SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN FOR COMMANDER, FLEET ACTIVITIES, YOKOSUKA

FEBRUARY 2008

PREPARED BY:
NAVAL FACILITIES ENGINEERING COMMAND FAR EAST
ENVIRONMENTAL SERVICES BUSINESS LINE (OPEV)
PSC 473 BOX 13
FPO AP 96349-0013

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN FOR COMMANDER, FLEET ACTIVITIES, YOKOSUKA

FEBRUARY 2008

PREPARED BY:
NAVAL FACILITIES ENGINEERING COMMAND FAR EAST
ENVIRONMENTAL SERVICES BUSINESS LINE (OPEV)
PSC 473 BOX 13
FPO AP 96349-0013

TABLE OF CONTENTS

1. GENERAL INFORMATION 1

2. INTRODUCTION 3

2.1 Applicability 3
2.2 Significant Spill or Release 3
2.3 Plan Format and User Instruction 4

3. PROCEDURAL REQUIREMENTS 5

3.1 Intent 5
3.2 Administrative Requirements 5
3.2.1 Plan Amendments 5
3.2.2 Spill Reporting 5

4. FACILITY DESIGN AND OPERATING STANDARDS 6

4.1 Scope 6
4.2 Site Characteristics 6
4.2.1 Yokosuka Naval Base 6
4.2.2 Ikego Hills Housing Complex 8
4.2.3 Yokohama Detachment Negishi 8
4.2.4 Urago Ordnance Storage Area 8
4.2.5 Yokohama North Dock 8
4.2.6 Hakozaki Fuel Terminal 9
4.2.7 Tsurumi Fuel Terminal 9
4.3 POL Facility Overview 9
4.3.1 Arrangements for Emergency Services 9
4.3.2 Emergency Equipment 9
4.3.3. Evacuation Plan 10
4.4 Spill Vulnerability Assessment 10
4.4.1 Tank Failure 10
4.4.2 Overfilling Spills 10
4.4.3 Drainage Control and Management 10
4.4.4 Equipment Failure 11
4.4.5 Piping Failure 11
4.4.6 Vandalism and Negligence 11
4.5 Spill Direction and Rate of Flow Prediction 11
4.5.1 Spill Direction and Critical Water Resources 11
4.5.2 Rate of Flow Prediction 11
4.6 Facilities and Operations Evaluation 12
4.6.1 POL Storage Facilities 12
4.6.1.1 Secondary Containment Requirements 12
4.6.1.2 Containment Drainage Inspection 13
4.6.1.3 OWS Maintenance 13
4.6.1.4 OWS Monitoring 14
4.6.1.5 Locking of Drainage Valve 14
4.6.1.6 Periodic Inspection and Testing 15
4.6.1.7 Tank and Product Storage Compatibility 15
4.6.1.8 Fail Safe Engineering Features 15
4.6.1.9 Markers and Signs 15
4.6.1.10 Tank Cleaning Wastes and Bottom Water 15
4.6.2 Aboveground/Buried Piping 16
4.6.2.1 Cathodic Protection 16
4.6.2.2 Exposed Buried Piping Section 17
4.6.2.3 Periodic Inspection 17
4.6.2.4 Procedural Manual 17

4.6.2.5 Hydrostatic Testing....18
4.6.3 Hazardous Substance Facilities....18
4.6.3.1 Hazardous Materials and Hazardous Waste....18
4.6.3.2 Pesticides....19
4.6.3.3 Polychlorinated Biphenyls....19
4.6.4 Personnel Training....20
4.6.4.1 General Spill Prevention Training....20
4.6.4.2 POL Tank Personnel Training....20
4.6.4.3 Hazardous Substance Personnel Training....21
4.7 Inspections and Recordkeeping Requirements....21
4.8 New Tank / Pipeline Design Criteria....22
4.9 Facility Incident Commander (FIC)....22

APPENDICES

A. JAPAN ENVIRONMENTAL GOVERNING STANDARDS (JEGS), CHAPTER 18
B. FUEL OIL STORAGE FACILITY INVENTORY, FEATURES, EVALUATION OF DEFICIENCIES, AND RECOMMENDED CORRECTIVE ACTIONS
C. SPILL HISTORY
D. INSPECTION OF SECONDARY CONTAINMENT DRAINAGE AND FUEL OIL STORAGE AND TRANSFER FACILITIES
E. OIL/WATER SEPARATOR EFFLUENT MONITORING LOCATIONS
F. CFAY HAZARDOUS WASTE ACCUMULATION POINTS AND HAZARDOUS WASTE STORAGE AREAS LIST AND AUTHORIZED USER LIST CONTAINING HAZARDOUS SUBSTANCES WORK CENTERS

LIST OF ACRONYMS

AOR	Area of Responsibility
AST	Aboveground Storage Tank
AUL	Authorized Users List
CFAY	Commander, Fleet Activities, Yokosuka
CFR	Code of Federal Regulations
cm	Centimeter
CNFJ	Commander, U.S. Naval Forces, Japan
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
DSN	Defense Switched Network
FIC	Facility Incident Commander
FISC	Fleet Industrial Supply Center
FSC	Federal Stock Group and Class Code
ft	Feet
gal	Gallon(s)
HAZMIN	Hazardous Materials Minimization
HM	Hazardous Materials
HW	Hazardous Waste
HWAP	Hazardous Waste Accumulation Point
HWMP	Hazardous Waste Management Plan
HWSA	Hazardous Waste Storage Area
ISCP	Installation Spill Contingency Plan
JEGS	Japan Environmental Governing Standards
JMSDF	Japanese Maritime Self Defense Force
JP-8	Jet Propellant Fuel
km	Kilometer
MOGAS	Motor Vehicle Gas (Unleaded Fuel)
MSDS	Material Safety Data Sheet
NAVFAC FE	Naval Facilities Engineering Command Far East
NAVSUP	Naval Supply Systems Command
NEX	Naval Exchange
NIIN	National Item Identification Number
NPDES	National Pollutant Discharge Elimination System
O&M	Operation & Maintenance
OHS	Oil and Hazardous Substance
OU	Operating Unit
OWS	Oil Water Separator
PE	Professional Engineer
PCB	Polychlorinated Biphenyl
POL	Petroleum, Oils, and Lubricants
PPM	Parts Per Million
PWD	Public Works Department
QTY	Quantity
RHICS	Regional Hazardous Inventory Control System
sec	Seconds
SOP	Standard Operating Procedures
SPC	Spill Prevention Coordinator
SPCC	Spill Prevention Control and Countermeasures
SRF-JRMC	Ship Repair Facility and Japan Regional Maintenance Center
UST	Underground Storage Tank
WESTPAC	Western Pacific

1. GENERAL INFORMATION

A. NAME OF FACILITY: Commander, Fleet Activities, Yokosuka (CFAY)

B. TYPE OF FACILITY: Military Installation

C. LOCATION OF FACILITY: The CFAY installation is located on the island of Honshu, Japan, and maintains naval operations in Yokosuka, Zushi, Yokohama, and Tokyo.

D. NAME AND ADDRESS OF OWNER OR OPERATOR:

Name: Commander, Fleet Activities, Yokosuka
Address: PSC 473 Box 1
FPO AP 96349-0001

E. FACILITY INCIDENT COMMANDER (FIC):

Name: CAPT Daniel L. Weed
Title: Commanding Officer
Commander, Fleet Activities, Yokosuka
Telephone: (DSN) 243-7300

Deputy FIC:	CFAY Port Ops	Deputy FIC:	CNFJ Regional Fire Department
Title:	CFAY Port Operations Department Head, Code 300	Title:	Yokosuka Installation Fire Chief, Code N01FOY
Telephone:	(DSN) 243-7366	Telephone:	(DSN) 243-7351

F. 24-HOUR EMERGENCY FIRST RESPONDER (SERVICE PROVIDER):

Name: CNFJ Regional Fire Department
Telephone: 911 (On base)

G. SPILL PREVENTION COORDINATOR:

Name: CFAY PWD Environmental Department (PRY4)
Telephone: (DSN) 243-3814

MANAGEMENT APPROVAL

Commander, Fleet Activities, Yokosuka is committed to the prevention of discharges of oil and other hazardous substances to the environment and navigable waters; and maintains the highest standards for spill prevention control and countermeasures through regular review, updating, and implementation of this Spill Prevention Control and Countermeasures Plan.

Signature: _____

Name: Ron Rossetti

Title: CFAY PWD Environmental Director (PRY4)
Commander, Fleet Activities, Yokosuka

PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I have examined the facility and, being familiar with the provisions of Chapter 18 of the Japan Environmental Governing Standards (JEGS), attest that this SPCC Plan has been prepared in accordance with good engineering practices.

Michael C. Corry
Name of Professional Engineer

_____
Signature of Professional Engineer / Date

Registration No. C 68690 State CA

ANNUAL SPCC PLAN REVIEW AND UPDATES

In accordance with the JEGS, this SPCC Plan shall be reviewed annually and updated as necessary, but at least every five years. Amendments to this Plan shall be made after any change to a facility design, construction, operation, or maintenance which materially affects the facility's potential for the discharge of oil into or upon the navigable waters of Japan or adjoining shorelines.

Review by Dates	**Signature of Reviewer / Date**
February 28, 2009	_____
February 28, 2010	_____
February 28, 2011	_____
February 29, 2012	_____

Revision by Date	**Revision Completed by**
February 28, 2013	_____ Printed Name _____ Title _____ Signature

2. INTRODUCTION

2.1 Applicability

The Commander, Fleet Activities, Yokosuka (CFAY), Japan Spill Prevention Control and Countermeasure (SPCC) Plan is prepared to comply with the provisions and requirements of the Japan Environmental Governing Standards (JEGS) Chapter 18. According to the JEGS, all DoD installations must prepare, maintain and implement an SPCC Plan for the prevention of oil or hazardous substance spills through the implementation of engineering and operational control and countermeasures. JEGS Chapter 18 is provided in Appendix A.

JEGS 18-3.2 stipulates that an SPCC Plan must be written specifically for each petroleum, oil, and lubricants (POL) storage, handling and distribution facility that could possibly produce a significant spill or release. Within CFAY, the naval operations and tenant operations at Yokosuka Naval Base (Yokosuka), Yokohama Detachment Negishi (Negishi), Ikego Hills Housing Complex (Ikego), Urago Ordnance Storage Area (Urago), Yokohama North Dock (North Dock), Hakozaki Fuel Terminal (Hakozaki), and Tsurumi Fuel Terminal (Tsurumi) qualify as POL facilities because they exceed the following criteria:

- At least one individual above ground storage tank of 2,500 liters (660 gallons) or greater;
- Aggregate above ground storage of 5,000 liters (1,320 gallons) or greater;
- UST storage of greater than 159,000 liters (42,000 gallons); or
- A pipeline facility as identified in Chapter 9 of the JEGS.

Additionally, the JEGS requires that hazardous substances (JEGS 18-2.4), pesticides (JEGS 11-3.2b), and polychlorinated biphenyls (PCBs, JEGS 14-3.1b) capable of producing a significant spill or release be identified, inventoried, and evaluated in the SPCC Plan. For the purposes of this SPCC plan, the term "hazardous substance" will be used as a generic term to reference any combination of hazardous wastes, hazardous materials, pesticides, and/or PCBs; unless otherwise specified.

2.2 Significant Spill or Release

JEGS Chapter 18 defines a "significant spill or release" as an uncontained release to the land or water in excess of any of the following quantities:

- For hazardous waste or hazardous substances identified in JEGS Appendix A, any quantity in excess of the reportable quantity listed in JEGS Appendix A;
- For POL or liquid or semi-liquid hazardous material, hazardous waste or hazardous substance, in excess of 416 liters (110 gallons);
- For other solid hazardous material, in excess of 225 kilograms (500 pounds); or
- For combinations of POL and liquid, semi-liquid and solid hazardous materials, hazardous waste or hazardous substance, in excess of 340 kilograms (750 pounds).

Additionally, JEGS Section 4-3.4 indicates that Commander, U.S. Forces Japan, shall be contacted within four hours of the discovery of any raw wastewater discharge in excess of 100 gallons (378 liters).

If a spill occurs inside a contained impervious berm, or on a nonporous surface, or inside a building and is not volatilized and is cleaned up, the spill is considered a contained release and is not considered a significant spill.

This plan endeavors to prevent incidental oil and hazardous substance spills by adopting the procedures, methods, and equipment requirements stipulated in Chapter 18 of the JEGS. These criteria represent the basis by which all POL and hazardous substance facilities and operations at CFAY were evaluated.

2.3 Plan Format and User Instruction

This plan is arranged to provide maximum flexibility for amendments. It consists of two major sections covering:

- The procedural requirements, dealing with internal management control and accountability; and
- The substantive requirements, applying to POL and hazardous substance facilities design, construction, and operation and maintenance standards.

A SPCC Plan is more than just a compliance document. It is a long-range plan intended to prevent and control oil and hazardous substance spills. The possession of a certified SPCC Plan does not relieve CFAY of its responsibilities to fully implement and amend this plan. CFAY must review this plan annually and update it at least every five years or whenever there is a change in operations (tank inventory or facility improvement) that materially affects spill potential. It should be noted that the procedural requirements may change only if management policies change, whereas facilities inventory, design, and construction may change more frequently.

3. PROCEDURAL REQUIREMENTS

3.1 Intent

The procedural requirements adopted in this plan are intended to:

- Comply with internal Navy policies; and
- Promote management control and continuity in overseeing the prevention and reduction of oil spills.

3.2 Administrative Requirements

3.2.1 Plan Amendments

CFAY must amend this plan under the following circumstances:

- At least every five (5) years; or whenever there is a change in facility design, construction, operation or maintenance that materially affects the facility's potential for an oil or hazardous substance discharge into navigable waters. CFAY must ensure that the facility information contained in Appendix B is kept current and up-to-date at all times;

- Notwithstanding the above, CFAY must review and evaluate this SPCC Plan annually; and

- Following a reportable spill event, the Facility Incident Commander or Spill Prevention Coordinator must complete Appendix C, to provide the details of the spill, corrective action and/or countermeasure implemented or planned to prevent its recurrence. This information will be used for future review and update of this plan by incorporating more effective and/or stringent countermeasures to prevent the recurrence of such a spill.

3.2.2 Spill Reporting

Any fuel oil or hazardous substance spill or release that exceeds the reportable quantity must be reported in accordance with CFAY Oil and Hazardous Substance (OHS) Pollution Contingency Plan or COMNAVFORJAPAN OHS Pollution Contingency Plan when formally promulgated.

4. FACILITY DESIGN AND OPERATING STANDARDS

4.1 Scope

This SPCC Plan covers all petroleum, oil and lubricant (POL) and hazardous substance storage, handling and transfer facilities operated by U.S. Navy activities at Commander, Fleet Activities, Yokosuka (CFAY). POL and hazardous substance facilities operated and used by the Japanese Maritime Self Defense Force (JMSDF) are excluded from this plan. FISC Detachment Yokosuka implements a spill prevention program and maintains a separate SPCC Plan for its facilities. Therefore, FISC Hakozaki and Tsurumi are identified by reference only in this document.

All fuel oil or hazardous substance storage containers that may cause a significant spill or release, as defined in Section 2.2 in this plan, must be accounted for in a SPCC Plan. Unregulated tanks, such as day tanks or storage drums with a capacity below 110 gallons (416 liters), are below the "significant spill" criterion of the JEGS and are therefore not addressed in this SPCC Plan. Tanks of any size containing non-hazardous materials or liquids; or those containing natural gas, liquefied natural gas, or similar synthetic gas that volatilize immediately in contact with air are excluded from this SPCC Plan.

The POL facility requirements in Chapter 9 of the JEGS contain very few facilities standards governing underground storage tanks (UST). USTs are separately regulated under Chapter 19 of the JEGS. Bulk field erected USTs, such as those prevalent at Fleet Industry Supply Center (FISC) Tsurumi and Hakozaki Fuel Terminals are excluded from UST requirements of JEGS Chapter 19. Consequently, these USTs are included under the SPCC requirements per JEGS Section 19-2.4.

4.2 Site Characteristics

CFAY and its tenant operations maintain POL facility areas of responsibility onboard Yokosuka Naval Base, Ikego, Negishi, Urago, North Dock, Hakozaki, and Tsurumi; which are located along the eastern portion of Kanagawa Prefecture on Japan's largest island of Honshu (Figure 1).

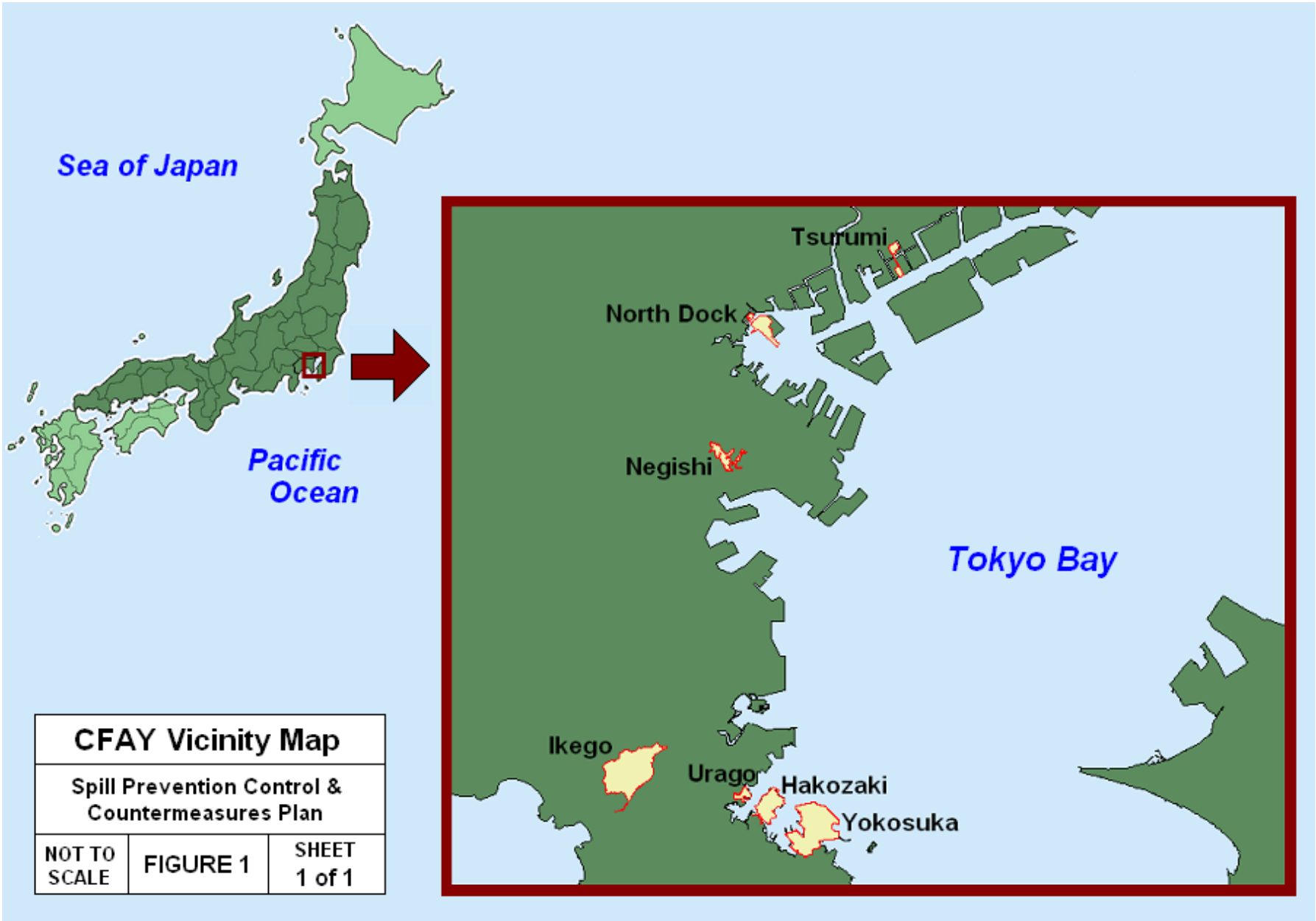
4.2.1 Yokosuka Naval Base

Yokosuka Naval Base comprises approximate 562 acres and is located on the eastern side of Miura Peninsula along the western shore of Tokyo Bay in Yokosuka City, Kanagawa Prefecture, Japan. CFAY and its tenant commands support WESTPAC operating forces, including afloat elements of the U.S. Seventh Fleet. Ship Repair Facility and Japan Regional Maintenance Center (SRF-JRMC) Yokosuka resides along the west side of Yokosuka Base. SRF-JRMC is the largest naval ship repair facility in the western Pacific and includes six dry docks, 19 wet berth locations, and 10 industrial buildings.

The topography of Yokosuka Naval Base is generally flat except for a steep ridge that effectively divides the base into two areas. The ridge is approximately 100 to 160 feet (30 to 49 meters) high and extends in a north-south direction. Personnel support facilities are generally on the east side of the ridge and the industrial, supply, and waterfront facilities are on the west side.

Storm drainage systems on Yokosuka Naval Base consist of drainage intake structures, pipe culverts, and both lined and unlined drainage ditches/swales. Storm water and associated drainage flows exit Yokosuka Naval Base via these conveyances and ultimately discharge to Tokyo Bay. Groundwater generally ranges from approximately three to nine feet below ground surface across the base.

The soils at Yokosuka Navy Base are primarily classified as course textured alluvial soils. They are derived from sand, silt, clay, and gravel deposited on the flood plains. Natural erosion over the area generally keeps pace with weathering so that little soil material accumulates.



CFAY Vicinity Map		
Spill Prevention Control & Countermeasures Plan		
NOT TO SCALE	FIGURE 1	SHEET 1 of 1

4.2.2 Ikego Hills Housing Complex

Ikego Hills Housing Complex is located in Zushi City, approximately nine miles northwest of Yokosuka Base. The complex covers roughly 719 acres and is primarily used for the housing of U.S. naval personnel. The topography of Ikego is relatively mountainous, with steep sloping grades and leveled valleys to provide land for facilities. Sections of the property have remained undeveloped and are used for outdoor recreational purposes.

Ikego Hills has a well-developed storm drainage system to collect and drain storm water from the facility. Storm water flows predominantly south towards outfalls at Ikego River, which runs along the southeast border of the facility. Ultimately, Ikego River drains to Tagoe River, which discharges into Sagami Bay on the western side of the Miura Peninsula.

The soils at Ikego Hills are primarily classified as course textured alluvial soils. They are derived from sand, silt, clay, and gravel deposited on the flood plains. Natural erosion over the area generally keeps pace with weathering so that little soil material accumulates. Groundwater generally ranges from approximately three to nine feet below ground surface across the base.

4.2.3 Yokohama Detachment Negishi

Negishi is located just southeast of Yokohama City, approximately 20 miles (32 km) north of Yokosuka Naval Base. Negishi provides facilities and support for logistical, recreational and administrative services for naval commands and personnel within the Kanto Plain. Consisting of 88 acres of hilltop property, the topography is marked by gentle to moderate slopes.

Negishi's storm drainage system consists of drainage inlets, culverts, and lined and unlined drainage ditches/swales. Accumulated storm water is collected and conveyed to the Yokohama municipal treatment system.

The soils at Negishi are primarily classified as course textured alluvial soils. They are derived from sand, silt, clay, and gravel deposited on the flood plains.

4.2.4 Urago Ordnance Storage Area

Urago consists of 48 acres of property located on the eastern side of the Miura Peninsula, approximately three miles northwest of Yokosuka Naval Base. The terrain at Urago is relatively mountainous with steep grades that have been leveled along the majority of the shoreline to provide level foundation for facilities.

The Urago drainage system consists of ditches, culverts, and drainage intake vaults. Accumulated storm water is collected and discharged to Tokyo Bay.

The soils at Urago are primarily classified as course textured alluvial soils. They are derived from sand, silt, clay, and gravel deposited on the flood plains. Groundwater generally ranges from approximately three to nine feet below ground surface across the property.

4.2.5 Yokohama North Dock

North Dock is a ten acre property located in north central Yokohama approximately 22 miles (35 km) north of Yokosuka Naval Base. The terrain is relatively flat in a well developed industrial setting along the coastline of Tokyo Bay.

The soils at North Dock are primarily classified as course textured alluvial soils, derived from sand, silt, clay, and gravel flood plain deposits. Storm water drainage from North Dock is discharged directly to Tokyo Bay. Although no groundwater information was identified for North Dock, the depth to groundwater is likely shallow (within 2-10 feet below ground surface) due to the facility's proximity to Tokyo Bay.

4.2.6 Hakozaki Fuel Terminal

Hakozaki Fuel Terminal is a 92-acre fuel facility operated by FISC Detachment Yokosuka and located approximately two miles (three kilometers) north of Yokosuka City, Kanagawa Prefecture, Japan. The Hakozaki facility primarily occupies 85 acres of land on Azuma Island, with an additional seven acres of property located across the 200 foot (61 meters) wide Arai Canal on the mainland. FISC Detachment Yokosuka implements a spill prevention program and maintains a SPCC Plan for its facilities. The most recent draft of the FISC Detachment Yokosuka SPCC Plan, dated March 2007, was being reviewed and finalized at the time of this CFAY SPCC Plan's drafting. For additional information regarding the FISC SPCC program or to review a copy of the FISC SPCC Plan, please contact FISC directly.

4.2.7 Tsurumi Fuel Terminal

Tsurumi Fuel Terminal is located in Anzen-cho, Tsurumi-ku, Yokohama City, Kanagawa Prefecture, Japan. The 46-acre fuel facility is operated by FISC Detachment Yokosuka and consists of two separate Operating Units, OU-1 and OU-2. FISC Detachment Yokosuka implements a spill prevention program and maintains a SPCC Plan for its facilities. The most recent draft of the FISC Detachment Yokosuka SPCC Plan, dated March 2007, was being reviewed and finalized at the time of this CFAY SPCC Plan's drafting. For additional information regarding the FISC SPCC program or to review a copy of the FISC SPCC Plan, please contact FISC directly.

4.3 POL Facility Overview

The Navy operates and maintains fuel storage containers with a capacity of 416 liters (110 gal) or more on Yokosuka Naval Base, Ikego, Negishi, Urago, North Dock, Hakozaki, and Tsurumi. CFAY maintains dedicated fuel transfer facilities within its FISC locations.

Naval operations at Yokosuka, Ikego, Negishi, Urago, and North Dock are primarily supported by small factory fabricated ASTs used as utility or service tanks. In addition, small to midsized welded or riveted ASTs are also in use at the facilities. Only a limited number of bulk ASTs are in use at CFAY facilities other than those supported by FISC Yokosuka. The majority of CFAY's regulated tanks are single-walled steel ASTs. Some of the more recently installed tanks are ConVault® double-walled ASTs.

FISC Yokosuka operates and maintains bulk POL storage facilities within CFAY at Hakozaki and Tsurumi for the receipt, storage, and issuance of DoD mission fuels to customers throughout Japan. The tank facilities at Hakozaki and Tsurumi are comprised of field erected cut-and-cover (or mined) bulk underground storage tanks (USTs), welded or riveted aboveground storage tanks (ASTs), and small factory fabricated ASTs, generally serving as utility or service tanks. SPCC requirements for the FISC fuel terminals are provided in the FISC Detachment Yokosuka SPCC Plan, which is available for review at FISC Yokosuka.

A detailed inventory and descriptions of individual storage containers is provided in Appendix B.

4.3.1 Arrangements for Emergency Services

In the event of a spill or release, the CNFJ Regional Fire Department should be contacted at the telephone number **911** (on base) or 090-816-0911 from a cellular phone. When contacting the fire department, be prepared to provide as much information as possible about the POL or hazardous substance that has been released, including the type, quantity, location, and any other pertinent information requested by the response personnel.

4.3.2 Emergency Equipment

Most tank users aboard CFAY maintain spill kits or related emergency equipment necessary for the cleanup of small POL and hazardous substance spills. However, the equipment is typically centrally stored and not located at each individual POL or hazardous substance storage location. The CNFJ

Regional Fire Department is the first responder to significant environmental releases and maintains related emergency equipment for initial response only, not for clean-up.

4.3.3. Evacuation Plan

The majority of the regulated tanks and hazardous substance facilities within CFAY are outdoors or within immediate access to outdoors. In the event of a spill or release, personnel should evacuate to a location at a higher elevation (uphill) and upwind of the spill or release. At indoor locations, significant releases should be quarantined or closed off to the public, whenever possible, until emergency personnel can mitigate the situation. If possible, any floor drains or possible flow points should be blocked to prevent further release of the spill to the environment. Personnel working in affected areas should evacuate the building to a pre-planned muster site until the affected area has been deemed safe for reentry.

4.4 Spill Vulnerability Assessment

Based on a review of CFAY's POL facilities, a spill vulnerability assessment is provided below.

4.4.1 Tank Failure

The island of Honshu is an earthquake prone area. Many of CFAY's double-walled tanks are ConVault® brand, which are designed with a low center of gravity to resist potential impacts from seismic events and vehicle collisions. Most single-walled utility tanks located within CFAY are structurally elevated tanks that are strapped and bolted or welded to their supports, which in turn are bolted to or embedded into concrete containment floors. Depending on their foundation and anchoring systems, these tanks are more susceptible to collapse during an earthquake than the ConVault® double-walled POL tanks. Although earthquake-induced structural failures are possible during an intense earthquake event, a seismic failure has not been documented since the introduction of U.S. Navy tanks in Japan.

Structural failure by corrosion is a more likely scenario for single-walled steel ASTs, due to the prevailing weather conditions and coastal/marine environment within CFAY's areas of responsibility. All steel ASTs within CFAY are susceptible to bottom plate failure. Cathodic protection is an effective countermeasure to safeguard against such a failure. Additionally, the bottom plate must be inspected and, if necessary, tested during the tank's internal cleaning cycle.

Corrosion failure of the ConVault® tanks is highly unlikely, because these systems are constructed with thermal insulation to protect against extreme temperatures and corrosion by separating the steel tank from the concrete exterior. No part of the steel internal tank comes in direct contact with concrete or any other corrosive material.

4.4.2 Overfilling Spills

Tank overfilling is one of the most common spill scenario associated with any fuel oil storage tank operation. All tanks within CFAY are susceptible to potential overfilling spills. However, this potential can be significantly reduced by using built-in and fail-safe features such as high liquid level alarm and pump cutoff systems. Furthermore, CFAY can implement internal fuel transfer procedures to include continuous monitoring of tank levels. Use of a backpressure shutoff dispensing nozzle would further decrease the potential for overfilling. In addition, during filling operations, drip pans or containment basins shall be utilized at all AST and storage container filling ports.

4.4.3 Drainage Control and Management

Rainwater drainage from secondary containment berm systems represents a potential source of oil discharge into storm drains or waterway systems. Gravity OWSs are crude and rudimentary devices that readily allow oil to pass through if any design parameters are exceeded; e.g. influent flow rate into or oil content level in the OWS. Unless OWSs are well maintained and monitored prior to their use, they can represent significant sources of oil discharges.

4.4.4 Equipment Failure

Equipment failure, which could cause the direct release of fuel oil, includes but is not limited to low point drain valves, flange joints, expansion joints, and direct sight glass fuel level gauges. The equipment is susceptible to tampering and leaks. Although leaks may appear to be minor, they have the potential to accumulate over time if left unattended.

4.4.5 Piping Failure

CFAY's AST's fuel piping systems are installed aboveground and/or partially buried underground. Some of the buried piping portions of the individual utilities tank piping systems are in direct contact with the soil. The piping material is generally steel, with coating and wrapping applied to a portion of the underground piping systems.

In corrosive soil, steel is susceptible to corrosion leaks. In general, leaks in underground piping are difficult to detect and pinpoint. Detection through the technique of fuel inventory accounting is simply too cumbersome to implement. Noted anomalies in fuel consumption are likely more useful in identifying underground fuel piping leaks. Underground piping leaks can best be detected through pressure testing.

4.4.6 Vandalism and Negligence

JEGS Section 9-3.2b requires that storm water drainage valves from diked areas be locked and in a closed position when not in active use. The installation's single-walled AST berm drainage valves should remain closed and locked following active use to allow effective containment during spill events. Although not specifically required by the JEGS, it is suggested that tank bottom drainage valves also be closed and locked when not in use to prevent unauthorized access. Although not historically a problem within CFAY, if these valves are negligently left unlocked, they are susceptible to intentional tampering, which could create a conduit for a POL release into the environment.

4.5 Spill Direction and Rate of Flow Prediction

4.5.1 Spill Direction and Critical Water Resources

There are many variables involved in predicting the fate of any spilled fuel after it gets into the open environment. These include the drainage facilities and their runoff pathways; the weather conditions prevailing prior to, during, and after the occurrence of a spill or leak; and the spilled fuel quantity. The direction of spilled fuel flow from the AST to the drainage valve or OWS is predictable and is described in Appendix B for each POL facility. The potential fate of the spilled fuel after it discharges into the open environment is discussed below.

Spilled fuel that escapes into the open environment would follow runoff pathways within the installation. It would either absorb/percolate into the soil or would get carried via the storm water drainage system or sheet flow and, depending on the volume spilled and prevailing weather conditions could ultimately discharge into waters of Japan, including local rivers and tributaries, Sagami Bay, Tokyo Bay, and ultimately the Pacific Ocean. Critical water resources downstream of CFAY's fence line are primarily utilized for industrial or recreational purposes.

A portion of the storm drain systems from each facility is made up of unlined (grassy) swales or open channels. They are subject to ponding in flat areas and are generally free of standing water except during the rainy season each year. The likelihood that a spill could discharge into a watercourse increases during the rainy season.

4.5.2 Rate of Flow Prediction

The POL tank facilities within CFAY have the potential to release spills involving a wide range of flow rates. The worst spill scenario could involve a complete structural failure of a large capacity POL tank. The size of the tank and the type, extent, and location of the failure would determine rate of fuel loss.

Flow rate from corrosion failure would likely start very small (barely noticeable) and would increase slowly in rate over time. For any other structural failure, the spill flow rate prediction is speculative.

The POL tank facilities are also susceptible to overfill spills. The rate of spill is based on the tank fueling rate, which is generally proportional to the size of the transfer hose. Most of the utility and service tanks within CFAY are filled by tank trucks. The hose used to transfer fuel is typically no larger than four inches in diameter. A pipeline transfer spill from the estimated 18 inch diameter pipeline associated with Yokosuka Naval Base's largest single capacity tank represents the worst case scenario. Table 1 provides summary of worst case potential discharges associated with a major failure at each CFAY facility, excluding the Hakozaki and Tsurumi FISC Terminals, which are identified in the FISC SPCC Plan.

TABLE 1: SOURCES OF POTENTIAL DISCHARGES

SOURCE FACILITY	MAJOR POTENTIAL FAILURE	MAX. SINGLE TANK CAPACITY (gal.)	MAX. DISCHARGE RATE (gpm)	FLOW DIRECTION
YOKOSUKA NAVAL BASE	Structural failure or overfill spill	1,050,000	3964 (1)	Towards Truman Bay (Tokyo Bay)
IKEGO HILLS	Structural failure or overfill spill	37,000	196 (2)	Towards storm drainage, ultimately to Ikego River
NEGISHI	Structural failure or overfill spill	120,000	196 (2)	Towards Yokohama Municipal Treatment System
URAGO	Structural failure or overfill spill	571	196 (2)	Towards Tokyo Bay
NORTH DOCK	Structural failure or overfill spill	8000	196 (2)	Towards Tokyo Bay

(1) Based on overfill spill involving fuel transfer assuming 18 in. diameter hose @ 5ft/sec transfer rate
(2) Based on overfill spill involving fuel transfer assuming 4 in. diameter hose @ 5ft/sec transfer rate

4.6 Facilities and Operations Evaluation

Applicable facility design and operating standards mandated in the JEGS for existing POL and hazardous substance storage facilities within the CFAY area of responsibility (AOR) are discussed below.

4.6.1 POL Storage Facilities

4.6.1.1 Secondary Containment Requirements

Section 9-3.2 of the JEGS requires all aboveground POL storage tanks, except double-walled and double-walled vaulted ASTs, to be retrofitted with secondary containment dikes of sufficient volume and imperviousness to contain the entire contents of the largest tank plus freeboard for precipitation. Most CFAY single-walled ASTs were found to be protected by secondary containment berms. The containment berms are concrete formed or lined and are considered sufficiently impervious to meet the JEGS criteria of 10^{-7} cm/sec maximum permeability. ASTs with deficiencies or lacking secondary containment are identified in Appendix B.

JEGS Section 9-2.6 identifies "storage tanks" as fixed containers designed to store POL. Several operations onboard CFAY utilize mobile or portable tanks, capable of being relocated as necessary to meet mission requirements. For the purposes of SPCC regulations, the term "fixed" shall include portable and mobile tanks in use in a designated fixed location for a consecutive 365 day period or longer, or any tank that is affixed and not easily removed from a fixed or permanent POL storage/transfer/piping system for any length of service. Any such tanks shall adhere to SPCC guidance of the JEGS and this SPCC plan.

4.6.1.2 Containment Drainage Inspection

Section 9-3.2 of the JEGS allows the discharge of rainwater from diked areas into a storm drain or water course, provided the water has been inspected and found to be free of sheen.

In the U.S., written records of spill events and drainage inspections from diked areas have been specifically identified to be maintained as part of any SPCC Plan. Rainwater discharge from a containment dike in the U.S. represents the only point source discharge exempted from the National Pollutant Discharge Elimination (NPDES) permitting system. This record keeping requirement serves as a minimum substitute to an NPDES permit. The JEGS requires minimum written procedures for record keeping requirements to be made as part of any SPCC Plan, but does not specifically require documentation of storm water drainage events. Though not specifically required, it is recommended that such events be documented in a written record and these records be kept on file for 3 years.

Section 9-3.2 of the JEGS prescribes management of rainwater with petroleum sheen as follows:

- Collect the sheen with adsorbent material prior to drainage; or
- Use an oil/water separator (OWS) to collect the oil fraction.

The drainage of rainwater accumulated inside the containment dike must be inspected in accordance with the procedures delineated in Appendix D. All tank users must be periodically reminded that the drainage water must be made free of oil sheen before it can be released out to the storm drain or open environment. This requirement could be avoided if the drainage water is left standing in the containment dike to evaporate. This drainage practice is acceptable provided mosquito and algae growth do not pose a nuisance. The latter could be unsightly and would require periodic cleaning of the containment berm.

It is recommended that Appendix D be issued at least once a year through a memorandum to all CFAY tank users reminding them of the secondary containment drainage control requirements.

4.6.1.3 OWS Maintenance

Typically, gravity OWS systems remove free oil and some mechanically emulsified oil from wastewater as it flows through the separator. The removed oil is stored within the separator or discharged into a separate oil tank for disposal by a waste disposal contractor. The wastewater then discharges to the sanitary or storm water system.

Secondary containment drains for several aboveground POL tanks within CFAY are routed through OWSs. The processing of rainwater drainage through an OWS represents a convenient means to remove residual fuel oil in the drainage water. However, this convenience must be carefully weighed against the maintenance cost of the OWS. Unless an OWS is properly maintained, it represents a potential source of oil pollution. Under conditions of high flow-through, OWSs are notorious for allowing oil to pass through the oil retention compartment. Small OWSs are especially prone to such short circuiting because of their limited oil retention capacity.

It should be noted that an OWS must maintain a minimum water level to effectively separate and retain the oil. Pump out of OWS must be restricted only to the oil fraction collected in the system. The water fraction serves as an oil retention barrier and if pumped to below its minimum water level would allow any incoming oil to flow through the OWS.

Additional OWS maintenance guidelines and best management practices are described in CFAY's Storm Water Pollution Prevention Plan (SWPPP), dated July 2006. If effectively implemented, the SWPPP's OWS maintenance guidance provides an integral countermeasure in preventing POL releases from Navy facilities and thus shall be incorporated by reference into SPCC procedures.

4.6.1.4 OWS Monitoring

Section 4.3 of the JEGS identifies the OWS wastewater discharge requirements. The effluent from an OWS may discharge directly to waters of Japan (direct discharge) or may discharge into a domestic or industrial wastewater treatment system or associated collection system (indirect discharge) prior to entering the waters of Japan. The monitoring requirements vary depending on whether the OWS effluent is a direct or an indirect discharge. Direct discharges from OWS systems to the waters of Japan shall be monitored at least annually for the parameters in Tables 4-1, 4-2, and 4-4 of the JEGS. Samples shall be collected at the point of ultimate discharge to the waters of Japan as practicable.

The monitoring requirements of indirect discharges are based on whether the discharge is into a DoD operated wastewater treatment system or a Japanese treatment system. Per the requirements of JEGS Section 4-3.2a, the monitoring requirements of indirect discharges into a DoD operated system shall be determined by the individual services or at the discretion of the installation commander. Per JEGS Section 4-3.2b, indirect discharges into Japanese treatment systems shall be monitored at least annually for the effluent limits in JEGS Tables 4-1, 4-4, and 4-5. The sampling location should be at an accessible location that includes all DoD installation flows just prior to the connection to the Japanese treatment system.

Several AST secondary containment drains connected to OWS systems were identified onboard Yokosuka Base, Ikego Hills, Negishi, North Dock and Urago. The OWS discharges associated with secondary containment structures at each of these locations, except Negishi, are considered direct discharges and should be monitored as prescribed in JEGS Tables 4.1, 4.2 and 4.4. Negishi's storm system discharges to the Yokohama municipal treatment system, a Japanese facility, and as such the OWS system drainage monitoring shall be conducted for the items in JEGS Tables 4.1, 4.4 and 4.5. Monitoring of OWS wastewater discharge is required at the point of direct discharge to waters of Japan or just prior to indirect discharge through a treatment system. In other words, monitoring the effluent of each individual OWS system is generally not required since the drainage pathways throughout most facilities merge prior to discharge from the facility, and thus a commingled sample can be collected at outfall locations.

Tables and figures identifying AST-related OWS effluent monitoring locations within CFAY's area of responsibility are provided in Appendix E. If outfall locations are determined to be inaccessible, a more accessible alternative monitoring location may be selected along the upstream flow, as long as the collection point provides a representative sample of the outfall conditions. The ultimate discharge locations of several OWS systems within CFAY are difficult to ascertain due to site conditions restrictions and/or limited historic records. In these cases, monitoring locations are selected at known points upstream of the ultimate discharge locations or directly from the effluent of the OWS.

It is recommended that CFAY perform effluent monitoring at least annually at the locations identified in Appendix E. If monitoring yields contaminant concentrations exceeding applicable limits prescribed in Chapter 4 of the JEGS, the facility should implement measures to trace the suspect contaminant back to its source.

4.6.1.5 Locking of Drainage Valve

Section 9-3.2b of the JEGS requires that all containment drainage valves be kept closed and locked when not in use. The lock requirement is reiterated in the Drainage Water Management section of Appendix D, which should be provided to all tank users as a reminder of this spill prevention requirement. Most of the AST secondary containment drainage valves surveyed throughout CFAY were found to be closed and locked, with some deficiencies, as noted in Appendix B.

4.6.1.6 Periodic Inspection and Testing

Regular inspection of fuel oil storage facilities, referenced in section 18-3.2k of the JEGS, represents an effective and inexpensive measure to safeguard against incidental spills. All POL storage and transfer facilities should be periodically inspected for leaks, general maintenance and operational issues, and structural flaws. This requirement should be made an integral part of the drainage water inspection requirement. Simply removing sheen from the drainage water is not sufficient. The potential sources of the sheen should be investigated to determine if equipment or procedural failures may have been involved. Otherwise, the cause of the sheen might be falsely attributed and the root problem(s) may go unresolved. Appendix D includes guidance for the regular inspection for leaks and structural defects, which has a direct impact on storm water drainage inspections.

4.6.1.7 Tank and Product Storage Compatibility

The design and construction of all CFAY fuel oil storage tanks were found to be compatible with the products being stored as well as the conditions of storage, including pressure and temperature. All single-walled fuel oil storage tanks currently in use are compatible with the storage of light fuel distillates. The ConVault® double-walled ASTs are constructed of steel tanks encapsulated in a polyethylene membrane and cased in concrete, compatible with the storage of light fuel distillates. All tanks are provided with adequate vents compatible with their product stored.

4.6.1.8 Fail Safe Engineering Features

Although not specifically identified in the JEGS, it is recommended that fail-safe engineering devices be utilized for all CFAY POL tanks. Approved fail-safe devices such as high liquid level alarms, direct reading gauges and audible air vents are examples of effective countermeasures against overfilling spills. Direct reading gauges provide a continuous means of ascertaining the tank's liquid level while being filled. A whistler installed on the tank's vent is also an effective and inexpensive device to safeguard against overfilling spill. As the tank approaches full, the velocity of the air exiting the vent increases and activates the whistle.

Many of the tanks within CFAY were observed to be fail-safe engineered. Most are equipped with direct reading level gauges and some had high-level alarm notification systems installed. Tanks deficiencies with regards to fail-safe engineering are identified in Appendix B.

4.6.1.9 Markers and Signs

Section 9-3.7 of the JEGS requires all aboveground POL storage tanks to have signs that are larger than 0.3 meters by 0.6 meters (approx. 12 inches by 24 inches) and visible from 16 meters (approx. 50 ft). The signs should contain the following information in both English and Japanese:

- The tank identification number;
- The maximum storage capacity;
- The title and telephone number of the point of contact;
- A warning label that reads "DANGER: NO FLAMMABLE OR IGNITION SOURCES WITHIN 50 FT OR 16 METERS" in red letters.

Several tanks identified during the site inspections either lacked signs completely or contained incomplete or inaccurate information. Noted deficiencies are listed in Appendix B.

4.6.1.10 Tank Cleaning Wastes and Bottom Water

Section 9-3.3 of the JEGS prescribes handling provisions for tank cleaning wastes and tank bottom water. Tank cleaning wastes are derived from the internal cleaning of bulk fuel tanks. The

cleaning frequency is normally prescribed once every four or five years. Tank cleaning wastes consist mainly of fuel and water mixture (liquid fraction) and some sludge (solid fraction). Most utilities tanks, like those in CFAY's tank inventory, do not require internal cleaning throughout their operational life. Precluding the FISC facilities, CFAY maintains few bulk storage tanks requiring internal cleaning.

Ambient air ladened with moisture has the tendency to condensate and accumulate in tanks. Because of its higher specific gravity, the condensed moisture accumulates in the tank bottom. Referred to as tank bottom water, this moisture has little impact on continuously or frequently operated boilers and generators, but it could impact emergency standby generators. Furthermore tank bottom water promotes corrosion on tank bottom walls and appurtenances.

Disposal of tank bottom water through an OWS or on the ground is inconsistent with the Chapter 9 of the JEGS. Such discharges would violate receiving water quality standards and/or, possibly, hazardous waste handling and management standards. Section 9-3.3 of the JEGS requires tank bottom waters to be collected and tested for hazardous characteristics. Specifically, the water must be tested for toxicity criteria only. Unless the tank bottom water is tested to be toxic, it can be disposed of through the sewer system upon Utility Department's approval after the fuel oil fraction has been removed to a level that will not interfere with biological treatment processes. In the absence of other applicable guidance, the allowable oil concentration for sewer discharge should not exceed 30 PPM, which is consistent with the acceptable oil concentration range typical applied to similar disposal from U.S. systems. Tank bottom water tested to be toxic must be disposed of as hazardous, in accordance with Chapter 6 of the JEGS.

The collection and testing of tank bottom water from each individual tank may be cumbersome and costly to undertake. Alternatives to individually collecting and testing tank bottom water must be considered. One such alternative is to establish a central accumulation point for each type of fuel-derived bottom water; i.e. Diesel, JP-8, and Mogas. The individual tank users would be made responsible for collecting and transferring their bottom water to the central accumulation point. Bottom water for most utilities tanks are small in quantity and lend themselves to individual collection and transfer. Suitable containers may have to be provided to the tank users to collect and transfer the water. Special collection and transfer may have to be arranged for large utilities tanks, or an increased drainage frequency may have to be implemented by the tank user to minimize the bottom water volume.

The viability of this plan depends on the cooperation of tank users. Otherwise CFAY could consider other collection alternatives either by contract or by arranging its own bowser or tank truck to collect the bottom water from its tanks. Either way, CFAY would have to establish a minimum collection frequency tailored to each individual tank. This would be difficult to establish and could result in a wide range of collection frequencies that would tax CFAY's resources, or hike the costs of the contract and administrative oversight. Regardless of which avenue CFAY chooses to collect the tank bottom water, the responsibility to dispose of the water might best be delegated to a contractor. Otherwise, CFAY would have to arrange with the NAVFAC FE laboratory (Code OPEV1) to test the water and to dispose of the water based on testing results.

4.6.2 Aboveground/Buried Piping

According to section 9-3.4 of the JEGS, all pipeline facilities carrying POL must be tested and maintained in accordance with 49 CFR 195 or the Japanese equivalent. The testing provision applies to new, replaced, or relocated pipelines. The maintenance provision applies to the preparation of procedural manuals to be followed for pipeline operations, maintenance, and emergencies. The applicability and conformance to the JEGS are discussed below.

4.6.2.1 Cathodic Protection

Section 9-3.5 of the JEGS specifies "All pipeline facilities with a construction start date after 1 October 1995 will be designed and constructed to meet 49 CFR 195 or equivalent". 49 CFR 195 (Subpart H) requires all buried pipeline system components to have adequate external protective

coatings and cathodic protection systems. It further specifies that “A cathodic protection system must be installed not later than 1 year after completing the construction.” Therefore, the retrofitting of cathodic protection does not apply to existing buried piping systems installed prior to October 1995.

Historically, the Navy has utilized slip-on polyethylene pipe casing to encase piping systems that comes in contact with the soil. The casing provides an effective barrier to keep any electrolytic current from corroding the pipe. This type of pipe casing provides adequate corrosion protection without the application of cathodic protection. However, the annular space between the pipe and the casing that is exposed to atmosphere must be kept properly sealed to prevent moisture seepage and retention, which could corrode the steel pipe. The existing seals must be maintained to ensure they are waterproof. Additionally, flaws in coating and/or wrapping would allow electrolysis to form pinhole corrosion on steel pipe. Pinhole corrosion leaks are difficult to detect and have the potential to release indefinitely prior to detection.

An alternative to cathodic protection is to encase the buried piping section with polyethylene pipe. This alternative is best suited for the installation of new piping or during the replacement of an existing piping system. If installed properly, the secondary casing is just as effective to safeguard against corrosion and, unlike cathodic protection, it does not require periodic inspection monitoring. Although piping installed prior to October 1995 is excluded from the requirement, all new buried piping or replacement buried piping should be protected in accordance with 49 CFR 195 requirements.

Much of CFAY’s AST piping system was found to be constructed of steel and either completely aboveground or partially buried underground, as indicated in Appendix B. These buried piping sections are potentially susceptible to corrosion failure, especially if they are uncoated or not provided cathodic protection.

4.6.2.2 Exposed Buried Piping Section

As referenced in the JEGS, 49 CFR 195 stipulates that if a section of a buried pipe section is exposed for any reason, it should be closely examined for deterioration. If corrosion damage is found, additional action must be taken to ascertain the damage. Corrective action must be implemented to mitigate any damage that has the potential of developing into leaks. This requirement entails no capital investment and shall be adopted as part of CFAY long term spill prevention strategy. To remind tank users, this inspection requirement is incorporated in Appendix D as part of the tank and piping inspection procedures.

4.6.2.3 Periodic Inspection

All exposed piping systems were inspected as part of the field survey for this plan and most were found to be structurally sound. CFAY’s tank piping systems were typically found to be short in length with frequent bends and turns that provide adequate allowances for expansion and contraction.

The regular inspection requirement is an effective safeguard for the identification of potential leaks before they occur. This is a good common sense practice and does not require any capital expenditure to implement. This practice should be adopted as part of CFAY spill prevention strategy. Any observed defects or potential flaws must be reported to the CFAY PWD Environmental (PRY4) for resolution and correction. The recommendation to regularly inspect all exposed piping segments and related appurtenances is also incorporated in Appendix D.

4.6.2.4 Procedural Manual

Criteria 9-3.4a of the JEGS requires each pipeline operator handling POL to prepare and follow a procedural manual for operations, maintenance, and emergencies. This JEGS requirement was extracted from Subpart F of 49 CFR 195.402, which applies to pipeline facilities “in or affecting interstate or foreign commerce, including pipeline facilities on the Outer Continental Shelf”. This

part of the regulation specifically excludes "…onshore production, refining, or manufacturing facilities, or storage or in-plant piping systems associated with such facilities". Utility tank piping systems are considered "in-plant piping systems" and are excluded from this requirement.

Operation and maintenance manuals are generally provided to the U.S. Navy during the installation of bulk fuel tanks and other non-utility type tanks at CFAY facilities. These manuals contain written procedures and line diagrams for conducting normal fuel transfer operations, maintenance activities, and handling abnormal operations and emergencies. These manuals are substantially equivalent to the procedural manual for operation, maintenance, and emergencies called for in 49 CFR 195.

4.6.2.5 Hydrostatic Testing

Criterion 9-3.4b of the JEGS states that "Each new pipeline system and each system in which pipe has been replaced or relocated must be hydrostatically tested in accordance with 49 CFR 195 or the Japanese equivalent". As previously referenced in Section 4.6.2.4 above, CFAY's utilities tanks' piping systems are considered "in-plant piping systems" for storage facilities under 49 CFR 195.1(b)(6) and are excluded from such testing. However, hydrostatic testing should be required in all new non-utility type tank and pipeline installation or replacement/relocation contracts.

4.6.3 Hazardous Substance Facilities

In addition to POL facility requirements, the JEGS mandates the identification and evaluation of hazardous materials (HM), hazardous waste (HW), pesticides, and polychlorinated biphenyls (PCBs) facilities in an SPCC Plan. A discussion of these hazardous substances, as identified at CFAY, is provided herein. Hazardous substance facilities within CFAY are located at Yokosuka Naval Base, Ikego Hills, Negishi, Urago, and at FISC Hakozaki and Tsurumi. Information pertaining to SPCC requirements for hazardous substance management within Hakozaki and Tsurumi is provided in the FISC Detachment Yokosuka SPCC Plan.

4.6.3.1 Hazardous Materials and Hazardous Waste

Hazardous materials (HM) include any material that is capable of posing an unreasonable risk to health, safety, or environment if improperly handled, stored, issued, transported, labeled, or disposed; as defined in JEGS Table 5-1 and/or listed JEGS Appendix A. CFAY's HM are managed by FISC Regional Hazardous Materials Minimization (HAZMIN) Center on Yokosuka Naval Base.

When a hazardous material has been opened or partially used and the remainder of the material is no longer needed, the HM users should contact HAZMIN and inquire about treating the remaining material as a waste or as a reusable item. If the material is reusable, it should be properly containerized and returned to the HAZMIN Center for future reuse. If the material is treated as a waste, it should be properly containerized, labeled, and stored as hazardous waste (HW) at an approved location pending collection.

JEGS Chapter 6 designates two types of hazardous waste storage facilities: a Hazardous Waste Accumulation Point (HWAP) and a Hazardous Waste Storage Area (HWSA). A HWAP is considered an approved shop, site or other work center where HW is accumulated until removed to a HWSA or shipped for treatment or disposal. A HWAP is limited to a maximum of 208 liters (55 gallons) of hazardous waste or 1 liter (1 quart) of acute HW, as defined in JEGS 6-2.2, from each waste stream. A HWAP is not considered a HWSA, and must be located at or near the point of waste generation and under the control of the operator. CFAY maintains HWAPs at Yokosuka Naval Base, Ikego, Negishi, Urago, FISC Hakozaki, and FISC Tsurumi.

A HWSA is considered to be one or more approved locations on a DoD installation where HW is collected prior to shipment for treatment or disposal. A HWSA may store more than 208 liters (55 gallons) of a HW stream and more than 1 liter (1 quart) of an acute HW stream, but the wastes

should not be stored longer than one year. CFAY maintains two HWSAs at Yokosuka Naval Base.

A listing of HWAPs and HWSAs within CFAY's area of responsibility is provided in Appendix F, along with an authorized users list (AUL) for hazardous substance work centers within CFAY. The AUL inventory on file at the HAZMIN Center provides a snapshot of hazardous materials inventories within the installation. CFAY's AUL from 2003 to 2006 was reviewed for the purposes of this SPCC and was found to contain no individual storage containers capable of producing a significant spill or release per JEGS Chapter 18 guidance. It should be noted that the content and quantities of HM/HW maintained at each authorized storage location varies depending on mission needs and requirements. Changes to mission requirements will likely be reflected in inventory content and quantity changes at HWAP and HWSA.

CFAY maintains a Hazardous Waste Management Plan (HWMP), which provides guidance in the operation of HW generation and storage. It includes HW management Standard Operating Procedures (SOPs) for collection, containerization, labeling, marking, inspections, inventory, record keeping, transfer, storage, disposal and training. A copy of the HWMP is available at CFAY PWD Environmental (PRY4).

4.6.3.2 Pesticides

JEGS 11-3.2b mandates that pesticide inventories and pesticide facilities shall be included in the Installation Spill Contingency Plan (ISCP), Oil and Hazardous Substances (OHS) or Spill Prevention Control and Countermeasure (SPCC) Plan. The term "pesticide" generically refers to insecticides, herbicides, fungicides and rodenticides.

Pesticides are stored, maintained, and managed at two pesticide shops within CFAY located at Building 4304 onboard Yokosuka and Building 21020 onboard Negishi. Site-specific spill plans for the two shops, dated September 2004, were prepared by CFAY PWD Environmental (PRY4). The inventory lists for these pesticide shops are provided in Appendix F. These lists are subject to change and should be updated as necessary to reflect inventory changes at the pesticide shops. The CFAY pesticides management program is detailed in the Yokosuka Pest Management Plan, available at CFAY PWD Environmental (PRY4).

Small quantities of pesticide products are available at on-base residential self-help offices for use by base residents at Yokosuka, Negishi, and Ikego Hills. Additionally, the Naval Exchange (NEX) stores and mini-marts provide certain household pesticides for sale. The quantities of these residential pesticides are generally small and are considered negligible for SPCC requirements contained herein.

4.6.3.3 Polychlorinated Biphenyls

Polychlorinated Biphenyls, or PCBs, are mixtures of man-made chemicals with similar structures and can range from oily liquids to waxy solids. Because of their non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs have been used in numerous applications; including electrical, heat transfer, and hydraulic equipment; and in paints, plastics and rubber products. In the mid-1970's, concern over the toxicity and persistence (chemical stability) of PCBs in the environment prompted government and industry leaders to begin eliminating the use of PCBs in favor of more environmentally friendly substitutes.

PCB-containing devices awaiting disposal are currently being stored onboard Yokosuka in Building 5002 and within the fence enclosed, roof-covered storage area at "Berth 0", adjacent to Dry Dock 1. An approximately 49,000 ft^2 PCB storage area is also located onboard North Dock within Building #100137. When these PCB-containing devices are scheduled for disposal, they shall be manifested and disposed of through the Defense Reutilization and Marketing Office (DRMO), in accordance with JEGS Section 14-3.1(f).

CFAY maintains a list of known active PCB-containing devices currently in use at the installation. This list is provided in Appendix F.

4.6.4 Personnel Training

Chapter 18-3.6 of the JEGS states that "The installations will provide annual training and conduct the necessary exercises to ensure the effectiveness of personnel and equipment [to respond to oil and hazardous substance (OHS) spills]. The training will also provide guidance in regard to notification, reporting, funding assistance, logistical support, resources available and coordinating efforts available". The training requirements as stated above apply to all CFAY hazardous substances and POL tank users whose facilities have the potential of causing a release. The training elements related to funding assistance, logistical support, resource availability, and effort coordination apply to individuals and spill response operations groups that are specifically designated as spill responders in the CFAY spill response organization. The training requirements for POL and hazardous substance facility personnel are described below.

4.6.4.1 General Spill Prevention Training

To meet the training requirement in the JEGS SPCC regulations, the following topics, in whole or in part, must be integrated as part of the POL or hazardous substance personnel training program:

- The requirements contained in the SPCC Plan;
- Applicable environmental laws and standards (JEGS);
- Recent spills, causes and corrective actions taken;
- Processes and materials with which they work, SOPs, and safety practices required;
- Operation and maintenance of monitoring equipment that impact spill prevention and control;
- Inspection procedures;
- Any significant facility modifications in processes which could affect spill prevention and response; and
- Spill notification, reporting requirements and points of contact.

4.6.4.2 POL Tank Personnel Training

In addition to the general spill prevention training requirements identified in Section 4.6.4.1 above, all CFAY POL tank users must be properly briefed in the following spill prevention control and response measures associated with the operation and maintenance of their POL facilities:

- Containment drainage control procedures;
- Periodic inspection of fuel lines and hoses for structural defects or deterioration;
- Reporting any potential facility defects to the Facility Incident Commander and implementing corrective action;
- Regular inspection of liquid level sensing devices, especially those that control fuel oil transfer pumps; and
- Spill notification, reporting requirements and points of contact.

4.6.4.3 Hazardous Substance Personnel Training

In addition to the general spill prevention training requirements identified in Section 4.6.4.1 above, all CFAY hazardous substance personnel shall be properly briefed in the following spill prevention control and response measures associated with the operation and maintenance of their hazardous substances facilities:

- Containment drainage control procedures;
- Periodic inspections of storage area integrity (O&M) and cleanliness; and hazardous substance containment, labeling, and storage;
- Reporting any potential facility defects to the Facility Incident Commander and implementing corrective action;
- Regular inspection for spills, leaks and general housekeeping issues; and
- Spill notification, reporting requirements and points of contact.

Although the JEGS do not prescribe any training beyond the spill notification and reporting requirements, spill prevention control measures represent an integral part of any POL or hazardous substance facility operation. The POL and hazardous substances facilities personnel must be briefed on these requirements through either formal or informal training. The frequency of training is influenced by changes in personnel, spill events, and new equipment arrivals. If POL or hazardous substances facilities personnel continually fail to adhere to regulatory requirements, the frequency and type of training should be modified to adequately address the issues of non-compliance. Individual training records for POL and hazardous substance personnel should be maintained for at least three years following the termination of the employee or for three years following a career change of the employee to a non-related career field.

4.7 Inspections and Recordkeeping Requirements

Visual inspections provide an effective and inexpensive mechanism for monitoring the condition of POL and hazardous substance storage containers. It is recommended that ASTs onboard CFAY be monitored through undocumented weekly inspections for the reporting of leaks, excessive corrosion, and other suspect problems. Additional information regarding these inspection procedures and a checklist for POL storage and transfer facility inspections are provided in Appendix D.

Similar monitoring procedures should also be followed for hazardous substance facilities. JEGS Section 5-3.2 indicates that hazardous materials dispensing areas will be properly maintained. Drums/containers must not be leaking. Drip pans/absorbent materials will be placed under containers which contain liquids as necessary to collect drips resulting from use. Container contents will be clearly labeled. Dispensing areas will be located away from catch basins and storm drains. Although the JEGS do not indicate the frequency of maintenance activities at hazardous materials dispensing areas, it is suggested that these facilities be monitored on a weekly basis, at a minimum. In addition, each work center will maintain a file of Material Safety Data Sheets (MSDS) for each hazardous material procured, stored, or used at the work center, per JEGS Section 5-3.8.

Although the JEGS does not specify a frequency for inspections of Hazardous Waste Accumulation Points (HWAP), it is recommended that HWAP be inspected for compliance with JEGS Section 6-3.2 requirements on a weekly basis, at a minimum. JEGS Section 6-3.3h prescribes the inspection requirements and frequencies for Hazardous Waste Storage Areas (HWSA) and loading/unloading areas. HWSA inspections shall be recorded in an inspection log or summary. These records shall be kept for at least five years from the date of inspection. Additional information regarding the maintenance of hazardous waste is provided in the installation's Hazardous Waste Management Plan.

Pesticide management shops within CFAY's AOR shall adhere to the record keeping and reporting requirements of JEGS Section 11-3.1 and shall be monitored weekly, at a minimum, for the requirements prescribed in JEGS Section 11-3.8. In addition, personnel responsible for the management, storage, or

handling of pesticides must be familiar with and adhere to the requirements of the installation's Pest Management Plan, available at CFAY PWD Environmental (PRY4).

JEGS Section 14-3.1e requires installations having polychlorinated biphenyl (PCB) equipment to maintain a written inventory that includes a current list by type of all PCB equipment in use, placed into storage for disposal, or disposed of for that year. PCB equipment use and storage areas should be monitored for the requirements in JEGS Section 14-3. All periodic PCB facility inspections will be documented at the installation. Records of inspections and maintenance history will be maintained for three years after disposal of the inventoried equipment.

Records of personnel training related to the management, maintenance, storage or transfer of POL and hazardous substances should be maintained for a minimum of seven years from the date of training.

4.8 New Tank / Pipeline Design Criteria

It is recommended that all new aboveground POL systems be designed with the following:

- Modern double-walled vaulted tanks,
- Overfill protection systems with related alarms / cutoff switches,
- Spill containment basins at fill ports,
- Wrapped double-walled piping (with cathodic protection if steel),
- Proper signage as specified in JEGS Section 9-3.7.

If single-walled tanks are utilized for new AST constructions, the systems should be designed (in addition to the applicable criteria listed above) with the following:

- Sufficient secondary containment per JEGS Section 9-3.2a,
- Locks on the secondary containment drainage valves and tank bottom valves, and
- Oil/Water separators designed to process excess liquid accumulation inside the spill containment.

The entire life-cycle costs associated with the additional requirements for single-walled ASTs should be considered while performing a cost analysis for the type of new tank to install at the installation. Secondary containment berms and oil/water separator systems require regular inspection and maintenance to function effectively, but are not required with double-walled tanks. Many modern double-walled tanks are also encapsulated in corrosion-resistant membranes, which do not require paint for corrosion protection. Additionally, since double-walled tanks do not require spill containment berms, they generally require a smaller footprint area and are more aesthetically pleasing than single-walled ASTs.

4.9 Facility Incident Commander (FIC)

As required by the JEGS, each facility must have a designated FIC who coordinates and directs DoD control and cleanup efforts at the scene of a POL or hazardous substance spill due to DoD activities on or near the installation. In addition, the FIC must have the authority to commit the resources needed to carry out the environmental response and cleanup. JEGS Section 18-3.3b indicates that the FIC must be thoroughly familiar with the following:

- All aspects of the Oil and Hazardous Substance (OHS) Pollution Contingency Plan;
- All operations and activities involving POL and hazardous substances;
- The location and characteristics of POL and hazardous substances handled;
- The location of records; and
- Storage layouts.

The CFAY Commanding Officer serves as the installation FIC, as designated in the installation Oil and Hazardous Substance (OHS) Spill Contingency Plan per JEGS Section 18-3.3b. CFAY delegates the implementation of its environmental program to CFAY PWD Environmental (PRY4), which oversees the management of POL and hazardous substance facilities within the installation. Consequently, in addition to providing contact information for the installation FIC, this SPCC Plan allocates the position of Spill Prevention Coordinator to CFAY PWD Environmental (PRY4).

The Spill Prevention Coordinator (SPC) shall be accountable for oil and hazardous substance spill prevention and the implementation of this plan. The Spill Prevention Coordinator must:

- Be familiar with Chapter 18 of the JEGS, provided in Appendix A;
- Ensure that recommendations provided in Appendix B are addressed;
- Maintain Spill History Documentation contained in Appendix C;
- Issue Appendix D at least annually, or more frequently as deemed appropriate, to all tank users so that they are properly briefed on their responsibilities identified in this plan;
- Implement the OWS effluent monitoring requirements as provided in Appendix E;
- Make note of changes to Appendix F;
- Ensure that the spill prevention procedures and inspections are being carried out; and
- Update and amend this SPCC Plan as required.

Contact information for the FIC and SPC are provided in Section 1E and 1G (page 1) of this SPCC Plan.

APPENDIX A

JAPAN ENVIRONMENTAL GOVERNING STANDARDS (JEGS)
CHAPTER 18

APPENDIX B

FUEL OIL STORAGE FACILITY INVENTORY, FEATURES, EVALUATION OF DEFICIENCIES AND RECOMMENDED CORRECTIVE ACTIONS

SUMMARY OF POL TANK DEFICIENCIES

- **YOKOSUKA NAVAL BASE**
- **YOKOHAMA DETACHMENT NEGISHI**
- **IKEGO HILLS HOUSING COMPLEX**
- **URAGO ORDNANCE STORAGE AREA**
- **YOKOHAMA NORTH DOCK**

YOKOSUKA NAVAL BASE

NEGISHI

IKEGO

URAGO

NORTH DOCK

APPENDIX C

SPILL HISTORY

APPENDIX C

SPILL HISTORY FORM

(This form is to be completed by the Facility Incident Commander or Spill Prevention Coordinator following any reportable spill event which has occurred from this facility)

1. Date_____ Spill Volume_____ Cause:

Corrective action taken:

Plans for preventing recurrence:

2. Date_____ Spill Volume_____ Cause:

Corrective action taken:

Plans for preventing recurrence:

APPENDIX D

INSPECTION OF SECONDARY CONTAINMENT DRAINAGE AND FUEL OIL STORAGE AND TRANSFER FACILITIES

INSPECTION OF FUEL OIL STORAGE AND TRANSFER FACILITIES AND DRAINAGE WATER MANAGEMENT

1. Drainage Water Management

The following drainage management procedures apply to rainwater collected in the fuel tank containment berm system and bottom water collected in the fuel tank itself. The procedures also apply to containment drainage that is routed to oil/water separators (OWS). The drainage inspection procedures do not apply to rainwater that is left to evaporate in the secondary containment system.

a. Visually check the accumulated drainage water in the containment berm for the presence of oil or oil sheen before draining the berm. Any oil or sheen must be physically removed using adsorbents before the drainage water can be directly released into the open environment or oil/water separator. If the oil content in the containment berm is such that its removal by adsorbents is not practical, the fuel oil must be physically skimmed off or pumped out first into a container or drum. If the quantity of fuel is great enough that pure product can be recovered, the recovered fuel should be disposed as follows:

    - Recycle the recovered fuel back into the tank if it supports a boiler;
    - Turn in the recovered fuel to a station boiler plant for fuel; or
    - Call the Spill Prevention Coordinator / Facility Incident Commander for its disposition.

    Recovered Mogas should be turned in as hazardous waste.

b. Ensure that the release of drainage water from the containment berm drainage evolution, from valve opening to closing, is continuously attended and monitored by a person. This is to ensure that the drainage water release from the containment berm is free of oil and sheen at all times. The drainage valve must be closed and securely locked after the drainage is completed.

2. Tank Bottom Water Management

Tank bottom water cannot be drained into a containment berm even if the berm drainage is routed to an OWS. The bottom water draining must be collected in suitable containers. The containers must be labeled as tank bottom water and include the type of fuel (Diesel, JP-8, or Mogas) tank from which the bottom water was derived. The containers must be turned in to a designated site for accumulation and testing (HW Yard, DSN 243-5777). JEGS Section 9-3.3b provides additional bottom water management guidance.

3. Tank and Piping Inspection

a. Visually inspect all aboveground tanks and exposed fuel piping and associated appurtenances such as valves, flange joints, and others for signs of structural deterioration and leaks. In particular, the source of any oil sheen in rainwater collected in the containment dike must be determined by the tank user.

b. If applicable, inspect and test liquid level sensing devices and settings that control pump on-off switches regularly;

c. Whenever a buried piping section is exposed for any reason, inspect and document, photographically and in writing, the structural conditions of the exposed buried piping section. The record of the inspection must be turned in to CFAY PWD Environmental Department (PRY4) at 243-3814.

d. Promptly report any facility deficiencies found during the inspection to CFAY PWD Environmental Department (PRY4).

INSPECTION CHECKLIST FOR POL STORAGE AND TRANSFER FACILITIES

ITEM TO INSPECT	YES, NO, N/A	CORRECTIVE ACTION / COMMENTS
ANY OIL SHEEN OBSERVED IN CONTAINMENT BERM DRAINAGE WATER?		
EXCESSIVE OIL IN OWS? (MORE THAN 2 INCHES THICK)		
CONTAINMENT DRAINAGE VALVE KEPT CLOSED AND LOCKED?		
ANY SIGN OF TANK AND PIPING CORROSION, DAMAGE, OR LEAKS?		
IS ALL EQUIPMENT IN WORKING ORDER?		
• FLOAT SWITCHES?		
• LIQUID LEVEL GAUGES?		
• PRESSURE-VACUUM RELIEF VALVES?		
• TANK AUTOMATIC SHUT-OFF VALVES?		
• ALARMS?		
• DOUBLE-WALLED TANK INTERSTITIAL SPACE MONITORS?		
• OTHER?		
ANY BURIED PIPING SECTION EXPOSED OR EXCAVATED?		
NEED TO DRAIN TANK BOTTOM WATER?		
ARE CONTAINMENT DIKES/CURBING FUNCTIONING PROPERLY?		

ANY ADDITIONAL COMMENTS:

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT CFAY PWD ENVIRONMENTAL DEPARTMENT (PRY4) AT 243-3814.

_____ _____/_____/_____

INSPECTOR SIGNATURE DATE

APPENDIX E

OIL/WATER SEPARATOR EFFLUENT MONITORING LOCATIONS

OIL/WATER SEPARATOR (OWS) EFFLUENT MONITORING LOCATIONS

Section 4.6.1.4 of this SPCC Plan provides OWS monitoring requirements for CFAY. The table below summarizes the effluent sampling requirements for the OWS currently connected to AST berm drainage systems within CFAY. The sampling locations are identified on Figures E-1a, E-1b, E-1c, E-1d, E-1e, E-1f, E-1g, E-1h, E-2, E-3, E-4 and E-5, on the following pages. If sampling yields discharge contaminant concentrations exceeding applicable limits, the facility should implement measures to trace the suspect contaminant back to its source. Such measures may include increasing the frequency and/or locations of monitoring, as necessary.

OWS MONITORING POINTS		
LOCATION	**MONITORING PARAMETERS**	**FREQUENCY**
YOKOSUKA BASE (FIGURE E-1a) *AST #FRC1* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1a) *AST #A-A5203* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1a) *AST #SERVICE TANK* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1a) *AST #A-43-A* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1a) *AST #A-43-B* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1b) *AST #BLDG C-5* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1c) *AST #1829* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1d) *AST #1281* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1d) *AST #1570* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1e) *AST #B-1390* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1f) *AST #J-A-1398-1* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1g) *AST #1071* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1h) *AST #J-209-A* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1h) *AST #J-209-B* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1i) *AST #G-31-A* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
YOKOSUKA BASE (FIGURE E-1i) *AST #G-31-B* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
IKEGO HILLS (FIGURE E-2) *AST #608-A* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
IKEGO HILLS (FIGURE E-2) *AST #608-B* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
IKEGO HILLS (FIGURE E-2) *AST #690-A* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
IKEGO HILLS (FIGURE E-2) *AST #I-K-611* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY

OWS MONITORING POINTS (Cont'd)		
LOCATION	**MONITORING PARAMETERS**	**FREQUENCY**
NEGISHI (FIGURE E-3) *AST #23029* OWS EFFLUENT	JEGS TABLES 4-1, 4-4, AND 4-5	ANNUALLY
NEGISHI (FIGURE E-3) *AST #19003-1* OWS EFFLUENT	JEGS TABLES 4-1, 4-4, AND 4-5	ANNUALLY
URAGO (FIGURE E-4) *AST #U-A-18-1* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
NORTH DOCK (FIGURE E-5) *AST #100137* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY
NORTH DOCK (FIGURE E-5) *AST #124* OWS EFFLUENT	JEGS TABLES 4-1, 4-2, AND 4-4	ANNUALLY

APPENDIX F

CFAY HAZARDOUS WASTE ACCUMULATION POINTS AND HAZARDOUS WASTE STORAGE AREAS LIST AND AUTHORIZED USER LIST CONTAINING HAZARDOUS SUBSTANCES WORK CENTERS