

Chapter 8: Aboveground Storage Tank Management

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 tank storage will be conducted in compliance with federal, state and U.S. Army requirements.

2. Scope

This procedure applies to all aboveground storage tanks at FGA to include inspections, maintenance, leak detection, spill and overfill prevention, corrosion protection, and construction and modification of tanks. The requirements of this procedure apply to aboveground tanks and containers ≥ 55 gallons (including mobile fueling sources) and to associated piping, secondary containment, and ancillary equipment. Fifty-five gallon drums have been added to this procedure to make it consistent with the U.S. EPA's Spill Prevention, Control, and Countermeasure regulations which defines bulk storage containers (tanks) as containers ≥ 55 gallons. This procedure does not apply to the operational use of fluids (hydraulic systems, lubricating systems, gear boxes, machining coolant systems, heat transfer systems, transformers, circuit breakers, electrical switches, other systems containing oil solely to enable the operation of the device) and vehicle fuel tanks.

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 departments and 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 FGA. 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 (Attachment 1).
- (6) Coordinates the internal and external tank, pipeline and cathodic protection system inspections and testing. (The DESC will schedule inspections and testing for tank systems within the FGA Bulk Fuel Farm)

c. Installation Management Command (IMCOM) – Pacific

The IMCOM - Pacific oversees environmental management and compliance activities at FGA and provides resources for environmental program implementation. The IMCOM - Pacific ensures Fort Greely's environmental program conforms to DoD and Army requirements and provides policy and programmatic guidance to FGA-ENV.

d. FGA Directorates, Tenants and Contractors

FGA directorates, tenants and contractors 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. A listing of responsible directorates, tenants and contractors for each aboveground tank system is provided in Attachment 1. Directorates, tenants and contractors are responsible to provide adequate funding to operate and maintain aboveground fuel storage tank equipment in accordance with this procedure.

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 Fire Department at (907) 873-3473 (911 for on-base lines) and conduct response activities according to Chapter 5 of the FGA Environmental Procedures Manual.

5. Inspection and Testing

- (1) Tank operators must conduct weekly tank inspections of all tanks \geq 100 gallons using the inspection form in Attachment 2 (an inspection is not required for a tank that is permanently out of service). Copies of completed inspection forms should be regularly sent to the FGA Environmental Office.
- (2) Small bulk oil storage containers (55 gallons to 100 gallons) must be inspected monthly using the inspection form in Attachment 3. Copies of the completed inspection forms should be regularly sent to the FGA Environmental Office.
- (3) FGA ENV will ensure that external inspections, internal integrity testing and piping inspections are conducted by an Alaska Department of Environmental Conservation (ADEC) certified inspector according to the schedule in Attachment 1.
- (4) For tanks in direct contact with the ground that have impressed current cathodic protection system, rectifier readings must be recorded monthly by the operator and tested annually by an ADEC certified tester.

6. Operations, Maintenance and Repair

- (1) 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.
- (2) Operators will label tanks with contents and place "No Smoking", "Authorized Personnel Only" and the ADEC-approved spill reporting sign (Attachment 4) on or near the aboveground tank system and replace faded or illegible signs.
- (3) 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.
- (4) Metal pipe sections and fittings that have leaked as a result of corrosion or other damage must be replaced.

7. Filling or Off-loading

- (1) Operators will ensure tank level is tested before filling to make certain adequate capacity exists.
- (2) 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.

- (3) The operator or designated refueler will monitor transfer operations to ensure that:
 - (a) A release due to spilling or overfilling does not occur;
 - (b) The volume available in the tank is greater than the volume of petroleum to be transferred to the tank before the transfer is made;
 - (c) The transfer operation is constantly monitored to prevent overfilling or spilling; and
 - (d) Any spill or overfill is reported immediately.
- (4) To prevent spilling and overfilling during transfer operations, the operator will use the following spill and overfill prevention equipment:
 - (a) Spill prevention equipment, such as a spill catchment basin, that will prevent release of the petroleum to the environment when the transfer hose is detached from the fill pipe; and
 - (b) 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.
- (5) After filling or off-loading fuel, the fueler or operator will cap all truck manifolds.
- (6) Refuelers that are stored at Ft. Greely with fuel must be parked in a containment area.
- (7) Loading/unloading stands must be constructed with a volume of containment greater than or equal to the largest tanker fuel compartment.

8. Tank Construction, Modification, Change in Service and Closure

- (1) All tank construction, modification and closure must be preapproved by the FGA ENV. Also, if a tank is taken out of service for more than three months, the FGA ENV must be notified.
- (2) New tanks installed at Ft. Greely that are <10k gallons must meet the following requirements:
 - (a) New tanks will be aboveground, unless conditions exist that make aboveground construction impractical or cost prohibitive.
 - (b) Tanks must be constructed to prevent a release caused by corrosion or structural failure for the operational life of the system.
 - (c) Tanks must have a means of secondary containment. (To the extent economically and technically feasible, new tanks should be of double walled

- construction.)
- (d) Cathodic protection must be installed to protect tank bottom if installed on the soil.
 - (e) Each tank must be constructed with at least one of the following devices to avoid discharges: high level alarm, high level pump cutoff device, direct audible communication between the container gauger and the pumper, and/or a fast response system for determining the liquid level.
 - (f) Facility lighting is necessary if needed to discover discharges occurring during hours of darkness.
 - (g) Piping should be aboveground to the extent possible to allow visual leak detection. If buried piping is necessary, it must be off all welded construction and protected from corrosion by a cathodic protection system.
 - (h) 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.
 - (i) Aboveground piping must be protected from damage by vehicles.
- (3) In addition to the requirements above, new tanks installed at Ft. Greely that are $\geq 10k$ gallons must additionally meet the following requirements:
- (a) Each tank must have a leak detection system that an observer from outside the tank can use to detect leaks in the bottom of the tank.
 - (b) 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.
 - (c) Fuel spills from overfilling must be directed to the tank's interstitial space or secondary containment structure.
 - (d) Fuel can not be added to the tank until the tank has been added to the Ft. Greely Spill Prevention and Response Plan and approved by the ADEC.
 - (e) Field built tanks must be constructed and installed using:
 - (1) 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
 - (2) *Specification for Fiberglass Reinforced Tanks*, First Edition, 1986 (API Spec 12P), adopted by reference; or

- (f) Shop built tanks, piping, and related equipment must be properly designed and constructed using one of the following standards:
 - (1) Underwriters Laboratories' *Steel Aboveground Tanks for Flammable and Combustible Liquids*, Eighth Edition, dated July 11, 2002 (UL 142), adopted by reference;
 - (2) 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;
 - (3) American Petroleum Institute's *Specification for Shop Welded Tanks for Storage of Production Liquids*, 11th Edition, November 1994 (API Spec 12F), adopted by reference;
 - (4) Steel Tank Institute's *Standard for Aboveground Tanks with Integral Secondary Containment*, revised as of October 21, 2004 (STI F921-03), adopted by reference;
 - (5) Underwriters Laboratories' *Protected Aboveground Tanks for Flammable and Combustible Liquids*, Second Edition, revised as of December 1, 1999 (UL 2085), adopted by reference.
- (4) Installation will not occur within 100 feet of a potable drinking water well.
- (5) Operators must notify the FGA ENV when new oil drum storage locations are established.
- (6) 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.

9. Record Keeping

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 weekly inspection forms (monthly inspection forms for less than 100 gallon bulk storage containers).
- (2) Documentation of operation of corrosion protection.
- (3) Documentation of upgrades and repairs.
- (4) Proof of compliance with applicable release detection.
- (5) Leak detection manuals.

- (6) Written documentation of calibration, maintenance, and repair of release detection equipment.
- (7) Schedules of required calibration and maintenance provided by the release detection equipment manufacturer must be kept for at least five years.
- (8) Records of operation of the cathodic protection system that are sufficient to demonstrate compliance, including the results of the last three inspections.
- (9) Records of each repair made for the remaining operating life of the system.

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 tank inspection results.
- (4) Closure and corrective action reports.

10. Reporting

- (1) Spill/ Emergency Reporting – FGA ENV will notify ADEC of any release according to the requirements of the Ch 5 Spill Notification and Response Procedure and Spill Prevention and Response Plan.
- (2) FGAENV will notify the ADEC before constructing or modifying any tank 10,000 or greater and revise the Spill Prevention and Response Plan prior to constructing or modifying any of these tanks.

11. Training

All tank operators and POL handlers must attend initial and annual refresher training on:

- (1) The requirements of this procedure;
- (2) The operation and maintenance of equipment to prevent discharges;
- (3) Discharge procedure protocols;
- (4) Applicable pollution control laws, rules, and regulations;
- (5) General facility operations;
- (6) The spill response and notification procedures provided in Chapter 5 of the FGA Environmental Procedures;
- (7) The contents of the facility Spill Prevention Response Plan; and
- (8) Known discharges or failures, malfunctioning components, and any recently developed precautionary measures.

12. 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

FT. GREELY STORAGE TANK INVENTORY
Aboveground Fuel Tank Inventory – Main Post

Building No.	ID	Capacity (gallons)	Contents	Secondary Containment	Year Installed	External Inspect.	Internal Inspect.	Comments
Main Post								
101		150	Diesel			N/A	N/A	
102	406A	2,500	Diesel	Yes	2002	2007	2012	
102	Day	500	Diesel					
133	2040	500	Fuel Oil	Yes	1996	N/A	N/A	
140	2039	500	Heating Oil	Yes	1995	N/A	N/A	
319	2016	500	Heating Oil	Yes	1995	N/A	N/A	
320	423	1,000	Heating Oil	Yes	1989	N/A	N/A	
339	2037	1,000	Heating Oil	Yes	1991	N/A	N/A	
340	2036	1,000	Heating Oil	Yes	1995	N/A	N/A	
347		1,000	Heating Oil	Yes	2001	N/A	N/A	
350	2014	1,000	Heating Oil	Yes	1992	N/A	N/A	
361	2012	1,000	Heating Oil	Yes	1995	N/A	N/A	
501		250	Diesel			N/A	N/A	
507	507	500	Heating Oil	Yes				
512	2010	1,000	Heating Oil	Yes	1992	N/A	N/A	
514		1,000	Diesel	Yes	1994	N/A	N/A	
557		1,000	Heating Oil	Yes	2004	N/A	N/A	
606		5 @ 250 ea	Diesel			N/A	N/A	
615	2005	600	Gasoline	Yes	1995	N/A	N/A	
615	2006	600	Diesel	Yes	1995	N/A	N/A	
618	420	630,000	Diesel	Yes	1954	2012	2005	
618	422	12,000	Diesel	Yes	2004	2009	2014	
618	421	12,000	Gasoline	Yes	2004	2009	2014	
636		1,000	Heating Oil	Yes	2005	N/A	N/A	
640		1,000	Diesel	Yes	2004	N/A	N/A	
643	643	500	Heating Oil	Yes				
649	2050	500	Diesel	Yes	2000	N/A	N/A	
725	2004	500	Heating Oil	Yes	1990	N/A	N/A	
DCO		1,000	Heating Oil	Yes	2005	N/A	N/A	

Aboveground Fuel Tank Inventory – Missile Defense Complex

Missile Defense Complex								
IPP	IPP1	30,000	Diesel	Yes	2004	2009	2014	
IPP	IPP2	30,000	Diesel	Yes	2004	2009	2014	
3001		1,000	Diesel	Yes	2002	N/A	N/A	
3102		1,000	Diesel	Yes	2002	N/A	N/A	
3102	3917	30,000	Diesel	Yes	2003	2008	2013	
3102	3918	30,000	Diesel	Yes	2003	2008	2013	
3102	3920	30,000	Diesel	Yes	2005	2010	2015	
3110		800	Diesel	Yes	2002	N/A	N/A	
3201		800	Diesel	Yes	2002	N/A	N/A	
3301	3301	10,000	Diesel	Yes	2004	2009	2014	
3301		1,000	Diesel	Yes	2004	N/A	N/A	
3301		300	Diesel	Yes	2005	N/A	N/A	Temporary
3401		150	Diesel	Yes	2002	N/A	N/A	
3601		1,000	Diesel	Yes	2002	N/A	N/A	
Bechtel Temp		1,000	Heating Oil	Yes	N/A	N/A		Temporary

Bulk Storage Containers

Building No.	Description	Volume (gallons)	Secondary Containment	Comments
605	POL Dispensing Rack	8 x 60	Yes	
605	Waste Accumulation Oil	1 x 55	Yes	
605	Oil Rack Storage	6 x 55	Yes	
618	Filling Stand Slop Drum	1 x 55	Yes	
Haz Waste Storage (Bldg 636)	Waste Oil	10 x 55	Yes	
615	Waste Oil	2 x 55	Yes	
615	Oil Storage	2 x 55	Yes	
615	POL Dispensing Rack	8 x 60	Yes	
Bectel Construction MDC	POL Dispensing	5 x 55	UNK	

FT. GREELY STORAGE TANK WEEKLY INSPECTION FORM

MONTH _____ 20__

Tank No. _____	Week: _____	1	2	3	4	5	Comments
Condition		Y/N/NA	Y/N/NA	Y/N/NA	Y/N/NA	Y/N/NA	
ALL STORAGE 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							
Piping supports in good condition							
Pipe wrapping or coating 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							
ABOVEGROUND STORAGE TANKS WITH 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							
UNDERGROUND STORAGE TANKS							
Fill pipe catch basin free of liquid							
Sump monitor operating							
OVER FLOW CONTAINMENT TANKS (SLOP) AND FILL STAND CONTAINMENT							
Fill stand secondary containment clear							
Pump house secondary containment clear							
Valves in appropriate position							
Water and/or oil removed from tank or containment							
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