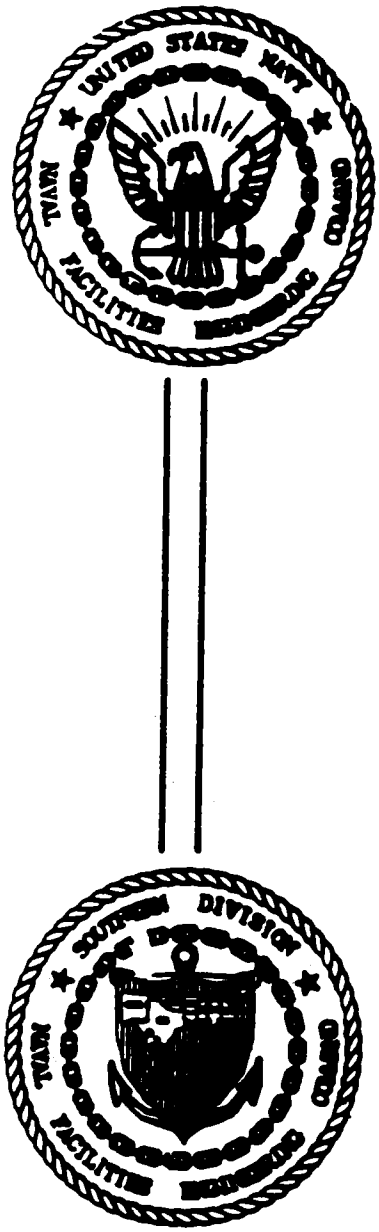
N00639.AR.001963
NSA MID SOUTH
5090.3a

PROCESS DECONTAMINATION AND CLOSURE PROCEDURES MILLINGTON SUPPACT TN
6/20/1994
ENSAFE/ ALLEN AND HOSHALL

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY

PROCESS DECONTAMINATION AND CLOSURE PROCEDURES



NAVAL AIR STATION MEMPHIS
MILLINGTON, TENNESSEE

Contract Number N62467-89-0318
CTO-0076

Prepared by:

Department of the Navy
Southern Division
Naval Facilities Engineering Command
North Charleston, South Carolina

EnSafe/Allen & Hoshall
5720 Summer Trees Drive, Suite 8
Memphis, Tennessee 38134
(901) 383-9115

ABB Environmental Services, Inc.
1536 Kingsley Avenue, Suite 127
Orange Park, Florida 32073
(904) 269-7012

June 20, 1994

Table of Contents

List of Figures

List of Tables

List of Appendices

ACRONYMS, ABBREVIATIONS

AST	Aboveground Storage Tank
BEC	BRAC Environmental Coordinator
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EBS	Environmental Baseline Survey
POTW/NOTW	Publicly-Owned Treatment Works/Navy-Owned Treatment Works
RCRA	Resource Conservation and Recovery Act
TCLP	Toxicity Characteristic Leaching Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank

1.0 INTRODUCTION

Many Navy activities are closing or realigning as a result of the Base Closure and Realignment Act of 1990. As tenants and commands shut down or move their operations, they will leave behind industrial processes, equipment, storage tanks, and facilities that have used, stored, treated, or handled hazardous materials, hazardous wastes, or petroleum products. These "process units" must be properly decontaminated and/or closed within 90 days of process shutdown to prevent the unpermitted storage of hazardous waste which could lead to regulatory enforcement action and complex RCRA closure requirements. This document has been prepared to assist Southern Division provide consistent guidance concerning process decontamination and/or closure requirements.

As part of the BRAC environmental baseline survey (EBS) conducted at each closing activity, an attempt was made to identify as many of the process units that might require decontamination or closure as possible. A list of the units identified at Naval Air Station Memphis — Millington, Tennessee is included as Appendix A. As the list illustrates, there are many different types of units. Table 1-1 is a list of example processes, equipment, and facilities that could have process closure requirements. The examples on the list have been subdivided into the three broad categories for which decontamination and/or closure guidance have been developed. The list is not all-inclusive and some of the examples provided could fall under a category other than the one shown in some circumstances. Table 1-2 provides shutdown procedures for several types of equipment that will not normally have decontamination or closure requirements.

Figure 1-1 is a decision flowchart prepared to assist the user in determining which guidance is appropriate for a particular unit. Section 2 provides guidance for decontamination of units in the Hazardous Materials category, Section 3 provides guidance for the Hazardous Waste Management category, and Section 4 provides decontamination and closure guidance for underground and aboveground storage tanks.

This document is intended for use by activity personnel with a knowledge of environmental regulations for developing guidance for shop personnel. Process decontamination and closure procedures can also be incorporated into the transition agreement or memorandum of understanding between the closing activity and Southern Division to:

- Ensure that each process unit identified during the EBS that falls into one of the three categories undergoes process decontamination or closure within 90 days to prevent regulatory enforcement action and/or unnecessary RCRA closure requirements.

- Ensure that the decontamination/closure procedures used are negotiated with and approved by the appropriate state/federal regulators and are executed in accordance with the approved procedures.

- Document that each process unit has been decontaminated or closed in accordance with a regulator-approved procedure by having the activity complete a certification form similar to the example included as Appendix B.

Table 1-1
Process Unit Categories

Hazardous Materials Units	
Water/Wastewater Treatment	Oil/Water Separator Cooling Towers Wastewater Treatment Units Laundries Lift Stations Sewer Systems Bilgewater Systems Sumps Grease Traps
Industrial Units	Paint Spray Booths Sandblasting Units Vent Hood/Ventilation Parts Washers/Degreasers Compressed Gas System
Piping Systems—Petroleum	Pipelines Pumphouses Apron Hydrant Fueling Systems
Hazardous Material Management Areas	Hazardous Material Storage Pesticide Shops Incinerators (Non-RCRA Permitted) Flammable Materials Lockers Ordnance Storage Dumpsters
Chemical Processes	Battery Maintenance Dry Cleaners Fuels Blending Systems Solvent Recovery Units Plating Operations Corrosion Control Units Wash Racks/Solvent Pool Filtration/Chlorine Injection Iridite Dripping Process Halon Recycling/Reclamation Photo Labs Vacuum Pressure Impregnation

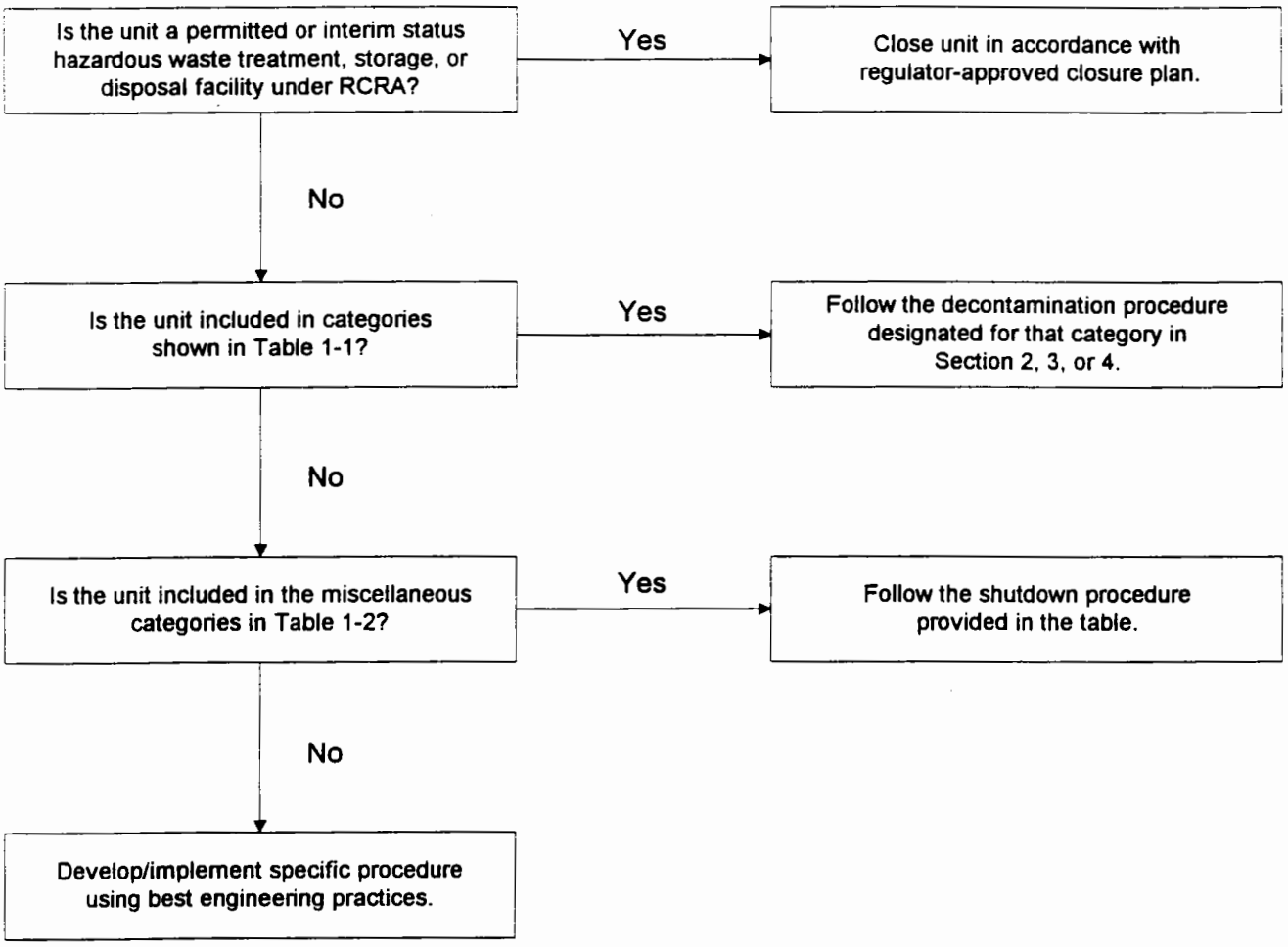
Table 1-1 **Process Unit Categories**	
Hazardous Materials Units	
Equipment	Photo Processing Equipment Abrasive Blast Hood Hazwaste Evacuation Equipment Cranes Heavy Equipment w/Petroleum Blueprint Equipment Hydraulic Equipment X-Ray Equipment
Hazardous Waste Management Units	
Satellite Accumulation Areas < 90 Day Hazardous Waste Storage Units/Tanks Neutralization Tanks	
USTs/ASTs (40 CFR 280)	
Petroleum USTs and ASTs Fuel (heating) Oil Tanks Improperly Abandoned Tanks Field Constructed Tanks Hazardous Substance Tanks	

Table 1-2
Miscellaneous Shutdown Procedures

Boilers, abandoned and operating	1. Seal or remove any asbestos insulation. 2. Disconnect fuel supply lines. 3. Turn off steam water supply and drain boiler tubes. 4. Remove and test ash for hazardous waste classification; dispose of appropriately.
Compressed Gas, Liquified Gas, Fire Suppression Systems	1. Perform leak checks. 2. If leaks are detected, repair and recheck. 3. Certify as leak-free and tag. 4. For fire suppression systems, remove chemical agent.
Compressors, Low and High Pressure	1. Relieve pressure in tank and equilibrate to atmospheric conditions. 2. Fill compressor oil reservoir. 3. Clean area of any stains.
Generators, Auxiliary Power	1. For associated fuel storage tanks, follow the UST/AST guidance. 2. Fill oil reservoirs and grease points. 3. Clean area of any stains.

FIGURE 1-1

DECONTAMINATION/CLOSURE DECISION GUIDANCE



2.0 HAZARDOUS MATERIALS UNITS CATEGORY

2.1 Introduction

The Hazardous Materials Units Category encompasses any process scheduled for closure that currently manages hazardous materials or hazardous constituents. Examples of various types of processes, equipment, and facilities that are included in this category can be found in Table 1-1.

Included in Appendix C is a decision flowchart (#1) for process units managing hazardous materials. The purpose of the flowchart is to direct the user through the regulatory issues involved in this category and **prevent the process unit from being subject to RCRA closure standards. This can be accomplished if the process unit is properly decontaminated in less than 90 days after the unit has ceased operation**. As the flowchart indicates, a process unit that manages a hazardous material or hazardous constituent can become subject to RCRA hazardous waste regulations upon operational shutdown.

Contact the Base Environmental Office or the BRAC Environmental Coordinator (BEC) for a copy of the regulations associated with this procedure.

Health and Safety Requirements

Personnel involved in any unit decontamination operation will have received health and safety training for hazardous waste operations as required by OSHA 29 CFR 1910.120. Documentation of formal health and safety training is required.

Minimum personnel protection will be evaluated for each condition encountered. Required personal protection equipment will be identified based on the type of substances encountered and the concentrations of the substance(s).

2.2 Process Identification

Base_____

Building_____

Provide a description of the process._____

_____

List the materials/products involved with the process unit._____

_____

_____

What is the intended future use of the process unit?_____

_____

2.3 Decontamination Procedures

2.3.1 Process Closure Decontamination Procedures

1. After all observable residual wastes have been removed from the system (including any pipelines associated with the system), the entire system will be pressure washed or steam-cleaned with a detergent solution such as Alconox. The wash water will be collected and stored in appropriate containers (e.g., closed-top drums). The entire system will then be rinsed with tap water. Rinse water can be collected and stored in the same container as the wash water. This should decrease the required number of disposal profile samples, but could increase the volume of contaminated water to be disposed of. If time permits, wash and rinse water can be collected and stored separately, with the rinse water being analyzed only for the contaminants detected in the wash water.

2. The wash and rinse procedure should be repeated until wipe and/or rinse samples indicate that residues on the equipment are below non-detect levels for listed hazardous wastes and TCLP limits for characteristic hazardous wastes that could be present or are below alternate levels specified by regulators. The wipe and/or rinse sample analyses should

be conducted in accordance with the USEPA publication *SW-846, Test Methods for Evaluating Solid Waste, Third Edition.*

3. A disposal profile sample will be collected from the wash/rinse water container(s). Analytical parameters and test methods will be those required by the receiving facility (POTW/NOTW or offsite treatment/disposal facility). If permission is granted, wash/rinse waters will be discharged into a POTW/NOTW, providing they meet the requirements of the POTW/NOTW.

4. Any piping leading to and from the unit must be closed, either by valve or disconnecting the line and capping after decontamination. Any piping leading underground should be cut off at ground level and capped if the unit is going to be dismantled.

5. In the absence of a total decontamination of all process components, the process components could ultimately be considered a hazardous waste as long as they continue to contain hazardous waste residues. The contaminated components would satisfy the definition of a RCRA hazardous waste and have to be handled as such. Unless the contaminated process components were removed and disposed of as hazardous waste, hazardous waste accumulation standards would be applicable and the components might ultimately satisfy the definition of a RCRA hazardous waste landfill and have to be handled as such, including closure and post-closure care (see Appendix C).

2.3.2 Decontamination of Equipment Used During Decontamination

1. If the rinse water is tested and found to contain listed wastes or wastes exhibiting characteristics of a hazardous waste, personal protection expendables will be placed in drums, labeled according to the waste(s), and disposed of as a hazardous waste.

2. Nonexpendables will be washed over a sump with detergent, rinsed, and returned. Filter cartridges from respirators will be removed and handled as an expendable.

3. Clean-up tools/equipment and hand tools will be washed over a sump with detergent, rinsed, and returned.

4. The exterior of any pumps used will be washed over a sump with detergent and rinsed. The interior of the pump will be washed by closed-loop pumping of detergent from the sump followed by a clean water rinse with discharge to the sump.

5. Wash and rinse waters will be collected and handled in the same manner as the wash/rinse waters described in Section 2.3.1.

If upon decontamination or closure, a potential soil or groundwater contamination problem is encountered, the BRAC Environmental Coordinator should be contacted.

3.0 HAZARDOUS WASTE MANAGEMENT UNITS CATEGORY

3.1 Introduction

The Hazardous Waste Management Units Category encompasses any process that is scheduled to be closed and currently manages hazardous waste. Examples of various types of processes, equipment, and facilities included in this category can be found in Table 1-2.

Included in Appendix C is a decision flowchart (#2) for process units managing hazardous waste. The purpose of the flowchart is to direct the user through the regulatory issues involved in this category and **prevent the process unit from becoming an unpermitted storage facility subject to the RCRA closure standards outlined in 40 CFR 264/265. This can be accomplished if the process unit is properly closed in less than 90 days after the unit has ceased operation.** It is necessary to refer to the flowchart before proceeding with the process closure procedure.

Contact the Base Environmental Office or the BRAC Environmental Coordinator (BEC) for a copy of the regulations associated with this procedure.

Health and Safety Requirements

Personnel involved in any unit decontamination operation will have received health and safety training for hazardous waste operations as required by OSHA 29 CFR 1910.120. Documentation of formal health and safety training is required.

Minimum personnel protection will be evaluated for each condition encountered. Required personal protection equipment will be identified based on the type of substances encountered and the concentrations of the substance(s).

3.2 Process Identification

Base_____

Building_____

Provide a description of the process._____

_____

_____

List the materials/products involved with the unit._____

_____

_____

List any hazardous waste(s) involved in the process (per 40 CFR §261.3)._____

_____

_____

What is the intended future use of the process unit?_____

_____

3.3 Decontamination Procedures

3.3.1 Process Closure Decontamination Procedures

1. After all observable residual wastes have been removed from the system (including any pipelines associated with the system), the entire system will be pressure washed or steam-cleaned with a detergent solution such as Alconox. The wash water will be collected and stored in an appropriate container (e.g., closed-top drums).

2. The entire system will then be rinsed with tap water. Rinse water can be collected and stored in the same container as the wash water. This should decrease the required number of disposal profile samples, but could increase the volume of contaminated water

to be disposed of. If time permits, wash and rinse water can be collected and stored separately, with the rinse water being analyzed only for the contaminants detected in the wash water.

3. The wash and rinse procedure should be repeated until wipe and/or rinse samples indicate that residues on the equipment are below non-detect levels for listed hazardous wastes and TCLP limits for characteristic hazardous wastes that could be present or are below alternate levels specified by regulators. The wipe and/or rinse sample analyses should be conducted in accordance with the USEPA publication *SW-846, Test Methods for Evaluating Solid Waste, Third Edition.*

4. Any piping leading to and from the unit must be closed, either by valve or disconnecting the line and capping after decontamination. Any piping leading underground should be cut off at ground level and capped if the unit is going to be dismantled.

5. Collected wash and rinse solutions will be sampled and analyzed for listed and characteristic hazardous wastes that could be present. Sampling and analyses will be conducted in accordance with the USEPA publication *SW-846, Test Methods for Evaluating Solid Waste, Third Edition.*

6. If the wash or rinse waters fail any characteristic test or have detectable concentrations of a listed waste, the solution will be disposed of as hazardous waste. If it is determined that the wash/rinse waters are not a hazardous waste, they will be discharged into a POTW/NOTW, providing they meet the requirements of the POTW/NOTW and permission is granted.

7. In the absence of a total decontamination of all process components, the process components could ultimately be considered a hazardous waste as long as they continue to contain hazardous waste residues. The contaminated components would satisfy the definition of a RCRA hazardous waste and have to be handled as such. Unless the contaminated process components were removed and disposed of as hazardous waste, hazardous waste accumulation standards would be applicable and the components might ultimately satisfy the definition of a RCRA hazardous waste landfill and have to be handled as such, including closure and post-closure care (see Appendix C).

3.3.2 Decontamination of Equipment Used During Decontamination

1. If the rinse water is tested and found to contain listed wastes or wastes exhibiting characteristics of a hazardous waste, personal protection expendables will be placed in drums, labeled according to the waste(s), and disposed of as a hazardous waste.

2. Nonexpendables will be washed over a sump with detergent, rinsed, and returned. Filter cartridges from respirators will be removed and handled as an expendable.

3. Clean-up tools/equipment and hand tools will be washed over a sump with detergent, rinsed, and returned.

4. The exterior of any pumps used will be washed over a sump with detergent and rinsed. The interior of the pump will be washed by closed-loop pumping of detergent from the sump followed by a clean water rinse with discharge to the sump.

5. Wash and rinse waters will be collected and handled in the same manner as the wash/rinse waters described in Section 3.3.1.

If upon decontamination or closure, a potential soil or groundwater contamination problem is encountered, the BRAC Environmental Coordinator should be contacted.

4.0 UST/AST CATEGORY — STATE OF TENNESSEE

4.1 Introduction

The following process closure procedure applies to underground storage tanks (USTs) and above ground storage tanks (ASTs) located in the State of Tennessee.

For complete guidance, refer to *Rules of The Tennessee Department of Environment and Conservation (TDEC) Division of Underground Storage Tanks, Chapter 1200-1-15 Underground Storage Tank Program.*

Contact the Base Environmental Office or the BRAC Environmental Coordinator (BEC) for a copy of the regulations associated with this procedure.

Health and Safety Requirements

Personnel involved in any decontamination operation will have received health and safety training for hazardous waste operations as required by OSHA 29 CFR 1910.120. Documentation of formal health and safety training is required.

Minimum personnel protection will be evaluated for each condition encountered. Required personal protection equipment will be identified based on the type of substance(s) encountered and the concentrations of the substance(s).

4.2 Applicability of the Regulations

Base_____

Building_____

UST/AST ?_____. ***Guidance for ASTs is located at Section 4.5***

Capacity _____ ***gallons***

Contents ***(include all known constituents if mixture)***_____

_____.

Is the tank/tank system part of a process, or used only for storage?_____.

The requirements of this procedure apply to all owners and operators of an UST system as defined in Rule 1200-1-15-.01, and summarized below:

"UST" means any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of petroleum, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. This term does not include any:

1. Farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for non-commercial purposes.

2. Tank used for storing heating oil for consumption on the premises where stored.

3. Septic tank.

4. Pipeline facility (including gathering lines) regulated under:

   a. The Natural Gas Pipeline Safety Act of 1968, or

   b. The Hazardous Liquid Pipeline Safety Act of 1979, or

   c. Which is an intrastate pipeline facility regulated under state laws;

5. Surface impoundment, pit, pond, or lagoon.

6. Storm-water or wastewater collection system.

7. Flow-through process tank.

8. Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations; or

9. Storage tank situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

Also, the following tanks are excluded:

1. Wastewater treatment tank systems.

2. Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954.

3. Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission.

4. Airport hydrant fuel distribution systems; and

5. UST systems with field-constructed tanks.

6. Equipment or machinery that contains petroleum for operational purposes such as hydraulic lift tanks and electrical equipment tanks.

7. Any UST system whose capacity is 110 gallons or less.

8. Any UST system that contains a *de minimis* concentration of petroleum.

9. Any emergency spill or overflow containment UST system that is expeditiously emptied after use.

4.3 Decontamination/Closure of Regulated UST Systems

UST systems are regulated under 40 CFR §280. Under 40 CFR §281, EPA has set requirements for State UST Programs. The state program can be no less stringent than the corresponding federal requirements. Therefore, **appropriate state UST regulations should be used for closure requirements of UST systems**.

4.3.1 Decontamination

Owners and/or operators must empty the tank(s) by removing all liquids and accumulated sludges into the appropriate size container, or removal by vacuum truck. The removed contents will then be sampled and analyzed for constituents set forth by the chosen disposal facility.

The tank should then be decontaminated according to the procedures listed below. If the procedures cannot be performed because the tank is not enterable or accessible, the tank should be removed.

1. After all residual wastes have been removed from the tank system, the inside of the system will be pressure washed or steam-cleaned with a detergent solution such as Alconox. The wash water will be collected in appropriate containers (e.g., closed-top drums).

2. The tank system will then be rinsed with clean water using a pressure washer or steam-cleaner. The rinse water can be collected and stored separately or in the

same containers as the wash water. Combining the wash and rinse waters should decrease the required number of disposal profile samples, but could increase the volume of contaminated water to be disposed of.

3. The wash and rinse procedure should be repeated until rinse samples indicate that residues in the tank are below levels previously negotiated with the appropriate regulatory agency. Analytical parameters and test methods will be those required by the regulatory agency.

4. A disposal profile sample will be collected from the wash/rinse water container(s). Analytical parameters and test methods will be those required by the receiving facility (POTW/NOTW or offsite treatment/disposal facility). Wash/rinse waters will be discharged into a POTW/NOTW, providing they meet the requirements of the POTW/NOTW and permission is granted. If the POTW/NOTW will not accept the wash/rinse waters, contracted off-base disposal will be necessary.

4.3.2 Temporary Closure [1200-1-15-.07(1)]

When an UST system is temporarily closed, owners and/or operators must continue operation and maintenance of corrosion protection, and any release detection. However, release detection is not required as long as the UST system is empty. The UST system is empty when all materials have been removed using commonly employed practices so that no more than 2.5 centimeters (one inch) of residue, or 0.3 percent by weight of the total capacity of the UST system, remain in the system.

When an UST system is temporarily closed for 3 months or more, owners and/or operators must also comply with the following requirements:

1. Leave vent lines open and functioning; and

2. Cap and secure all other lines, pumps, manways, and ancillary equipment.

3. File amended notification form showing the tank system as Temporarily Out of Use.

When an UST system is temporarily closed for more than 12 months, owners and/or operators must permanently close the UST system if it does not meet either performance standards for new UST systems or upgrading requirements. Owners and/or operators must permanently close the substandard UST systems at the end of this 12-month period in accordance with rule 1200-1-15-.07(2) through rule 1200-1-15-.07(5).

4.3.3 Permanent Closure [1200-1-15-.07(2)]

The following should be followed for permanent closure of an UST system:

1. At least 30 days before beginning permanent closure, owners and/or operators must submit a site closure plan to the Division, unless such action is in response to corrective action.

2. Owners and/or operators must empty and clean it by removing all liquids and accumulated sludges. All tanks taken out of service permanently must also be either removed from the ground or filled with an inert solid material such as a cement compound, sand, gravel, etc. The inert solid material must have a specific gravity greater than 1.0.

3. Should an owner and/or operator elect to excavate and remove a tank from the site, such excavation and removal must be done in accordance with Appendix 5 of Rule 1200-1-15.

4. Tanks may not be stored at a UST facility unless they are maintained in a vapor-free state, stored in accordance with Appendix 5 of Rule 1200-1-15, and one of the following conditions are met:

   a.(i) Tanks have been cleaned by removal of all liquids and accumulated sludges; and

   (ii) Tanks have been purged of vapors so that any explosive levels do not exceed 20 percent of the lower flammable limit for the regulated substance; and

   b. Tanks have an opening or openings installed which comprise a minimum of 10 percent of the total tank surface area.

   c. a.(i) and (ii) above have been complied with and there are no remaining USTs either in use or in a temporarily closed condition at the facility; or

   d. Tanks which are removed from a UST facility and are intended for reuse at the same or another facility as USTs may be stored at a UST facility if the owner and/or operator meets the conditions described in (a).(i) and (ii), and either removes the tank offsite from a UST facility or puts it back into service within 30 days of excavation.

5. Tanks must be stored in a manner which does not pose a safety threat.

4.3.4 Assessing the Site at Closure [1200-1-15-.07(3)]

Before permanent closure is completed, owners and/or operators must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, owners and/or operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release.

If contaminated soils, contaminated groundwater, or free product as a liquid or vapor is discovered during excavation, or by any other manner, owners and/or operators must begin corrective action.

Due to changing regulations, the information contained in this procedure should be verified before implementing the procedure.

4.4 Decontamination/Closure of Non-Regulated Tank Systems

Tank systems that fall under this section are assumed to contain non-regulated substances that are not a hazardous waste, or do not fall under the definition of an UST. Because these tank systems are unregulated, they do not have specific regulatory requirements associated with them. It is recommended that the procedures outlined in Section 4.3 be used as guidance when decontaminating or closing non-regulated tank systems.

4.5 Decontamination/Closure of ASTs

Although there is currently no one, comprehensive federal regulatory program governing ASTs, there are a variety of existing statutes and regulations that apply directly or indirectly to ASTs. These statutes and regulations focus primarily on containment rather than structural integrity, monitoring, testing, and closure. AST regulation has historically been related to fire prevention and safety, rather than environmental protection.

For purposes of this closure procedure, decontamination will be dependent upon what is stored in the AST. If a hazardous waste, or a mixture containing a hazardous waste, is being stored or is part of a treatment process, the decontamination procedure for units managing hazardous waste should be followed. If the contents are not a hazardous waste or substance, the decontamination procedure for USTs should be followed.

Larger ASTs, shop-fabricated or field-erected, are found in a number of different configurations. Decontamination of these larger ASTs should be approached with extreme care because of the

dangers associated with confined space entries. Large amounts of water will be generated during decontamination and should be run through an oil/water separator if possible.

If upon decontamination or removal a potential soil or groundwater problem is encountered, the BEC should be contacted.

APPENDIX A

PROCESS CLOSURE INFORMATION

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
100	Naval Hospital	One sump pump		Two 12,000-gallon #2 fuel oil UST's; one 350-gallon diesel AST.	Hazardous Waste Storage Area; (SWMU 34) and Biohazardous (pharmaceutical) waste.	Photo lab	Decay safe, contains minute amounts of radioactive isotopes	
114/116/98	BEQ Recreation Building BEQ			One 3,000-gallon #2 fuel oil UST				
103/104/105	Bathhouse Swimming Pool Pump and Chlorinator					Swimming pool filtration and pumping system		
243	GCA Storage						Nitrix De-icer and rock salt	
246/891	Tennis Courts Tennis Courts							
252	PW Shed	Oil/water separator		One 550-gallon fiberglass UST containing waste oil	Hazardous waste storage area			
296	Storage Tank	Abandoned lift/pumping station	Compressed empty gas cylinders	One 16,755-gallon water AST				

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
306/1493/1473 /1379	Golf Course Storage/ Pumping Station/ Restroom/Pavilion							
339	Office			Two 420,000-gallon (35 years old) JP-5 fuel USTs One 500-gallon sewage UST (29 years old) One Non-regulated 500-gallon sewage UST (29 years old)				
341/757/758/ 1567	Exchange Service Station/ Navy Exchange Service Station (NEX)/ 1567 NA	Two Oil/water separators	Parts washer, containing 20 gallons Safety Kleen	Two 20,000-gallon gasoline USTs One 10,000-gallon gasoline UST One 550-gallon waste oil UST One 1,000-gallon propane AST Four abandoned USTs	(SWMUs 19&49)		Hydraulic equipment and/or reservoir tank	
343	Football Field							
346/362/1503	AD Training Training Mock Up Shelter		Compressors present		Hazardous materials disposal area; jet fuel, hydraulic fluid, and lubricating oil (SWMU 65)			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
348	Weather Radar Tower			Two 250-gallon steel diesel fuel USTs				
359	Potable Water Well	Electric pump present at well still in service						
360	Paint Spray Booth		Permitted Air Pollution Control Process-paint booth with exhaust filters		Hazardous waste accumulation point; mineral spirits and paint waste (SWMU 58)			
376	Filling Station			One 4,250-gallon, asphalt covered steel, gasoline UST One 8,000-gallon gasoline UST (removed in 1993)				
377	Remote Transmitter			One 500-gallon diesel UST, One 500-gallon sewage UST, One non-regulated 500-gallon sewage UST, One non-regulated 500-gallon water UST			Emergency/ standby generator	

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
382	Remote Receiver			One 500-gallon diesel UST, One 500-gallon sewage UST, One non-regulated 500-gallon sewage UST, One non-regulated 500-gallon water UST	Hazardous material storage area outside, flammable material cabinet outside		Emergency/ standby generator	
388	Truck Scale							
391/1612	Switching Station "DE" Picnic Shelter							
393	LOX			One 500-gallon liquid oxygen AST, One 2,000-gallon liquid oxygen AST, One 2,000-gallon liquid nitrogen AST				
344/779/ 1702/1703/ 1654/765/1597 /1615/1598/ 766	Automotive Repair/ Materials Storage/ Training Mockup/ Applied Instruction Bldg/ Lumber Shed/ Applied Instr. Bldg/ Training Storage/ CBU 404	Oil/water separator building 344			Hazardous material storage areas buildings;1702 (corrosive materials)/ 1703/1654 (drums of waste oil)/1598 and 344(mineral spirits SWMU 47)			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
394/S-197/1213	Air Support Equip School/ Battery Shop/ Shed	Sewage lift/pumping station			Hazardous material storage areas(waste oil, compressed gas materials, acid and batteries)			
400/408	BEQ/ BEQ				Paint locker storage			
409/417	BEQ/ BEQ				Flammable materials cabinet, abandoned 55 gal. drum, labeled NSN#:96-6850-01-202-4669 Aircraft Cleaner #3			
418/428	BEQ/ BEQ	Waste treatment plant (domestic sewage)		One 36,000-gallon waste treatment UST	Hazardous material storage; One flammable materials locker, Waste treatment plant (oils, solvents, and paints)			
429/446	BEQ/ BEQ							
447/452	BEQ/ BEQ							
453	BEQ							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
454	BEQ							
455	Barracks							
456	Barracks							
457	Barracks							Wet sprinkler system
458	Barracks							
499/1606	Dining Facility/ NA	Waste water and grease pit (3x5¼x7½ concrete tank SWMU 13)						
504/534/1352 537/540/548	MOQ (CONWAY)/ MOQ (CONWAY)/ NA/ MOQ (CONWAY)/ MEMQ (CONWAY)/ MEMQ (CONWAY)							
559	MEMQ (CONWAY)							
570	MOQ (CAPEHART)							
591	SOQ							
597	MMEQ (CONWAY)							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
599	BOQ			One 2,000-gallon #2 fuel oil UST	Hazardous material storage building south of 599			Natural gas pipe supply to boiler
603/606	MOQ (TURNKEY)							
750	Training							
751	Training				Flammable storage locker (small amounts of flammable materials)			
752	Navy Exchange Retail Store	Kitchen grease trap				Photo lab (self contained silver recovery machine)		
760	EM/NCO/CPO Club	Grease trap in mechanical room						

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
761/1505 1529/1530 1531/1532 1542/1543 1561/1562 1568/1569 1570/1571 1572/1573 1584	Lakehouse/ Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Picnic Shelter/ Restroom							
762	Navy Lodge	Hot water for non-heating purposes					central electric heaters/ boilers	
763	Family Services							
767	Theater							
768	Training				Flammable materials cabinet; room 138, floor stripper; room 137			
769	Training (Air Traffic Control)				Hazardous material (cleaning, office, and training supplies)			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
770/1614/366	Housing Office/ NA/ Sewage Pumping Station							
771	Dispensary and Dental Clinic			One 1,000-gallon #2 fuel oil UST (installed 1976)	Hazardous materials shed (labeled "Biohazard Storage Shed")	Photo lab; silver recovery process, developer, and fixer (SWMUs 54&55)		
772/1634/1635	Bathhouse/ Swimming Pool/ Wading Pool					Chlorine based pool chemicals for filtration/ injection		
773	Heating Plant	3,000-gallon oil/water separator (installed 1977)		One 950-gallon gasoline AST, One 950-gallon diesel AST, Two 10,000-gallon ASTs, Two 500-gallon #2 heating oil USTs				
774	Utility Building	Oil/water separator				Aircraft wash rack; chromic acid, detergent (SWMU 32)		
775/1638/1639	Utility Building/ Aircraft Wash Rack/ Oil-Water Separator	Oil/water separator constructed of steel 700-gallon capacity (14 years old)						

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
776	Training (AS)							
777	Chapel							
780/1674/1675 /1723/1724	Child Care Center/ Classroom North/ Classroom Northwest/ Classroom Southwest							
781	Training (ATC-Tower Trainer)							
782	Commissary			One 50-gallon diesel AST			Emergency/ standby fuel generator	
783	Cold Storage Warehouse			One AST located south of building 783				
784	Training (AMS)		Paint spray booth					
785	Training (AMH)				Hazardous material storage area (hydraulic fluid)			
786	Training (AME)							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
787	Training (AS)	Sewage treatment plant (domestic sewage, oils, solvents, and paints SWMU 28)	Three paint spray booths	Two 250-gallon mogas ASTs, One 250-gallon diesel AST				
789	Training (AUX AE School)							
791	Training (AO)				Flammable materials locker			
794	Legal Services							
795	A-4m Trainer						Hydraulic equipment and/or reservoir tank	
796	BRIG						Emergency generator	
797	Hobby Shop				Hazardous material storage; flammable materials locker, hazardous materials cabinets	Photo lab (silver recovery process)		Wet sprinkler system
798	A-4M Hanger	Sump pump		One 850-gallon diesel AST, Two 1,800-gallon AFFF ASTs	Hazardous material storage area, flammable materials locker		Emergency generator, air compressor	

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
799	Water Distribution Bldg			Two 850-gallon diesel fuel ASTs, One 300,000-gallon water AST (no containment)			Two emergency generators associated with diesel ASTs	
892/893	Tennis Ct/ Tennis Ct							
896/897	Tennis Court/ Tennis Court				Transformers stored in designated area			
930	Reserve Admin/Training Building							
931	Navy Lodge (New)							
932	OPS Building	Two sewage lift/pumping stations Oil/water separator		Two 10k gallon JP-5 ASTs, One 2k gallon JP-5 AST, One 10k gallon AFFF AST	Hazardous material storage area, flammable materials locker			
964	NA	Septic tank system	Parts washer	One 2k gallon AVGAS AST #1726	Hazardous material storage area (mobile tank outside hangar), flammable materials locker			Refueling pump station associated with AST #1726

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
1003/1008 1014/1025 1034/1037 1044/1057	All Bldgs. are; MEMQ (JOHNSON)							
1211/1282	Golf Course Maintenance Bldg./ NA			One 2,000-gallon fuel oil UST One 300-gallon mogas AST, One 300-gallon diesel AST, One 300-gallon waste oil AST				
1385	Playing Field							
1420/292	Indoor Small Arms Range/Training Material Storage				Possible Ordnance Storage			
1452/1453/157	Gates & Security Houses							
1455	Public Toilet AWFAM School	Oil/water separator		Two 1,800-gallon JP-5 fuel UST's One 2,000-gallon JP-5 fuel AST	Flammable materials cabinet Hazardous materials storage area (SWMU 5)			
759/1564	Exchange Bldg and Filling Station	Oil/water separator (inactive at this time)						
1387/1399/ 1398	Softball Field/ Pavilion/ Public Toilet Ball Field							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
1461/1464/ 1516/1522/ 1574/1575/ 1616/1632	Stable-Riding Horses/ Stalls Riding Horses/ Horse Stable/ North Barn/ Stablemaster Bldg./ Barn/ Pole Barn/ Stable Bldg	Septic tank north of 1632 and east of 1574, Septic tank building 1463		ASTs 1632A and B north of building 1632				
1595	Mobile Home Park							
396/ 1512/1513/ 514	Recreation Issue/ Shelter/ Shelter/ Shelter			One 300-gallon mogas AST	Compressed gas cylinders; two helium building 396, one acetylene and one oxygen building 1514		Arc-welding machine	
1576	Oxigester	Lakehouse sewage treatment plant (SWMU 29)						
1579	Incinerator				Hazardous materials area (incinerator and ash, SWMU 35)			
1581	Kennel							
1585	Storage	In-ground sewer line grease trap						

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
1594	Marine Corps Storage Bldg				Two flammable materials lockers, Underground waste tank (waste oil and hydraulic fluid SWMU 20)			
1681/1684 & 1685/1683/ 1686	Potable Water Well/ Water Treatment Bldgs/ Pump Bldg/Water Storage			Two 550-gallon diesel fuel ASTs				
1619/1739	Tennis Courts/ Covered Tennis Court							
1625	Containment Area	8,000-gallon oil/water separator tank (constructed of fiberglass)			Hazardous material storage area (drums and transformers)			
1640/1583	Softball Field/ Storage				Flammable materials locker			
1664	ASR-8 MOCK-UP (ATC School)							
1667	Training Mockup							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
1668/1666/ 1665	P-3 Mobil Maint. Facility (Toilet)/ Open Storage/ P-3 Mobil. Maint. Facility (VANS)				Hazardous materials area; salvage yard #1 scrap cars, batteries, battery acid, gasoline, and oil (SWMU 40)			
1669	Pest Control Shop				Hazardous materials storage area; pesticides and herbicides stored in mobile tanks of 500-gallon, 300-gallon, 50-gallon, and 5-gallon			
1671	Engine Test PAD			One 2,500-gallon mobile fuel tank One 1,00-gallon mobile fuel tank both contain JP-5 fuel	Tire stack for noise reduction			
1687	EAF MAG-42				Hazardous material storage area, flammable materials locker			
1691	Switching Station "DW"							

Process Closure Information for NAS Memphis

Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
1694	Hazardous Materials Staging							
1713/1714	Gates & Security Houses							
1715	Small Arms Magazine				Possible ordnance storage (fortified cartridges stored inside 1715)			
1734	Applied Instruction Bldg				Flammable materials locker		Air compressor	
1740	MWR Pest Control Bldg.			One 1,000-gallon steel septic tank/drain (constructed 1992)				
2006	MEMQ (WHERRY)							
2009	MEMQ (WHERRY)							
2012	MEMQ (WHERRY)							
2019	MEMQ (WHERRY							
2028	MEMQ (WHERRY)							
2042	MEMQ (WHERRY)							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
2057	MEMQ (WHERRY)							
2060	MEMQ (WHERRY)							
2095	MEMQ (WHERRY)							
3126	MEMQ (CAPEHART)							
3128/3031 3033/3045 3056/3113 3027/3055 3155/3210 3020/3072 3199/3152 3144/3146 3022/3170 3024/3121	All Buildings are; MEMQ (CAPEHART)							
3159	MEMQ (CAPEHART)							
3197	MEMQ (CAPEHART)							
3207	MEMQ (CAPEHART)							
3317	MEMQ (TURNKEY)							
3320	MEMQ (TURNKEY)							
N-1	Administration (NAMG)			One 55-gallon UST	Hazardous materials (batteries) area		Emergency generator	

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
N-81/N-119 N-125	Small Arms/PYRO MAG/ Recreation Storage/ Magazine 9 Small Arms & PYRO				Ordnance storage			
N-2/1697	Aircraft Operations/ Radar Operational Fac. (ROF) Module			One 2,000-gallon diesel fuel UST				
N-4	Administration (SQDN)	Sump located in mechanical room			Hazardous material storage area			
N-7	Training Hanger							
N-16	Training/Fire Station			Approx. 200 5-gallon containers of AFFF	Hazardous material storage area (used oil and fire extinguishing agents, SWMU 64)			
N-9/N-10	Parachute Loft/UST			One UST containing waste oil and hydraulic fluid at building N-10 (SWMU 21)	Flammable material locker			
N-11	Warehouse						Emergency generator with associated UST	

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
N-12	GND Support Equip. bldg.		Paint booth, vent hoods	One 55-gallon diesel fuel UST, One 150-gallon paint stripper tank	Hazardous waste storage area; paint waste (SWMU 42) flammable material locker			
N-13	Warehouse							
N-14	Warehouse				Hazardous material storage area (55 gallon drums of methanol)			
N-26	Recreation Support					Former printing shop; (SWMU 61) printer inks and solvents (may contain lead, chromium, and cadmium), flammable material lockers, and hazardous material storage		

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
N-26A/352 1466/1550 1649/1481	Golf Clubhouse and Bldgs			One 300-gallon MOGAS AST at 1550	Hazardous waste accumulation point; used automotive batteries from golf course (SWMU 56)			
N-27	Recreation Office						Emergency generator	
N-48	Elev Water Tank						Two emergency generators Note: Evidence of a diesel spill was noted around the generators	
N-79/364	Indoor Pool/ Squash-Handball Court					Pool filtration system		
N-82/1209	Gymnasium/Specialty Service Center				Hazardous materials storage area (building 1209)			
N-88/1600 1651/1652 1672	Water Treatment Bldg/ Line Maint. Bldg/ Line Maint. Bldg/ Avionics Shop/ Maint. Hangar				Hazardous waste accumulation area (building 1646)			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
N-94	Tank Farm bldg.-Office	Two oil/water separators		One 8,000-gallon waste oil AST, One 8,000-gallon AVGAS AST (SWMU 16) One 7,500-gallon diesel UST, One 15,000-gallon MOGAS UST, One 15,000-gallon gasoline UST, One 100,000-gallon heat/fuel UST (Underground Tank Farm SWMU 15)				
N-100/251	HAM Radio Station/ Antenna			One 110-gallon fuel oil and water UST, One 110-gallon diesel AST				
N-102/N-112	Training/ Training			One 550-gallon waste oil UST (building N-112 SWMU 18), One UST battery acid treatment (building N-102 SWMU 26)	Hazardous waste accumulation point; scrap batteries, sulfuric acid, and heavy metals (building N-102 SWMU 44)			
N-104	Training			Non-regulated tank (100-gallons, water)				
N-105	Training							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
N-106	Training				Flammable materials locker			
N-108	Training		Compressed gas materials, Air compressor		Flammable materials locker, Hazardous materials storage area			
N-109	Training		Parts washer, fixed compressor, portable air compressor		Hazardous material storage area, hazardous waste storage area, flammable material locker			
N-110	Training	Carbon dioxide exhaust ventilation system, air compressors			Hazardous material storage area, flammable material locker			
N-114/349 397/746	Hobby Shop Garage/ Hobby Shop Garage/ Hobby Shop/Ex CO Car Wash	One oil/water separator at N-114; automotive non-lubricating oils, lubricating oils, grease, and hydraulic fluids (SWMU 24), One oil/water separator at rear of 778	Paint spray booth at 349	Two 940-gallon waste oil ASTs between N-114 & 349, One 3,00-gallon heat-fuel UST E of N-114, One dip tank 75-gallon at N-114	Paint locker			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
N-121	Training					Plating shop (metals and cyanide SWMU 3)		
N-122	Training							
N-126	Aircraft Hangar		Compressed gas cylinders		Flammable material lockers			
N-208	MEMQ (JOHNSON)							
NG-1/1549/1665	National Guard Armory/Marker/TAC Supply Van Pad			One 250-gallon diesel AST	Possible waste oil drum storage			
NA	Federal Prison Camp	In-ground grease trap for kitchen, large metal grease trap (used cooking grease) dumpster area	Paint spray booth		Biohazard (medical waste) storage cabinet, three flammable materials lockers			
NA	McDonald's	Metal grease trap (used cooking grease) dumpster area						
E-1/E-2/E-3 E-4/E-5/E-6 E-31/E-46 E-51/E-52 E-75/E-85	Former Federal Prison Camp		Compressed gas cylinders; four oxygen, seven acetylene (building E-6)		Hazardous materials storage area (building E-6)			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
E-32/E-33 E-34/E-35	Former Federal Prison Camp				Flammable materials locker (N of area E-34)			
E-99	NA	Sewage pumping station						
C-1	Cntectra Headquarters							
FCU	Federal Credit Union							
OL-001	Open Land							
OL-002	Open Land							
OL-003	Open Land							
OL-004	Open Land							
OL-005	Open Land							
OL-006	Open Land							
OL-007	Open Land							
OL-008	Open Land							
OL-009	Open Land							
OL-010	Open Land							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
OL-011	Open Land							
OL-012	Open Land							
OL-013	Open Land						Two arresting gear diesel engines with integral (belly) tanks	
OL-014	Open Land							
OL-015	Open Land							
Runways				One 250-gallon diesel fuel AST, Three 300-gallon diesel fuel ASTs	Hazardous material locker located nearby			
Runway Apron Airfield Supplement								
S-1/255	Administration/Flag pole							
S-2	Security			One 250-gallon propane AST	Hazardous materials cabinet flammable materials cabinet			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
S-4/1679	Post Office/Bank/ Shelter							
S-6	Supply Dept.							
S-7/735	Supply Purchasing/ Steam Heat Bldg							
S-8/268/1653	Fire Station/ Fire Fighting Tower/ Wash Rack			One #2 fuel oil,diesel UST building S-8 (SWMU 23)				
S-9/1292 1633	Auto Vehicle Shop/ Flammable Storage Bldg/ Vehicle Wash Platform	Oil/water separator located adjacent to S-9		USTs for waste (waste oil and hydraulic fluid SWMU 17)	Hazardous waste accumulation point (paint thinners and degreasers SWMU 48), hazardous material cabinets, flammable material locker			
S-50	Exchange Package Store							
S-51	Vacant							
S-52	Administration					Possible pool filtration system		
S-54	Training Aids							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
S-55	Religious Education							
S-56	Uniform Shop/Exchange							
S-61	Photo Lab					Previous photo lab with silver recovery process		
S-65	Warehouse							
S-66	NA							
S-67	Warehouse				Hazardous material storage area			
S-69	Warehouse							
S-70	Warehouse							
S-71	Warehouse				Flammable material locker, Unidentified substance container (S of S-71)			
S-72/1610	Warehouse/ NA							
S-73	Warehouse							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
S-75/S-108 286	Heating Plant/ Fuel Oil Pump House/ NA	Oil/water separator		Three 100,000-gallon fuel oil USTs (SWMU 22), Two 7,500-gallon JP-5 fuel USTs, One UST containing; MEK, acetone, ethyl benzene, toluene, and xylene (SWMU 63)	Hazardous material storage areas (S-75)			
S-78	Library/Bowling Alley	Kitchen grease trap (back door)			Hazardous material storage (maintenance shop area)			
S-79	Navy Exchange							
S-86	Training Hangar							
S-88	BOQ			One 18,000-gallon fuel oil UST (48 years old)				
S-89/282 1484/1293	"O" Club/ Vacant/ NA/ NA			One 2,000-gallon fuel oil UST (N of S-89), Liquified gas cylinder 250-gallon (N of S-89)				
S-136	NAMTRAGRU							
S-137	ROICC/Veterinary							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
S-143	Youth Services							
S-159/S-160	Skeet Office - Armory/ Small Arms Magazine			Suspected UST hole is located SE of S-159				
S-163	Training - Ordinance							
S-172	Gear Storage - Lake Rec Area			One 100-gallon empty AST				
S-133/S-186	Training/ Shed							
S-191	Youth Center			Propane storage bank NE corner of S-191				
S-198/904/905 906/898	Bath House/ Pump Filter House/ Outdoor Swimming Pool/ NA							
S-203/S-219 1470	Warehouse/ Alcohol & Acid Storage/ Chlorine Storage		Compressed gas cylinders (oxygen and acetylene) S-203		Flammable material locker S-219 and flammable materials stored on pallets S-203			
S-221	Admin - NAMTG							
S-222	Metal Shop - NAMTG							

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
S-223	Machine Shop - NAMTG							
S-224	Modification Shop - NAMTD							
S-225	Carpenter Shop - NAMTD	Air pollution control process (exhaust hoods and cyclone separator)			Flammable material locker			
S-231/S-232 S-233	Training/ Training			One 300-gallon MOGAS AST (E of S-233)	Hazardous waste storage area (S of S-232)			
S-235/S-202 S-195/1238 1229/1642 S-220/1643 S-183/S-77 1507/S-184 1644/1645	Control Tool Room/ PW Storage/ PW Maintenance/ NA/ NA/ NA/ PW Maintenance Storage/ NA/ PW Maintenance Shop/ Public Works Shop/ Clock House/ PW Repair Shop/ NA/ NA	Compressed gas (materials) 12 oxygen and 8 acetylene cylinders (N of S-202), 10 oxygen and 20 chlorine cylinders (W of S-183)			Hazardous waste accumulation point building S-183 (SWMU 57), hazardous waste storage area building 1238			
S-236	Public Works							
S-237/1736	Data Processing Center/ Generator Building						Emergency generator with associated AST	
S-238	Marine HQ/Restricted BKS/NIS				Flammable storage locker			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
S-239	Administration							
S-240	Training			Three 110-gallon diesel fuel USTs,	Three 5-gallon containers of centrifugal refrigeration oil (stored in basement)			
S-241	Training				Flammable materials locker			
S-242	Warehouse							
SWMU 1	Fire Department Drill Area				Hazardous materials area; solvents, fuel, metals, PCB's			
SWMU 2	South Side Landfill				Household, office, and industrial solid waste; wastewater treatment sludge; solvents			
SWMU 4	Plating Shop					Plating shop; metals, cyanide		

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
SWMU 6/ N-126	Battery Shop/ Aircraft Hangar				Waste electrolyte and neutralized waste acid solution			
SWMU 7/ N-126	Plating Shop/ Aircraft Hangar		Plating shop (metals, cyanide)					
SWMU 8	Cemetery Disposal Area				Hazardous material waste; ethylene oxide, metals, waste oil, transformers, capacitors			
SWMU 9/ 756/754	Sewage Lagoons/ NA/ NA	Sewage treatment (domestic sewage)						
SWMU 10	Demolition/ Construction Debris Landfill				Construction debris			
SWMU 11	Oiled Dirt Roads				Waste oils,PCBs			
SWMU 12	Galley Disposal				Foodstuff and containers			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
SWMUs 14&46	Former Site of Building S-140 and 7th Avenue Ditch/ S-140 Hazardous Waste Accumulation Point				Hazardous waste area; paint, metals, petroleum products, solvents (SWMU 14) Hazardous waste accumulation point; waste paint (SWMU 46)			
SWMU 25	Big Creek Landfill				Hazardous materials; construction/ demolition debris such as concrete, steel, and asphalt			
SWMU 27	North Side Sewage Treatment Plant	Sewage treatment plant (domestic sewage, oils, solvents, and paints)						
SWMU 31	Aircraft Wash Rack 4th Street					Wash rack (chromic acid, detergent)		
SWMU 33	Incinerator				Incinerator; pathological wastes incinerated to ash			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
SWMU 36	North Side Sewage Treatment Plant Incinerator				Incinerator; ash from paper and plastic			
SWMU 37	South Side Sewage Treatment Plant Incinerator				Incinerator; unknown(probably ash from incineration of paper and plastic)			
SWMU 38	Miscellaneous Drainage Ditches	Drainage ditches; solvents, degreasers, soils, and paints						
SWMU 39/ S-74/S-212	PCB Storage Area (S-74)/ Vacant/ Solvent Storage				Hazardous material storage area; PCBs			
SWMU 41/ 885/262/1487	Salvage Yard #2/ NA/ Shed/ Supply Salvage Yard Office				Hazardous material storage area; scrap metals, tires, batteries, and used furniture			
SWMU 43	Hazardous Waste Accumulation Area				Hazardous waste accumulation point; solvents, waste paint, paint strippers			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
SWMU 45	Hazardous Waste Accumulation Area				Hazardous waste accumulation point; waste paint, solvents, and paint strippers			
SWMUs 50/51 52/53 N-126	Hazardous Waste Accumulation Points Assoc. With Aircraft Hangar				Hazardous waste accumulation points; mineral spirits, paint thinners, and TCE (SWMUs 50/51/52/53)			
SWMU 59/ 335	Old Pesticide Shop/ Storage				Hazardous material storage area; DDT, dieldrin, chlordane, and arsenic-based pesticides			
SWMU 60	North Side Landfill (Western Portion)				Hazardous material storage area; construction debris			

Process Closure Information for NAS Memphis								
Building Number(s)	Building Name(s)	Water/ Wastewater Treatment	Industrial Units	UST/AST	Hazardous Material Management Areas	Chemical Processes	Equipment	Piping Systems
SWMU 61	Former Printing Shop				Print shop; printers inks and solvents (may contain lead, chromium, and cadmium)			

APPENDIX B

PROCESS DECONTAMINATION CLOSURE/CERTIFICATION FORM

(EXAMPLE)
PROCESS DECONTAMINATION/CLOSURE CERTIFICATION FORM

1. **Name/Type of Unit:** (e.g., Hydraulic Crane)

2. **Unit Size:** (e.g., 150 ton XYZ crane)

3. **Location:** (Building number, specific location within the building)

4. **Type of Hazardous Material/Waste (select one) Stored or Used in Unit:** (e.g., Hydraulic fluid possibly contaminated with PCBs)

5. **Volume of HM/HW Stored in Unit:** (e.g., 50 Gallons)

6. **Applicable Regulation:** (Include rationale, e.g., TSCA 40 CFR - applies to the hydraulic fluid in equipment)

7. **Date of Process Shutdown or Equipment Taken Out of Service:**

8. **Date of Decontamination and/or Closure:**

9. **Fate of Unit (reuse, abandonment in place, or disposal):**

10. **Health and Safety:** [e.g., The personnel shall wear level D PPE. The PPE will include tyvek, rubber gloves, no respiratory protection will be necessary (reference OSHA/NIOSH guidance), etc.]

11. **Decontamination Procedures:** [e.g., The hydraulic fluid will be drained, the system will be pressure washed for 15 minutes at 20 psi, and rinsate shall be collected in a mobile tank/container and tested for PCBs (test method _____ SW 846). Based on the testing results, the rinsate shall be disposed of appropriately. All decontamination procedures were approved by South Carolina Department of Health and Environmental Control in a letter to Mr. John Q. Public, Code 1000, of NAS Charleston, SC dated ZZ/XX/YY.]

12. **Sampling/Analysis Plan for Waste Material, Wash/Rinse Waters, etc.:** (The plan should be similar to a QA/QC plan, i.e. constituent specific, identify analytical procedures, detection limits.)

13. **Cleanup Standard:** (Comparison of a standard to results, e.g., background vs. non-detect vs. TCLP, etc.)

14. **Waste Management Procedures:** (How and where waste will be stored/disposed of. For example the hydraulic fluid shall be contained in DOT-approved 55-gallon drums. The drums will have appropriate PCB labeling and be stored within a temporary storage area that meets all TSCA requirements.)

15. **Recommendations/Procedures If Total Decontamination Cannot Be Achieved:** (No action necessary, repeat procedures, or remove and dispose of as HW, etc.)

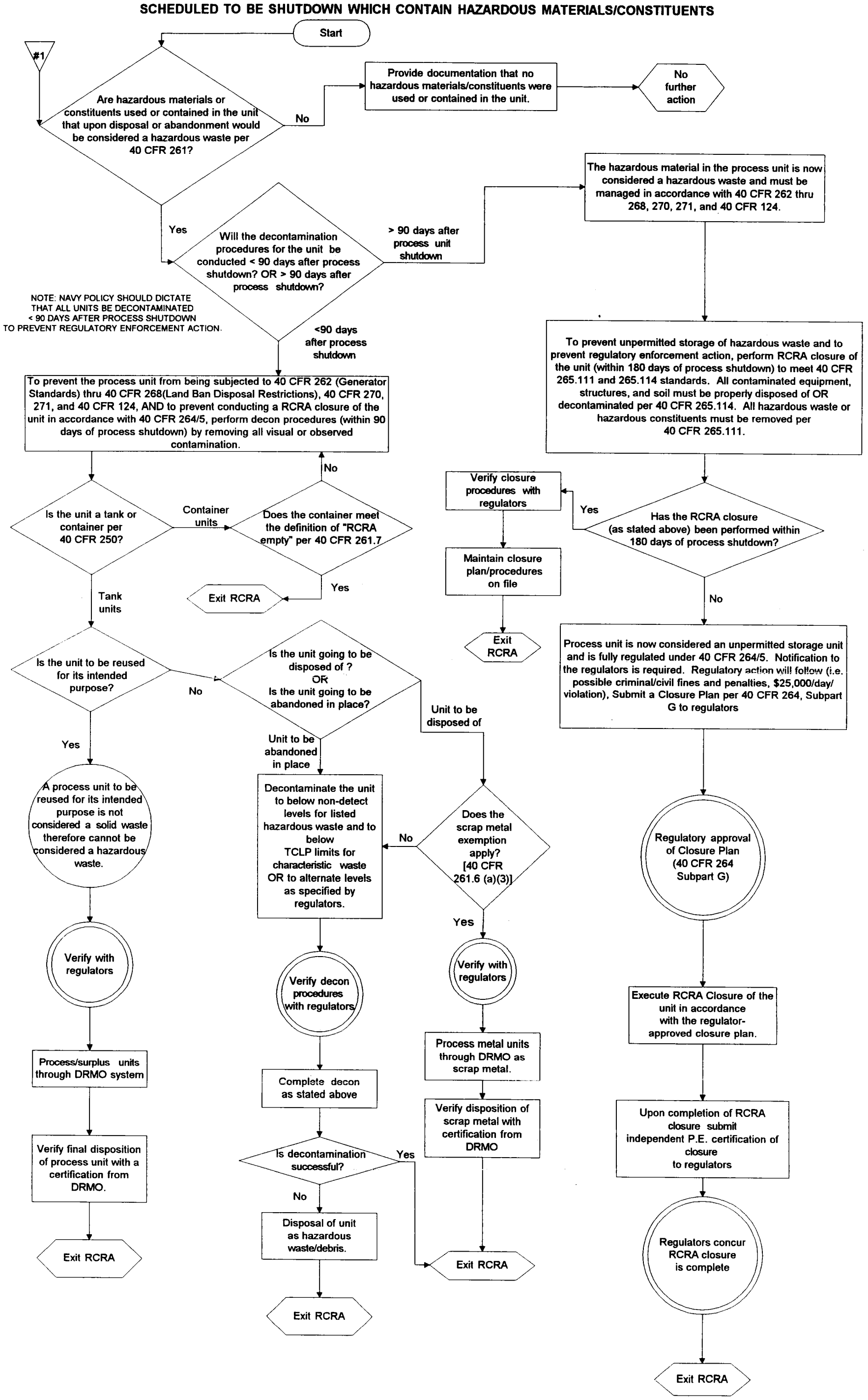
16. **Certification:** To the best of my knowledge, the (specific type of unit) was decontaminated as stated above with ___no modifications or with the ___ attached modifications and all information stated herein is true and accurate.

_____
John Q. Public

APPENDIX C

REGULATORY DECISION FLOWCHARTS

FLOWCHART #1
DETERMINATION OF DECONTAMINATION STANDARDS FOR PROCESS UNITS THAT ARE SCHEDULED TO BE SHUTDOWN WHICH CONTAIN HAZARDOUS MATERIALS/CONSTITUENTS



FLOWCHART #2
DECONTAMINATION/CLOSURE STANDARDS FOR PROCESS UNITS THAT ARE SCHEDULED TO BE SHUTDOWN WHICH CURRENTLY MANAGE HAZARDOUS WASTE