three-day EO course, including discharge prevention. EOs update their personnel on any changes to Fort Knox's policy and procedures to ensure an adequate understanding of the Plan. At a minimum, the discharge prevention briefing subject matter will include:

- Known discharges as described in 40 CFR 112.1(b).
- Known failures or malfunctioning components.

- Recently developed spill prevention precautionary measures.
- Any changes or modifications to Plan or methods in the past year.

Organizational users are responsible for scheduling, designating, and instructing personnel in the proper operation and maintenance of ASTs and equipment related to their operations. Training will include review of applicable pollution control laws, rules, regulations, and changes to regulations. EMD maintains records of annual discharge prevention briefings (via annual one-day EO refreshers) and EOs maintain records of annual discharge prevention briefings/training for their staff. Records shall be maintained for three years.

SECTION 8

Security

"112.7(g): Describe in your Plan how you secure and control access to the oil handling, processing and storage areas; secure master flow and drain valves; prevent unauthorized access to starter controls on oil pumps; secure out-of-service and loading/unloading connections of oil pipelines; and address the appropriateness of security lighting to both prevent acts of vandalism and assist in the discovery of oil discharge."

At Fort Knox, military and civilian security personnel are present at the facility 24 hours per day, 365 days per year. Both types of security personnel are trained in First Responder – Awareness level per 29 CFR 1910.120(q)(6)(i). The perimeter fencing is monitored by law enforcement personnel to reduce unauthorized entry onto the facility.

8.1 Site Access and Fencing

Where possible, Fort Knox is fully fenced, thus all containers described in this Plan are secured within a locked-gate compound. The garrison has controlled access through each gate and conforms to the industry standard outlined for fencing and security, Section 11.3.6 of API 2610. Entrance to the various locked areas inside of Fort Knox are only accessible to employees and/or visitors who have been cleared by security.

Access to Fort Knox is controlled through the Main Gate, the Brandenburg Gate, and the Wilson Gate. The Visitor Control Center is located at the Main Gate. Each gate requires personnel to show government-issued identification prior to entry, and visitors must obtain and display temporary visitor identification and vehicle passes. Additional gates can be opened in the event of an emergency. Fort Knox is patrolled by military and civilian security forces 24 hours a day, 7 days a week.

8.2 Master Flow and Drain Valves

All drainage valves on secondary containment structures are manual gate or ball valves that are required by 40 CFR 112.8(c)(3)(i) to be normally closed except during secondary containment draining events.

Flapper-type drain valves are not used for secondary containment structures at Fort Knox. All accumulated rainwater is inspected in accordance with **Section 6.6** prior to discharge. All secondary containment drain valves are inspected in accordance with the STI monthly inspections in **Table 6-1**; see **Appendix C** for the checklists.

The master flow valve, fill ports, and containment drain valves are maintained in a closed position and should be locked when on non-operating or non-standby status. Access to master flow and drain valves is limited to authorized personnel only.

Master flow and drain valves that permit direct discharge of container contents must have adequate security to prevent unauthorized operation of valves. Valves controlling discharges must be directly locked at the open/close valve mechanism.

8.3 Starter Controls

The starter controls for oil pumps are maintained in an off position and locked. Access to starter controls is limited to authorized personnel only. Starter controls are in secure areas of specific facilities, usually within a locked facility or building (e.g., fueling operations at Godman Army Airfield, AAFES Station offices, etc.) adjacent to the AST or UST. Similarly, integrated generator sets usually require a key to open panels to commence operation. Only authorized personnel have access to keys to the pump houses and starter controls.

In cases where starter controls are not located inside of locked buildings (e.g., fueling ASTs on various ranges), the AST and associated fuel dispensing equipment is inside of a locked cage. Keys must be checked out or access coordinated with organizational users for access to starter controls and pumps.

8.4 Pipeline Loading and Unloading Connections

Oil pipeline loading and unloading connections are to be securely capped or blank-flanged when not in service or on standby service. Designated personnel who observe fuel loading and unloading activities verify that these connections are properly capped following each loading and unloading event.

8.5 Lighting

Various types of security lighting are provided throughout Fort Knox. Sufficient lighting is provided at primary fuel loading and unloading areas and oil storage structures to identify a release at night, should one occur. In addition, most fuel transfers from military refuelers or commercial tanker trucks are conducted during daylight. Some areas, for safety reasons, may not have adequate lighting. In these cases, and if fuel transfers are required during darkness security, site personnel, and contractors have additional lighting (flashlights and vehicle-mounted spotlights). The additional lighting is adequate to prevent spills, monitor for leaks, prevent vandalism, and enhance safety during transfer operations.

Adequate overhead lighting is provided throughout Fort Knox at most buildings and along all major roadways and thoroughfares. This extensive lighting grid assists night-time security operations and surveillance personnel whom should be trained to report discharges if they are observed. Manned security gates are illuminated by moderate- and high-intensity discharge security lighting. Where lighting is not permanently fixed, all on-site delivery vehicles have spotlights and all on-site and off-site contracted delivery personnel have flashlights in the event delivery must be made in the hours of darkness.

SECTION 9

Procedures for Fuel Transfers

9.1 Transfer Procedures for Loading/Unloading Racks

"112.2: Loading/unloading rack means a fixed structure (such as a platform, gangway) necessary for loading or unloading a tank truck or tank car, which is located at a facility subject to the requirements of this part. A loading/unloading rack includes a loading or unloading arm, and may include any combination of the following: piping assemblages, valves, pumps, shut-off devices, overfill sensors, or personnel safety devices."

"112.7(h): Facility Tank car and tank truck loading/unloading rack (excluding offshore facilities).

(h)(1): Where loading/unloading rack drainage does not flow into a catchment basin or treatment facility designed to handle discharges, use a quick drainage system for tank car or truck loading/unloading racks. You must design any containment system to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the facility."
(h)(2): Provide an interlocked warning light or physical barrier system, warning signs, wheel chocks or vehicle brake interlock system in the area adjacent to a loading/unloading rack, to prevent vehicles from departing before complete disconnection of flexible or fixed oil transfer lines.
(h)(3): Prior to filling and departure of any tank or car or tank truck, closely inspect for discharges the lowermost drain and all outlets of such vehicles, and if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit."

Fort Knox does not have any loading/unloading racks at any location on the facility.

9.2 Transfer Procedures other than Loading and Unloading Racks

"112.7(a)(3)(ii): You must also address in your Plan Discharge prevention measures including procedures for routine handling of products (loading, unloading, and facility transfers, etc.);"

It is recommended that personnel who conduct POL loading, unloading and transfers follow minimum discharge prevention measures. Procedures include proper use of hoses equipped with cam-lock quick connects and spill buckets to capture drips or leaks from the transfer hose. While some fuel delivery vehicles do not utilize the "Scully Single Point Overfill Prevention Controls" for delivery, they are equipped with a "dead man" control to transfer fuel to various containers. The "dead man" switch must be held and squeezed for fuel to flow. In the event of an emergency, the operator releases the "dead man" and the fuel flow stops.

All transporters of POL to and from Fort Knox must meet the minimum requirements and regulations established by the United Stated Department of Transportation (DOT). Loading and unloading of hazardous materials at this facility (fuels), as defined in 49 CFR 172, are to meet the requirements of 49 CFR 177, Subpart B. Transporters who load and/or unload hazardous material at this facility must comply with the following requirements:

- Always provide a qualified person in attendance when a cargo tank is loaded and/or unloaded.
- The attendant must be awake, have an unobstructed view of the cargo tank, and be within 25 feet of the cargo tank throughout the event.

- The attendant must be aware of the nature of the material to be loaded and/or unloaded, trained on the procedures to be followed in emergencies, authorized to move the cargo tank, and have a means to move the cargo tank.
- Manholes and valves must be closed and secured during transfer.
- All loading and unloading areas must be empty of any volume of rainwater or other liquids prior to beginning transfer operation.
- No loading and unloading can take place during extreme weather events to prevent overflow of containment areas during a storm.

The following additional requirements apply when the transporter is loading and unloading materials with flash points below 140 degrees Fahrenheit. These materials meet the DOT definition of a Class 3 flammable liquid. Combustible materials with flash points between 140 and 200 degrees Fahrenheit are not subject to these requirements.

- Unless the engine of the cargo tank motor vehicle is to be used to operate a pump, the engine will not be running during loading and unloading of the material.
- Bonding and grounding procedures for cargo tanks and containers during the transfer of material are to be implemented according to 49 CFR 177.837 (b) and (c). The current process for loading and unloading at Fort Knox meets these requirements.

The following are the minimum procedures for on-site and off-site staff and contractors to follow for handling of fuel. These procedures are to be used to help prevent discharges at Fort Knox.

9.2.1 General Transfer Operations

This section is applicable to all fuel transfer operations. It is recommended that contractors (on- and off-site) transferring POL to ASTs, mobile containers, and USTs are monitored by Fort Knox (or contractor) personnel. Extreme caution is taken to prevent spills from trucks due to faulty connections or hose ruptures.

- Load or unload only in approved areas.
- Establish communications between the pumping and receiving stations.
- Verify that the available volume of the receiving container is greater than the volume of oil to be transferred
- Continuously monitor the entire oil transfer
- Properly close all drainage valves for any secondary containment
- Visually inspect all valves for leakage when transfer is complete
- Exercise extra precautions and diligence for deliveries during rainy weather. Fuel migration rates increase in water-filled ditches and rain saturated-soil, and a reduced spill response time exists to prevent a spill from reaching waterways or sensitive ecological areas.
- Storm drains in the immediate vicinity of the fueling operation should be covered with a flexible mat during fueling operations.
- Spill containment equipment will be readily accessible and prepared for deployment during fueling operations.

- All used sorbent material will be disposed of promptly and should not be allowed to remain on the ground or other surface where it could cause further contamination. Used sorbent material will be drummed and properly disposed in accordance with the FRP.
- Bonding and grounding procedures for tanks trucks and containers during the transfer of material are to be implemented according to 49 CFR 177.837 (b) and (c). The current process for loading and unloading meets these requirements. Additional requirements apply when the transporter is loading and unloading materials with flash points below 140 degrees Fahrenheit. These materials meet the DOT definition of a Class 3 flammable liquid. Combustible materials with flash points from 140 to 200 degrees Fahrenheit are not subject to these requirements.

9.2.2 Tank Truck to Container Transfer Operations (including USTs)

Before Transfer Procedures

- Use a spotter when backing the vehicle.
- Set the parking brake of the vehicle.
- The vehicle will not be left running unless required for transfer operations.
- Validate ullage of the receiving container with the expected delivery amount.
- While extending the hose to the container, do not drag the nozzle or capped hose.
- Ensure the correct container valves are open prior to transfer.
- Extend the nozzle/hose to the fill port/inside spill bucket, where applicable.
- For “Open Port” transfer operations:
  - Do not prop the nozzle in the open position.
- For “Closed Port” transfer operations:
  - Ensure valve/cam-lock fitting is completely locked shut on the fill port.

During Transfer Procedures

- Use the “dead man” switch, if equipped on truck.
- Monitor operation for leaks. Shutdown the operation if leaks are detected.
- Monitor the level gauge.
- Do not fill USTs over 90 percent capacity (Unified Facilities Criteria [UFC] 3-460-1 Chapter 8).
- Do not fill ASTs over 95 percent capacity (UFC 3-460-1 Chapter 8).
- If the level gauge is not visible from the fill port/spill bucket, stop filling, verify ullage and restart the transfer operation.

After Transfer Procedures

- When transfer operations are completed, ensure the nozzle/hose is capped and carried back to the truck. Do not drag the nozzle/capped hose end across the ground.
- Secure capped nozzle/hose in compartment box or hose reel to prevent damage or spills.
- Remove and store bonding cable.
- Closely inspect the lowermost drain and all outlets of the vehicle for discharges; and, if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit.

9.2.3 Hand Pour into Container (Used Cooking Oil / Used Engine Oils) Transfer Operations

Before Transfer Procedures

- Depending on the height of the container, use the appropriate stepladder in accordance with 29 CFR 1910.25(b)(2).
- Validate ullage of the receiving container with the expected amount of oil to be drained.
- Do not fill the used oil container to capacity. Ensure weight of the container is not too heavy to allow for safe transfer while standing on the stepladder.

During Transfer Procedures

- Gradually pour the oil into the used cooking oil container.
- Monitor operation for leaks. Shutdown the operation if leaks are detected.
- Do not fill ASTs over 95 percent capacity (UFC 3-460-1 Chapter 8).
- If the level gauge is not visible from the spill bucket, stop filling, verify ullage, and restart the transfer operation.

After Transfer Procedures

- Secure used cooking oil container cap.

9.2.4 Vacuum Truck from Container (Used Cooking Oil / Used Engine Oils) Transfer Operations

Before Transfer Procedures

- Use a spotter when backing the vehicle.
- Set the parking brake of the vehicle.
- The vehicle will not be left running unless required for transfer operations.
- Validate ullage of the truck with the expected amount to be removed from the used cooking oil container.
- While extending the hose to the container, do not drag the nozzle or capped hose.
- Ensure the correct truck valves are open prior to transfer.
- Extend the nozzle/hose to the fill port/ inside spill bucket, where applicable.
  - For “Open Port” transfer operations:
- Do not prop the nozzle in the open position.
  - For “Closed Port” transfer operations:
- Ensure valve/cam-lock fitting is completely locked shut on fill port

During Transfer Procedures

- Use the “dead man” switch, if equipped on truck.
- Monitor the truck level gauge.
- If the level gauge is not visible from the fill port/spill bucket, stop filling, verify ullage, and restart the transfer operation.
- Monitor operation for leaks. Shutdown the operation if leaks are detected.

After Transfer Procedures

- When transfer operations are completed, ensure the nozzle/hose is capped and carried back to the truck. Do not drag the nozzle/capped hose end across the ground.
- Secure capped nozzle/hose in compartment box or hose reel to prevent damage or spills. If the container is equipped with a spill bucket, drain any residual fuel into the spill bucket before capping the nozzle.
- Closely inspect the lowermost drain and all outlets of the vehicle for discharges; and, if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit.

9.2.5 Tank Truck to and from Aircraft

Before Transfer Procedures

- Pre-position wheel chock and use a spotter when backing toward the aircraft.
- Refueling or defueling of aircraft requires two (2) personnel (fuel truck vehicle operator and aircraft operator). Fire watch person is also required for open port fuel transfers.
- Position fuel truck vehicle for servicing of aircraft.
- Ensure the fuel truck is electrically bonded to aircraft.
- Ensure the fuel nozzle is extended with the cap on, and the aircraft operator removes the cap, when ready to begin fuel transfer.
- The aircraft operator will connect the single point fuel nozzle to the aircraft and will ensure the strainer coupling quick disconnect locking device is properly seated, and that the nozzle is in secure position.

During Transfer Procedures

- The fuel truck vehicle operator will begin the pumping operation, upon direction of aircraft operator, and ensure the pump revolutions per minute (RPM) are slowly increased.
- “Dead man” fuel control must be held, and not propped open.
- Closely monitor the control panel during operation, and do not exceed the recommended nozzle pressure for the aircraft being serviced.
- When defueling an aircraft, to prevent over-riding the high-level shutoff on the fuel truck vehicle, do not exceed the recommended gallons per minute.
- Closely monitor the fuel truck and aircraft for signs of leaks.

After Transfer Procedures

- When transfer operations are completed, ensure the fuel nozzle is capped, and carried back to the truck. Do not drag the nozzle/capped hose end across the ground.
- Secure capped nozzle/hose in compartment box or hose reel to prevent damage or spills. If possible, drain any residual fuel into the spill bucket before capping the nozzle.
- Closely inspect for fuel discharges, the lower most drain and all outlets of the vehicle; and if necessary, ensure that they are tightened, adjusted, or replaced to prevent fuel discharge while in transit.

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SECTION 10

Brittle Fracture Evaluation

"112.7(i): If a field-constructed aboveground container undergoes a repair, alteration, reconstruction, or a change in service that might affect the risk of a discharge or failure due to brittle fracture or other catastrophe, or has discharged oil or failed due to brittle fracture failure or other catastrophe, evaluate the container for risk of discharge or failure due to brittle fracture or other catastrophe, and as necessary, take appropriate action."

There are no field-constructed ASTs at Fort Knox, thus, the brittle fracture requirements of 40 CFR 112.7(i) do not apply. The only containers in place at Fort Knox are shop-constructed ASTs, mobile/portable containers, and OFOE.

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SECTION 11

Conformance with State and Local Applicable Requirements

11.1 State Regulatory Standards

"112.7(j): In addition to the minimal prevention standards listed under this section, include in your Plan a complete discussion of conformance with the applicable requirements and other effective discharge prevention and containment procedures listed in this part or any applicable more stringent State rules, regulations, and guidelines."

The Commonwealth of Kentucky does not have separate AST regulations. Kentucky Revised Statutes (KRS) 224.1-400(11) addresses the reporting requirements for discharges and is more stringent than Federal requirements.

Requirements for USTs are documented in Title 401, Kentucky Administrative Regulations (KAR), and Chapter 42. As USTs are not subject to SPCC requirements, a general overview of the regulations is provided in this section. As the Commonwealth of Kentucky does not have a state promulgated UST program, owners/operators of USTs must adhere to 40 CFR 280 and Title 401, KAR, Chapter 42.

11.1.1 Spill Reporting

For discharges into the environment (or into secondary containment), the following must be immediately reported, once observed, to the KDEP ERB (800-928-2380 or 502-564-2380):

- 25 gallons or more of petroleum or petroleum product in a 24-hour period.
- 75 gallons or more of diesel fuel in a 24-hour period.
- Any amount that creates a visible sheen on surface waters.

The location of the release, material released, and the approximate quantity or concentration of the release must be disclosed when notifying the KDEP ERB. If the primary AST and the secondary containment area are located inside a building that would not reach the outside environment, then the spill is not reportable to the ERB.

11.2 Other Relevant Standards

Table 11-1 is a general list of the primary SOPs, military standards, Army instructions, and applicable industry standard guidance that should be used at Fort Knox. Please note that for industry standards and guidance, not all listed may be required for current equipment and conditions at Fort Knox. This list serves as a reference for DPW and EMD staff that should be considered when addressing container and fuel facility design, inspection, maintenance, and management.

TABLE 11-1: Relevant Military and Industry Standards

Department of Defense	
UFC 3-460-01	UFC: Design: Petroleum Fuel Facilities
UFC 3-460-03	UFC: Operation and Maintenance of Petroleum Systems
UFC 3-570-06	UFC: Operation and Maintenance of Cathodic Protection Systems
Tech Manual 37A12-25-1	Technical Manual Operation and Maintenance Instructions with Illustrated Parts Breakdown: Tank, Trailer Mounted Recoverable Aviation Turbine Fuel: 200, 400, And 600 Gallon
Army Instructions	
AR 200-1	Environmental Quality – Environmental Protection and Enhancement
Fort Knox Compliance Plans & SOPs	
Response Plan	Fort Knox RCRA Contingency Plan
Discharge Prevention and Mitigation	Fort Knox SWGWPPP
Storage Tank Management	POL & HazMat & HazWaste Tank Numbering
API Standards	
API 570	Piping Inspection Code (Inspection, Repair, Alteration, and Rerating of In-Service Piping Systems)
API 653	Tank Inspection, Repair, Alteration, and Reconstruction
API RP 574	Inspection of Piping System Components
API RP 579	Fitness-for-Service
API RP 651	Cathodic Protection of Petroleum ASTs
API RP 652	Lining of Petroleum AST Bottoms
API 912	Installation Instructions for Shop-fabricated Stationary ASTs for Flammable, Combustible Liquids
API 2610	Design, Construction, Operation, Maintenance, and Inspection of Terminal and Tank Facilities
API RP 2350	Overfill Protection for Storage Tanks in Petroleum Facilities
API Bulletin D16	Suggested Procedure for Development of SPCCs
STI Standards	
STI SP001-06	Standard for Inspection of In-Service Shop-Fabricated ASTs for Storage of Combustible and Flammable Liquids

STI SP031	Standard for Repair of Shop-Fabricated Aboveground Tanks for Storage of Flammable, Combustible Liquids
STI F911	Standard for Diked Aboveground Steel Tanks
STI R912	Installation Instructions for Shop Fabricated Stationary Aboveground Storage Tanks for Flammable, Combustible Liquids
STI Publication R931	Double-Wall AST Installation and Testing Instruction
UL Standards	
UL Std. 58	Standard for Steel USTs for Flammable and Combustible Liquids
UL Std. 142	Standard for Steel ASTs for Flammable and Combustible Liquids
UL Std. 1316	Standard for Glass-Fiber-Reinforced Plastic USTs for Petroleum Products
UL Std. 2085	Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids
Other Standards	
NFPA 30	Flammable and Combustible Liquids Code
NFPA 30A	Code for Motor Fuel Dispensing Facilities and Repair Garages
DD Form 1391	Military Construction Project Data
MIL-STD 161-F	Identification Methods for Bulk Petroleum Products Systems Including Hydrocarbon Missile Fuels
MIL Handbook 1022A	Petroleum Fuel Facilities
PEI RP 200	Recommended Practices for Installation of Aboveground Storage Systems for Motor Vehicle Fueling
ASME B 31.3	Process Piping
ASME B31.4	Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia, and Alcohols

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SECTION 12

Other SPCC Requirements

12.1 Container Construction

"112.8(c)(1): You must not use a container for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature."

ASTs and other containers included in this Plan are constructed of steel, concrete, polyethylene, and polyurethane. Most ASTs at Fort Knox are constructed to UL 142 (Steel Aboveground Tanks for Flammable and Combustible Liquids) or UL 2085 (Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids).

In instances where a construction standard cannot be determined, it is recommended that an engineering assessment be conducted to determine if the container meets material and construction criteria for the type of oil stored and conditions of storage. As an alternative, the containers may be replaced with ones of known construction standard.

12.2 Corrosion Protection for Buried, Partially Buried and Bunkered Storage Tanks

"112.8(c)(4): You must protect any completely buried metallic storage tank installed on or after January 10, 1974 from corrosion by coatings or cathodic protection compatible with local soil conditions. You must regularly leak test such completely buried metallic storage tanks."

"112.8(c)(5) Not use partially buried or bunkered metallic tanks for the storage of oil, unless you protect the buried section of the tank from corrosion. You must protect partially buried and bunkered tanks from corrosion by coatings or cathodic protection compatible with local soil conditions.

There are no partially buried or completely buried bare metallic-tanks for the storage of oil in service at Fort Knox. The USTs at AAFES Wilson Road are constructed of fiberglass reinforced plastic.

12.3 Corrosion Protection for Buried Piping

"112.8(d)(1): Provide buried piping that is installed or replaced on or after August 16, 2002, with a protective wrapping and coating. You must also cathodically protect such buried piping installations or otherwise satisfy the corrosion protection standards for piping in part 280 of this chapter or a State program approved under part 281 of this chapter. If a section of buried line is exposed for any reason, you must carefully inspect it for deterioration. If you find corrosion damage, you must undertake additional examination and corrective action as indicated by the magnitude of the damage."

Underground piping in place after August 16, 2002, is required to be wrapped, coated, and cathodically protected according to 40 CFR 280 and 281.

There are two fiberglass reinforced plastic USTs at AAFES Wilson Road. These USTs are equipped with buried, double-walled fiberglass reinforced plastic piping to the fuel dispensing pumps. The USTs are equipped with a Veeder-Root ATG that provides automatic line leak detection. There

are three double-walled ASTs at AAFES West Chaffee Ave. These ASTs are equipped with double-walled fiberglass reinforced plastic piping to the fuel dispensing pumps. These ASTs are equipped with a Veeder-Root ATG that provides automatic line leak detection.

In most instances, piping from external ASTs to internal generators, day tanks, or boilers is single-walled and located inside of short piping runs or channels to the associated equipment. These piping runs and channels provide some corrosion prevention and spill protection. In instances where short runs of single-walled piping travel from ASTs to interior equipment, it must be carefully examined for deterioration when (or if) the subsurface piping becomes exposed. Corrective action shall be taken as indicated by the magnitude of the damage. If the buried piping is replaced, the new piping must be either aboveground or underground and equipped with cathodic protection or encapsulated in casing pipe. Integrity and leak testing of buried piping is conducted at the time of installation, modification, construction, relocation, or replacement in accordance with UFC 3-460-03.

There is no known cathodically protected piping at Fort Knox; however, all piping in contact with soil is either painted, double-walled fiberglass, or enclosed with corrosion-resistant wrappings.

12.4 Heating Coils

"112.8(c)(7) Control leakage through defective internal heating coils by monitoring the steam return and exhaust lines for contamination from internal heating coils that discharge into an open watercourse, or pass the steam return or exhaust lines through a settling tank, skimmer, or other separation or retention system."

No conatiners equipped with internal heating coils exist at Fort Knox.

12.5 Overfill Prevention

"112.8(c)(8): You must engineer or update each container installation in accordance with good engineering practice to avoid discharges. You must provide at least one of the following devices:
(i) High liquid level alarms with an audible or visual signal at a constantly attended operation or surveillance station. In smaller facilities an audible air vent may suffice.
(ii) High liquid level pump cutoff devices set to stop flow at a predetermined container content level.
(iii) Direct audible or code signal communication between the container gauger and the pumping station.
(iv) A fast response system for determining the liquid level of each bulk storage container such as digital computers, telepulse, or direct vision gauges. If you use this alternative, a person must be present to monitor gauges and the overall filling of bulk storage containers.
(v) You must regularly test liquid level sensing devices to ensure proper operation."

As indicated in **Table 2-2**, liquid level sensing devices have been installed to prevent overfills. The following devices are used at Fort Knox:

- ATS Systems
- Automated Fuel Handling Equipment System
- High Level Alarms
- System Shut Off
- Mechanical Level Gauge
- Overfill Prevention Valve

Containers associated with the AAFES Stations are equipped with Veeder-Root systems that allow personnel to monitor liquid levels and alarm systems to prevent overfill. When loading the ASTs and USTs, audible and visual alarms can sound outdoors and inside of the AAFES Station offices. Both AAFES Stations run an automated inventory management system that provide daily tracking of fuel levels in each individual container.

At the Energy Security locations, each bulk storage AST is connected to a Franklin Fueling System that allows personnel to monitor liquid levels and alarm system to prevent overfill. Audible and visual alarms sound outdoors where fueling into the ASTs occurs.

A level gauge device must be installed on all regulated containers, except for low risk ones such as used cooking oil containers, and 55-gallon oil drums, in which the level is easy to see. The level gauge device can be an ATG system, which has an electronic sensor inside the AST that is connected to a remote reading display in an adjacent building, or a quick-read gauge.

If the level gauge is installed in a position such that the level amount is not visible to the person who is controlling the fuel flow into the container, then the facility must implement a 2-person fill procedure with "direct audible or signal communication between the container gauger and the pumping station". This is a fill procedure which requires two people on site: the first person operates the fuel pump, and the second person monitors the level gauge device.

A portable measuring stick may be used to check liquid levels during static (no flow) conditions. However, a measuring stick is not an acceptable method of level gauging, during a high flow rate or pressurized fill process, because it does not meet the 40 CFR 112.8(c)(8)(iv) requirement for a "fast response system" of gauging. Fort Knox personnel and contractors must inspect monthly, and test annually, the liquid level sensing devices and alarms, per manufacturer recommendations.

12.6 Effluent Treatment Facility

"112.8(c)(9): You must observe effluent treatment facilities frequently enough to detect possible system upsets that could cause a discharge as described in §112.1(b)."

There is one wastewater treatment facility at Fort Knox. It is operated and staffed by Hardin County Water District No. 1 personnel. In the event of a discharge that may reach wastewater sewer lines, notification to the wastewater treatment plant (WWTP) should follow procedures outlined in **Section 4.1**.

Effluent is monitored at OWSs for oil and grease limits, as well as other pollutant limitations. OWS are monitored on a regular basis by personnel from DPW as well as the using organization. Operational personnel are trained and instructed to notify the EMD if unsatisfactory conditions in OWSs are observed.

Fort Knox's Kentucky Pollutant Discharge Elimination System (KPDES) stormwater permit requires quarterly sampling of outfalls. High-risk outfalls are inspected for signs of petroleum contamination (e.g., odor, sheen) at time of sampling or whenever receiving waters could be impacted by an illicit discharge. Damaged or leading valves, bolts, or other components must be

repaired as soon as possible to prevent a spill or a discharge to navigable waters. If observed, oil is promptly removed and disposed of in accordance with local procedures.

12.7 Terminal Connections

"112.8(d)(2): Cap or blank-flange the terminal connection at the transfer point and mark it as to origin when piping is not in service or is in standby service for an extended time."

Any piping associated with bulk fuel storage that is removed for inspection or is in standby status, is capped or blank-flanged and marked in accordance with UFC 3-460-03, Section 1, or physically removed from the fuel system altogether. Small-diameter piping systems are also capped when not in service or in standby status.

12.8 Pipe Supports

"112.8(d)(3): Properly design pipe supports to minimize abrasion and corrosion and allow for expansion and contraction."

Based on visual inspections only, the majority of the pipe supports at Fort Knox appear to have been designed and constructed in accordance with good engineering practice as outlined in UFC 3-460-01, Chapter 9, as well as American National Standards Institute (ANSI)/Manufacturers Standardization Society SP-58 (2009). All pipe supports must be designed in a manner that minimizes the potential for abrasion and corrosion and allows for expansion and contraction of the piping while providing for adequate support during operations, including the potential for vibration and hammer effects. Proper materials must also be used for pipe supports. Examples of poor or inadequate pipe supports would include:

- Wooden blocks
- Broken supports or anchors
- Supports that do not allow for pipe movement
- Supports that trap moisture against the pipe leading to corrosion
- Improper spacing

12.9 Vehicle Warning

"112.8(d)(5): Warn all vehicles entering the facility to be sure that no vehicle will endanger aboveground piping or other oil transfer operations."

Aboveground fuel piping is protected from vehicular collision or damage through a variety of methods. Fencing, secured areas, concrete posts (bollards), secondary containment, and distance from traffic areas are all employed to protect aboveground piping at all site operations.

Roads, parking areas, and driveways are clearly marked to control vehicular traffic in and around these spill risk areas. Base security regularly enforces site specific traffic regulations to ensure compliance with warning signs.

12.10 Facility Drainage: Design and Equipment

"112.8(b)(3): Design facility drainage systems from undiked areas with a potential for a discharge (such as where piping is located outside containment walls or where tank truck discharges may occur outside the loading rack) to flow into ponds, lagoons, or catchment basins designed to retain oil or return it to the facility. You must not locate catchment basins in areas subject to periodic flooding."

"112.8(b)(4): If facility drainage is not engineered as in 112.8(b)(3), equip the final discharge of all ditches inside the facility with a diversion system that would, in the event of an uncontrolled discharge, retain oil in the facility."

The GRI, 40 CFR 112.8(b)(3), and 112.8(b)(4), specifies performance requirements for systems used to drain undiked areas with the potential for a discharge. These two provisions apply only when the Fort Knox chooses to use a facility wide drainage system to meet general secondary containment requirements under §112.7(c) or a more specific requirement under §112.8(c).

For the containers included in this Plan, Fort Knox has chosen to meet the applicable secondary containment requirements under 40 CFR 112.7(c) and 40 CFR 112.8(c) as discussed in previous sections of this Plan. Therefore, as discussed in the GRI excerpt previously noted, sections 40 CFR 112.8(b)(3) and 40 CFR 112.8(b)(4) do not apply to the containers included in this Plan.

If there is a discharge from any piping system or fuel transfer area, which is located outside of containment walls or berms, then active discharge response controls are required, and must be implemented in accordance **Section 4.1** and Fort Knox's RCRA Contingency Plan.

12.11 Facility Drainage: Pump Transfer

"112.8(b)(5): Where drainage waters are treated in more than one treatment unit and such treatment is continuous, and pump transfer is needed, provide two "lift" pumps and permanently install at least one of the pumps. Whatever techniques you use, you must engineer facility drainage systems to prevent a discharge as described in §112.1(b) in case there is an equipment failure or human error at the facility."

The requirements of 112.8(b)(5) are not applicable to the containers included in this Plan because drainage system treatment units are not used to treat drainage area stormwater.

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