



CAF B 95
DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO



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Mr. William K. Honker
U. S. Environmental Protection Agency Region VI
Chief, RCRA Permit Branch
1445 Ross Avenue Suite 1200
Dallas TX 75202-2733

Dear Mr. Honker

Attached (Attachment 1) is Cannon AFB's Oil/Water Separator Management Plan. This plan is being submitted within 90 days of EPA's approval of the Phase II, Appendix II & III Work Plans as stated in Section 2.0, *RFI Objectives*, of our Revised Phase II RFI Work Plan Addendum.

The purpose of this plan is to provide base personnel with a comprehensive management tool for the proper use and controls associated with oil/water separators at Cannon AFB. In addition, information on grease traps is presented. This plan also identifies active oil/water separators. Although many of the oil/water separators were previously identified as Solid Waste Management Units (SWMUs), this information is not within the context of the plan's purpose, therefore, not incorporated into the plan. As this information is vital for your purposes, a cross reference of these separators is presented in Attachment 2.

If you have any questions regarding the Oil/Water Separator Management Plan, please contact Mr. John Rebman, Environmental Flight, (505) 784-2739. Questions regarding the impact of the plan on restoration efforts should be directed to Mr. John Constantine, Environmental Flight, (505) 784-2146.

Sincerely

WILLIAM M. GUTH
Brigadier General, USAF
Commander

Attachments:

- 1. Oil/Water Management Separator Plan
- 2. SWMU List

cc:

NMED (Ms. Hoditschek)
27 MG/SGPB (Capt Deveil)



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04 JAN 1995

MEMORANDUM FOR SEE DISTRIBUTION

FROM: CC

SUBJECT: Oil/Water Separator Management Plan

1. Purpose. To implement a comprehensive Oil/Water Separator Management Plan for Cannon Air Force Base (CAFB) personnel and its tenant organizations.
2. Discussion. This plan has been prepared as a management tool for ensuring the proper use and control of oil/water separators located on CAFB. Grease traps are also addressed as there are many similarities between these two devices. This plan assigns responsibilities and provides instructions that must be followed to facilitate the proper management of both oil/water separators and grease traps.
3. Applicability. This Oil/Water Separator Plan is applicable to all organizations and personnel who discharge wastewater into oil/water separators and who have grease traps connected to their facility.
4. Action. Implement and comply with the provisions of this plan upon receipt.


WILLIAM M. GUTH
Brigadier General, USAF
Commander

Attachments:

1. Distribution List
2. Oil/Water Separator Management Plan

OIL/WATER SEPARATOR MANAGEMENT PLAN

Cannon Air Force Base

1 January 1995

Prepared by:
27 CE/CEV
111 Engineers Way
Cannon AFB NM 88103-5136

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CHAPTER 1
INTRODUCTION AND ORGANIZATION

The scope of this Oil/Water Separator Management Plan encompasses both oil/water separators (fuel/water separators are also in this category) and grease traps. Oil/water separators are the primary focus of this plan due to their quantity, in relation to grease traps, and their greater potential impact to human health and the environment should problems occur. However, grease traps are also incorporated due to the many similarities between oil/water separators and grease traps, in terms of construction, leak potential, and pumping requirements. Sections 2 through 11 specifically address oil/water separators. Section 12 is specific to grease traps.

1.1 Regulatory Requirements

The Clean Water Act (CWA) imposes pretreatment limits for discharges to Publicly Owned Treatment Works (POTWs) and Federally Owned Treatment Works (FOTWs). Oil is one of the regulated constituents which must be removed prior to discharge to the sanitary sewer. For separators connected to the storm drain and which receive industrial wastewater, a separate National Pollutant Discharge Elimination System (NPDES) permit is required. Such a permit imposes specific effluent limitations on discharges from the oil/water separator. Effluent limitations vary according to each NPDES authority. These connections are discouraged because of the requirement for an individual NPDES permit and the potential of a direct release into waters of the United States.

Currently, Cannon Air Force Base (CAFB) is not classified as a FOTW because it does not have a NPDES permit. Recently, the U.S. Environmental Protection Agency (EPA) Region VI changed its interpretation of "waters of the U.S.", thereby including the north playa lake. The north playa lake receives treated effluent from the lagoon-type treatment system. Consequently, a NPDES permit is now required. The NPDES permit, when issued by the EPA, should allow oil/water separators to discharge to the sanitary sewer.

Wastewater discharges to a POTW/FOTW are limited by pretreatment limits set by the treatment works. Typical pretreatment limits are 50 parts per million (ppm) for oil and a condition that no visible sheen exists. Oil/water separators are designed so that visible/free oil will not exist if the separator is properly designed and maintained.

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Exceeding the pretreatment limits set by a POTW/FOTW has the potential to cause two problems for the wastewater treatment system:

- The oil could pass through the system and cause the POTW/FOTW to be in violation of their NPDES permit.
- Oil in excess of 50 ppm is toxic to the microorganisms involved in biological treatment and can cause the system to stop operating.

Additional problems can result from high oil concentrations in the wastewater to include:

- Sewer mains can become occluded and cause a slowing of flow or sewage overflow.
- Screens can become clogged resulting in skimming operations becoming more problematic at the treatment plant.
- Wet wells become fouled and require more frequent maintenance.
- Pump systems can fail, exposing the system to fire/explosion hazard.

Several requirements associated with the State of New Mexico Water Quality Control Commission (WQCC) Regulations apply to oil/water separators. A Discharge Plan (DP-873) submitted to the New Mexico Environment Department (NMED) has been approved. NMED's approval incorporates restrictions, such as no discharges of untreated industrial wastewater to impoundments other than the wastewater treatment lagoons. Discharges to leach/drain fields and unlined ditches are consequently disallowed. Thus, alternatives for all oil/water separators discharging to locations other than the sanitary sewer are being developed.

1.2 General Description of Base Mission and Activities

CAFB is located approximately seven miles west of Clovis, New Mexico in Curry County and encompasses approximately 3,801 acres. The mission of CAFB is to maintain a combat-ready force capable of day, night, and all-weather operations.

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The host unit at CAFB is the 27th Fighter Wing. Major groups within the 27th Fighter Wing include Operations, Logistics, Support, and Medical. Major tenants and organizations represented at the Base include:

- Army and Air Force Exchange Service
- AFAA Area Audit Office
- American Red Cross
- Detachment 2, Fighter Weapons School
- Army Corps of Engineers
- Area Defense Council
- AFOSI, DET 1407
- Detachment 2, 4444 Operations Squadron
- Detachment 526, Fleet Training Center
- DeCA (Commissary)
- Defense Reutilization and Marketing Office (DRMO)
- New Mexico National Guard
- Defense Investigative Service

1.3 Oil/Water Separator Management Plan Overview

The Oil/Water Separator Management Plan is intended to facilitate a process whereby CAFB personnel will properly use oil/water separators; appreciate the regulatory and environmental impacts of their misuse; understand the operations and maintenance issues related to oil/water separators; and comprehend the importance of inspections of these units. These issues will be further stressed through a comprehensive training program developed in support of this plan.

This Oil/Water Separator Management Plan consists of the following sections:

- Definitions
- Purpose and Types of Separators
- Operations and Maintenance
- Oil/Water Separator Inventory
- Identification of Waste Streams Entering Oil/Water Separators
- Oil/Water Separator and Source Integrity
- Cleaning and Pumping Requirements
- Effluent Discharge Destination

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- Oil/Water Separator Removal
- Training Program
- Grease Traps

1.4 Responsibilities

Chief, Operations Flight (27 CE/CEO) will:

- Place microorganisms in all separators as needed with the exception of fuel/water separators at facilities 390 and 392 (fuels separated at these facilities are recycled).

Chief, Environmental Flight (27 CE/CEV) will:

- Develop, coordinate, and annually review this plan.
- Maintain and update this plan with appropriate distribution.
- Implement the plan and ensure compliance with all requirements.
- Maintain a folder for each oil/water separator which contains construction details (if available), sampling results, and maintenance schedule.
- Ensure oil/water separator contents are analyzed for hazardous constituents and periodically pumped and cleaned.
- Conduct visual inspections of oil/water separators for structural integrity following pumping.
- Prepare and implement training for agencies with separators.
- Develop projects to implement elements of the plan.
- Ensure separators and associated piping are integrity tested annually.

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Agencies discharging into oil/water separators will:

- Appoint (in writing to the Environmental Flight) an oil/water separator manager responsible for ensuring provisions of this plan are adhered to.
- Use oil/water separators for their intended purpose.
- Properly use the separators.
- Justify the separator's need, if requested to.
- Identify the waste streams entering oil/water separators.
- Report deliberate or accidental discharges into a separator.
- Prepare all documentation for repairing oil/water separators.
- Conduct monthly inspections of the separators as outlined in this plan.
- Maintain a folder for each of their oil/water separators which contains construction details (if available), sampling results, and maintenance schedule.

1.5 Discussion of Existing and Future Related Documents

The Storm Water Pollution Prevention Plan (SWPPP) was developed to facilitate a process whereby CAFB personnel thoroughly evaluate potential pollution sources. The SWPPP identified a number of oil/water separators that, due to their discharge destination (e.g., leach fields, storm sewer, etc.), had the potential to allow contaminants to enter the waters of the State.

A Wastewater Pretreatment Management Plan, currently being developed, will determine the most feasible industrial pretreatment system for CAFB. Oil/water separators are the only physical pretreatment system currently in use. The management plan will consider the effectiveness and necessity of these separators. A follow-on project to implement the recommendations of the Wastewater Pretreatment Management Plan will begin in fiscal year 1996.

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CHAPTER 2
DEFINITIONS

1. Oil/Water Separator: A flow through chamber used for primary treatment (by physical means) of industrial wastewater to remove free oils and fuels. A separator is typically constructed of concrete or steel and maybe rectangular or cylindrical in shape. Components of the separator are defined in this section.
2. Baffle: A flat plate inside the oil/water separator chamber which serves to slow the velocity of wastewater flowing into the separator so that oil rises above the wastewater in the chamber. Typically, a series of baffle plates are required to slow the flow and provide adequate separation.
3. Bioremediation: The technology involved with the degradation of contaminants by microbial organisms. Bioremediation is effective for organic contaminants, especially simple hydrocarbons (e.g., oils).
4. CFR: The Code of Federal Regulations, in particular, 40 CFR 122 is the Environmental Protection Agency's (EPA's) promulgation of the Clean Water Act.
5. Dissolved Oil: Oil which is completely soluble in water and cannot be removed by gravity (physical) separation provided by an oil/water separator.
6. Effluent: Water and dissolved constituents which discharge from the separator.
7. Emulsified Oil: Oil globules that are less than 20 microns (one millionth of a meter) in diameter which form a stable suspension in water. Separation of this oil is possible by gravity separation, however, complete separation is unlikely.
8. Free Oil: Oil globules in the separation chamber of the separator are large enough to rise above the water level and form an oil layer on top of the water.
9. Grit Chamber: Can be a component of the separator or a compartment upstream of the separator which serves as a screening device to remove large solids from the wastewater.

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10. Holding Tank: A tank independent of the oil/water separator which receives oil or petroleum products skimmed from the separator.
11. Influent: Wastewater entering the oil/water separator chamber via a floor drain (typically).
12. Inspection Checklist: Section 11.0, Figure 11-1
13. NPDES: The National Pollutant Discharge Elimination System, developed by the EPA, which requires that any discharge of pollutants from a point source and non-point sources to a water of the U.S. receive a permit. Point sources can be visualized as an end of pipe discharge and a non-point discharge as run-off from a parking lot.
14. Pretreatment: In the sense that it will be used in this management plan, pretreatment is defined as the standards imposed on a discharger to a Publicly Owned Treatment Works (POTW), also known as a municipal wastewater treatment plant. Pretreatment standards will be applicable to CAFB's oil/water separators.
15. Primary Separation Chamber: The portion of the oil/water separator where adequate time provides for separation of the petroleum products or oil from the water layer, typically the span of area between the first and last baffle plate.
16. RCRA: The Resource Conservation Recovery Act which deals with the management, treatment, and disposal of hazardous waste.
17. Skimmer: The component of the separator which is at the static water level and serves to remove the oil layer from the primary separation chamber.
18. Specific Gravity: The ratio of the specific weight of a substance to the specific weight of water. A constituent's specific gravity of less than 1 will cause the substance to float in water.

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CHAPTER 3
PURPOSE AND TYPES OF SEPARATORS

3.1 Purpose

Oil/water separators function as physical treatment devices to remove residual oils, petroleum products, and other floatable constituents from wastewater. Oil/water separators will not be used as a collection/storage point for fuels or oils, especially spills of these substances. Waste fuels/oils must never be intentionally dumped or drained into oil/water separators. It is important to note that surfactants, or detergents, will lessen the effectiveness of a separator by causing the oil to disperse and become soluble in water, thereby, allowing oil to flow through the separator without being separated from the discharged water.

3.2 Types of Separators

There are two basic types of oil/water separators: dissolved air floatation and gravity/skimmer tanks.

Dissolved air floatation uses high pressure air/water released to atmospheric pressure. The oil wastewater is pressurized prior to release; this causes formation of small bubbles that attach to oil and solids and float to the top of the vessel where a skimmer removes the oil.

Gravity/skimmer tanks allow oil to separate from water due to the difference in density of oil versus the water. Oil is skimmed off as it rises to the surface of the fluid surface of the tank.

Where available, construction details will be maintained in the folder for each individual oil/water separator. This folder, as discussed in Section 1.4, which contains separator-specific information, is maintained in the Environmental Flight. A copy of the folder should also be maintained by the using agency.

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CHAPTER 4
OPERATIONS AND MAINTENANCE

Three-chambered separators maximize oil/water separator effectiveness. The separating action begins in the first chamber which serves as a grit chamber for sand/heavy particle removal. Grit chambers may be upstream of the separator. Baffles slow the flow prior to the flow entering the second chamber. The actual oil separation occurs in the second chamber. An oil retention baffle holds the oil as water is passed over a weir to the third chamber. The effluent water is discharged to a T-pipe outlet. Oil in the second chamber is removed by a skimmer device located on the surface of the second chamber.

Proper operation of the separator required by the using agency depends on the following:

- Removal of settleable solids from the first chamber and baffles which slow the flow to the second chamber. Frequency of cleaning depends on the volume and characteristics of the wastewater entering the separator, separator size and design capacity, and the volume of petroleum product in the wastewater.
- Users should provide grate drain covers where a grit chamber is not provided within the separator.
- Routine inspection to check oil levels in the second chamber and the position of the oil skimmer. If possible/applicable, the skimmer must be rotated to a non-skim position when oil has been completely skimmed off and water begins to enter the oil collection chamber. Ensure that the skimmer is rotated back to the skimming position when oil begins to rise again in the separator.

In order to ensure that adequate maintenance is performed, a complete inventory of all separators is required (Section 5.0). All separators in operation should be either serviced by a separator cleaning contract or serviced in-house by base personnel. The separator design/size and usage must be considered in order to determine the proper frequency for servicing.

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Microorganisms (microbes) can be added to the separation chamber in order to degrade the petroleum product. This process will reduce odors and reduce the potential for fire. Microbes are not to be added to the two separators at the POL bulk storage area (facilities 390 and 392) as fuels separated by these fuel/oil separators are recycled.

If a separator is no longer being used or the shop activity has changed so that the use of the separator is not required, the floor drain should be blocked to prevent material from entering the separator. Using agencies should contact the Environmental Flight when oil/water separator closure is practical.

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CHAPTER 5
OIL/WATER SEPARATOR INVENTORY

A comprehensive and accurate oil/water separator inventory cannot be overemphasized. Such an inventory is essential to preventing releases of oily waste to the sanitary sewer system, thereby, possibly causing problems and expensive repairs. Its importance is further heightened given that some separators are not connected to the sanitary sewer, rather to systems (e.g., storm sewer and leach fields) where an ineffective separator may discharge contaminants directly to ground.

The creation of the inventory identified in this section has been an evolutionary process. Base personnel (using agencies and Civil Engineer Squadron Water/Wastewater personnel) are in the best position to make the Environmental Flight aware of unidentified oil/water separators.

The inventory in this section (Table 5-1) contains information regarding the facility number; location, using agency, size, type of separator; and a description of the using agency's process which contributes to the industrial wastewater entering the separator. Using agencies should contact the Environmental Flight to identify their process if it is not identified on Table 5-1 or if the process has changed.

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TABLE 5-1 ACTIVE OIL/WATER SEPARATORS

FAC	USING AGENCY	LOCATION	SIZE OF UNIT	TYPE OF UNIT	PROCESS DESCRIPTION
107	429 ECS 523 FS 27EMS/EMGS	East Side of Bldg	100GL 2CI S.T. 1000 GL 2C OWS	2CI S.T. & 2C OWS	Equipment Decontamination Training & AGE Cleaning/Degreasing
109	429 ECS	NE Corner, 2 Manholes in Street	OWS & 30GL Tank	3C OWS & 2C Vault & Tank	Floor Washing
119	523 FS	Southeast Corner of Bldg	2000GL	3C	Floor Washing
122	27 EMS/EMR	West Side Centered on Bldg	600GL & Tank	2C & Tank	Floor Washing
125	429 ECS	Northeast Corner of Bldg	1800GL	3C	Floor Washing
126	429 ECS	Southeast Corner of Bldg	1800GL	3C	Floor Washing
130	27 CE/CEF	Inside Fire Department East Bay	300GL	S.T.	Clean Fire Trucks & Equipment
133	27 OG/OGW	NW Corner of Bldg	Unknown	2C OWS & Tank in Vault	
165	Multiple	Aircraft Washrack	10,000GL	3C	Aircraft Decontamination Training
183	27 EMS/EMGS	AGE Washrack	400GL	3 Drains 1CI S.T. & 2C OWS	AGE Cleaning & Degreasing
194	428 FS/MA 524 FS/MA 27 EMS	Northeast Corner of Bldg	4000GL	3C	Floor Washing
195	428 FS/MA 522 FS/MAUV	Northeast Corner of Bldg	2000GL	3C	Floor Washing
196	522 FS/MAUV	Southeast Corner of Bldg	2000GL	3C	Floor Washing
197	27 CRS/CRCF	South Side of Bldg	7000GL	3C	Floor Washing
199	27 EMS/EMFS	South Side of Bldg	4000GL	3C	Floor Washing
204	522 FS/MAUV	West Side of Bldg	4000GL	5C	

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TABLE 5-1 ACTIVE OIL/WATER SEPARATORS

FAC	USING AGENCY	LOCATION	SIZE OF UNIT	TYPE OF UNIT	PROCESS DESCRIPTION
208	27 OG/OSOI	West Side of Bldg	Under Construction	3C in Vault	
214	27 SVS/SV	Northeast Side of Bldg	100GL	S.T.	
223	27 LGS/SUFI	POL Washrack	2000GL	2C1 S.T. & 3C OWS	JP-8 Fuel Tank Truck Washing
252	27 CE/CEOH	In Parking Lot Between Bldg & Street	Unknown	3C	
375	27 LGT/TRM	West Side of Bldg	1000GL	2C	Floor Washing
379	27 LGT/TRM	South Side of Bldg	500GL	S.T.	Equipment cleaning/degreasing
390	27 LGS/SUFI	East Side POL Area	2000GL	3C	JP-8 Fuel Containment System
392	27 LGS/SUFI	West Side POL Area	1000GL	3C	JP-8 Fuel Containment System
438	27 LGT/TRO	Behind South Side of Bldg	50GL S.T. & 600GL OWS	S.T. & 3C OWS	Vehicle Washing
494	27 SV/SVRA	North Side by First Bay Door	100GL	1C	Vehicle Maintenance Area Floor Drains
494	27 SV/SVRA	East Side by Wash Booth	200GL	2C	Vehicle Washing
495	27 SV/SVRA	Adjacent to Bldg 494	100GL	3 S.T.	Outside Vehicle Washing
680	27 CRS/CRPS	Southeast Side of Bldg	600GL	2C OWS & Tank	Equipment Washing
2104	27EMS/LGMWB	North Side of Bldg	500GL	4C	2 Bay Maintenance Trailer Area; Floor Washing
2132	27 EMS/LGMWC	South Side of Bldg	500GL	4C	Munitions Assembly and Maintenance; Floor Washing
2336	27 CE/CEF	Behind F-4	1000GL	3C	Fire Training
5077	27 CE/CEO	CES Washrack	2X 380GL & 1675GL Tank	2C1 S.T. & 2C OWS	Vehicle Washing

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TABLE 5-1 ACTIVE OIL/WATER SEPARATORS

FAC	USING AGENCY	LOCATION	SIZE OF UNIT	TYPE OF UNIT	PROCESS DESCRIPTION
5120	None	East Side of F-4 Pad	200GL OWS with 100GL Tank	2C OWS & Tank	
5122	27 CRS/CRPT	South Side of Bldg	300GL	3C	Floor Washing
5123	27 CRS/CRPT	South Side of Bldg	300GL	2C	Floor Washing

C=Chamber CI=Cell GL=Gallon S.T.=Sand Trap OWS=Oil/Water Separator

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CHAPTER 6
IDENTIFICATION OF WASTE STREAMS ENTERING OIL/WATER SEPARATORS

The importance of properly identifying waste streams being discharged into separators cannot be overstated. Improper identification of waste streams can lead to serious consequences such as regulatory enforcement action or endangerment to human health and/or the environment.

Each chamber within the oil/water separator will be sampled and analyzed on a yearly basis or when there is a process change which could alter the characteristics of the waste stream. Results will indicate whether the contents are characterized as hazardous or non-hazardous. Important considerations of this characterization include:

- Hazardous wastes must never knowingly be placed into oil/water separators. Separators which contain hazardous waste violate RCRA and could lead to regulatory enforcement, including fines. Therefore, it is essential that hazardous wastes are not placed in separators.
- Should separators or their components fail, discharges to the environment could contaminate soil and/or ground water. Environmental regulations under the CWA establish effluent limitations which limit what can be discharged from separators. Hazardous wastes clearly violate CWA effluent limitation standards.
- Disposal costs for hazardous wastes are significantly greater than disposal for non-hazardous wastes. Although disposal costs are an important consideration, the overriding consideration is compliance with environmental regulations. As such, hazardous wastes are never to be placed in separators. Removal of separator contents in Class A or B confined spaces (toxic environment) IAW 29 CFR 1910.146 are significantly more costly to dispose of due the requirement for properly trained and equipped personnel.

The use of substances which can result in hazardous wastes being produced are discouraged. A requirement of the Pretreatment Study (Section 1.0) is the identification of substitute products for hazardous materials being used in industrial activities. Personnel using hazardous products (especially if there is a possibility of this product entering an oil/water separator) are highly encouraged to explore alternative products.

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CHAPTER 7
OIL/WATER SEPARATOR AND SOURCE INTEGRITY

7.1 Oil/Water Separator Integrity

Separators can be an effective tool if maintained, inspected/integrity tested periodically, and properly used. Oil/water separators which are structurally unsound or have deficient components can lead to wastewater treatment system failure and/or ground water contamination. An active program must be established to ensure that all components of the oil/water separator system are functioning properly.

Oil/water separators will be visually inspected by the Environmental Flight after the unit is pumped. Although steel constructed separators within vaults facilitate easy visual inspection for structural integrity, devices (usually precast concrete boxes) placed below grade cannot be readily inspected unless the separator is empty. Only then can the interior of the separators be inspected for cracks and areas which may allow the contents to pass through the separator. Using agencies are not to enter vaults which contain oil/water separators due to the safety concerns associated with confined spaces. The Ground Safety section, 27 FW/SEG, has responsibility for identifying confined spaces.

The oil/water separator system also includes the piping leading to and from the unit. A visual inspection of the piping cannot be conducted; the consequences for failure can be just as detrimental as that of the separator itself. Other methods, such as pressure testing of the piping or leak detection must be conducted to determine the pipes' integrity.

7.2 Source Integrity

Source integrity can be viewed in terms of the integrity of the mechanism (e.g., floor drain, containment area capturing influent, etc.) servicing the oil/water separator and the adequacy of the facility or system design that provides influent to the separator.

Improperly sealed floor drains and pervious surfaces (containment structures and concrete floors) must be repaired. Likewise, obstructed grit chambers which cause back-ups may allow contaminants to discharge onto the ground. Solids which block wastewater from the influent pipe to the separator must be removed.

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Among the numerous design considerations associated with ensuring source integrity is the proper sloping of surfaces, such as washracks and maintenance areas. Influent rates and separator construction should consider the three feet per minute maximum design flow into separators for gravity separation. Above this limit, turbulence tends to redistribute oil droplets.

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CHAPTER 8
PUMPING AND CLEANING REQUIREMENTS

8.1 Pumping Requirements

As previously mentioned, knowingly depositing hazardous wastes into oil/water separators is unauthorized; therefore, it is essential waste streams being deposited into separators are characterized. Characterization of the separator's contents will identify the constituents and their amounts (usually expressed in terms of parts per million or parts per billion). This is accomplished on a yearly basis or if there is an industrial process change which could affect the characterization of the waste. As new separators become operational or unidentified separators identified, analysis of wastes will be conducted. A base contract is utilized for sample collection and analysis. A Defense Reutilization and Marketing Office (DRMO) contract is used for the pumping and disposal of wastes.

Individual oil/water separator folders maintained by using agencies and the Environmental Flight contain results of previous laboratory analyses. In addition, each agency which manages an oil/water separator will receive a DRMS Form 1930 (ES), *Hazardous Waste Profile Sheet*, (Figure 8-1), that details the analytical results of their separator and identifies whether the wastes are hazardous or non-hazardous. Hazardous Waste Profile Sheets for separators which test non-hazardous will be provided to agencies for standardization purposes as well as to document analyses results. DRMO requires a Hazardous Waste Profile Sheet for all separators being pumped.

Oil/water separators which contain hazardous wastes must be pumped immediately upon discovery that hazardous wastes are present. This will ensure that violations to RCRA do not occur.

8.2 Cleaning Requirements

Under the DRMO contract mentioned above, cleaning of oil/water separators is provided as units are pumped. Results of the analysis and a visual inspection following pumping will dictate whether separators are to be cleaned. Cleaning would not be feasible if the analysis indicated that the contents were merely water. The fact that the same contract can be used to both pump and clean separators is not merely a matter of convenience, but rather it is essential in ensuring that there are no delays from the time the separator is pumped to the time it is cleaned.

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CHAPTER 9
EFFLUENT DISCHARGE DESTINATION

Irrespective of whether effluent discharged from an oil/water separator is hazardous or non-hazardous, the discharge destination must be to the sanitary sewer system. Closed looped, zero discharge wastewater recycling systems or similar system (e.g., pre-treatment system for sanitary sewer systems) can be used to replace oil/water separators, thereby, making discharges unnecessary.

The SWPPP and Ground Water Discharge Plan identified numerous separators which were connected to locations other than the sanitary sewer system. These included:

- Storm Sewer:
 - Facility 119 (Hangar)
 - Facility 165 (Washrack)
 - Facility 194 (Hangar)
 - Facility 195 (Hangar)
 - Facility 196 (Hangar)

- Leach/Drain Field:
 - Facility 326 (POL; since eliminated)
 - Facility 2336 (Fire Training Area)
 - Facility 244 (Oil Recycling Aboveground Tanks)
 - Facility 223 (POL Vehicle Washrack)
 - Test Cell 5120 (Behind F-4 Aircraft Pad)
 - Test Cell 5122 (F-111 Engine Test Facility)

- Evaporation Pond:
 - Test Cell 5123 (F-111 Engine Test Facility)

As discussed previously, discharges to other than the sanitary sewer (or the systems described above) have the potential of contaminating the environment. Preventing this costly and negligent situation can be as simple as eliminating oil/water separators or installing closed-looped, zero wastewater discharge recycling systems which separate contaminants.

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Several projects have been identified which will eliminate discharges to other than the sanitary sewer. The following projects have been programmed and must be expeditiously accomplished IAW our Ground Water Discharge Plan:

CAFB Project CZQZ940201, Plug Oil/Water Separators

Separators identified on this project include those located at facilities 119, 194, 195, 196, 244, 2336, 5120, 5122, and 5123. This project consists of plugging floor drains and/or trenches with concrete, filling the separator with sand, and securing the access lids to prevent unauthorized dumping of material into the separator. The separator at facility 119 will not be taken out of service as parking lot drains adjacent to this facility discharge parking lot wash water into the separator. To prevent industrial discharges from facility 119, floor drains and trenches within this facility will be plugged. Separator effluent pipe at the fire training facility (facility 2336) will be plugged with concrete. This will prevent discharges of industrial wastewater into the leach field, however, pumping of this separator will require close coordination between fire department personnel and the Environmental Flight so that the separator is promptly pumped; thereby, avoiding the risk of the separator's contents discharging onto the ground.

CAFB Project CZQZ950033, Install Closed-Looped Systems

Closed-looped, zero wastewater discharge recycling systems will be installed at the washracks at facilities 165 and 223. This system will recycle water used in the washing of aircraft (facility 165) and vehicles (near facility 223). Contaminants in the wash water will be filtered out during washing operations. The need for oil/water separators will be eliminated by this system.

Base personnel are encouraged to identify separators which can be eliminated. Section 10.0 lists instances in which separators may be candidates for removal.

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CHAPTER 10
OIL/WATER SEPARATOR REMOVAL

The Environmental Flight must coordinate with each using agency to determine if the separator requires upgrade/replacement or should be eliminated. Any damage to the separator or its components which reduces the efficiency or results in leaks to surrounding media must be repaired or replaced immediately.

Other factors which will drive the need for upgrade/replacement are: mission change (change in materials or frequency of use) and increases in the volume of wastewater entering the separator. A modification to the service contract for separator maintenance may solve the problem and should be considered prior to upgrade/replacement in such circumstances.

Elimination of separators must be considered and is in the interest of pollution prevention. Some areas where separators should be considered for elimination include:

- Maintenance Areas where small amounts of petroleum products can be absorbed with absorbent pads or mopped up and disposed of as part of the maintenance process. It is essential that hosing down leaks/spills be avoided.
- Washracks (unless a non emulsifying soap is used). Separators in these areas are ineffective because the detergents break down the oil droplets and cause them to become soluble in water. Oil droplets smaller than 20 microns in diameter cannot be removed by gravity separation. A closed-looped, zero wastewater discharge recycling system is expensive but can be a practical solution. Systems of this type are being explored for several locations.
- Adequate spill containment must be implemented in areas without a separator. In these areas, it is recommended that the separator be tested for hazardous waste characteristics, emptied, cleaned, and removed from service.

CHAPTER 11
TRAINING PROGRAM

The issues associated with oil/water separators are diverse and require constant management. This Oil/Water Separator Management Plan is the most important training resource available, however a training program focusing exclusively on these issues is of little use. More central to this training program is the issue of proper oil/water separator management, especially periodic inspections. The responsibilities of using agencies, as outlined in Section 1.4, are the issues that have a direct impact on the effectiveness of these units. The Environmental Flight will develop a training program on oil/water separators to be presented as needed to ensure the users are knowledgeable of the separator's operation and maintenance requirements.

The mechanics involved with ensuring that separators comply with regulatory requirements; and ensuring that sampling, analysis, pumping, and cleaning are done on a regular basis are extremely important. Although these issues rest primarily with the Environmental Flight, they are important factors which deserve mention.

11.1 Monthly Inspections

Monthly inspections by the using agency can prevent problems from developing. Items to look for include:

- Water level at one to two inches below the skimmer.
- Excessive sludge quantity sludge. Sludge should not accumulate in the separator's chambers in excess of approximately 20 percent of the chamber's capacity.
- Grit chamber properly maintained to allow proper flow into the separator.
- Oil collection chamber does not exceed 75 percent of the chamber's volume.
- Effluent chamber does not contain petroleum products.

Many separators may be inaccessible due to the separator being in an underground vault or due to lids which are too heavy to lift off. Separators within vaults are not to be inspected because of the possibility of a confined space hazard or because the design of

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the separator does not facilitate a visual inspection of the separator's interior. Under no circumstance should the plane of the separator's opening be broken by any part of the body. If lids are too heavy to readily access separators, an AF Form 332, *Base Civil Engineer Work Request*, should be submitted to replace heavy lids with lighter ones.

A copy of the monthly oil/water inspection checklist (Figure 11-1) is to be forwarded to the Environmental Flight within 5 days of the inspection.

11.2 Separator Pumping and Cleaning Process

11.2.1 Environmental Flight (27 CE/CEV):

- Contracts for sampling and analysis for each chamber within the separator.
- Provides a Hazardous Waste Profile Sheet to the using agency.
- Programs and ensures funding is available for pumping and cleaning.

11.2.2 Using Agency:

- Notifies the Environmental Flight of any process changes which may have altered the waste characteristics of the separator's contents since the previous sampling event.

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MONTHLY
OIL/WATER SEPARATOR INSPECTION CHECKLIST

Note: Interior of separator chambers do not require inspection if separator is located in an underground vault.

Date: _____

1. Facility No.: _____
2. Using Agency: _____
3. Street Address: _____
4. Inspector (Name & Rank): _____
5. Did anything prevent inspection (e.g., lids too heavy, separator located in a vault)? _____
 - a. If lids too heavy, has an AF Form 332 been submitted to replace them with lighter lids? _____
 1. If yes, provide Work Request Number & submission date. _____
 2. If no, explain. _____
 - b. If located in a vault, can interior of vault be readily seen? _____
 1. If yes, was a leak observed or petroleum smell noticed? _____
 2. If no explain (e.g., bolted manhole cover) _____
6. Was water level no more than two (2) inches below the skimmer (if equipped with a skimmer)? _____ (If no, explain.)

Figure 11-1. Monthly Oil/Water Separator Inspection Checklist

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7. Did the volume of sludge in the first chamber appear to be greater than 20 percent of the chambers capacity? _____
8. Is the grit chamber properly maintained to allow proper flow into the separator?
_____ (If no, what actions were taken?)
9. Is the oil collection chamber filled at greater than 75 percent of the chamber's capacity? _____ (If yes, contact the Environmental Flight.)
10. Is there an oil sheen present in the effluent chamber (chamber immediately before discharge point)? _____ (If yes, contact the Environmental Flight.)

RETURN CHECKLIST TO THE ENVIRONMENTAL FLIGHT WITHIN FIVE DAYS OF THE INSPECTION. RETAIN A COPY FOR YOUR OIL/WATER SEPARATOR FILE.

(Signature of Oil/Water Separator Manager)

(Signature of Unit Hazardous Waste Monitor)

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CHAPTER 12
GREASE TRAPS

Grease traps are located at food service facilities as a means of controlling the amount of grease entering the sanitary sewer system. Table 12.1 identifies the locations of grease traps on CAFB.

Problems associated with failing to control the amount of grease entering the sewer system are similar to those associated with problems of exceeding oil/water separator contaminant pretreatment limits (See Section 1.1). Adding microbes (a quarter cup mixed with an intensifier/emulsifier solution) will virtually eliminate grease within the trap and service lines leading to the traps. The by-product of this mixture is carbon dioxide and water, which has no detrimental affect on the wastewater treatment facility.

12.1 Grease Trap Servicing and Pumping

The Civil Engineer Operations Flight (27 CE/CEO) has responsibility for:

Ensuring grease traps are serviced on a regular basis. Servicing includes adding microbes to the drains within these facilities approximately every 45 days to break down the grease.

Ensuring traps are pumped on a regular basis to remove the larger particles which are not dissolved by the microbes.

12.2 Discharge Destination

Grease traps are connected to the sanitary sewer system. Grease flows from the food service facility and enters the trap (typically a precast concrete box with removal metal lid). The grease which discharges from this trap flows to the sanitary sewer system where it eventually reaches the wastewater treatment system. As stated above, adding microbes will essentially remove the grease within the traps. Upon initial introduction of the microbes, problems associated with drain backup may occur. This is a result of the grease within the pipes becoming dislodged, however, maintenance problems will quickly diminish after this initial microbe application.

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TABLE 12-1 GREASE TRAP LOCATIONS

FAC	LOCATION
54	Amici's Dining Facility
74	Bowling Alley
207	El Dorado Dining Facility
840	NCO Club
1199	Enlisted Dining Facility
1230	Burger King
1820	Officers Club
2206	Golf Course Club House

**OIL/WATER SEPARATORS IDENTIFIED
AS
SOLID WASTE MANAGEMENT UNITS (SWMUs)**

EPA SWMU NO.	FACILITY NO.
1	119
7	129
8	165
11	170 (See Note)
16	680
32	183
33	186 (See Note)
38	194
39	195
46	196
47	494
51	375
57	379
61	5077
62	5077
63	5077
70	326 (See Note)
72	390
92	5120
94	5144 (See Note)
112	2336

Note: This separator is not identified in the plan. The unit is in place, but inactive.

**TO VIEW THE MAP AND/OR
MAPS WITH THIS DOCUMENT,
PLEASE CALL THE
HAZARDOUS WASTE BUREAU
AT 505-476-6000 TO MAKE AN
APPOINTMENT**