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FINAL OILY WASTE/ WASTE OIL ENGINEERING STUDY PHASE 1 CNC CHARLESTON SC
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ENSAFE/ ALLEN AND HOSHALL

FINAL
OILY WASTE/WASTE OIL (OW/WO)
ENGINEERING STUDY
PHASE I

NAVAL BASE,
CHARLESTON, SOUTH CAROLINA

Prepared for:

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CONTRACT NO. N62467-89-D-0318
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FINAL OILY WASTE/WASTE OIL (OW/WO) ENGINEERING STUDY - PHASE I
NAVAL BASE, CHARLESTON SOUTH CAROLINA

1.0 GENERAL INFORMATION

1.1 Introduction

Oily waste/waste oil (OW/WO) Management Plans are being prepared for various naval activities, including Naval Station and Charleston Naval Shipyard, NAVSTA/CNSY. The purpose of this plan is to ensure continued compliance with environmental regulations and to obtain maximum beneficial utilization of recoverable oils. Development of an OW/WO Management Plan is a three-phased approach. Phase I of this plan development is an engineering study to examine the past studies and existing practices relating to OW/WO then determine the best approach and recommendations for management of used oil. A glossary of terms can be found in Appendix C.

1.2 Purpose/Goals

It is the Navy's desire to improve OW/WO management. The Navy's policy is to eliminate the use of donuts as soon as possible in all Navy ports. "Donuts" is a common name used for a floating oil water separator (OWS), officially designated a waste oil raft. Donuts are self-compensating tanks placed adjacent to berthed ships into which bilge water is off-loaded: oil is retained by baffles and the water fraction is discharged through a submerged outlet to the harbor. To assist in the phase-out of the use of donuts and also provide sound environmental practices for handling OW/WO generated ashore, each port activity has been given the task of preparing an OW/WO Management Plan which provides recommended OW/WO management procedures as well as any recommended corrective projects. The purpose of this survey is to identify shoreside sources and points of generation of waste petroleum products and to document volumes, frequency of generation, characteristics, and practices for waste oil reduction, segregation, and reuse at Naval Base, Charleston. All major sources of OW/WO have been visited (Appendix A, Figure 1). Facility reviews included evaluation of:

a. Plans and process flow diagrams of all collection, treatment, and disposal systems.

b. Evaluation of operation and maintenance procedures.

c. Existing analytical monitoring of the waste streams or the final treated effluent.

d. System cost, and where appropriate, revenue generated by sales of recovered waste oils.

e. Management responsibilities.

EnSafe/Allen & Hoshall reviewed the information obtained from this survey, compiled the results, and made recommendations concerning OW/WO management practices. The information will be reviewed by Southern Division, Naval Facility Engineering Command; Naval Station, Charleston and Charleston Naval Shipyard. The remaining sections of this report include information gathered from the surveys conducted and also recommendations.

1.3 Previous Oily Waste/Waste Oil Studies

Various studies have been done to determine the efficiency and cost for upgrading the Oily Waste Treatment System. The most recent report entitled **An Evaluation of an August 1990 EPA report on Donuts, Fuel Rail Tanker Cars, Resource Recovery Facility, and Dry Docks at Charleston Naval Shipyard Charleston, S.C., March 1991,** prepared by Michael G. Dupre, EIT and reviewed by Walton T. Rhodes, PE. The purpose of this report was to provide assistance in determining the regulatory basis for several of the recommendations of the Environmental Protection Agency evaluation team and to provide recommendations for corrective action where applicable. The recommendations from the Environmental Protection Agency (EPA) report included:

a. Determine National Pollutant Discharge Elimination System (NPDES) requirements for direct discharges from the donut oil/water separators into the Cooper River.

b. Determine Spill Prevention, Containment, and Countermeasure (SPCC) requirements for the use of railroad fuel tanker cars.

c. Determine the course of action for disposal of storm water runoff from the Resource Recovery Facility.

d. Determine the course of action of disposal of storm water collected in the dry dock areas.

Both state and federal regulations were reviewed, and it was determined that all of the audit team recommendations were based on sound regulatory basis. Other information included from this report is as follows. Section E of S.C. Regulations 61-68 establishes general rules and standards applicable to all waters and provides that any discharge into state waters must receive a degree of treatment and/or control adequate to produce an effluent which is consistent with the South Carolina Pollution Control Act (SCPCA) and the Clean Water Act (CWA) (P.L. 92-500, 95-217, 97-117, 100-4). The Federal Regulations, 40 CFR 122 and 40 CFR 112, further define water pollution abatement through NPDES permitting and SPCC prevention planning and enhance the provisions of the state regulations. The report further states that implementation of the

recommendations contained in this report will demonstrate that the NAVSHIPYD Charleston is pursuing a strong environmental protection program and will ensure compliance with all applicable regulations concerning the EPA and South Carolina Department of Health and Environmental Control (SCDHEC) recommendations.

The information given in Sections 1.4 and 1.5 below include that which was gained by EnSafe/Allen and Hoshall from the site visit, base personnel interviews and document searches.

1.4 Waste Oil Sources

Waste oil received at the Fleet Industrial Supply Center (FISC), Charleston comes from four sources. They are:

- Bilge water pumped from ships berthed at NAVSTA/NAVSHIPYD Charleston.
- The Fleet Training Center (FTC) water from the practice fire fighting field and storm water run-off from the first inch of a rainfall event and other separator systems.
- Naval Weapons Station, Charleston.
- Other maintenance shops located on base.

1.5 Oily Waste Volume

Based on ship assignments to NAVSTA/NAVSHIPYD Charleston, current operating practices and the current discharge agreement with the North Charleston Sewer District the flows are estimated as follows:

Outfall 001 Main Discharge Point*	2,200,000 GPD
Outfall 002 Metal Plating Facility. (Bldg. 226)*	10,000 GPD
Outfall 003 Naval Supply Oil Separator	100,000 GPD

* Volume includes domestic and industrial wastes.

1.6 Other Studies

1.6.1 Oily Waste/Waste Oil Management Study 100 Percent Final Report February 1981 — prepared by the Chester Engineers

This report provides information on an evaluation for current management practices and existing facilities and makes recommendations for future improvements.

1.6.2 Research of Oil Wastes June 1973 — prepared by ESSO Research and Engineering Company

The purpose of this report was to determine the source, quality, and quantity of oily wastes to be generated in 1975 and beyond, to analyze various possible solutions, and then to prepare recommendations on the most cost effective system for handling these wastes. The ESSO study contained information on waste oil testing and effects of blending waste oil into fuel.

1.6.3 Design Criteria Oily Waste Collection and Transfer Systems (Draft) July 1980 — prepared by PA Engineering

This report was intended for inclusion as a section of the existing Naval Facilities Engineering Command design manual, NAVFAC DM-5, Chapter 10. The report summarized the sources, flowrates, and characteristics of ship-generated OW/WO and discusses the ongoing ship alterations (SHIPALTS) program to manage these wastes onboard. The report also presents design criteria for pier-side collection systems, including details for connections, riser assemblies, piping supports, and lift stations.

1.6.4 Oil Spill Prevention Control and Countermeasures Plan revised August 1978 — prepared for the Naval Supply Center Charleston, S.C.

This plan was prepared in accordance with the Federal Water Pollution Control Act, which establishes requirements for oil pollution prevention at nontransportation related onshore and offshore facilities. Primary features of this plan include a description of facilities addressed by the law, containment features incorporated into the facilities, and operating procedures intended to minimize spill potential. Also included is a history of previous spills, procedures for reporting spills, recordkeeping and training requirements, and instructions for amending the plans.

1.6.5 Oil Spill Prevention Control and Countermeasures Plan December 1977 — prepared for the Naval Shipyard, Charleston, S.C.

This plan was prepared in accordance with the Federal Water Pollution Control Act, which establishes requirements for oil pollution prevention at nontransportation related onshore and offshore facilities. Primary features of this plan include a description of facilities addressed by the law, containment features incorporated into the facilities, and operating procedures intended to minimize spill potential. Also included is a history of previous spills, procedures for reporting spills, recordkeeping and training requirements, and instructions for amending the plans.

2.0 REGULATORY REQUIREMENTS AND CONSTRAINTS

2.1 Scope

Local, state, and federal regulations, including the Clean Water Act, the Clean Air Act, and Resource Conservation and Recovery Act (RCRA), have placed severe restrictions on the discharge of oils to the environment. To achieve the overall project goal of recommending facilities and management procedures for ensuring compliance with pollution abatement regulations and maximum beneficial utilization of recoverable waste oils, the applicable regulations must be considered.

This section documents the federal, state, and local regulations and Department of Defense instructions governing the disposal, reuse, and handling of oily wastes and waste oils. This compilation consists of a summary of the applicable regulations and instructions and their management and reporting requirements. The purpose of this regulatory review is to assure that management procedures are in compliance with environmental regulations.

2.2 1984 Amendments Relevant to Used Oil

In the 1984 Hazardous and Solid Waste Amendments (HSWA), Congress directed the EPA to decide whether to identify used automobile and truck crankcase oil as hazardous waste. After first proposing to list used oil as hazardous waste in November 1984, EPA decided not to list used oil that is recycled and to defer a decision on used oil that is disposed. EPA's decision was based on the concern that calling recycled oil a "hazardous waste" would stigmatize it and thereby discourage recycling. On review of this decision, a court ruled that Congress did not allow EPA to base a listing decision on a concern for "stigma," but rather only on the statutory factors in the section of the RCRA relating to hazardous properties of the waste.

Congress also directed EPA to establish a special regulatory scheme for companies that generate and transport used oil that is listed as a hazardous waste and is recycled.

2.3 Used Oil Under RCRA (40 CFR 266)

In an effort to encourage the recycling of used oil and in recognition of the potential hazards posed by its management, Congress passed the Used Oil Recycling Act in 1980. In 1984, the HSWA was signed into law. HSWA required EPA to make a final determination as to whether to list any or all used oils by 1986.

On November 19, 1986, EPA and States, concerned with stigmatizing used oil, declined to define it as a hazardous waste to encourage recycling/reuse. This nonhazardous classification

removed one barrier to used oil reuse. Businesses that burn used oil in industrial furnaces and boilers were concerned over liabilities associated with accepting hazardous wastes, storing them onsite, and burning them. It is important that used oil remain a resource and be recycled to prevent potential pollution of the air, land, surface and ground water. Used motor oil contains cancer-causing agents and metal contaminants. These can filter into the water supply when the used oil is dumped or sprayed as a dust suppressant. Such contamination can result in serious hazards to human health.

EPA's decision was challenged, and in 1988 the Court of Appeals for the District of Columbia ruled that EPA must determine whether to list any used oils based on the technical criteria for waste listings specified by the RCRA statute.

After the 1988 court decision, EPA began to reevaluate its basis for making a listing determination for used oil. On September 23, 1991, EPA published a supplemental notice of proposed rule and modifications to a comprehensive set of management standards for generators, transporters, and recycling facilities that handle and recycle used oil which presented information and requested public comment. In the May 1992 final listing of used oil, EPA did not take final action on a listing determination and/or management standards for used oils that are recycled as proposed in 1985 and 1991. In the Federal Register, Vol 57 No 178, beginning on page 41566, the EPA promulgated a final listing decision for used oils that are recycled and is simultaneously promulgating standards for the management of used oil under RCRA Section 3014. EPA made a final listing decision for used oils that are recycled based upon technical criteria provided in Sections 1004 and 3001 of RCRA. The effective date for this rule is March 8, 1993. This section contains information on legislation and references pertaining to used oil.

The definition for used oil is as follows:

> "Used oil" means petroleum-derived or synthetic oil including, but not limited to, oil which is used as a: (i) lubricant (engine, turbine, or gear); (ii) hydraulic fluid (including transmission fluid); (iii) metalworking fluid (including cutting, grinding, machining, rolling, stamping, quenching, and coating oils); (iv) insulating fluid or coolant, and which is contaminated through use or subsequent management.

2.4 References

In consideration of the effective date of 40 CFR 279, the discussions are based on information primarily from this rule instead of previous rules including 40 CFR 266. Relevant references are included in Section 2.4.1.

2.4.1 Relevant Legislation, References, and Federal Regulations

a. 29 CFR 1910; Occupational Safety and Health Act for Employee Exposure

b. 33 CFR 151; Oil and Noxious Liquid Substance Regulations

c. 33 CFR 153; Control of Pollution by Oil and Hazardous Substances, Discharge Removal

d. 33 CFR 155; Oil Pollution Prevention Regulations for Vessels

e. 33 CFR 156; Oil and Hazardous Material Transfer Operations

f. 33 CFR 158; Control of Residues and Mixtures Containing Oil or Noxious Liquid Substances

g. 40 CFR 110; Discharge of Oil

h. 40 CFR 112; Oil Pollution Prevention

i. 40 CFR 124; Procedures for Decision Making

j. 40 CFR 227; Criteria for the Evaluation of Permit Applications for Ocean Dumping of Materials

k. 40 CFR 252; Guideline for Federal Procurement of Lubricating Oils Containing Refined Oil

l. 40 CFR 257; Criteria for Classification of Solid Waste Disposal Facilities and Practices

m. 40 CFR 261; Identification and Listing of Hazardous Waste

n. 40 CFR 262; Standards Applicable to Generators of Hazardous Waste

o. 40 CFR 263; Standards Applicable to Transporters of Hazardous Waste

p. 40 CFR 264; Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

q. 40 CFR 265; Interim Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

r. 40 CFR 266;Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

s. 40 CFR 268; Land Disposal Restrictions

t. 40 CFR 270; EPA-Administered Permit Programs: The Hazardous Waste Permit Program

u. 40 CFR 279; Standards for the Management of Used Oil

v. 40 CFR 280; Technical Standards and Corrective Action requirements for owners and operators of underground storage tanks (UST)

w. 40 CFR 761; Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.

2.4.2 Office of Solid Waste and Emergency Responses (OSWER) Directive: Regulatory Determination of Used Oil Filters, October 30, 1990

Supplemental Notice of Proposed Rule Making, Hazardous Waste Management System; General; Identification and Listing of Hazardous Waste; Used Oil: Federal Register, September 23, 1991.

Final Rule, Hazardous Waste Management System; General; Identification and Listing of Hazardous Waste; Used Oil: Federal Register, May 20, 1992.

Final Rule, Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Recycled Used Oil Management Standards: Federal Register, September 10, 1992.

2.4.3 South Carolina Regulations

South Carolina Hazardous Waste Management Regulations (Chapter 61, Regulations 79.124-79.270)

The requirements of the South Carolina Hazardous Waste Management Regulations are equivalent to the RCRA regulations for management of used oil. The federal regulations are described in detail and the relationship between the federal and state regulations is given as follows:

Federal Regulation (40 CFR)	South Carolina Regulation (R.61-79 and 92)
Part 261	R.61-79.261
Part 262	R.61-79.262
Part 263	R.61-79.263
Part 264	R.61-79.264
Part 265	R.61-79.265
Part 266	R.61-79.266
Part 268	R.61-79.268
Part 279	NONE EQUIVALENT (8-30-91)
Part 280	R.61-92.280

South Carolina Code of Regulations, Water Quality Standards (R.61-68 and 69)

2.4.4 Local Regulations

- Sewage Disposal System Use and Rate Resolutions, North Charleston Sewer District

2.4.5 Navy/Department of Defense Regulations

Chief of Naval Operations publication, CNO Guide to New EPA Regulations on Hazardous Waste Fuels and Used Oil Fuels, April 1986 (SER 45116039296)

Chief of Naval Operations Guidance, OPNAV INST 4110.2, Hazardous Material Control and Management

OPNAV INST 5090.1A, Chapter 12 - Oil Pollution Prevention Ashore

OPNAV INST 5090.1A, Chapter 13 - Oil Pollution Prevention Afloat

2.4.6 Applicable Regulatory Agency Compliance Requirements and Navy Guidelines.

Waste treatment and disposal compliance requirements applicable to this oily waste water evaluation include:

FEDERAL LAWS

Clean Water Act

Public Law 92-500, The Federal Water Pollution Control Act, as amended by PL 95-217; The Clean Water Act (CWA) of 1977, as further amended by PL100-4; The Water Quality Act of 1987 — Title 33, United States Code, Section 1251, et seq. The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters.

The CWA's primary mechanism for imposing limitations on pollutant discharges is a nationwide permit program established under Section 402 and referred to as the National Pollutant Discharge Elimination System (NPDES). EPA's regulations for this permit are found at 40 CFR 121-125. An NPDES permit performs two basic functions in the CWA regulatory process. It establishes specific levels of performance that the discharger must maintain, and it requires the discharger to report failures to meet those levels to the appropriate regulatory agency. Under the NPDES program, any person responsible for the discharge of a pollutant or pollutants into any waters of the United States from any point source must apply for and obtain a permit.

Section 311 of the CWA act extensively regulates accidental or intentional discharges of oil and hazardous substances, and prohibits the discharge of "harmful quantities" of oil into navigable water. EPA regulations have defined the term "harmful quantities" to cover all discharges which "violate applicable water quality standards or cause a film or sheen upon the surface of the water..," thus virtually all discharges of oil are prohibited. For purposes of Section 311(b) of the CWA, discharges of oil from a properly functioning vessel engine are not deemed to be harmful, but discharges of such oil accumulated in a vessel's bilges will not be so exempt. The Navy has plans to retrofit its ships with onboard oil water separators.

Clean Air Act

The burning, handling, and storage of recovered waste oils must be accomplished in conformance with the provisions of the Clean Air Act and state and local implementation plans governing air emissions regardless of whether they contain classes of oils designated as hazardous. Emissions should be monitored to determine the necessity of emission controls. New source performance standards regulate the sulfur content in used oil for burning in commercial and industrial size boilers. The parameter range is from .2-.5%.

Oil Pollution Prevention — Spill Control Plan

Federal Regulation: 40 CFR 112 - Spill Prevention Control and Countermeasure (SPCC) Plans — Non-transportation related facilities must have a SPCC plan that provides a history

of oil spill events, the potential for discharge of oil, as well as containment procedures and equipment to prevent oil spills into or upon a navigable waterway or shoreline of the United States. SPCC plans must normally be certified by a registered professional engineer and must be reviewed, updated, and recertified by a registered professional engineer at three-year maximum intervals.

SPCC plans are not required if the facility has an aggregate unburied storage capacity of 1,320 gallons or less of oil, provided no single container capacity exceeds 660 gallon; has a total underground storage capacity of 42,000 gallons or less; or could not reasonably be expected to discharge oil into or upon the navigable waters of the U.S. or adjoining shorelines because of the location of the facility.

SPCC plans will be maintained at each facility and be available to EPA Regional Administrators and state and local agencies for onsite review during normal working hours.

Underground Storage Tank Regulations

South Carolina Underground Storage Tank Regulations (Chapter 61 Regulation 92)(10-19-90) — With the exception of the sections printed in the above referenced chapter, the state regulations for underground storage tanks are identical to 40 CFR 280 as revised through December 22, 1988.

Occupational Safety and Health Act

The Occupational Safety and Health Act (OSHA) requires that the nation's largest employer, the federal government, provide safe and healthful working conditions to federal employees. It specifically requires federal agencies to establish and maintain effective and comprehensive occupational safety and health programs, consistent with standards published by the Department of Labor.

Standards for Used Oil Transporters

The transport of used oil is regulated under the Department of Transportation's Hazardous Materials Transportation Act (HMTA). Used oil that meets the criteria for being "combustible" or "flammable" is regulated under Department Of Transportation requirements for classification, packaging, marking, labeling, shipping papers, placarding, recordkeeping, and reporting.

A used oil collector is any person or business who collects used oil from more than one generator or transporter or a generator who transports shipments of more than 55 gallons of used

oil and transports the used oil off-site to another party or establishment for recycling, disposal, or continued transport. Exclusions to this rule includes:

- Used oil generators who transport shipments of used oil in their own vehicles in quantities of 55 gallons or less to a used oil collection center or aggregation points.

- Household do-it-yourselfers who transport used oil to generators, collection centers, or aggregation points.

Standards for the Handling of Used Oil Filters

To increase the probability that the used oil filter (hazardous scrap metals) will qualify for the scrap metal recycling exemption, the generator or recycling facility should drain (gravity) the filter for an amount of time sufficient to ensure that all free-flowing oil is removed. The amount of drain time will vary based on a number of variables, including size of the filter and temperature (both ambient and that of the filter). 40 CFR 261.4(b)(15) contains the following information regarding used oil:

> Non-tern plated used oil filters that are not mixed with wastes listed in 40 CFR 261 Subpart D, are solid waste which are not hazardous wastes if these oil filters have been gravity hot-drained using one of the following methods:
>
> - Puncturing the filter antidrain back valve or the filter dome end and hot-draining.
> - Hot-draining and crushing.
> - Dismantling and hot-draining method that will remove used oil.
> - Any other equivalent hot-draining method that will remove used oil.

SOUTH CAROLINA REGULATIONS

South Carolina Regulations, Chapter 61 Regulations 68, 69 and 76, establish authority requirements and implementation provisions for water quality criteria wastewater treatment, and discharge in the state of South Carolina.

Chapter 61, Regulation 68, Subpart E states that the General Assembly of South Carolina in the Act has declared the following:

"It is declared to be the public policy of the state to maintain reasonable standards of purity of the air and water resources of the state, consistent with the public health, safety and welfare of its citizens, maximum employment, the industrial development of the state, the propagation and protection of terrestrial and marine fauna and flora, and the protection of physical property and

other resources. It is further declared that to secure these purposes and the enforcement of the provisions of this Act, the Department of Health and Environmental Control will have authority to abate, control and prevent pollution."

South Carolina Code of Regulations, Water Quality Standards (R.61-58, 68 and 69)

South Carolina regulations establishes concentration limits for the discharge of many organic and inorganic substances into either freshwater or predominantly marine waters of the state of South Carolina.

NAVY GUIDELINES

a. *Navy Facilities Engineering Command Publication 442 (NAVFAC P-442), Economic Analysis Handbook June 1986.* This handbook provides framework for Navy economic analysis procedures.

b. *Southern Division, Naval Facilities Command (SOUTHNAVFACENGCOM), Cost Estimate Instruction 01190, August 1988.* These instructions provide for construction projects administered by SOUTHNAVFACENGCOM.

c. *Military Handbook (MIL-HDBK-1005/8), Domestic Wastewater Control, 30 September 1988.* This handbook provides basic design guidance developed from extensive reevaluation of facilities. It is intended for use by experienced architects and engineers. The contents cover design of collection, transport, treatment, and sludge handling facilities for domestic wastewater from Navy installations. The handbook also presents design criteria for metering instrumentation, controls, chemical feeding devices, sampling and analyzing for these facilities.

d. *Military Handbook, (MIL-HDBK-1005/9), Industrial and Oily Wastewater Control, 30 September 1988.* This handbook presents design criteria for use by qualified engineers for design of collection, transport, treatment, and sludge handling facilities for industrial and oily wastewater from Naval installations.

OTHER FEDERAL/INTERNATIONAL REQUIREMENTS

33 CFR 151

This part applies to each ship that must comply with Annex I, II, or V of (MARPOL) 73/78. MARPOL 73/78 means the international convention for the prevention of pollution from ships, 1973, as modified by the Protocol of 1978 relating thereto.

33 CFR 153

The purpose of this part is to prescribe regulations concerning notification to the Coast Guard of the discharge of oil or hazardous substances as required by the Federal Water Pollution Control ACT (FWPCA) as amended; the procedures for the removal of a discharge of oil; and the costs that may be imposed or reimbursed for the removal of a discharge of oil or hazardous substances of oil or hazardous substances under the FWPCA.

33 CFR 154

Except as provided in paragraphs (b) and (c) of this section, this part applies to each facility that is capable of transferring oil in bulk to or from any vessel or public vessel with a capacity of 250 or more barrels of that oil.

b. This part does not apply to a facility in a caretaker status (one that is not operational or not capable of conducting oil transfer operations).

c. This part does not apply to a marina (a facility that services primarily pleasure craft) unless it engages in the transfer of oil in bulk to or from a vessel or public vessel with a capacity of 250 or more barrels of that oil.

33 CFR 155

a. Subject to the exceptions provided for in the paragraph (b) of this section, this part applies to each ship that:

   1. Is operated under the authority of the United States while in the navigable waters of the United States, wherever located.

2. Is operated under the authority of a country other than the United States while in the navigable waters of the United States, or while at a port or terminal under the jurisdiction of the United States.

b. This part does not apply to:

1. A warship, naval auxiliary, or other ship owned or operated by a country when engaged in noncommercial service.

2. Any other ship specifically excluded by MARPOL, 73/78.

33 CFR 156

This subpart applies to the transfer of oil on the navigable waters or contiguous zone of the U.S. to, from, or within any vessel and to or from a public vessel with a capacity of 250 or more barrels of that oil, except that this subpart does not apply to the transfer operation within or on a public vessel.

33 CFR 158

This part establishes the following:

a. Criteria for determining the adequacy of reception facilities.

b. Procedures for certifying that reception facilities are adequate for receiving.

(1) Residues and mixtures containing oil from oceangoing tankers and any other oceangoing ships of 400 gross tons or more.

(2) NLS residue from oceangoing ships.

(3) Garbage from ships.

c. Standards for ports and terminals to reduce noxious liquid substance (nls) residue.

FEDERAL GUIDELINES ON RECYCLING OF USED OIL

Federal Register 40 CFR 252 — This guideline, which applies to federal agencies and other agencies using federal funds, requires procuring agencies to assure that their specifications for lubricating oils require the use of re-refined oils to the maximum extent possible without jeopardizing the intended end use of these items. Marine oils are exempt.

EPA recommends that procuring agencies use the following specifications when procuring lubricating oils containing re-refined oil:

- Engine Lubrication Oils
  - (i) Mil-L-4615B
  - (ii) Mil-L-2104D
  - (iii) Mil-L-21260D
  - (iv) Mil-L-46167
  - (v) API Engine Service Category SF
  - (vi) API Engine Service Category CC
  - (vii) API Engine Service Category CD

- Hydraulic Fluids
  - (i) Mil-H-5606
  - (ii) Mil-H-6083

- Gear Oils
  - (i) Mil-L-2105D

2.5 Management Requirements

As a result of widespread mismanagement and resulting health hazards associated with the mixing of used oils with hazardous waste, the EPA has adopted regulations concerning the disposal of these oils. 40 CFR 279 identifies those materials which are subject to regulation as used oil under this part. This section also identifies some materials that are not subject to regulation as used oil under this part and indicates whether these materials may be subject to regulation as hazardous waste under parts 40 CFR 260, 266, 270, and 124 of this chapter. The three classifications of used oil covered under EPA's regulations are on-specification, off-specification, and hazardous waste fuel. The factors which determine the classification of used oil are:

a. On-Specification Oil

- Maximum metal contents — 5 ppm for arsenic, 2 ppm for cadmium, 10 ppm for chromium, and 100 ppm for lead
- Flashpoint minimum — 100°F
- Total halogens* — 1,000 ppm max (rebuttable) and 4,000 ppm max (nonrebuttable) (halogens consist of the elements chlorine, fluorine, iodine, bromine, and astatine that join with metals to form salts)

  * If the total halogens are in the range 1,000 to 4,000 ppm and the generator can demonstrate or rebut that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in 40 CFR Appendix VIII of Part 261, then this used oil will meet the on-specification criteria.

Note: The rebuttable presumption does not apply to metal working oils/fluids containing chlorinated paraffins if processed through tolling arrangements; neither, does it apply to used oil contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units where CFCs are destined for reclamation.

b. Off-Specification Oil

- Metal(s) exceeds regulatory limit(s), oil has a lower flash point than allowable, or oil contains more than 1,000 ppm but does not exceed 4,000 ppm of total halogens (the presumption that hazardous waste has been added to the used oil must be rebutted)
- Must not have been contaminated with other hazardous waste

c. Hazardous Waste Fuel

(1) Oil has been mixed with a hazardous waste

(2) Oil exhibits RCRA hazardous waste characteristics (if a characteristic hazardous waste has been added to it).

Some examples of hazardous waste oils are:

- A fuel produced by mixing a RCRA hazardous waste with virgin or used oil fuel stocks.
- A fuel containing used oil where the fuel has a total halogen content between 1,000 ppm and 4,000 ppm and no proof is given that the halogens are not in the form of hazardous halogenated waste such as methylene chloride or trichloroethane.
- A fuel containing used oil that is contaminated with PCBs.

According to the applicability section of 40 CFR 279, used oil produced on vessels from normal shipboard operations is not subject to this part until it is transported ashore. Likewise, PCB containing used oil regulated under part 40 CFR 761 is exempt from regulation under 40 CFR 279. The practice of mixing other wastes with used motor oil can result in the motor oil being defined as hazardous waste and the potential for recycling/reuse would be greatly diminished. This practice limits the recycling potential of these wastes due to contamination. Some waste can be added to used oil without it becoming a hazardous waste; however, mixtures of used oil and hazardous waste that is listed in Subpart D of 40 CFR 261 are subject to regulation as hazardous waste under 40 CFR 260 through 266, 268, 270, and 124. Some of lubricants can be recycled with the used oil. Gasoline can also be added to used oil if it is going to be recycled as a fuel.

The first step in the procedure is to determine whether the used oil is defined to be a hazardous waste. If the used oil is not hazardous, it must be characterized to determine if it meets "specification" requirements. Specification and off-specification used oils are defined in this section. The environmental regulations for specification used oil, off-specification used oil, and hazardous used oil are described below.

2.5.1 Used Oil: Specification

Recycling

Federal regulations on recycling were first proposed in 1985 and proposed again with modifications in 1991. However, no federal regulations on recycling of used oil have been issued to date.

Burned for Energy Recovery

The type of device for burning specification used oil for energy recovery is not dictated by regulations.

40 CFR 279 Subpart E (Transporters)

The analysis and/or information regarding the use of the used oil must be documented and show that the used oil fuel meets the specifications described in this section. Copies of the analysis must be kept for three years. The following log must also be kept for three years:

- The name and address of the generator, transporter, or processor/re-refiner who provided the used oil for transport.
- The EPA identification number (if applicable) of the generator, transporter, or processor/re-refiner who provided the used oil for transport.
- The quantity of used oil for transport
- The date of the acceptance; and
- The signature, dated upon receipt of the used oil, of a representative of the generator, transporter or processor/re-refiner who provided the used oil for transport.

Transporters of used oil must obtain or have an EPA identification number. Used oil transporters must keep similar records for deliveries to other receiving facilities and transporters. Likewise, records must be kept for all shipments of used oil exported to any foreign countries.

Federal Regulation 40 CFR 266.43(b) and (6) (Marketing, Recordkeeping)

Used oil fuel that meets the specification is not subject to further regulation, unless it is subsequently mixed with hazardous waste or unless it is mixed with used oil so that is no longer meets the specification. Recordkeeping is as follows:

- The name and address of the facility receiving the shipment,
- The quantity of used oil fuel delivered,
- The date of the shipment or delivery
- A cross-reference to the record of used oil analysis (or other information used to make the determination that the oil meets the specification).

A marketer who receives or initiates an invoice under the requirements of this section must keep a copy of each invoice and certification notice that he receives or sends for three years from the

date the invoice was prepared or he lasts engages in an off-specification used oil marketing transaction with the person who sends or receives the certification notice.

Storage

As specified in 40 CFR 279.10(f), wastewaters containing "deminimis" quantities of used oil are not subject to the requirements of this part, including the prohibition on storage in units other than tanks or containers. Used oil generators are subject to all applicable spill prevention, control, and countermeasures (40 CFR 112) in addition to the requirements of Subpart C of 279. Used oil generators are also subject to the underground storage tank (40 CFR 280) standards for used oil stored in tanks whether or not the used oil exhibits any characteristics of hazardous waste in addition to the requirements of Subpart C of 279. The following definitions and prohibitions were noted in this section.

Storage units

Used oil generators will not store used oil in units other than tanks, containers, or units subject to regulation under 40 CFR 264 or 265.

Surface impoundment prohibition

Used oil will not be managed in surface impoundments or waste piles unless the units are subject to regulation under 40 CFR 264 or 265.

Disposal

Water Disposal

Federal Regulation 40 CFR 125 — Oil and grease are considered pollutants by the NPDES system. The maximum concentration of oil and grease in a wastewater discharged from a Publicly Owned Treatment Works is set by the NPDES permit for the installation.

NAVSHIPYD Charleston is currently employing a reclamation process by which water and solids are removed from the used oil by gravity settling. The oily waste is then processed through the North Charleston Sewer District (NCSD) waste treatment plant and subsequently discharged via a NPDES. The Naval Base has three permitted outfalls which include outfall 001 Main Discharge Point, 002 Metal Plating Facility, and 003 Naval Supply Oil Separator. These permitted outfalls are connections into the sanitary sewer collection system which in turn flow

into the NCSD's collection system. The compliance parameters for the NCSD permitted outfalls include flow, pH, chromium, copper, cyanide, lead, mercury, nickel, silver, thallium, zinc, oil & grease, chlordane, lindane, total toxic organic, hydrazine, and chlorides.

EnSafe/Allen & Hoshall personnel reviewed a NPDES permit for the Naval Base (SC0003816) which was issued in August of 1980 and expired August 1985; however, a direct discharger was not found during the site visit and survey completion. The permit states that the Public Works Department of the United States Naval Base is authorized to discharge from facilities located at Naval Shipyard, Naval Station, and the Naval Supply Center. Contact with the South Carolina Department of Health and Environmental Control indicates that the Naval Base reapplied for a permit on March 6, 1992; however, application approval is pending.

Federal Regulations 40 CFR 257 — A facility will not cause a discharge into waters of the United States that is in violation of the requirements of the NPDES.

South Carolina NPDES Permit Regulations (Title 61 Chapter 9) — A person discharging or proposing to discharge wastes into the waters of the state promptly make application for and obtain a valid NPDES permit and, if required, a valid state construction permit. A person operating or proposing to operate a treatment works from which discharge occurs, will promptly make application for and obtain a valid state construction permit. The procedures, forms, and deadlines required by this regulation will apply to applications for either NPDES or state construction permits.

South Carolina Water Classification Standards (Chapter 61 Regulation 68) — These regulations issued pursuant to authority in the South Carolina Pollution Control Act establish a system and rules for managing and protecting the quality of South Carolina's surface and ground water. They establish the state's official classified water uses for all state's official classified waste uses for all state waters, establish general rules and specific numeric water quality standards for protecting classified and existing water uses, and establish procedures for classifying waters of the state.

South Carolina Wastewater Treatment Regulations (Chapter 61 Regulation 76) — Effluent limitations for publicly-owned wastewater treatment facilities are based upon secondary treatment as defined in 40 CFR 133 (Secondary Treatment), or any more stringent limitation, including those necessary to meet water quality standards. Effluent limitations for certain publicly owned waste treatment ponds (lagoons) may differ from those established in 40 CFR 133 (Secondary Treatment Information) by providing for less stringent suspended solids concentrations based upon best waste stabilization pond technology. The Naval Supply Center is a portion of a permit

obtained from the North Charleston Sewer District to discharge the water phase of their oil water separator to the sewer system. Details on this permitted point are noted in section 5 of this study.

Land Disposal

Federal Regulation 40 CFR 257 — Disposal of waste oil onto land violates acceptable solid waste disposal practices and is considered "open dumping". Open dumping is prohibited by RCRA.

Federal Regulation 40 CFR 279.81(b) — Used oil that are identified as a hazardous waste and cannot be recycled in accordance with this part must be managed in accordance with the hazardous waste management requirements of parts 40 CFR 260 through 266, 268, 270 and 124.

Used oil that are not hazardous wastes and cannot be recycled under this part must be disposed in accordance with the requirements of Parts 257 and 258.

Prohibited Uses

Federal Register 40 CFR 110.6 — Oil may not be discharged into or upon navigable waters, adjoining shorelines, or waters of the contiguous United States, such that:

- Applicable water quality standards are violated.
- To cause a film or sheen upon or discoloration of the surface or cause a sludge or emulsion to be deposited beneath the surface of the water.

Addition of dispersants or emulsifiers to the oil is prohibited.

Federal Register 40 CFR 227.6 — Oil of any kind or in any form, including but not limited to petroleum, oil sludge, oil refuse, crude oil, fuel oil, heavy diesel oil, lubricating oils, hydraulic fluids, and any mixtures containing these, are prohibited from ocean dumping.

2.5.2 Used Oil: Off Specification

Recycling

Federal regulations on recycling were first proposed in 1985 and proposed again with modifications in 1991. However, no federal regulations on recycling of used oil have been issued to date.

Burned for Energy Recovery

Federal Regulation, 40 CFR 279 Subpart G — Off specification used oil may be burned for energy recovery in only the following devices:

- Industrial furnaces
- Industrial boilers. Additionally, used oil-fired space heaters with a maximum capacity of 0.5 million BTU/hr may be employed.

Owners and operators of facilities that burn used oil fuel are "burners" and are subject to the following requirement:

- Notifications - Burners must notify the EPA, stating the location and general description of used oil management activities.

Disposal

Disposal requirements for spec and off-spec oils are essentially the same. The off spec oil could be further classified as a Hazardous Waste if characteristics listed in the Used Oil: Hazardous Waste Fuel section of this study are met.

Prohibited Uses

Federal Register 40 CFR 110.6 — Oil may not be discharged into or upon navigable waters, adjoining shorelines, or waters of the contiguous United States, such that:

- Applicable water quality standards are violated.
- To cause a film or sheen upon or discoloration of the surface or cause a sludge or emulsion to be deposited beneath the surface of the water.

Addition of dispersants or emulsifiers to the oil is prohibited.

Federal Register 40 CFR 227.6 — Oil of any kind or in any form, including but not limited to petroleum, oil sludge, oil refuse, crude oil, fuel oil, heavy diesel oil, lubricating oils, hydraulic fluids, and any mixtures containing these, are prohibited from ocean dumping.

2.5.3 Used Oil — Hazardous Waste

Recycling

Federal Regulation 40 CFR 261.6(a)(4) — Used oil that is recycled and is also a hazardous waste solely because it exhibits a hazardous characteristic is not subject to the requirements of parts 40 CFR 260 through 268, but is regulated under part 40 CFR 279. Used oil that is recycled includes any used oil which is reused, following its original use, for any purpose (including the purpose for which the oil was originally used. This includes, but is not limited to oil which is redefined, reclaimed, burned for energy recovery, or reprocessed.

Federal Regulation 40 CFR 279.10(b)(1) — Mixtures of used oil and hazardous waste that is listed in subpart D of 40 CFR 261 are subject to regulation as hazardous waste under parts 40 CFR 260 through 266, 268, 270, and 124, rather than as used oil under 40 CFR 279. The rebuttable presumption for used containing more than 1000 ppm total halogens can be applied. Used oil with greater than 1000 ppm total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in subpart D of part 261 of 40 CFR. The rebuttable presumption can be done by the generator or persons demonstrating that the used oil does not contain hazardous waste by using analytical methods to demonstrate inexistence of significant concentrations of hazardous halogenated constituents listed in 40 CFR 261 Appendix VIII.

Federal Regulation 40 CFR 279.10(b)(2) — Mixtures of used oil and hazardous waste that exhibits a hazardous waste characteristic identified in subpart C of 40 CFR 261 are subject to regulation as hazardous waste under parts 40 CFR 260 through 266, 268,270, and 124 if the resulted mixture exhibits any characteristic of hazardous waste identified in subpart C of 40 CFR 261. Regulation as used oil if the resultant mixture does not exhibit any characteristics of hazardous waste identified under subpart C of 40 CFR 261. Regulation as used oil if the mixture is of used oil and a waste which is characteristic of ignitability and is not listed in subpart D of 40 CFR 261 (for example mineral spirits), provided that the mixture does not exhibit the characteristic of ignitability under 40 CFR 261.21.

Disposal

Federal Regulation 40 CFR 279.81(a) — Used oil that are identified as a hazardous waste and cannot be recycled in accordance with 40 CFR 279 must be managed in accordance with the hazardous waste management requirements of parts 40 CFR 260 through 266, 268, 270 and 124.

Federal Regulation 40 CFR 266 Subpart H — Hazardous Waste Burned in Boilers and Industrial Furnaces. Used oil burned for energy that is also a hazardous waste solely because it exhibits a characteristic of hazardous waste identified in 40 CFR 261. Such used oil is subject to regulation under 40 CFR 279. The hazardous waste and facility are not subject to regulation in 40 CFR 266 Subpart H.

Prohibited Uses

Federal Register 40 CFR 227.6 — Oil of any kind or in any form, including but not limited to petroleum, oil sludge, oil refuse, crude oil, fuel oil, heavy diesel oil, lubricating oils, hydraulic fluids, and any mixtures containing these, are prohibited from ocean dumping.

Federal Regulation 40 CFR 266.23 — The use of used oil which is contaminated with dioxin or any other hazardous waste (other than a waste identified solely on the basis of ignitability) is prohibited for dust suppression or road treatment.

3.0 FACILITY DISCUSSIONS

Field visits were performed to each OW/WO authorized source to create a comprehensive inventory of facilities, waste streams, and operations. Appendix A provides a location map for all identified facilities. Appendix B contains the data base information regarding waste generation received from each facility along with instructions for use of the Dbase IV program. The information contained in this section has been partially summarized in Table 1 below:

Table 1
Oily Waste/Waste Oil (OW//WO) Survey Facility Information Summary

	Facility ID	Location	Oil/Water Separator	Waste Oil/ Oily Waste Generation	Disposition
1	Port Services	200	0	X	FISC
2	Ballfield Lift Station	Hobson Rd.	0	X	FISC
3	SIMA	680,681,26	1	X	FISC
4	Submarine Training Facility	FBM 61	1	X	FISC
5	Boiler Plants	NS2,NS44,123	3	X	FISC
6	Machine Shop 06	43	0	X	FISC
7	Machine Shop 31	226	0	X	FISC
8	CBU-412	1776	0	x	FISC
9	Transportation Shop 02	242	0	X	FISC
10	Naval Shipyard Building 1278	1278	0		FISC
11	Crane Repair Shop 02	241	1	X	FISC
12	Equipment Repair Shop 06	9	0	X	FISC
13	FISC	1654	1		Sale
14	Parts Repair Shop 38	80	1	X	FISC
15	Fire Fighting Training	202	2	X	FISC
16	Naval Shipyard Building 13	13	0	X	FISC
17	Naval Base Shop 56	1024	0	X	FISC
18	Chicora Tank Farm	3920	YES	YES[1,2]	FISC
19	3900 Tank Farm	next to Tk 3900	YES	YES[2]	FISC
20	3911/3912 Tank Farm 3913 Truck/Tank car load offload facility	next to load rack 3913	YES	YES[3]	FISC

Notes: [1] = Chicora French Drain system feeds a collection pond with a controllable spillway. The oil remover skimmer was rendered unusable by Hurricane Hugo and has not been repaired due to the high cost and the minimal risk involved in present operation.

[2] = The Chicora French Drain collection system feeds a marsh (off base) which flows to a storm drain system (on base) which discharges into the Cooper River through outfall 37 under the NPDES discharge permit. The effluent from the oil/water separator at 3900 Tank Farm and the berm effluent from Tanks 39A and 39D also enter this storm drain and discharge into the Cooper River through outfall 37 under the NPDES discharge permit.

[3] = The oil/waste separator which services the tank berms for tanks 3911 & 3912 also supports the containment pad at the truck/railcar loading/offloading station 3913. From best information available, the effluent from this oil/water separator discharges to the Cooper River through outfall 41. This operation is NOT LISTED on the NPDES permit documentation held by CNSY Environmental. Water in the berms is tested for Oil & Grease and pH quarterly, or when released.

Figure 2 of Appendix A is a flow chart showing source to disposition of all OW/WO facilities at Naval Base, Charleston.

Table 2-1 gives a summary of the facilities located at the Naval Base, Charleston.

The total OW/WO handled in 1991 was 21,744,871 gallons and the FOR made up 2,603,138 gallons of the total.

Facility survey questionnaires were prepared by site inspections and interviews and this information has been compiled and is presented in the pages following the tables.

The following table indicates a summary of inventoried information developed during the field visits.

Table 2-1
OW/WO Collection Facility Summary

Description	Quantity
Oil/Water Separators	13
Waste Oil Tanks	11
Product Recovery Wells	0
SWOB Barges	4
YSR Barge	0
YON Barge	3

Table 2-1
OW/WO Collection Facility Summary

Description	Quantity
YOS Barge	2
Waste Oil Trucks	4
Buffalos	1
Donuts	0
Lift Station	1
Mobile Tanks	2

The following table shows a summary of the vessels at Charleston Naval Base along with their average volume of ow/wo discharge.

Table 2-2
1993 Base Loading Summary
Naval Base Charleston

Number of Ships	Class of Ship	Average Volume ow/wo (gallons)
4	Ballistic Missile Submarine	1,500
10	Attack Submarine	1,500
1	Submarine tender	1,500
11	Guided Missile Frigate	1,500
2	Guided Missile Cruiser	1,500
6	Destroyer	1,500
2	Recovery/Salvage	1,500
2	Ordinance Supply	1,500

All types of ships typically discharge every 2 to 3 days. OW/WO has been collected in barges and vacuum can systems by port services. Currently, all OW/WO from the piers are to be consolidated and tested in 10,000 gallon tank cars and then sent to reclamation where it becomes property of FISC.

PORT SERVICES

Naval Base, Charleston (Building 200/ Pier Sierra)
Facility ID No. 61165
Facility POC: Ensign L.S. Disy/ BMCS Dukes/ Skip Aldrich
Facility Telephone: (803)743-5979

Facility Process Description

OW/WO management through transportation, collection, and removal from the environment (in the case of spills).

Facility Operations and Maintenance

Ships and other units off-load their bilgewater either to several smaller barges or trucks. These barges and trucks off-load to a larger barge that transports the OW/WO to Pier Kilo. OW/WO at Pier Kilo is then transferred into a riser system that connects directly to FISC.

Facility Training Requirements

198 personnel in various divisions make up Port Services. Personnel involved with the handling of OW/WO go through training procedures which comply with the environmental and safety standards.

Regulatory Requirements

40 CFR 279; SUPSHIPINST (unable to locate information on these instructions)

Other Relevant Facility Operations

Cost/revenues: none listed

Management Responsibilities

Responsibilities include properly supervising the handling, management, and training of any matter corresponding to hazardous wastes. This includes the safe cleanup and or prevention of spills.

Facility Comments and Problems

The three days it takes to get laboratory results on samples keeps barges tied up and sometimes leads to scheduling problems. A one-day turnaround would help to alleviate this problem.

Note: One day turn around capabilities for urgent oil samples has now been established.

BALLFIELD LIFT STATION

Naval Base, Charleston
Facility ID No.
Facility POC: Mr. Don Erbe
Facility Telephone: (803)743-1070

Facility Process Description

This lift station receives raw sewage from piers "G","H", and "J" and pumps to the No. 4 lift station. OW/WO collects in the sump pit of this lift station. The OW/WO is collected monthly from the ballfield lift station and transported to FISC.

Facility Operations and Maintenance

The submersible pump in this lift station operates automatically and is inspected weekly.

Facility Training Requirements

The training for the inspection and maintenance of this lift station is mostly on the job training.

Regulatory Requirements

40 CFR 279; North Charleston Sewer District Regulations

Other Relevant Facility Operations

Cost/revenues: none listed

Management Responsibilities

It is management's responsibility to ensure personnel are knowledgeable of the unit and that they provide logistic support.

Facility Comments and Problems

This supervisor is concerned that he is not informed on the applicable laws and regulations for this operation.

SHORE INTERMEDIATE MAINTENANCE ACTIVITY

Naval Base, Charleston (Buildings 26, 680, and 681)
Facility ID No. 52903
Facility POC: Mr. R.L. Koerselman
Facility Telephone: (803)743-3358

Facility Process Description

Building NS-26 is the weapon or combat system shop. Small boats are maintained in Building 680, and ship's pumps, valves, and other parts are maintained in Building 681. The floor drains in building 680 tie into an oil water separator. The effluent from this ows discharges directly to the POTW.

Facility Operations and Maintenance

The oil tanks are pumped out regularly by public works.

Facility Training Requirements

The two senior petty officers that are tasked with overall responsibility of disposal of wastes are HW/HM control qualified. This training is taught at the shipyard for less than 90 day storage area personnel.

Regulatory Requirements

COMNAVBASEINST 5100; SIMAINST 4110.1/5090.3A (Instructions dealing with hazardous waste management); 40 CFR 279(Federal regulation regarding used oil management)

Other Relevant Facility Operations

Cost/revenues: none listed

Management Responsibilities

It is management's responsibility to ensure overall compliance of instructions and minimize the potential for spills.

Facility Comments and Problems

None indicated

SUBMARINE TRAINING FACILITY

Naval Base, Charleston (Building FBM 61)
Facility ID No.
Facility POC: Mr. Ross Cummings
Facility Telephone: (803)743-2893

Facility Process Description

Used oil is collected from machinery and placed in drums in a satellite accumulation area. There is also a waste stream from the bilge area to an oil water separator. We were informed that the water effluent from this oil water separator discharges directly to the storm drainage without an NPDES permit.

Facility Operations and Maintenance

The generation of bilge water is continuous.

Facility Training Requirements

Each department has HAZMAT personnel to oversee the handling of all materials.

Regulatory Requirements

40 CFR 279; North Charleston Sewer District Regulations

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

The Hazardous Waste Minimization Plan requires a reduction of purchase and stock to a one month supply.

BOILER PLANTS

Naval Base, Charleston (Buildings NS 2 and 44)
Facility ID No.
Facility POC: Mr. Don Erbe
Facility Telephone: (803)743-5090

Facility Process Description

All three of these facilities have oil water separators that separate the oily water from the floor drains. The water effluent from all three of these oil water separators discharge directly to the POTW.

Facility Operations and Maintenance

The oil water separators are monitored weekly and pumped as required.

Facility Training Requirements

Each facility has two people with four hours instruction by W/C supervisor.

Regulatory Requirements

40 CFR 279; North Charleston Sewer District Regulations

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

None indicated

MACHINE SHOP 06

Naval Base, Charleston (Building 43)
Facility ID No.
Facility POC: Mr. Derrick Giles
Facility Telephone: (803)743-5707

Facility Process Description

This machine shop has a 500-gallon steel storage tank.

Facility Operations and Maintenance

Solvents and flammables are segregated from oil. Oil is collected in smaller containers and then transferred to the waste oil tank. The potential for spills has been minimized. Shop 99 pumps out the tank periodically and sends a sample to the laboratory for analysis.

Facility Training Requirements

All personnel are trained on proper storage, handling, and disposal of hazardous materials.

Regulatory Requirements

Articles 1201, 1212, and 1213 of CNSYDINST 5100.1C, (Information/Instructions dealing with hazardous waste/hazardous materials) 40 CFR 279 (Federal Guidelines on used oil management)

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

The oil dispensers and waste oil tank are located next to the facility in an alley. A cover over this alley was approved but not installed.

MACHINE SHOP 31

Naval Base, Charleston (Building 226)
Facility ID No.
Facility POC: Mr. Herb Love
Facility Telephone: (803)743-1037

Facility Process Description

This facility handles the testing and repair of shipboard motors, pumps, and hydraulic components. OW/WO from this facility is stored in a 1000-gallon waste oil tank.

Facility Operations and Maintenance

Equipment is dismantled, repaired, and tested at this facility. There is also some cleaning with nonchlorine solvents.

Facility Training Requirements

All personnel have been trained to HAZMAT minimization/HAZWASTE disposal and hazard communication. Individuals directly involved trained in accordance with latest revision of NAVSHIPYD Charleston SPCC plan.

Regulatory Requirements

SPCC plan; 40 CFR 279;

Other Relevant Facility Operations

Cost/revenues: none listed

Management Responsibilities

It is management's responsibility to oversee operation and training of system personnel. Management must also see that funds are provided for the above mentioned items.

Facility Comments and Problems

Shop 31 has a tightly controlled hazardous material and waste program with computer tracking of waste streams. They have eliminated 1,1,1-Trichloroethane and other chlorinated hydrocarbons from use. Only approved oils may be used in the shop; therefore, the oil stream can be controlled.

NAVAL CONSTRUCTION BATTALION UNIT-412

Naval Base, Charleston (Building 1776)
Facility ID No.
Facility POC: EOC May
Facility Telephone: (803)743-4085/3083

Facility Process Description

This facility handles periodic motor oil changes along with other preventative maintenance work on equipment. There is one 400-gallon buffalo tank at this facility for waste oil.

Facility Operations and Maintenance

Oil is collected in smaller containers and then transferred to a 400-gallon buffalo tank. Once the buffalo tank is full, it is transferred to a port services barge.

Facility Training Requirements

There are five construction mechanics with two hours of initial "in house" training. Besides the initial training, most of the training is on the job.

Regulatory Requirements

40 CFR 279

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

This facility had a few problems with its initial start up, but currently the accumulation area is meeting all requirements.

TRANSPORTATION SHOP 02

Naval Base, Charleston (Building 242)
Facility ID No.
Facility POC: Mr. Bill James
Facility Telephone: (803)743-2135

Facility Process Description

This facility has a 5000-gallon underground storage tank in concrete containment dike. This tank catches water from steam cleaning equipment with CC30 and citrikleen.

Facility Operations and Maintenance

Waste oil is collected in suitable containers, segregated from solvents and hydraulic fluid, and poured into the waste oil tank.

Facility Training Requirements

All personnel have been instructed and trained in waste oil disposal procedures. There are weekly safety meetings for this facility.

Regulatory Requirements

40 CFR 279; 40 CFR 280; SCDHEC Regulations

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

Care must be taken to ensure synthetic oils do not contaminate the waste oil. The operating permit for the waste oil tank is P-10-GF-10645.

CHARLESTON NAVAL SHIPYARD, (BUILDING 1278)

Naval Base, Charleston (Building 1278)
Facility ID No.
Facility POC: Mr. Gene Rorie/Mr. Wayne Neville
Facility Telephone: (803)743-5519

Facility Process Description

This facility has two 1000-gallon above ground storage tanks for waste oil from ships.

Facility Operations and Maintenance

Waste oil is collected from various ships activities in 55-gallon drums. The waste oil is then transported and pumped into the two 1000-gallon tanks.

Facility Training Requirements

A minimum of two people that have been adequately trained are used for this task.

Regulatory Requirements

40 CFR 279; Title 44 PCA SCDHEC Regulations 61-92.

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

None listed

CRANE REPAIR SHOP 02

Naval Base, Charleston (Building 241)
Facility ID No.
Facility POC: Mr. R.B. Smith
Facility Telephone: (803)743-5034

Facility Process Description

This facility maintains, repairs, and steam cleans cranes and large construction equipment and utilizes an oil water separator to capture oil and grease from this cleaning process. The water effluent from the oil water separator discharges directly to the POTW.

Facility Operations and Maintenance

Steam cleaning creates residue of dirt, sand, wash water and small amounts of oil. This is all collected in an oil water separator.

Facility Training Requirements

All personnel have been through a two hour training on waste segregation and hazardous material knowledge. There is also a weekly safety meeting for all employees.

Regulatory Requirements

40 CFR 279; North Charleston Sewer District Regulations

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

Antifreeze being dumped into the oil water separator was a past problem. The steam rack should be locked when not in use to assure that only qualified people use the system. There is concern over the future combining of Shops 02 and 98.

EQUIPMENT REPAIR SHOP 06

Naval Base, Charleston (Building 9)
Facility ID No.
Facility POC: Mr. Savage
Facility Telephone: (803)743-3809

Facility Process Description

This facility has two above ground 500-gallon tanks for waste oil storage.

Facility Operations and Maintenance

Oil is collected in smaller containers and then transferred to the 500-gallon waste oil tanks for recycling.

Facility Training Requirements

There are 13 modules concerning hazardous materials and weekly safety meetings for all personnel.

Regulatory Requirements

40 CFR 279

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

Sometimes employees have trouble remembering new procedures concerning the storing and labeling of hazardous materials. An oil water separator is needed for the steam cleaning of the man lift equipment on the north side of this facility.

FISC, CHARLESTON

Naval Base, Charleston (Building 1654)
Facility ID No. N00612
Facility POC: LT R. McNally
Facility Telephone: (803)743-6086

Facility Process Description

This facility receives, stores, and issues bulk fuels and lube oils. Oily water and waste oil is received and processed into reclaimed fuel. Figure 3 shows the OW/WO riser system and collection tanks. OW/WO is pumped by the offloading unit to settling tanks 39-D, 39-A, 3901-A, and 3950. Next, the water is drained through the wastewater treatment system by gravity and the oil is consolidated in Tank 3950 by pump. The oil is then transferred back to Pier K and sent to Norfolk via barge by a contractor.

Facility Operations and Maintenance

OW/WO is processed by settling and draining off bottom water through an oil water separator. The residual fuel reclaimed is sold as fuel oil reclaimed (FOR).

Facility Training Requirements

All personnel must meet competency based certification requirements.

Regulatory Requirements

The facility must meet all Code of Federal Regulations requirements, state Department of Health and Environmental Control (DHEC) requirements, all Coastal Council requirements, 40 CFR 279, and North Charleston Sewer District Regulations.

Other Relevant Facility Operations

Cost/revenues: The total sales of fuel oil reclaimed was 2,133,761 gallons at $.42 = $892,180.

Facility Comments and Problems

The Chicora tank farm is closed. FISC is the only facility which reclaims used oil that is not designated as hazardous waste.

FISC, CHARLESTON

Chicora Tank Farm, Charleston
Facility ID No.
Facility POC: LT Wayne Snodgrass
Facility Telephone: (803) 743-6086

Facility Process Description

This facility received, stored and issued bulk fuels, including Navy Special Fuel Oil (NSFO), a variety of diesel fuels and waste fuel products. Presently one tank is in service, containing what is characterized as waste fuel sludge. Closure planning for the facility is underway.

Facility Operations and Maintenance

Presently, one tank is in service storing waste oil sludge. The "french drain" system installed here drains the water (and any leaking fuel products) to the collection pond (3920) which includes a functioning spillway control valve and an inoperative skimming system.

Facility Training Requirements

All personnel must meet competency based certification requirements.

Regulatory Requirements

This facility must meet all Code of Federal Regulations requirements, state Department of Health and Environmental Control (DHEC) requirements, all Coastal Council requirements, 40 CFR 279 an NPDES discharge permit requirements.

Other Relevant Facility Operations

The water in the collection pond is tested quarterly or prior to discharge to the marsh for Oil and Grease and pH.

Facility Comments and Problems

The Chicora tank farm is scheduled to be closed due to the results of an EPA inspection.

FISC, CHARLESTON

3900 Tank Farm, Charleston
Facility ID No.
Facility POC: LT Wayne Snodgrass
Facility Telephone: (803) 743-6086

Facility Process Description

This facility received, stored and issued bulk fuels, including Navy Special Fuel Oil (NSPO), a variety of diesel fuel products. Presently, two tanks are in service, containing Navy Distillate. The water in the berms from the four tanks in this area are tested for Oil & Grease, and discharged to the storm drain via an oil/water separator. The storm drain discharges into the Cooper River through outfall 37.

Facility Operations and Maintenance

Presently, two tanks are in service storing Navy Distillate. The berm valves are manually opened to allow water to drain. Four berms drain to an oil/water separator which discharges into the storm drain. The storm drain discharges to the Cooper River through outfall 37 under the NPDES discharge permit. The oil/water separator is cleaned quarterly according to local Preventive Maintenance schedule.

Facility Training Requirements

All personnel must meet competency based certification requirement.

Regulatory Requirements

This facility must meet all Code of Federal Regulations requirements, state Department of Health and Environmental Control (DHEC) requirement, all Coastal Council requirements, 40 CFR 279 and NPDES discharge permit requirements.

Other Relevant Facility Operations

Water is sampled and tested quarterly or prior to discharge for Oil & Grease and pH.

Facility Comments and Problems

Two tanks have been taken out of service. The two others will likely serve the fleet until they depart.

FISC, CHARLESTON

3900 Tank Farm, Charleston
Facility ID No.
Facility POC: LT Wayne Snodgrass
Facility Telephone: (803) 743-6086

Facility Process Description

This facility receives and issues bulk fuels (including diesel fuels, jet fuels, and waste fuel); and receives, stores and issues bulk lube oils 9250 an 2190. The water in the berms of Tanks 3911 and 3912 is tested quarterly or prior to discharge, and drained into the storm outfall 41. This water is mixed with water which drains from the contaminant pad at truck/tank car loading facility 3913 before entering the oil/water separator.

Facility Operations Maintenance

The water is tested quarterly or prior to discharge to the oil/water separator and then into the storm drain system. The oil/water separator is cleaned quarterly according to local Preventive Maintenance schedule.

Facility Training Requirements

All personnel must meet competency based certification requirements.

Regulatory Requirements

This facility must meet all Code of Federal Regulations requirements, state Department of Health and Environmental Control (DHEC) requirement, all Coastal Council requirements, 40 CFR 279 and NPDES discharge permit requirements.

Other Relevant Facility Operations

Tank trucks and rail tank cars are loaded and unloaded with lube oils, JP-5 aviation fuel, Navy Distillate and waste fuel products.

Facility Comments and Problems

The facility contact has been informed that the OWS flows to the sanitary sewer, but is of the opinion that it really discharges to the river. Drawings located during the search support discharge to the river through outfall 41. The only way to tell for sure is to dye test the OWS effluent.

PARTS REPAIR SHOP 38

Naval Base, Charleston (Building 80)
Facility ID No.
Facility POC: FRM Chaplin
Facility Telephone: (803)743-4091

Facility Process Description

This facility has an oil water separator for the steam cleaning of pumps, valves, motors, electrical caps, and large filters. The water effluent from the oil water separator discharges directly to the POTW.

Facility Operations and Maintenance

The runoff from the steam cleaning operation drains into the oil water separator and separated oil is pumped out as needed.

Facility Training Requirements

Shop 38 personnel are trained in the steam cleaning operation and in the removal, storage, and disposal of oil.

Regulatory Requirements

40 CFR 279; North Charleston Sewer District Regulations

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

One problem experienced at this facility is other facilities using the oil/waste separator (ows) steam cleaner and not being efficient at house cleaning procedures.

FIRE FIGHTING TRAINING

Naval Base, Charleston (Buildings 202 and 1303)
Facility ID No.
Facility POC: Master Chief Bryant
Facility Telephone: (803)743-4722

Facility Process Description

This facility is a fire fighting and damage control school. There are two oil water separators that discharge to the POTW.

Facility Operations and Maintenance

The oil water separator operates automatically. It is checked for proper flow operation both before and after each evolutions begin. There is a high level alarm installed in the oil water separator.

Facility Training Requirements

At this time there are approximately 46 local ship personnel involved in the fire fighting and damage control training.

Regulatory Requirements

40 CFR 279; North Charleston Sewer District Regulations

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

Currently the overflow pipe from the oil water separator is plugged to keep oily water from flowing into the Cooper River.

Approximately 150 gallons of Cal-Soft is used annually. This facility plans to switch from Diesel Fuel Marine (DFM) to propane for all training by FY 96.

CHARLESTON NAVAL SHIPYARD, (BUILDING 13)

Naval Base, Charleston (Building 13)
Facility ID No.
Facility POC: Mr. G.M. Bell/ Mr. J.A. Esposito
Facility Telephone: (803)743-2955

Facility Process Description

This facility tests oil samples from ships, aircraft and shore and stores OW/WO in a 500-gallon waste oil storage tank.

Facility Operations and Maintenance

Waste oil from laboratory operations is placed in a 500-gallon storage tank on a daily basis. When full the oil is pumped into a vacuum container and transported to the fuel farm for recycling/blending.

Regulatory Requirements

40 CFR 279

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

None listed

NAVAL BASE SHOP 56

Naval Base, Charleston (Building 1024)
Facility ID No.
Facility POC: Mr. B.J. Galloway
Facility Telephone: (803)764-7752

Facility Process Description

This facility receives and stores used oil in a 1000-gallon storage tank.

Facility Operations and Maintenance

Segregated waste oil is collected and stored in the proper container. The storage tank is pumped as needed.

Facility Training Requirements

All of the shop personnel has been trained on hazardous waste disposal.

Regulatory Requirements

OPNAVINST 5090; 29 CFR 1915.97; 29 CFR 1910.12; CNSYINST P4000.1A; NAVSUPINST 6250.4; NAVSEAINST 5100.5; Mechanical Group Handling, Storage, and Disposal of Hazardous Material/Waste Manual; (Requirements noted here are general ones dealing with hazardous materials/hazardous waste and also health and safety issues) 40 CFR 279 (Federal regulations regarding used oil management)

Other Relevant Facility Operations

Cost/revenues: none listed

Facility Comments and Problems

One problem experienced at this facility is waste oil that is dropped off without notification.
Note: CNSY Code 106.2 is unaware of problems experienced at Shop 56 where oil is dropped off without notification.

4.0 SAMPLING PLAN

At this time, Naval Base, Charleston has a sampling procedure in place that tests OW/WO (oil phase only) for:

Flash point
Corrositivity
Arsenic
Cadmium
Chromium
Lead
Total Halogens

The various OW/WO streams generated on site should also be sampled on a six month interval for periodic compliance checks as mentioned above. The data on these streams should be kept as documentation of proper management of waste oil and oily waste. Table 3 includes recommended samplers for the various waste streams.

Table 3
Samplers Recommended for Various Types of Waste

Waste Type	Recommended Sampler (1)	Limitation
Liquids, sludges and slurries in drums, vacuum trucks, barrels, and similar containers	Coliwasa	Not for containers 1.5 m (5 ft) deep
	(a) Plastic	Not for wastes containing ketones, nitrobenzene, dimethylformamide, mesitly oxide, or tetrahydrofuran.
	(b) Glass	Not for wastes containing hydrofluoric acid and concentrated alkali solutions.
Powdered or granular solids in bags, drums, barrels, and similar containers	(a) Grain sampler	Limited application for sampling moist and sticky solids with a diameter 0.6 cm (1/2 in.).
	(b) Sampling trier	May incur difficulty in retaining core sample of very dry granular materials during sampling.
Dry sludges deeper than 8 cm (3in.)	(a) Soil auger	Does not collect undisturbed core sample.
	(b) Veihmeyer	Difficult to use on stony rocky, or very wet soil.
Wastes in storage tanks or oil/water separators	(a) Weighted bottle sampler (b) Kemmerer (c) Bailer	May be difficult to use on very viscous liquids.

(1) Glass sampler and sample container must be used when organics are to be determined.

All 35 facilities that produce OW/WO are tested on a six month basis. In addition to these facilities, all bilgewater OW/WO from ships and submarines is tested in its final disposition prior to going to FISC Charleston. This testing location is normally from a barge or truck once it is near capacity. It is recommended that the oily waste be tested for the water phase parameters listed in Table 4.

In addition to the proposed screening, it is recommended that every ship that is home ported at Navy Base Charleston, have composite samples as mentioned above of their bilgewater compartments tested on a six month basis. These samples shall be analyzed for the parameters given in Table 4 also.

Table 4
Oil and Water Phase Recommended Analysis

Oil Phase	Water Phase
Total Halogens	Total Halogens or Volatile Organic Compound Scan
Flash Point	pH, BOD5
Arsenic	Oil and Grease
Cadmium	Arsenic
Chromium	Barium
Lead	Cadmium
	Chromium
	Lead
	Mercury
	Selenium
	Silver

All active OWS should be sampled and tested (characterized) every six months for the above oil and water phase parameters. The samples should be obtained at the holding tank(s) for the OWSs. An oil interface probe or monitor should be utilized to determine the depth of oil and water in the separator and this information should be documented. Recommended sampling devices for OWSs are given in Table 3.

5.0 CURRENT STATUS AND COMPLIANCE ISSUES

Acceptable management practices for waste oil recycling include:

- Reclamation
- Reprocessing; and
- Re-refining of used lubricating and hydraulic oils.

Performing some onsite treatment, i.e., gravity settling, centrifugation, and ultrafiltration will improve the quality of waste oil for reuse onsite as well as decrease the amount for collection and use of offsite treatment.

FISC currently owns and operates a reclamation process by which water and solids are removed from the used oil by gravity settling. The oily waste water is then processed through the North Charleston Sewer District (NCSD) waste treatment plant and subsequently discharged via a NPDES. The Naval Base has three permitted outfalls to NCSD which include outfall 001 Main Discharge Point, 002 Metal Plating Facility, and 003 Naval Supply Oil Separator. These permitted outfalls are connections into the sanitary sewer collection system which in turn flow into the NCSD's collection system. **The permit with NCSD expires in January of 1994 and needs to be renewed 2-3 months prior to this time.** The main discharge point (001) compliance parameters for the NCSD permitted outfall includes flow, pH, chromium, copper, cyanide, lead, mercury, nickel, silver, thallium, zinc, oil & grease, chlordane, lindane, total toxic organic, hydrazine, and chlorides. Outfall 002 includes a discharge from the Metal Plating Facility (Bldg 226) and the parameters included are lead cadmium, chromium, copper, cyanide, nickel, silver, zinc, total toxic organic. Specific requirements relating to this OW/WO study and the Naval Supply Center with permitted outfall 003 are included in Table 5. This particular discharge is one of three permitted outfalls and includes the Naval Supply Oil Separator with monitoring frequency of monthly by composite sampling. Conversations with the NCSD indicate that the facility for the most part has been meeting its permitted limits.

Table 5
North Charleston Sewer District
Effluent Limitations and Monitoring Requirements

Parameters	Sample Type	Discharge Limitations			
		Daily Maximum		Monthly Average	
		mg/ℓ	lbs/day	mg/ℓ	(lb/d)
pH (6.5-8.5)	Grab	NA	NA	NA	NA
Oil and Grease	Composite	150.0	125.0	100.0	83.0

General Limitations for Table 5 Parameters:

— The pH of the discharge shall not be less than 6.5 nor greater than 8.5 and shall be monitored by a grab sample.
— Calculations based on an average daily flow of 100,000 gallons per day [gpd].

EnSafe/Allen & Hoshall personnel reviewed a NPDES permit for the Naval Base which was issued in August of 1980; however, a direct discharger was not found during the site visit and survey completion.

6.0 RECOMMENDATIONS

Based on information published in the **Environmental Reporter**, a final decision was made that used oil destined for recycling or burning for energy recovery will not be regulated as hazardous waste. In the final rule released by the agency, EPA said it "determined that recycled used oil does not have to be listed as a hazardous waste since the used oil management standards issued are adequately protective of human health and the environment."

Specifically, the rule would require used oil transporters and collectors to have an EPA identification number and to follow maintenance, labeling, and storage requirements, including limiting used oil storage to 35 days at transfer facilities. In summary of the rule, EPA has stated that generators "simply must keep storage tanks and containers in good condition, label storage tanks 'used oil', clean up any used oil spills or leaks to the environment, and use a transporter with an EPA identification number."

General practices to reduce waste oil contamination and improve management of OW/WO streams include:

- **Proper segregation of solvent and waste oil streams.** If waste oil and oily waste are to be stored in the same storage area, proper supervision of the storage area by a trained individual must be maintained. The storage containers in that area should be properly labeled.

- **Proper collection procedures should be developed and adhered to**. Facilities that generate waste oil should have a procedure for collection of such oil and equipment available for collection purposes to reduce the generation of large amounts of oily rags and also the spills associated with oil changes and lubrication processes including installing collection/drip pans. Placing pans under machinery and lubrication operations will allow for the recovery of oils instead of their disposal with absorbent or rags.

Overall recommendations include the use of a halide meter to determine whether used oil has been mixed with solvents or various other hazardous materials which would cause the waste to be a hazardous substance and also the effluent from the oily waste treatment system to be out of compliance. Any used oil that is currently pumped from the oil/water separators onbase and shipped offsite could be managed on site if the facility employed halide meters to do a basic characterization of the used oil. An oil and content monitor (OCM) is also recommended for the effluent from FISC to the NCSD.

Sampling and testing should be conducted according to that recommended in the section of this report on the sampling guidelines for NAVSHIPYD Charleston which includes ship sampling prior to connection through the riser system. Each bilge could be sampled independently prior to off-loading to determine if bilges contain contaminated waste. Each facility which contributes to the collection of waste oil would be responsible for the contents of a particular drum or tank

prior to pumping and also responsible for periodic laboratory analysis of the waste oil with analysis to include:

USED OIL NOT EXCEEDING ANY SPECIFICATION LEVEL LISTED BELOW IS NOT SUBJECT TO 40 CFR 279 (TABLE 1) WHEN BURNED FOR ENERGY RECOVERY*

Parameter	Laboratory Method	Regulatory Limit
Waste Oil Metals	EPA 3040,6010	
Arsenic		5 ppm maximum
Cadmium		2 ppm maximum
Chromium		10 ppm maximum
Lead		100 ppm maximum
Flash Point	EPA 1010	100°F minimum
Total Halogens	EPA 450	4,000 ppm maximum**

* The specification does not apply to mixtures of used oil and hazardous waste that continue to be regulated as hazardous waste (see 279.10(b)).

** If used oil contains more than 1,000 ppm total halogens, it is presumed to have been mixed with a hazardous waste under the rebuttable presumption provided under 40 CFR 279.10(b)(1) (266.40 (c)). 40 CFR 279.10 gives information on mixtures of used oil and hazardous waste. Such used oil is subject to Subpart H of 40 CFR 266 and 40 CFR 279 Subpart G rather than 40 CFR 266.40 Subpart E when burned for energy recovery, unless the presumption of mixing can be successfully rebutted.

Based on information from various facilities on the base, the water from various oil water separators goes directly from the unit to the domestic sewer line or storm drains.

Maintenance of these units to assure proper operation is imperative to aid in the compliance status of the domestic treatment plant.

APPENDIX A

PERTINENT DIAGRAMS

APPENDIX B

OW/WO DATA BASE INFORMATION

APPENDIX C

DEFINITIONS

APPENDIX D

REGULATORY INFORMATION