

CHAPTER 7

ABOVEGROUND STORAGE TANK MANAGEMENT PROCEDURE

1. PURPOSE

This procedure establishes the requirements for the management of aboveground storage tank (AST) systems at Fort Greely Alaska (FGA). Tanks are used to store petroleum, oil, lubricants and hazardous materials. This procedure assures that AST management will be conducted in compliance with federal, state and U.S. Army Regulation.

2. SCOPE

This procedure applies to all aboveground storage tanks at FGA with the exception of tanks owned and operated by Doyon Utilities. AST management includes inspections, maintenance, leak detection, spill and overfill prevention, corrosion protection, and construction and modification of tanks. Aboveground storage tanks are defined in this procedure as:

- a. Stationary containers greater than 55 gallons.
- b. Mobile fueling sources greater than 120 gallons.
- c. Stationary Oil Filled Equipment greater than 55 gallons.
- d. All associated piping, secondary containment, and ancillary equipment.

Fifty-five gallon or less containers as well as mobile fueling sources 120 gallons or less are not managed by this procedure see (*FGA SOP Chapter 2, Hazardous Materials and Waste Management Procedure*).

3. RESPONSIBILITIES

a. Garrison Commander

The Garrison Commander is the responsible official for environmental compliance at Fort Greely and provides overall policy and guidance associated with environmental compliance. The Commander will consult regularly with FGA ENV to ensure the installation's environmental policies and procedures are consistent with federal, state and Army requirements and are properly implemented. The Commander will consult regularly with all installation tenant organizations and directorates to facilitate resolution of conflicts regarding environmental matters that cannot be resolved at lower levels.

b. FGA Environmental Office (FGA ENV)

The FGA Environmental Office, part of the Fort Greely Directorate of Public Works, is responsible for establishing environmental procedures that apply to all activities conducted at Fort Greely. The FGA ENV:

- (1) Oversees tank management operations for environmental compliance.
- (2) Submits all required reports and documents to regulatory agencies and serves as FGA's primary point of contact on environmental compliance.
- (3) Advises the garrison, tenants and contractors of environmental requirements and provides assistance achieving compliance.
- (4) Provides annual tank management training.
- (5) Maintains this procedure, the Spill Prevention Response Plan, and the FGA tank inventory (***FGA FORM OSC-1 Aboveground Storage Tank Inventory***).
- (6) Coordinates the internal and external tank, pipeline and cathodic protection system inspections and testing. (The Defense Logistics Agency - Energy (DLA-E) will schedule inspections and testing for tank systems at the FGA Bulk Fuel facility and the AAAF Refueling facility)
- (7) Provides tank operators an authorization letter for the establishment of an AST once a designation letter has been received from tank operators listing a primary and alternate POC responsible for tank management.

c. All Tenants, Contractors and Directorates

Tenants, Contractors and Directorates will designate aboveground tank operators that are responsible for meeting the requirements of this procedure for all aboveground tank systems that are under their control. Tenants, Contractors and Directorates are required to provide FGA ENV with a designation letter identifying a primary and alternate POC who will be responsible for the tank inspections. ***FGA FORM OSC-1 Aboveground Storage Tank Inventory*** provides a list for all aboveground tank systems location, size, and responsible agent. Doyon Utilities is exempt from the requirements of this procedure for those ASTs they own and operate.

4. SPILL NOTIFICATION AND RESPONSE

If a spill from a tank is discovered or suspected, the operator will immediately provide verbal notification to the FGA Emergency Dispatch at (907) 873-3473 (911 for on-base lines) and conduct response activities according to (***FGA SOP Chapter 5, Spill Prevention and Response Procedure***).

5. SECONDARY CONTAINMENT

- a. Secondary containment will be present on all ASTs with the exception of stationary Oil Filled Equipment where impractical. Stationary Oil Filled Equipment without secondary containment will be visually inspected at a monthly frequency.
- b. Weekly inspections of secondary containment are required for all ASTs equal to or greater than 10,000 gallons.
- c. Secondary containment to include fuel loading/off-loading stands must be constructed with a volume of containment greater than or equal to 110% of the largest tanker discharge amount and sufficient freeboard to account for precipitation

6. INSPECTION AND TESTING

- a. *Tank operators must conduct monthly tank inspections of all ASTs using **FGA FORM OSC-2 Storage Tank Monthly Inspection Form** (an inspection is not required for a tank that is permanently out of service). Copies of completed inspection forms must be sent quarterly (Jan-Mar, Apr-Jun, Jul-Sept, Oct-Dec) to the FGA Environmental Office no later than the 10th of the following month. (Example: July-Sept. inspections to be submitted no later than the 10th of October)*
- b. *As required, FGA ENV will ensure that formal external inspections, internal integrity testing and piping inspections are conducted by an certified inspector according to the schedule on **FGA FORM OSC-1 Aboveground Storage Tank Inventory**.*
 - (1) *For all ASTs except AST 420, formal inspections will occur in accordance with the Steel Tank Institute's Standard for the Inspection of Aboveground Storage Tanks, SP001, September 2011, 5th Edition.*
 - (2) *For AST 420, formal inspection will occur in accordance with the American Petroleum Institute's Standard for Tank Inspection, Repair, Alteration and Reconstruction, API 653, January 2012, 4th Edition.*
 - (3) *All piping will be inspected in accordance with the American Petroleum Institute's Standard for In-Service Inspection, Rating, Repair and Alteration of Piping Systems, API 570, November 2009, 3rd Edition.*
- c. For tanks and piping systems in direct contact with the ground that have impressed current cathodic protection system, rectifier readings must be recorded monthly by the operator on the inspection record

and tested annually by an ADEC certified tester.

- d. Secondary containment areas are required to be inspected for the presence or absence of an oily sheen prior to dewatering. If an oily sheen is present, the operator will coordinate with FGA ENV for remediation prior to dewatering. Before dewatering, the operator will make a record of the date, start/stop time, total volume and a presence or absence of an oily sheen on ***FGA FORM OSC-6 Secondary Containment Dewatering log.***

7. OPERATIONS, MAINTENANCE AND REPAIR

- a. Operators must ensure that the drain valves permitting direct outward flow of the container's contents have adequate security measures (locks, controlled access) so that they remain in the closed position when not in use.
- b. Operators will label tanks with contents and place “No Smoking”, “Authorized Personnel Only” and the ***FGA SIGN OSC-3 Spill Reporting*** on or near the aboveground tank system and replace faded or illegible signs. Tanks that are empty must be labeled “EMPTY”.
- c. Tank operators will obtain accurate records of all repairs for the entire life-cycle of all tanks greater than or equal to 10,000 gallons. Records will be provided to FGA ENV following repairs.
- d. Tank operators must coordinate all tank system repairs, beyond preventative maintenance, with the FGA ENV to ensure the repairs will take precautions to prevent a release and retrofits will meet regulatory and Army requirements.
- e. Metal pipe sections and fittings that have leaked as a result of corrosion or other damage must be reported and replaced.

8. FILLING OR OFF-LOADING

- a. Operators will ensure tank level is tested before filling to make certain adequate capacity exists.
- b. The operator or refueler must check all fittings before filling or off-loading tanks. Vents must be checked for icing that would prevent proper ventilation.
- c. The operator or designated refueler will monitor transfer operations to ensure that:
 - (1) A release due to spilling or overfilling does not occur;
 - (2) The transfer operation is constantly monitored to prevent overfilling or spilling; and
 - (3) Any spill or overfill is reported immediately to dispatch. (873-3473)
- d. To prevent spilling and overfilling during transfer operations, the operator will use the following spill and overfill prevention equipment:

- (1) Overflow prevention equipment, such as a spill catchment basin, that will prevent release of product to the environment when the transfer hose is detached from the fill pipe; and
 - (2) Overfill prevention equipment that will automatically shut off flow into the tank when the tank is no more than 95 percent full; or alert the transfer operator when the tank is no more than 90 percent full by restricting the flow into the tank or by triggering a high-level alarm.
- e. After filling or off-loading fuel, the fueler or operator will cap all truck manifolds.
 - f. Mobile refuelers that are parked with fuel overnight and not in operation must be stored in an adequate secondary containment area.
 - g. Mobile refuelers require an adequate spill kit on board as well as spill containment basins

9. TANK CONSTRUCTION, MODIFICATION, CHANGE IN SERVICE AND CLOSURE

- a. All tank construction, modification and closure must be preapproved by the FGA ENV in writing. Also, if a tank is taken out of service for more than three months, the FGA ENV must be notified.
- b. New tanks installed at Ft. Greely that are less than 10,000 gallons must meet the following requirements:
 - (1) New tanks will be aboveground, unless conditions exist that make aboveground construction impractical or cost prohibitive.
 - (2) Tanks must be constructed to prevent a release caused by corrosion or structural failure for the operational life of the system.
 - (3) Tanks must have a means of secondary containment. (To the extent economically and technically feasible, new tanks should be self-diked.)
 - (4) Cathodic protection must be installed to protect tank bottom if installed tank is in direct contact with the soil (To the extent economically and technically feasible, new tanks should be on skids or similar and avoid contact with the soil).
 - (5) Each tank must be constructed or updated with at least one of the following four methods to avoid overflow discharges: high liquid level alarm, either audible or visual; high liquid level pump cutoff/shutoff device; ability for direct audible communication between the tank gauger and the product pumper; or a fast response system for determining the liquid level.
 - (6) Piping should be aboveground to the extent possible to allow visual leak detection. If buried piping is necessary, it must be of all-welded construction and protected from corrosion by a cathodic protection system or a non-corroding double wall pipe.
 - (7) Aboveground piping supports must be designed to be seismically stable and composed of materials to minimize corrosion and prevent chafing and allow for expansion and contraction.

- (8) Aboveground piping must be protected from damage by vehicles.
- c. In addition to the requirements above, new tanks installed at FGA that are greater than or equal to 10,000 gallons must additionally meet the following requirements:
- (1) Each tank must have an automated leak detection system that an observer from outside the tank can use to detect leaks in the tank.
 - (2) Each tank must have an overfill prevention system which can be a high level alarm to signal personnel conducting a transfer or a high level automatic pump shutoff device to stop flow at a predetermined tank content level or both.
 - (3) Fuel spills from overflow must be directed to the tank's interstitial space or secondary containment structure.
 - (4) Fuel cannot be added to the tank until the tank has been added to the FGA Spill Prevention and Response Plan and approved by the ADEC.
 - (5) Field built tanks must be constructed and installed using:
 - a. the American Petroleum Institute's *Welded Steel Tanks for Oil Storage*, Eighth Edition, 1988 (API 650), *Specification for Field Welded Tanks for Storage of Production Liquids*, Ninth Edition, 1989 (API Spec 12D), adopted by reference; *Specification for Shop Welded Tanks for Storage of Production Liquids*, 10th Edition, 1989 (API Spec 12F), adopted by reference; or
 - b. *Specification for Fiberglass Reinforced Tanks*, First Edition, 1986 (API Spec 12P), adopted by reference.
 - (6) Shop built tanks, piping, and related equipment must be properly designed and constructed using one of the following standards:
 - a. Underwriters Laboratories' *Steel Aboveground Tanks for Flammable and Combustible Liquids*, Eighth Edition, dated July 11, 2002 (UL 142), adopted by reference;
 - b. Appendix J of the American Petroleum Institute's *Welded Steel Tanks for Oil Storage*, 10th Edition, November 1998, Addendum 1, January 2000, Addendum 2, November 2001, and Addendum 3, September 2003 (API 650), adopted by reference;
 - c. American Petroleum Institute's *Specification for Shop Welded Tanks for Storage of production Liquids*, 11th Edition, November 1994 (API Spec 12F), adopted by reference;
 - d. Steel Tank Institute's *Standard for Aboveground Tanks with Integral Secondary Containment*, revised as of October 21, 2004 (STI F921-03), adopted by reference;
 - e. Underwriters Laboratories' *Protected Aboveground Tanks for Flammable and Combustible Liquids*, Second Edition, revised as of December 1, 1999 (UL 2085), adopted by reference.
 - (7) Installation will not occur within 100 feet of a potable drinking water well.

- (8) If a tank is temporarily closed for three months or longer, FGA operators will leave vent lines open and functioning; and cap and secure all other lines, pumps, manways, and ancillary equipment. Piping must be emptied of liquid content either by draining or by inert gas pressure. Empty tanks will have stickers or placards applied indicating that the tank is empty.
- (9) Facility lighting is required to discover discharges occurring during hours of darkness.

10. RECORD KEEPING

- a. Operators will keep detailed records on site for as long as the tank is used. If a tank is closed, the operator will transfer all records to the FGA ENV. Records include:
 - (1) Completed monthly inspection forms (***FGA FORM OSC-2 Storage Tank Monthly Inspection Form***). Completed forms will be supplied quarterly to FGA ENV to be added to the FGA ENV document and records control system.
 - (2) Readings and testing of cathodic protection systems.
 - (3) Leak detection instrumentation manuals.
 - (4) Written documentation of calibration, maintenance, repair and weekly recordings of release detection equipment must be kept for at least 5 years.
 - (5) Records of dewatering secondary containments to include loading/offloading areas. Completed forms (***FGA FORM OSC-6 Secondary Containment Dewatering log***) will be supplied quarterly to FGA ENV.
- b. FGA ENV will keep the following records for as long as the tank is used plus three years:
 - (1) Information about any suspected or confirmed release and corrective actions.
 - (2) Copies of ADEC spill reports.
 - (3) External and internal monthly tank inspections (***FGA FORM OSC-2 Storage Tank Monthly Inspection Form***).
 - (4) Closure and corrective action reports.
 - (5) Records of tank repairs.
 - (6) Secondary containment dewatering record (***FGA FORM OSC-6 Secondary Containment Dewatering log***).

11. REPORTING

- a. Spill / Emergency Reporting – FGA ENV will notify appropriate organizations of any release

according to the requirements of the (*FGA SOP Chapter 5- Spill Prevention and Response Procedure*) and the FGA Spill Prevention and Response Plan.

- b. FGA ENV will notify the ADEC before constructing or modifying any tank 10,000 gallons or greater and revise the Spill Prevention and Response Plan prior to constructing or modifying any such tank.
- c. Any alarms on leak detection or other equipment associated with an AST will be immediately reported to FGA ENV.

12. TRAINING

All tank operators must annually attend tank training on:

- a. The requirements of this procedure;
- b. The operation and maintenance of tank equipment to prevent discharges;
- c. Discharge procedure protocols;
- d. Applicable pollution control laws, rules, and regulations;
- e. General facility operations;
- f. Spill response and notification procedures.
- g. The contents of the FGA Spill Prevention Response Plan; and
- h. Known discharges or failures, malfunctioning components, and any recently developed precautionary measures.

13. REFERENCES

- a. 18 AAC 75 Alaska Standards for ASTs
- b. 40 CFR 112 Oil Pollution Prevention and Response (SPCC regulations)
- c. AR 200-1 Army Environmental Protection and Enhancement
- d. FGA Spill Prevention and Response Plan

14. APPROVAL

This procedure (FGA SOP Chapter 7- Aboveground Storage Tank Management Procedure) is hereby approved. All previous versions of this chapter are superseded and are no longer in effect.



Christine Boerst, Director
Directorate of Public Works



Date

FT.GREELY ABOVEGROUND STORAGE TANK INVENTORY

For use of this form, see FGA SOP Chapter 7 AST Procedure; the proponent is DPW-ENV

Building No.	Tank No.	Capacity (gallons)	Contents	Secondary Containment	Year Installed	Upcoming External STI/API Inspect. Year	Upcoming Internal API Inspect. Year	API 570 Piping Insp. Yr.
Main Post and Allen Army Airfield								
423	423	20,000	JP-4	Yes	2008	2028 (STI)		
424	424	20,000	JP-4	Yes	2008	2028 (STI)		
101	101	150	Diesel	Yes				
102	406A	2,500	Diesel	Yes	2002			
133	2040	500	Fuel Oil	Yes	1996			
140	2039	500	Heating Oil	Yes	1995	*	*	
319	2016	500	Heating Oil	Yes	1995	*	*	
320	423	500	Heating Oil	Yes	1989	*	*	
339	2037	1,000	Heating Oil	Yes	1991	*	*	
340	2036	1,000	Heating Oil	Yes	1995	*	*	
347	347	1,000	Heating Oil	Yes	2001	*	*	
350	2014	1,000	Heating Oil	Yes	1992	*	*	
361	2012	1,000	Heating Oil	Yes	1995	*	*	
500		1,000	Propane	Yes	2011			
512	2010	1,000	Heating Oil	Yes	1992	*	*	
514	514	1,000	Diesel	Yes	1994	*	*	
557	557	1,000	Heating Oil	Yes	2004	*	*	
606	606 a-e	5@250 ea	Diesel	Yes				
615	2005	500	Gasoline	Yes	1995	*	*	
615	2006	500	Diesel	Yes	1995	*	*	
618	420	630,000	Diesel	Yes	1954	2015 (API)	2015 (API)	2008
618	422/620	12,000	Diesel	Yes	2004	2024 (STI)		
618	421/621	12,000	Gasoline	Yes	2004	2024 (STI)		
636	636	1,000	Heating Oil	Yes	2005			
637	637	1,000	Heating Oil	Yes		*	*	
643	643	1,000	Heating Oil	Yes	2004	*	*	
649	2050	300	Diesel	Yes	2000	*	*	
725	2004	500	Heating Oil	Yes	1990	*	*	
DCO	DCO	1,000	Heating Oil	Yes	2005			
Missile Defense Complex								
3106	IPP1	30,000	DFA	Yes	2004	2024		
3106	IPP2	30,000	DFA	Yes	2004	2024		
3106	IPP3	1,500	DFA	Yes	2004	*	*	
3001	3001A	3,963	DFA	Yes	2002	*	*	
3001	3001B	1,000	DFA	Yes	2002	*	*	
3102	3102	1,500	DFA	Yes	2002	*	*	
3102	3916	30,000	DFA	Yes	2005	2025		
3102	3917	30,000	DFA	Yes	2004	2024		
3102	3918	30,000	DFA	Yes	2004	2024		
3105	3105A	2,642	DFA	Yes	2004			
3105	3105B	1,000	DFA	Yes	2004			
3110	3110A	2,245	DFA	Yes	2002			
3110	3110B	800	DFA	Yes	2002			

FT.GREELY ABOVEGROUND STORAGE TANK INVENTORY

For use of this form, see FGA SOP Chapter 7 AST Procedure; the proponent is DPW-ENV

3201	3201A	1,321	DFA	Yes	2002			
3201	3201B	800	DFA	Yes	2002			
3301	3301	9,000	DFA	Yes	2004	2024		
3301	3301A	700	DFA	Yes	2004			
3401	3401A	660	DFA	Yes	2002			
3401	3401B	150	DFA	Yes	2002			
3601	3601A	3,963	DFA	Yes	2002			
3601	3601B	1,000	DFA	Yes	2002			
3107	3950	30,000	DFA	Yes	2009	2029		
3107	3951	30,000	DFA	Yes	2009	2029		
3107	3107 a-f	6@279 ea	DFA	Yes	2009			

TANKS <= 1,000 GALLONS ARE EXTERNALLY INSPECTED WEEKLY. INTERNAL INSPECTION IS ONLY REQUIRED WHEN THE EXTERNAL INSPECTION REVEALS METAL CORROSION GREATER THAN 0.1 IN. DEEP.

FORT GREELY STORAGE TANK MONTHLY INSPECTION FORM

For use of this form, see FGA SOP Chapter 7 AST Procedure; the proponent is DPW-ENV

TANK No. _____ YEAR 20_____

<input type="checkbox"/> 1 st JAN/FEB/MAR	<input type="checkbox"/> 2 nd APR/MAY/JUN	<input type="checkbox"/> 3 rd JUL/AUG/SEP	<input type="checkbox"/> 4 th OCT/NOV/DEC	
Column 1/2/3 must be documented Y or N or N/A				
Inspected Condition	1 Y/N/NA	2 Y/N/NA	3 Y/N/NA	Comments
ALL ABOVEGROUND TANKS				
Area around tank clean/free of debris				
Fire extinguishers available & charged				
No smoking signs posted				
No visible leaks, weeping or drips from tanks, valves, piping, or hoses				
No corrosion > 0.1" (~as thick as a quarter's edge) on tank or piping				
Tank sign with contents visible				
Test leak detection equipment operation				
Vents clear				
Lights functioning				
Tank fill valve capped when not in use and in closed position				
Piping supports in good condition				
Pipe wrapping or coating/paint in good condition				
Test all tank devices (overfill alarm, high level shut off, liquid level sensing, etc.)				
Spill response materials available				
Dispenser hoses & nozzles in good condition				
Cathodic protection sacrificial metals sufficient				
Cathodic protection system operating				
High level alarm operating				
Security: all lockable valves must be locked				
Overfill spill containment available				
Ladders and platforms secured and in good repair				
ABOVEGROUND STORAGE TANKS WITH EXTERNAL SECONDARY CONTAINMENT				
Containment in good condition				
Containment area free of water & oil (Record here if water removed)				
Valves used for emptying secondary containment secured				
No weeds/debris in containment area				
DOUBLED WALLED ABOVEGROUND STORAGE TANKS				
Interstitial space free of liquid				
Interstitial monitor operating				
STORAGE TANKS WITH TRUCK LOADING/OFFLOADING AREAS				
No accumulated debris present				
No excessive water present				
No potential interfering conditions				
INSPECTOR:				
DATE:				

REPORT ALL Oil and Hazardous Material Spills

Immediately contact the Fort Greely Fire Department
873-FIRE (3473)
to report spills or discoveries of contamination

When reporting please provide as much information you can, including:

Your name

Time of spill or discovery

Location of spill or discovery

Nature of spill or discovery

Form approved by the Alaska Department of Environmental Conservation

