

11.0 Aboveground and Underground Storage Tanks

11.1 Regulatory Overview

11.1.1 Underground Storage Tank Regulations

The Federal regulations have jurisdiction over specific Underground Storage Tanks (USTs) storing regulated substances with volumes greater than 110 gallons [40 C.F.R. § 280]. EPA's UST regulations, published in 1988, are designed to protect the environment by requiring UST owners to reduce the risk of a release by providing methods to detect releases quickly and by providing a program for fast spill cleanup. The Mississippi Department of Environmental Quality (MDEQ) has adopted the Federal UST program and is the administering agency for the USTs at SSC. The NASA Environmental Office strongly recommends double-wall piping for SSC USTs. When Mississippi adopted the Federal program, the State added a certification requirement for tank installers, repairers, and removers.

Once a suspected release is detected, a chain of reporting requirements is initiated, beginning with notification of the implementing agency within 24 hours. These reporting requirements lead the tank's owner through site investigation to eventual spill cleanup. In the event of a release, the procedures used at SSC are contained in the Integrated Contingency Plan [Stennis Policy Guidance (SPG) 4130.3C].

11.1.2 Aboveground Storage Tank Regulations

Federal Spill Prevention, Control and Countermeasure (SPCC) regulations apply to non-transportation related facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, or consuming oil and oil products. These regulations cover facilities that could reasonably be expected to discharge oil in large enough quantities to violate water quality standards or leave a sheen on the navigable waters of the United States or adjoining shorelines (40 C.F.R. § 112). These regulations apply to those aboveground storage tanks (ASTs) with a collective capacity of greater than 1320 gallons and to single containers with a capacity of greater than 660 gallons. Stennis Space Center has a limited number of tanks to which these regulations apply.

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The Federal Oil Pollution Prevention regulations require preparation and implementation of SPCC plans. Under the guidelines for preparation of an SPCC plan, the regulations present minimum requirements for spill prevention, including appropriate containment and diversionary equipment for the protection of navigable waters (40 C.F.R. § 112). Stennis Space Center maintains a SPCC plan as part of the Integrated Contingency Plan (SPG 4130.3C).

11.2 Inventory of Aboveground and Underground Storage Tanks

SSC has several bulk storage tanks, both underground and aboveground. Regulated, unregulated, and mobile ASTs present on site are listed on Tables 11-1, 11-2, and 11-3, respectively. Table 11-4 lists the underground storage tanks (USTs) on site. Figure 11-1 shows the location of the tanks. Of these tanks, SSC has identified three (3) USTs and twenty-four (24) ASTs under NASA's control that are subject to Federal regulations. The USTs are registered with the Mississippi UST (MUST) program (40 C.F.R. § 112 and § 280). Five additional USTs are located at the APG service station, which is located on-site. This facility is independently owned and operated; the owners are responsible for all reporting requirements to the MDEQ.

The replacement and upgrade of USTs at SSC commenced in July of 1992. Currently, SSC has upgraded all UST's and AST's to meet or exceed the regulatory standards.

In addition to the USTs and ASTs, 100 bulk compressed gas storage tanks are located at SSC. Table 11-5 lists the locations and contents of the vessels (2). Propane tanks are not included on Table 11-5, however an inventory of propane tanks on site is included in SSC Integrated Contingency Plan (SPG 4130.3C). The propane tanks are enclosed non-vented sources that do not have emissions and are therefore not regulated by state or federal air emissions standards.

11.3 Monitoring of Tank Systems

Underground storage tanks are double walled and equipped with leak detection systems consisting of either groundwater monitoring wells and/or electronic leak detection systems. Aboveground storage tanks are double-walled with interstitial space leak detection systems. Tanks located at buildings 1000, 2105, 2201, and 4400 are tied into SSC's 24-hour electronic monitoring system. Tank alarms are monitored by the Utility Control System (UCS) office, which is operated by the facility service contractor.

11.4 Major Environmental Considerations for Proposed Action

Plans for the installation of any new storage tank or for the re-activation of an existing, unused storage tanks will be coordinated through the NASA Environmental Office to assure that all proposed tank system designs meet current regulatory requirements. Also, any out of service or empty tanks should be evaluated for closure. The UST regulations have requirements for tank closure. All construction and testing operations must be coordinated through the Environmental Office so that environmental impacts can be properly assessed, utilizing the Preliminary Environmental Survey (PES), SSC Form # 696M, which can be found electronically.

11.5 References

1. NASA, 1998, SSC Integrated Contingency Plan (SPG 4130.3C).
2. NASA, 1998, Spill Prevention Control and Countermeasure Plan (Annex 7 of the Integrated Contingency Plan, SPG 4130.3C).
3. NASA, 1993, Updated Information for Aboveground Storage Tanks, Stennis Space Center.

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Table 11-1
Active Aboveground Storage Tank Inventory (Regulated)

	Tank Number	Material Stored	Capacity (gals)	Construction	Piping Material	Year Installed
1000-NAVOCEANO	1000-AN-V-802-FO	Diesel	1000 *	Doublewall Steel	Doublewall Steel	1992
	1000-AN-V-803-FO	Diesel	2000			1995
	1000-AN-V-TBD-FO	Diesel	2000	Doublewall Steel	Doublewall Steel	1992
	1000-AN-V-TBD-FO	Diesel	1000 *			
1002-NAVOCEANO	1002-AN-V-TBD-FO	Diesel	1000 *	Doublewall Steel	Doublewall Steel	1992
	1002-AN-V-TBD-FO	Diesel	2000			1995
2105-Heavy Equipment	2105-AN-V-812-FO	Diesel	25,000	Doublewall Steel	Steel	1995
	2105-AN-V-813-FO	Diesel	25,000	Doublewall Steel	Steel	1995
	2105-AN-V-TBD-WW	O/W Separator	1000	Fiberglass	Fiberglass	1994
3110-MS Power Main Transformer Substation	3110-AN-T-TBD-IO	Insulating Oil (non-PCB)	5855			
	3110-AN-T-TBD-IO	Insulating Oil (non-PCB)	5855			
3305-High Pressure Gas	3305-AN-V-827-WW	Wastewater	2000			
4400-High Pressure Water	4400-AN-V-847-FO	Diesel	25,000	Doublewall Steel	Steel	1995
	4400-AN-V-848-FO	Diesel	25,000	Doublewall Steel	Steel	1995
	4400-AN-V-831-FO	Diesel	2000	Doublewall Steel	Steel	1993
	4400-AN-V-832-FO	Diesel	2000	Doublewall Steel	Steel	1993
	4400-AN-T-TBD-IO	Insulating Oil (non-PCB)	1040	Steel	Steel	
	4400-AN-T-TBD-IO	Insulating Oil (non-PCB)	1040	Steel	Steel	
	4400-AN-V-837-LO	Lubricating Oil	6000	Doublewall Steel	Steel	1993
	4400-AN-V-838-WO	Waste Lube Oil	3000	Doublewall Steel	Steel	1993
	4400-AN-V-843-WW	O/W Separator	1500	Steel	Steel	1993
	4400-AN-V-TBD-IO	Insulating Oil (non-PCB)	825	Steel	Steel	1997
	4400-AN-V-TBD-IO	Insulating Oil (non-PCB)	825	Steel	Steel	1997
4001-E2 Test Stand	4221-AN-V-TBD	RP1	15,000	Doublewall Steel	Steel	1997

* Generators with self-contained tanks.

TBD= Tank number to be determined.

Source: NASA, 1998, SSC Integrated Contingency Plan (SPG 4130.3C).

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Table 11-2
Active Aboveground Storage Tank Inventory (Unregulated)

	Tank Number	Material Stored	Capacity (gals)	Construction	Piping Material	Year Installed
1002-NAVOCEANO	1002-AN-V-804-FO	Diesel	500	Doublewall Steel	Doublewall Steel	1992
1100-NASA Administration	1100-AN-V-806-FO	Diesel	500	Doublewall Steel	Steel	1993
1201-Communications	1201-AN-V-807-FO	Diesel	250	Doublewall Steel	Doublewall Steel	1993
2105-Heavy Equipment	2105-AN-V-TBD-WW	Wastewater/ oily water	500	Doublewall Steel	Doublewall Steel	1994
2201-Maintenance Repair/ Fabrication Shop	2201-AN-V-TBD-FO	Diesel	120	Steel		
3219-APG Service Station	3219-AN-V-TBD-MO	Motor Oil	450	Steel	Steel	1993
3305-High Pressure Gas	3305-AN-V-TBD-WW 3305-AN-V-TBD-WW	Wastewater Wastewater	225 470	Steel Steel		
4400-High Pressure Water	4400-AN-V-833-FO 4400-AN-V-834-FO 4400-AN-V-835-FO 4400-AN-V-836-FO 4400-AN-V-839-LO 4400-AN-V-840-LO 4400-AN-V-841-LO 4400-AN-V-842-LO 4400-AN-V-TBD-IO 4400-AN-V-TBD-IO	Diesel Diesel Diesel Diesel Lubricating Oil Lubricating Oil Lubricating Oil Lubricating Oil Insul. Oil (non-PCB) Insul. Oil (non-PCB)	300 300 300 300 400 400 400 400 245 245	Steel Steel Steel Steel Steel Steel Steel Steel Steel Steel	Steel Steel Steel Steel Steel Steel Steel Steel Steel Steel	1965 1965 1965 1965 1965 1965 1965 1965 1997 1997
4010-CTF	CTF-AN-V-871-HD	Hydraulic Fluid	500	Steel	Steel	
8100-Calibration Lab	8100-AN-V-850-SW 8100-AN-V-851-SW 8100-AN-V-852-SW	Saline Water Saline Water Saline Water	5000 2000 2000	Fiberglass Fiberglass Fiberglass	Plastic Plastic Plastic	1972 1972 1972

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	Tank Number	Material Stored	Capacity (gals)	Construction	Piping Material	Year Installed
	8100-AN-V-853-SW	Saline Water	2000	Fiberglass	Plastic	1972
	8100-AN-V-854-SW	Saline Water	2000	Fiberglass	Plastic	1972
	8100-AN-V-855-SW	Saline Water	2000	Fiberglass	Plastic	1972
	8100-AN-V-856-SW	Saline Water	2000	Fiberglass	Plastic	1972
	8100-AN-V-857-SW	Saline Water	2000	Fiberglass	Plastic	1972

TBD=Tank number to be determined.

Source: NASA, 1998, SSC Integrated Contingency Plan (SPG 4130.3C).

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Table 11-3
Active Aboveground Storage Tank Inventory (Mobile)

	Tank Number	Material Stored	Related Equipment	Capacity (gals)	Construction
2105-Heavy Equipment	TBD	Waste Oil	(none)	500	Steel
	TBD	Waste Oil	(none)	500	Steel
	TBD	Diesel	Generator	300	Steel
	TBD	Diesel	Generator	300	Steel
	TBD	Diesel	Mobile Truck	500	Steel
	TBD	Gasoline	Mobile Truck	500	Steel
	TBD	Motor Oil	Mobile Service Truck	100	Steel
	TBD	Grease	Mobile Service Truck	60	Steel
	TBD	Diesel	Fuel Tanker Truck	1000	Steel
	TBD	Diesel	Bulk Trailer	2000	Steel
2210-Hazardous Waste Accumulation Area	TBD	Waste Oil	(none)	500	Steel
	TBD	Waste Oil	(none)	500	Steel
3219-APG Service Station	TBD	Motor Oil	(none)	125	Steel

TBD= Tank number to be determined.

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Table 11-4

Active Underground Storage Tanks

Building ID	Tank No.	Material Stored	Capacity (Gallons)	Construction Material	Piping Material	Year Installed	Monitor Wells
2201-Maintenance Repair/Fab Shop	2201-UN-V-814-GL	Gasoline	8000	Doublewall Fiberglass (All 3)	Doublewall Steel (All 3)	1992	Yes (4)
	2201-UN-V-815-GL	Gasoline	8000			1992	
	2201-UN-V-816-GL	Gasoline	8000			1992	
*3219-APG Service Station	3219-UN-V-866-GL	Gasoline	6000	Coated Steel	Steel	1986	Yes
	3219-UN-V-867-GL	Gasoline	4000	Coated Steel	Steel	1986	Yes
	3219-UN-V-868-GL	Gasoline	4000	Coated Steel	Steel	1986	Yes
	3219-UN-V-869-FO	Diesel	3000	Coated Steel	Steel	1986	Yes
	3219-UN-V-870-WO	Waste Oil	1000	Coated Steel	Steel	1986	Yes

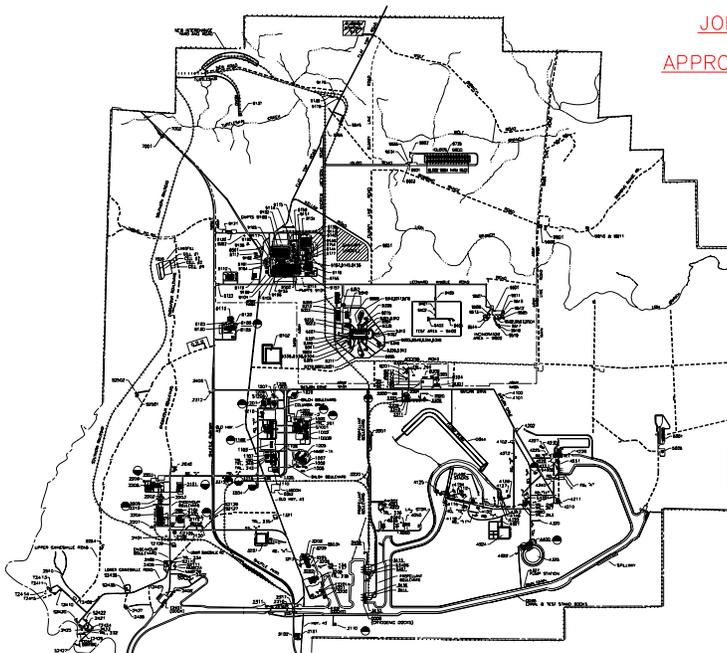
* Reporting requirements done independently of NASA/SSC.

Source: NASA, 1998, SSC Integrated Contingency Plan (SPG 4130.3C).

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Figure 11-1 Storage Tank Locations

FIGURE 11-1
JOHN C. STENNIS SPACE CENTER
APPROXIMATE STORAGE TANK LOCATIONS



LEGEND

- ABOVE GROUND STORAGE TANKS *
- UNDERGROUND STORAGE TANKS

* INCLUDES WASTE OIL, INSULATING OIL, TRANSFORMERS, MOBILE TANKS AND DW SEPARATORS.



SCALE: 1" = 3000'

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Table 11-5
Pressure Vessel Inventory (excluding high pressure air vessels)

Building	Number of Vessels	Contents
1105-Environmental Laboratory	1	nitrogen
2205-Repair and Fabrication Shop	3	nitrogen
	2	helium
2312-Water Well & Pump House #2	5	chlorine
3202-Rocketdyne	1	nitrogen
3305-High Pressure Gas Facility	2	hydrogen
	4	nitrogen
	2	oxygen
	7	helium
3306-Hydrogen Compressor Shelter	1	hydrogen
3309-Liquid Nitrogen Tank (West)	1	nitrogen
3310-Helium Tank	1	helium
3311-Helium Tank	1	helium
3312-Water Well & Pump House #1	5	chlorine
3407-Liquid Hydrogen Control (Praxair)	1	hydrogen
3410-High Pressure Gas Oxygen Tank	1	oxygen
3414-Liquid Oxygen Storage Facility	1	oxygen
3415-Hydrogen Transfer Facility	1	hydrogen
3416-Liquid Oxygen Storage	1	oxygen
4120-SSME Test Stand A-1	8	nitrogen
	5	hydrogen

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Building	Number of Vessels	Contents
	1 1	oxygen empty/not in use
4122-SSME Test Stand A-2	1 1 1	oxygen hydrogen empty/not in use
4220-Orbitor Test Stand (B Complex)	4 4 1 1	nitrogen hydrogen oxygen helium
3408-Oxygen Barges Hydrogen Barges	3 3 6	nitrogen hydrogen oxygen
4001-High Heat Flux Facility	2 2 3	oxygen nitrogen hydrogen
4010-Test Operations Building - CTF	12	empty/not in use

Source: NASA, 1998, SSC Integrated Contingency Plan (SPG 4130.3C).