



ELLSWORTH AIR FORCE BASE  
STORM WATER POLLUTION PREVENTION PLAN  
2001 UPDATE

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COMMANDER

ELLSWORTH AIR FORCE BASE  
STORM WATER POLLUTION PREVENTION PLAN

NON-STORM WATER DISCHARGE CERTIFICATION

I, EDWARD A. RICE certify under penalty of law that there are no non-storm water discharges, other than those identified in our 31 Oct 00 letter submitted as our application to renew our SD Surface Water Discharge Program Permit Number SD-0000281 and that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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Signature: \_\_\_\_\_ Date Signed: \_\_\_\_\_

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## ACRONYMS

ACC	Air Combat Command
AFB	Air Force Base
AFFF	Aqueous Film Forming Foam (a.k.a. Aqueous Fire Fighting Foam)
AGE	Aerospace Ground Equipment
AST	Aboveground Storage Tank
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Civil Engineer Squadron
CET	Compliance Evaluation Team
CEV	Environmental Flight
CFR	Code of Federal Regulations
CSCE	Comprehensive Site Compliance Evaluation
DENR	Department of Environment and Natural Resources
DRMO	Defense Reutilization and Marketing Office
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
IRP	Installation Restoration Program
MSA	Munitions Storage Area
MSGP	Multi-Sector General Permit
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
OU	Operable Units
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SD	South Dakota
SWD	South Dakota Surface Water Discharge Program
SWPPP	Storm Water Pollution Prevention Plan
SWPPT	Storm Water Pollution Prevention Team
TPH	Total Petroleum Hydrocarbon
USAF	United States Air Force
UST	Underground Storage Tank
WPC	Water Priority Chemicals

# 1 INTRODUCTION

The Ellsworth Air Force Base (AFB, also referred to as the Base) Storm Water Pollution Prevention Plan (SWPPP) documents existing storm water management practices at the Base and is a guide for Base personnel who are responsible for ensuring that the potential for storm water contamination is minimized. The following information is summarized in the plan:

- The individuals responsible for storm water pollution prevention at Ellsworth AFB;
- A general description of the Base as it pertains to storm water outfalls and activities that could potentially influence storm water quality;
- Ellsworth AFB's plan to minimize storm water pollution;
- Procedures to assess compliance with the plan;
- Consistency with other plans;
- Additional requirements for storm water discharges associated with industrial activity from facilities subject to Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313 requirements; and
- Additional requirements and Best Management Practices (BMPs) that will be required under a Multi-Sector General Permit (MSGP) Program.

Section 1 of the Ellsworth AFB SWPPP provides background information concerning the purpose of the plan and applicable storm water discharge requirements.

## ***1.1 Purpose***

The purpose of the SWPPP is to ensure Ellsworth AFB complies with the conditions of the South Dakota Surface Water Discharge Program (SWD) individual permit number SD-0000281. A copy of this permit is in Appendix E. It covers outfalls 001, 002, 003, 004, 005, 006, 007, 008, 009, and 010.

The content and format of the SWPPP are based on SWPPP requirements of the Ellsworth AFB individual SWD permit SD-0000281, which expires 31 March 2001. The main function of the SWPPP document is to provide a guide for those who are responsible for ensuring that activities are conducted in a manner that minimizes the potential for storm water

pollution. It is the primary reference for descriptions of current facilities and activities that impact storm water discharges in addition to Ellsworth AFB's current and planned storm water management practices.

## ***1.2 Background***

In November of 1990, new federal storm water discharge requirements were promulgated as part of the NPDES under the Clean Water Act (55 Federal Register 48062-48901). These regulations, as stated in 40 Code of Federal Regulations (CFR) Parts 122, 123, and 124, require that owners of "facilities that discharge storm water associated with industrial activity" be covered under a storm water permit if storm water is discharged to waters of the United States or separate storm sewer systems.

Current industrial activities at Ellsworth AFB fall within the following three categories:

- Wastewater treatment facilities;
- Landfills or land application sites; and
- Transportation facilities, including airports.

Most of the regulated activity at Ellsworth AFB falls under the "transportation facilities" category. Examples of these activities include refueling, aircraft maintenance, deicing, vehicle and equipment maintenance, and material handling. There were 21,202 flight operations (total takeoffs plus total landings and touch and goes) at the Base in last fiscal year.

## ***1.3 South Dakota Permitting Requirements***

The Clean Water Act allows authorized states to administer the NPDES programs instead of the Environmental Protection Agency (EPA). The state NPDES programs must be consistent with minimum federal requirements, although they may be more stringent. South Dakota law, however, requires that state environmental requirements be no more stringent than federal requirements.

The State of South Dakota was authorized by the EPA to issue NPDES permits, effective 30 December 1993. The regulatory agency that administers the NPDES program is the South Dakota Department of Environment and Natural Resources (DENR).

In December 1998, EPA promulgated a Multi Sector General Permit (MSGP) for storm water that further defines requirements and BMPs by specific industrial sectors. In 2001, South Dakota will adopt a similar permit program. This SWPPP introduces applicable sector information as provided in the EPA MSGP.

#### ***1.4 Plan Maintenance***

The Ellsworth AFB Storm Water Pollution Prevention Plan is a living document. Site visits were conducted from 14 June to 21 June 2000 to gather information needed to update the previous SWPPP, 1999 update. This information included assessments of storm water outfalls, outside material storage, usage areas, and erosion areas. The SWPPP will be reviewed on a regular basis and, at a minimum, will be updated annually.

The Base Air Quality Program Manager (Greg Johnson, 28 CES/CEVC) reported that no Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313 water priority chemical (see Appendix D) was used in industrial activities at Ellsworth AFB in amounts exceeding the threshold level of 10,000 lb/yr (40 CFR 372.25). In previous years, chlorine gas was used in excess of the threshold level. Because the chlorine was used in a gaseous form and was unlikely to enter state waters if discharged, the SD DENR had provided a waiver to the requirement of a Professional Engineer (P.E.) certification of the Plan. The SD DENR letter waiver, dated 16 November 1995, is in Appendix D. Chlorine gas is now used in smaller quantities because the Base is only required to chlorinate wastewater for a portion of the year. Approximately 6,100 pounds of chlorine gas were used in the last year.

## **2 INDUSTRIAL AND STORM WATER CROSS FUNCTIONAL TEAM**

Ellsworth AFB has incorporated the previous Storm Water Pollution Prevention Team into the newly established Industrial and Storm Water Cross Functional Team (I/SW CFT). This team is a part of the Environmental Compliance Sub-Committee to the Base Environmental Leadership Council. All of the responsibilities of the former SWPPT have been adopted by the I/SW CFT. These include ensuring that the SWPPP is implemented and maintained in accordance with good engineering and management practices. Team membership and responsibilities are listed in Table 2-1. The team is responsible for identifying any potential sources of pollution that could reasonably be expected to impact the quality of storm water discharges from Ellsworth AFB and incorporating them into the plan. In addition, this team is responsible for developing, documenting, and implementing improved management practices to reduce the potential for contamination of storm water discharges. A copy of the I/SW CFT Charter is located in Appendix A.

### ***2.1 Membership and Responsibilities***

Membership of the Ellsworth AFB I/SW CFT includes the following positions:

- Water Quality Program Manager (28 CES/CEVC)
- Bioenvironmental Engineer (28 SG/SGGB)
- Judge Advocate (28 BW/JA)
- Chief of Engineering (28 CES/CEC)
- Waste Water Treatment Plant Contract Foreman
- Waste Water Treatment Plant Contract QAE
- 28<sup>th</sup> Civil Engineer Operations Flight Environmental Rep (28 CES/CEOEE)
- 28<sup>th</sup> Logistics Group Environmental Representative (28 LSS/LGLEV)
- 28<sup>th</sup> Operations Group Environmental Representative (28 OSS/OSOM)
- 28<sup>th</sup> Support Group Environmental Representative (28 SPTG)
- Defense Reutilization and Marketing Office (DRMO)

**Table 2-1**

**Industrial and Storm Water Cross Functional Team Membership**

POSITION	RESPONSIBILITIES
Chairman, 28 CES/CEVC Water Quality Program Manager	Chairs the I/SW CFT meetings and coordinates and oversees committee actions. Coordinates development, implementation, evaluation, and monitoring of the SWPPP. Develops an employee training program, maintains records, and ensures the plan is revised annually (including site maps). Schedules periodic team meetings as needed.
28 MG/SGGB Bioenvironmental Engineer	Performs annual shop inspections, maintains chemical and waste disposition inventories, accomplishes SWD sampling and ensures accurate preparation of Discharge Monitoring Reports (DMRs). Provides the status of recommended Best Management Practices (BMPs) within the medical group, and performs site inspections to ensure the medical group complies with the SWPPP. Assists in the development, implementation, maintenance, and revision of the SWPPP. Ensures site specific Spill Prevention Control and Countermeasure Plans are completed and updated for the Medical Group.
28 BW/JA Base Judge Advocate	Advises the I/SW CFT on the legal aspects associated with plan development, implementation, and evaluation.
28 CES/CEOEE Environmental Representative	Ensures that the preventive maintenance programs within the Civil Engineering Operations Flight incorporate the inspection and maintenance of storm water management devices, storage containers, and routine inspections of operations and equipment. Performs site evaluation inspections of in-house construction projects to ensure compliance with the SWPPP. Provides the status of recommended Best Management Practices (BMPs) within the CE Squadron. Assists in the development, implementation, maintenance, and revision of the SWPPP. Ensures site specific Spill Prevention Control and Countermeasure Plans are completed and updated for the Civil Engineering Squadron.
28 CES/CEC Chief of Engineering	Ensures that all contracts under his/her authority comply with the SWPPP and related SWD permitting requirements. Assists in developing BMPs and in design of structural controls. Assists in tracking the BMPs through the design and implementation process.
28 CES/CEOIUA Waste Water Treatment Plant Contract Foreman  Waste Water Treatment Plant Contract QAE	The Foreman of the WWTP is responsible to train his/her employees, at least once per year, in matters of pollution control laws and regulations, and in the storm water pollution plan, particularly the features of the facility and its operations which are designed to minimize discharges of Section 313 chemicals (chlorine). The Foreman is the designated individual accountable for spill prevention at the facility. He/she will set up necessary spill emergency procedures and reporting requirements so that spills and emergency releases of Section 313 water priority chemicals (chlorine) can be isolated and contained before a discharge can occur. He/she will also ensure that the required inspections are accomplished per this plan.
28 LSS/LGLEV 28th Logistics Group Environmental Representative	Provides knowledge of hazardous material uses and industrial shop activities. Provides the status of recommended Best Management Practices (BMPs) within the Logistics Group, and performs site inspections to ensure that the Logistics Group complies with the SWPPP. Assists in the development, implementation, maintenance, and revision of the SWPPP. Ensures site specific Spill Prevention

POSITION	RESPONSIBILITIES
	Control and Countermeasure Plans are completed and updated for the Logistics Group.
28 OSS/OSOM 28th Operations Group Environmental Representative	Provides input on aircraft operations and industrial activities. Provides the status of recommended Best Management Practices (BMPs) within the Operations Group, and performs site inspections to ensure that the Operations Group complies with the SWPPP. Assists in the development, implementation, maintenance, and revision of the SWPPP. Ensures site specific Spill Prevention Control and Countermeasure Plans are completed and updated for the Operations Group.
28 SPTG 28th Support Group Environmental Representative	Provides the status of recommended Best Management Practices (BMPs) within the 28 <sup>th</sup> Support Group, and performs site inspections to ensure that the squadron complies with the SWPPP. Assists in the development, implementation, maintenance, and revision of the SWPPP. Ensures site specific Spill Prevention Control and Countermeasure Plans are completed and updated for the Support Group.
Defense Reutilization and Marketing Office (DRMO)	Provides the status of recommended Best Management Practices (BMPs) within the DRMO facility, and performs site inspections to ensure the facility complies with the SWPPP. Assists in the development, implementation, maintenance, and revision of the SWPPP. Ensures site specific Spill Prevention, Control, and Countermeasure Plans are completed and updated for DRMO.

### **3 FACILITY DESCRIPTION**

Ellsworth AFB is located in Meade and Pennington Counties of South Dakota, approximately 11 miles east of Rapid City. The Base proper is comprised of 4,868 acres. It is bordered on the east and south sides by residential and commercial areas. Range land borders all other sides of the Base. A location map is presented in Figure 3-1. The layout and areas of industrial activity subject to storm water regulations of the Base are shown in Figure 3-2.

Ellsworth AFB was activated as a bomber training wing in 1942 for B-17 Bomber crews. The B-17 training continued until 1947, when the Base started operating as a bomber wing, flying B-36 and B-52 Bombers. In 1962, the 44<sup>th</sup> Strategic Missile Wing began operating Minuteman Missiles at the Base. The Minuteman Missiles were deactivated at Ellsworth AFB in 1991. As part of the Air Combat Command (ACC), the Base's continuing mission is to maintain a combat-ready force for long-range bombing operations. Currently, the weapons system is the B-1 Bomber.

#### **3.1 *Outfalls***

The industrial areas at Ellsworth AFB drain into seven watersheds. Four of the watersheds drain into unnamed tributaries of Box Elder Creek and the remaining three drain into unnamed tributaries of Elk Creek. The outfalls are covered under SWD permit number SD-0000281.

The local drainage paths can be seen on the following U.S. Geological Survey South Dakota quadrangle maps: Bend Quadrangle, Box Elder Quadrangle and Rapid City North West Quadrangle. Box Elder Creek and Elk Creek feed into the Cheyenne River, which eventually meets the Missouri River at Lake Oahe in central South Dakota. Mean annual precipitation in the area is approximately 16 inches.

The boundaries of the drainage areas, flow directions, and locations of the outfalls are presented in Figure 3-3. Photographs of these outfalls are included in Appendix B.

FIGURE 3-1. LOCATION OF ELLSWORTH AFB, SOUTH DAKOTA

FIGURE 3-2. LAYOUT AND INDUSTRIAL ACTIVITY AREAS OF ELLSWORTH  
AFB, SOUTH DAKOTA

FIGURE 3-3. DRAINAGE AREAS/OUTFALLS, ELLSWORTH AFB

### **3.1.1 Outfall Descriptions**

Following is a description of each outfall. The descriptions were based on visual inspection of each outfall and review of the Installation Restoration Reports and the SWD Permit.

**Outfall 001:** Outfall 001 is located in the southwest corner of the Base immediately southwest of the Alert Apron. It receives intermittent storm water runoff from industrial areas due to rainfall and snow melt. Runoff flows to a small pond outfitted with two aeration units and an oil/water separator that requires manual skimming. Two corrugated metal pipes (68 inch and 60 inch diameter) carry water from this pond to a drainage channel leading off Base. The outfall also receives approximately 58,000 gallons per day from the ground water treatment system. Appendix E contains a letter from SD DENR approving the discharge of the treated ground water and specifying applicable water quality standards.

The drainage area consists of about 638 acres. Approximately 63 percent is grass covered and 37 percent is hard surface. The hard surfaces consist of runways, taxiways, maintenance buildings, and aircraft parking aprons. Maintenance is performed on the aircraft on the parking aprons. This drainage area is the only one in which aircraft deicing is currently allowed to be discharged. An implemented BMP has been to use a vacuum truck to collect excess deicing fluid to minimize its runoff potential.

Outfall 001 also receives runoff from operable units (OUs) 1, 2, 4, and 12, and the flightline Corrective Action Plan (CAP) area. Oil/water separators that previously discharged to this outfall have been plugged. The CAP study site is the grassy infield between the operational apron and the primary runway. OU-1 is a former Fire Protection Training Area. OUs 2, 4, and 12 consist of landfills that are no longer in use. These OUs and the CAP are being investigated and remediated as part of EAFB's Installation Restoration Program (IRP). Remediation of the landfills included capping with a layer of soil a minimum of three feet thick, planting vegetation in the soil to prevent erosion, and contouring the ground to direct runoff away from the landfills. The CAP area is currently being remediated with a ground water treatment system. Reports on

the magnitude and extent of contamination within each OU and the CAP can be obtained from the Administrative Record Library on the third floor of Bldg. 8203.

As part of the remediation of the OU-1 and OU-2 landfills, a new stone-lined drainage ditch was built to direct water away from the landfills and off of the Base. The stones line the channel for a few hundred feet to control erosion and direct runoff. A corrugated metal pipe culvert beneath the road carries water from the channel to a ditch south of Base property. A steel grate is mounted on the pipe to catch debris. As required by the State, a flow measuring flume was installed directly upstream of the culvert to measure the amount of water leaving the Base. The discharge can be determined from observing the height of water in the flume and finding the corresponding discharge based on a stage-discharge relationship.

**Outfall 002:** Outfall 002 is located at the southwest corner of the Base, southeast of the Alert Apron. It receives intermittent storm water runoff from industrial areas due to rainfall and snowmelt. Storm water from the Base initially enters a small pond equipped with an oil/water separator that requires manual skimming. Water leaves the pond through a 60-inch corrugated metal pipe and flows off of the Base in an open channel crossed by the Base boundary fence.

The drainage area consists of about 321 acres. Approximately 36 percent is grass covered and 64 percent is hard surface. The hard surfaces consist of runways, taxiways, maintenance buildings, and aircraft parking aprons. Maintenance is performed on the aircraft on the parking aprons. Aircraft deicing is not allowed within the drainage area boundaries unless all deicing fluid is recovered using vacuum sweepers (see Deicing Procedures in Appendix F).

Outfall 002 also receives runoff from OU-12 and the Flightline Area Corrective Action Plan area. Oil/water separators that previously discharged to this outfall have been plugged. The study site for the CAP is the grassy infield between the operational apron and the primary runway. OU-12 is a landfill that is no longer in use.

OU-12 was remediated by capping the area with a layer of soil a minimum of three feet thick, planting vegetation in the soil to prevent erosion, and contouring the ground to direct

runoff away from the landfill. The CAP area is currently being remediated with a ground water treatment system. These actions are part of EAFB's IRP. Reports on the magnitude and extent of contamination within each OU can be obtained from the Administrative Record Library on the third floor of Bldg. 8203.

The Outfall 002 drainage channel was modified and improved in 1997. Water previously left the Base through a culvert beneath the Base perimeter road. The culvert was removed, the drainage channel was repaired, a low-water crossing, often called a "Texas crossing" was built to allow security forces to patrol the entire perimeter of the Base, and a new culvert was installed at the base boundary. The water now leaves the Base in the new culvert crossed by the boundary fence. As required by the State, a flow-measuring flume was installed directly upstream of the boundary fence to measure the amount of water leaving the Base. The discharge can be determined from observing the height of water in the flume and finding the corresponding discharge based on a stage-discharge relationship.

**Outfall 003:** Outfall 003 is located on the western edge of the Base. A holding pond with a concrete wall and impervious liner receives intermittent storm water runoff from industrial areas due to rainfall and snow melt. Water leaving the pond flows through an oil/water separator with a mechanical skimmer and three 54-inch outlets before draining to a wide, grassy channel bordered on the south by a concrete berm. A second channel joins this flow downstream of the outlets. The berm directs flow to a measuring flume. In order to characterize all runoff from the area, the SWD sampling point is located at the flume, which is at the intersection of the Base boundary fence and the combined drainage channels. Water leaves the Base in an open channel crossed by the boundary fence.

The drainage area consists of about 750 acres. Approximately 85 percent is grass covered and 15 percent is hard surface. The hard surfaces consist of runways, taxiways, maintenance buildings, and aircraft parking aprons. Maintenance is performed on the aircraft on the parking aprons. Aircraft deicing is not allowed within the drainage area boundaries unless deicing fluid is recovered using vacuum sweepers (see Deicing Procedures in Appendix F).

Outfall 003 also receives runoff from OU-10 and the Flightline Area Corrective Action Plan area. The base soil farm is not used anymore but has not been formally closed and removed per permit requirements. OU-10 is the north hangar complex. The study site for the CAP is the grassy infield between the operational apron and the primary runway. The CAP area is currently being remediated with a ground water treatment system. The investigation and remediation of OU-10 and the CAP area are part of EAFB's IRP. Reports on the magnitude and extent of contamination within each OU can be obtained from the Administrative Record Library on the third floor of Bldg. 8203.

As required by the State of South Dakota, a flow-measuring flume is operated directly upstream of the boundary fence to measure the amount of water leaving the Base. The discharge can be determined from observing the height of water in the flume and finding the corresponding discharge based on a stage-discharge relationship.

**Outfall 006:** Outfall 006 is located in the southeast corner of the Base. It is a 60-inch culvert under LeMay Blvd. The outfall receives intermittent storm water runoff from industrial areas due to rainfall and snow melt, approximately 120,000 gal/day from the FRA-1 ground water treatment system, and approximately 1,200,000 gal/day from Outfall 005, the Waste Water Treatment Plant. Runoff in this drainage area drains through a newly constructed wetland system, Bandit Lake, Heritage Lake, Gateway Lake, and the Golf Course Ponds. This chain of lakes acts as a structural control to give the Base an opportunity to catch any spills from the industrial area before leaving the Base. The wetland system was built as mitigation for removal of wetlands in other areas of the Base.

The drainage area consists of about 1,474 acres. Approximately 65 percent is grass covered and 35 percent is hard surface. The hard surfaces consist of maintenance buildings, office buildings, roads, and parking lots. The Munitions Storage Area (MSA) is the largest maintenance facility within this drainage area. The 28th Transportation Squadron is the second largest maintenance facility. Aircraft deicing is not allowed within the drainage area boundaries.

Outfall 006 receives runoff from the Fuel Storage Areas C and D, the Base golf course, the Base riding stables, and OUs 6, 7, and 9. Bulk fuel storage area D contains two dike areas. One of the dikes contains a 1,365,509 gallon storage tank and the other contains a 2,252,250 gallon storage tank. One area is lined with concrete while the other is lined with gravel. A project is currently under contract to modify the gravel containment by adding a concrete liner. Bulk fuel storage area C also contains a 387,789 gallon tank located within a dike. Each of these three dikes has a flow valve that is locked closed at all times except when opened to discharge rain/storm water. Prior to discharging any water from the dikes, it is visually inspected for an oil sheen or any other signs of contamination. If there is no sheen or signs of contamination, the valves are opened and the storm water is drained. If a sheen or any other sign of contamination is present, the water is sampled. A proper disposal method is then determined based on the results.

OU-6 is a landfill that is no longer used. Remediation included capping with a layer of soil a minimum of three feet thick, planting vegetation in the soil to prevent erosion, and contouring the ground to direct runoff away from the landfill. OU-7 is a low-level Radioactive Waste Burial Site. OU-9 is the old Auto Hobby Shop area. The OUs are being investigated and remediated as part of EAFB's IRP. Reports on the magnitude and extent of contamination within each OU can be obtained from the Administrative Record Library on the third floor of Bldg. 8203.

**Outfall 007:** Outfall 007 is located on the northeastern edge of the Base, north of the Explosive Ordnance Disposal Range. It receives intermittent storm water runoff from industrial areas due to rainfall and snow melt. Sedimentation ponds are located within the area. The sampling point, if sampling is required, is at the outfall of the pond just inside the Base boundary.

The drainage area consists of about 202 acres. One hundred percent is grass or soil covered. Outfall 007 receives runoff from OU-3 and OU-8. OU-3 is a landfill that is no longer used. Remediation included capping with a layer of soil a minimum of three feet thick, planting vegetation in the soil to prevent erosion, and contouring the ground to direct runoff away from

the landfill. OU-8 is the Explosive Ordnance Disposal Range. For remediation, it was covered, revegetated, and regraded. Retention structures were built to catch runoff from the area. They were recently repaired and are in good condition. These OUs were remediated as part of EAFB's IRP. Reports on the magnitude and extent of contamination within each OU can be obtained from the Administrative Record Library on the third floor of Bldg. 8203.

**Outfall 008:** Outfall 008 is located on the north side of the Base just north of OU-5, a landfill that is no longer in use. It receives intermittent storm water runoff from industrial areas due to rainfall and snow melt. The sampling point, if sampling is required, is at the Base boundary just north of the toe of the landfill.

The drainage area consists of about 25 acres. One hundred percent is grass covered. Outfall 008 receives runoff from OU-5. Remediation included capping with a layer of soil a minimum of three feet thick, planting vegetation in the soil to prevent erosion, and contouring the ground to direct runoff away from the landfill. OU-5 was remediated as part of EAFB's IRP. Reports on the magnitude and extent of contamination within this OU can be obtained from the Administrative Record Library on the third floor of Bldg. 8203.

**Outfall 009:** Outfall 009 is located on the north side of the Base, north of the MSA. It receives intermittent storm water runoff from a closed rubble landfill site due to rainfall and snow melt. The landfill has been closed, capped, and seeded. The storm drainage area consists of about 36 acres. One hundred percent is grass or soil covered. Sediment runoff and erosion from this site are controlled by silt fences and straw bales. Monitoring of erosion controls are continuing.

**Outfall 010:** Outfall 010 was eliminated by connection to the sanitary sewer.

### **3.1.2 Drainage Areas Contributing to Outfalls**

Table 3-1 summarizes the total area, impervious area, and industrial activities for each of the seven drainage areas. The coordinates for the latitude and longitude were obtained by using Global Positioning System Equipment during the Multi Media inspection on 29 June 1995. The percentages of impervious areas are estimates based on reviews of Base maps and site plans.

### **3.2 *Materials Inventory***

This section discusses hazardous materials used at Ellsworth AFB. When such materials are exposed to storm water runoff, they may be carried to a receiving stream with the runoff. Identification of these materials helps to determine where contamination potential exists. Appendix H contains site specific spill prevention, control, and countermeasure plans for all of the industrial areas on Base by location (i.e., building number or area). The plans have a chemical inventory and a map showing the location of stored chemicals. They were completed by the individual industrial shops and will be updated annually or whenever there has been a major change. Potential exposure to storm water for these materials is discussed in Section 3.3.

### **3.3 *Exposed Significant Materials***

“Significant materials,” as defined in 40 CFR 122.26, are substances related to industrial activities such as process chemicals, raw materials, fuels, pesticides, fertilizers, and hazardous substances. Appropriate BMPs will be implemented to limit the contamination potential of these materials.

All of the chemicals listed in the Site Specific Spill Prevention, Control, and Countermeasure Plans (Appendix H) are used on site and are potentially exposed in the industrial areas of the Base (Figure 3-2). Most materials are typically stored and used indoors and transferred between buildings in closed containers. The exposure potential is essentially limited to spills during transfer. The exposure potential for these materials is much less than that for materials that are stored or used outdoors. This section will focus on significant materials continuously exposed to storm water through normal storage or outdoor usage.

**Table 3-1  
Outfall Characteristics, Ellsworth AFB**

<b>Outfall</b>	<b>Coordinates</b>	<b>Total Area Drained (acres)</b>	<b>Estimated Impervious Area (acres)</b>	<b>Percent Impervious</b>	<b>Industrial Activities<sup>a</sup></b>
001	LAT. 44°07'32.19" LONG. 103°05'49.50"	638	236	37	2, 3, 4, 7, 9, 16,17,18, 21, 22, 26, 29 Inactive landfill with a stabilized cover
002	LAT. 44°07'37.84" LONG. 103°05'18.52"	321	205	64	2, 7, 9, 19, 20, 21, 24, 28
003	LAT. 44°08'48.81" LONG. 103°06'56.77"	750	113	15	2, 7, 8, 9, 10, 11, 20, 24, 27
005	LAT. 44°07'54.86" LONG. 103°04'39.39	N/A	N/A	N/A	Waste Water Treatment Plant (See latest IWM Plan located in CEV)
006	LAT. 44°07'32.44" LONG. 103°04'16.11"	1474	516	35	1, 2, 5, 6, 8, 9, 12, 13, 14, 15, 20, 23, 25
007	LAT. 44°10'21.10" LONG. 103°04'45.33"	202	0	0	Explosive Ordnance Disposal Range and an inactive landfill with a stabilized cover
008	LAT. 44°10'23.47" LONG. 103°05'26.57"	25	0	0	Inactive landfill with a stabilized cover
009	LAT. 44°10'35.36" LONG. 103°06'17.95"	36	0	0	Closed rubble landfill

**Table 3-1 Notes**

<sup>a</sup> Industrial activities are numbered below

- |   |   |
|---|---|
| 1. Aerospace Ground Equipment (AGE) Maintenance       | 16. Fire Protection Training                        |
| 2. AGE Storage  | 17. Fire Station Vehicle Maintenance                |
| 3. AGE Refueling                                      | 18. Fire Station Vehicle Washing                    |
| 4. Aircraft Deicing                                   | 19. Fuels Management Vehicle Parking                |
| 5. Aircraft Engine Testing                            | 20. Hazardous Waste Accumulation Area               |
| 6. Aircraft Fuel Storage                              | 21. Horizontal Construction Equipment Maint.        |
| 7. Aircraft Maintenance                               | 22. Inactive Landfill                               |
| 8. Aircraft Parking                                   | 23. United States Air Force (USAF) Vehicle Washrack |
| 9. Aircraft Refueling                                 | 24. USAF Vehicle Refueling                          |
| 10. Aircraft Refueling Pump Stations                  | 25. Munitions Storage Area                          |
| 11. Aircraft Washrack                                 | 26. Aqueous Film Forming Foam (AFFF) Storage        |
| 12. Base Supply Distribution                          | 27. Horizontal Equipment Storage/Parking            |
| 13. Base Supply Outdoor Storage                       | 28. Effluent from Ground Water Treatment Plant      |
| 14. Deicing Material Storage                          | 29. Airfield/Runway Deicing                         |
| 15. Defense Reutilization and Marketing Office (DRMO) |   |

The major areas where significant materials are exposed to storm water at Ellsworth AFB include:

Defense Reutilization and Marketing Office (DRMO) storage areas;

Building 102, Transportation

Base Supply Facility storage area;

Buildings 7520, 7522, 7524a, Aerospace Ground Equipment storage area;

Bowser and AGE parking areas on 60 Row;

50 Row;

40 Row;

Hazardous Waste Accumulation areas;

Building 1911, Vet Clinic;

Building 601, AC ENG;

Building 619;

Building 618, MAC ACE;

Deicing areas;

Bulk fuel storage areas;

Aircraft refueling areas;

Vehicle refueling areas;

Fire station;

Buildings 8117 & 8118, Entomology;

Waste Water Treatment Plant;

Building 1500, Jet Engine Test Cell;

Herbicide, insecticide, and pesticide application areas;

Runway;

AFFF (aqueous film forming foam) storage areas;

30 Row;

Building 88532, Prime Beef;

Building 88538;

Building 88554, Line Maintenance;

Firing Range north of Building 9008;

Buildings 8101 and 8115 storage areas;

100 Row;  
90 Row;  
80 Row;  
70 Row;  
Building 88149, Storage Areas;  
Building 88240, Storage Areas;  
Building 88411, Power Production storage area; and  
Building 7237, Zone 1;  
Building 920;  
Building 2801, Golf Course Maintenance;  
Building 4307, Communications;  
Building 7540, Large Maintenance Complex;  
Building 7221, Chemical Storage;  
Building 6922, Old Bunker;  
Building 7114, COMM;  
Building 7120;  
OU-1, former Fire Training Area;  
Building 740, COMM;  
Building 4400, Security Forces;  
Building 4704, AAFES;  
Building 5912, Shopette;  
Building 88238;  
Building 8301, MOC;  
Railroad Staging Area north of CE;  
Building 606, Alert Dining;  
Building 1007, 28 OPS Group;  
Building 909, Parachute Shop;  
Building 6908, Groundwater Treatment Plant;  
Building 88032, WSA;  
Building 88031, Plant 1;  
Building 88801, Igloo;

Building 6905, Old Bunker;  
Horizontal Equipment/Heavy Equipment Training Site;  
Building 9030, Riding Stables;  
Building 88421, Grounds Maintenance;  
PI Contractor Construction Yard;  
Building 101, Wash Rack;  
Building 4610, Arts and Skills Center;  
Building 1501, FLT SIM.

Certification of the SWPPP by a professional engineer is not required at Ellsworth AFB. The Base does not utilize any EPCRA Section 313 water priority chemical (40 CFR 372.65, Subpart D) in amounts exceeding threshold levels.

Table 3-2 lists the significant materials currently exposed to storm water and associated materials management practices at Ellsworth AFB. Figure 3-4 shows the locations of the facilities with exposed significant materials (see map packet). Erosion and sedimentation can cause many problems in a storm drainage system, most notably a reduction in culvert and channel capacity and the pollution of receiving waters with suspended solids. Table 3-3 lists areas on the Base with significant erosion problems. The information in Tables 3-2 and 3-3 was based on a visual inspection of every facility within the industrial areas of the Base, a walk of all the storm drainage areas, interviews with Base personnel, and a review of related documents.

Ellsworth AFB has 13 sites in the Installation Restoration Program (IRP). One of these sites is closed with No Further Action (NFA) planned at this time. The remaining 12 sites are in the active IRP process; their locations are shown in Figure 3-5. In general, the IRP sites are not key exposure areas. Restoration activities and storm water controls, if needed, have been and are being addressed under the IRP.

### ***3.4 Significant Spills and Leaks***

Storm Water Pollution Prevention Plans are required to provide a brief description of all significant spills and leaks which have occurred during the previous three years. The description includes the location of the spill, type of material spilled, quantity spilled, and the control and cleanup procedures implemented to remedy the spill. A significant spill, as defined in the EPA document Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices, includes, but is not limited to:

“...releases of oil or hazardous substances in excess of reportable quantities (RQ) under Section 311 of the CWA (see 40 CFR 110.10 and CFR 117.21) or Section 102 of CERCLA (see 40 CFR 302.4).”

The spills that have occurred at Ellsworth AFB since 1996 are shown in Table 3-4. For the purposes of this plan, all reported spills, regardless of whether they exceed RQs, have been included. The approximate spill locations for those in the last three years are shown on Figure 3-4.

The cleanup response and reporting procedures used by Ellsworth AFB are documented in the Spill Prevention Control and Countermeasures (SPCC) Plan (Spill Plan) dated 1999. The site specific spill prevention control and countermeasures plans are in Appendix H. Petroleum spills of less than 25 gallons are reported to the State only if they are not cleaned up within 24 hours or if they reach any surface water. Spills greater than 25 gallons are reported to the State, but not the EPA, since RCRA authority for hazardous waste spills has been granted to the State of South Dakota. The spill reporting procedures to be followed when reporting spills are included in Appendix C.

**Table 3-2      Exposed Significant Materials**

























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36



















**Table 3-3      Areas of Significant Erosion**

















FIGURE 3-5. IRP SITES AT ELLSWORTH AFB

**Table 3-4      Spill History**









### ***3.5 Existing Storm Water Data***

Storm water sampling data provides information that describes the quality of storm water discharges. This data indicates the potential environmental risk of the discharge by identifying the types and amounts of pollutants present. In addition, this data can identify potential sources of storm water pollution.

Storm water samples are collected monthly at Outfalls 001, 002, and 003 under Ellsworth AFB's existing SWD permit. Effluent sampling at Outfall 005 is also required by the permit. Outfall 005 discharge leaves the Base through Outfall 006. The data are reported on EPA Form 3320-1, Discharge Monitoring Reports, which are kept on file in the Base Bioenvironmental Engineering office. Data collected from January 1990 through April 2000 is summarized in Table 3-5. Note that sampling requirements changed when the permit was renewed in 1996. In computing means, "less than" values were added as the value itself. If there was no flow (i.e. no sample) or no analysis for a particular parameter, no data point was considered in the mean calculation. In particular, there were few analyses for BOD<sub>5</sub> (sampling is only required November through April), and the means represent no more than six samples in a given year. Due to the change in aircraft deicing policy described below, BOD<sub>5</sub> sampling is no longer required at Outfalls 002 and 003.

Historical data have shown an occasional BOD<sub>5</sub> problem in the past, caused by runoff of aircraft deicing fluid into the storm sewer system. March and April samples in certain years had the highest values. During the summer of 1994, the Operations Group implemented a new deicing policy that restricted deicing to areas draining to Outfall 001. The deicing policy can be found in Appendix F. A BMP for the area is to collect the deicing fluid that reaches the ground with a vacuum truck to minimize its runoff potential.

**Table 3-5  
Storm Water Monitoring Data**

Outfall	Year <sup>a</sup>	BOD <sub>5</sub>		pH (units) Permit Range = 6.0-9.0		Oil & Grease Permit Max. = 10.0		M
		Mean	Range	Mean	Range	Mean	Range	
001	1990	-	-	7.3	7.0-7.6	0.4	<0.3-1.1	0
	1991	23	4-49	7.4	7.3-7.6	<0.3	<0.3	0
	1992	189	4-477	7.2	6.9-7.6	<1.0	0.8-<1.0	0
	1993	3	2-3	7.5	7.2-7.9	<1.0	<1.0	0
	1994	13	2-39	7.8	6.7-8.2	2	<1-5	0
	1995	77.5	4-188	7.78	6.96-8.4	1.33	1.0-3.0	0
	1996	93.75	1-274	7.8	7.1-8.3	1	N/A	0
	1997	42	5-123	8.1	7.3-8.5	N/A	N/A	0
	1998	69	1-288	8.3	8.1-8.7	N/A	N/A	0
	1999	12	2-26	8.2	7.7-8.7	N/A	N/A	0
2000	60	1-110	8.5	8.2-8.8	N/A	N/A	0	
002	1990	19	-	7.4	6.8-7.5	0.4	<0.3-1.1	0
	1991	22	3-39	7.3	7.2-7.5	0.8	<0.3-3.2	0
	1992	58	4-141	7.4	7.2-7.6	1.1	<0.3-3.6	0
	1993	2	1-2	7.3	7.2-7.5	<1.0	-	0
	1994	98	2-438	7.4	7.0-7.7	1	<1-2	0
	1995	13.92	2-56	7.42	6.98-7.8	1.83	1.0-5.0	0.1
	1996	10.67	8-15	7.45	7.2-7.8	1.0	N/A	0
	1997	N/A	N/A	8.0	7.7-8.4	N/A	N/A	0
	1998	N/A	N/A	8.2	7.8-8.9	N/A	N/A	0
	1999	N/A	N/A	7.9	7.8-8.2	N/A	N/A	0
2000	N/A	N/A	8.2	7.9-8.8	N/A	N/A	0	
003	1990	-	-	7.2	6.8-7.5	3.8	<0.3-16.7	0
	1991	60	-	7.4	7.2-7.6	1.8	<0.3-3.7	0
	1992	285	20-460	7.1	6.8-7.4	3.5		0
	1993	52	-	7.5	7.1-7.6	1.8	<1.0-4	0
	1994	339	7-1260	7.2	6.7-7.5	1	<1-5	0
	1995	10.4	3.5-17	7.33	6.8-8.0	1.2	1.0-3.0	0.1
	1996	72.67	7-199	7.38	6.7-7.9	1	N/A	0
	1997	N/A	N/A	7.86	6.8-8.5	N/A	N/A	0
	1998	N/A	N/A	8.2	7.8-8.7	N/A	N/A	0
	1999	N/A	N/A	7.8	7.31-8.2	1.2	N/A	0
2000	N/A	N/A	7.9	7.5-8.3	N/A	N/A	0	

<sup>a</sup> Data from January 1990 through April 2000.

### ***3.6 Risk Identification and Summary of Potential Pollutant Sources***

The information presented in Sections 3.2 and 3.3 provides a detailed inventory of the materials used and exposed at Ellsworth AFB. This section presents a summary of the significant potential pollutant sources and identifies pollutants of concern.

Areas of industrial activity at the Base are spread among the various drainage areas. Because many of the activities generate similar types of pollutants, there are no distinguishable differences in pollutants of concern between Outfalls 001, 002, 003, and 006 other than the deicing chemicals that may be present in the Outfall 001 drainage. The industrial activities for all of the outfalls are outlined in Table 3-1.

The major potential pollutant sources are:

- Open storage of supplies, equipment, and product drums (petroleum, oils, lubricants (POLs), paints, thinner, cleaners, antifreeze, deicing fluid, and hydraulic fluid);
- Parking of refueling trucks, AGE, trailers, and other equipment near drainage;
- Filling of fuel tanks;
- Aircraft and vehicle refueling in the operational apron, north hangar area, and terminals;
- Equipment maintenance activities;
- Transportation vehicle maintenance;
- Aircraft maintenance; and
- Aircraft deicing.

The above sources could generate the following types of pollutants to storm water leaving the Base through Outfalls 001, 002, 003, and 006:

- Oil, grease, and other petroleum hydrocarbons;
- Non-halogenated Volatile Organic Compounds (VOCs);
- Metals;
- Propylene glycol; and
- BOD/COD loading.

Ellsworth AFB used 11,388 gallons of glycol-based deicing fluids in FY 1998. Appendix F contains monthly data on deicing activities at Ellsworth AFB.

### ***3.7 Non-Storm Water Discharges Certification***

The certification on page (i) of this SWPPP ensures that all storm water outfalls have been tested or evaluated for the presence of non-storm water discharges.

#### ***3.7.1 Methodology***

The test methods outlined below were used to evaluate the presence of non-storm water discharges.

##### ***3.7.1.1 Visual Inspections***

The Base Bioenvironmental Engineering Office performs visual checks of Outfalls 001, 002, and 003 weekly with monthly sampling. The records are maintained in that office. Photographs of the outfalls are presented in Appendix B. Outfalls 002, 003, 007, 008, and 009 flow only during storm events or during snow melts. Outfalls 001 and 006 flow continuously. Outfall 006 is downstream of the wastewater treatment plant discharge (Outfall 005), so continuous flow is expected. Because the depth of ground water is relatively shallow, ranging from near the surface in the northern part of the Base where springs discharge to about 15 feet below the surface in the southern part of the Base, some uncontaminated ground water infiltrates into the storm water sewer system. The portion of the system receiving flow from the underdrain system near the runway is particularly known to receive ground water.

Manholes and grate inlets were inspected along the main storm sewers and on relevant lateral lines.

##### ***3.7.1.2 Personnel Interviews***

Base personnel were interviewed to determine if they knew of, or suspected, any cross connections or other non-storm water discharges to the storm sewers.

### **3.7.1.3 Sewer Map**

In previous compliance evaluations, the stormsewer map for the Base was reviewed to locate any potential cross-connections. Suspected cross-connections were investigated by visual observation and other methods, if needed. Selected building utility schematic drawings were also reviewed where suspect sources such as floor drains existed. Part of the review consisted of reviewing all facility maps to verify that the floor drains in the boiler rooms were not connected to the storm sewer. The review of the plans revealed that no positive confirmation was made in 34 facilities. A contract to investigate the facilities was written, awarded and completed. The contractor was responsible for smoke testing the 34 facilities in question and determining whether the drains are connected to the sanitary or storm drain system. Smoke testing was also performed in Rows 40, 50, and 60.

### **3.7.1.4 Dye and Smoke Testing**

Dye tests were performed at selected locations where other methods did not conclusively indicate the discharge location of a connection. Tests were performed by dissolving a non-toxic dye in water and releasing it into the connection being tested. Downstream observation points were established in the storm and sanitary sewer systems and then examined until the dye appeared in one of them. The outcome of the tests verified the previous conclusions.

### **3.7.1.5 TV Inspection**

A TV inspection of the industrial waste sewer system was completed in October 1998. A comprehensive I & I study was completed in March 2000 and a rehabilitation program for the Base industrial and sanitary sewer systems is planned.

## **3.7.2 Repairs**

Several cross-connections and other non-storm water discharges were identified at Ellsworth AFB. The cross-connections and the corrective measures were:

- Three floor drains in the east bays of the fire house (Blq. 7506) were connected to the storm sewer in the Outfall 006 area. Project FXBM 961514 and Work order #44950 ensured all lines have been connected to the sanitary sewer;

- All floor drains in the Pride Hangar (Bldg. 7504) were connected to the storm sewer in the Outfall 006 area (all floor drains have been plugged), with corrections proposed under FXBM961514 and 332# 44950. This project is complete;
- Floor drains and oil/water separators at the flightline pump houses and associated lateral control pits were connected to the storm sewers; these effluent lines have been plugged;
- The floor drain in Bldg. 88315 was connected to the storm drain system. This facility was used for storage of non-liquid materials with no discharge from the floor drain. The floor drain was plugged to prevent any future discharge;
- Ground water was leaking into the 1000-gallon 80 row waste recovery tank. The 80 row fuels recovery system was a problem since 1987. The concern was that if water could get into the tank, then fuel that was released to the recovery tank in the area could get out and contaminate the ground water below the concrete apron. This area had French drains under the apron that were connected to the storm drainage system that leads to Outfall 003. The ground water leaks were eliminated;
- A cross-connection was identified at Industrial Manhole #23, south of 20 Row. It was repaired appropriately.

### **3.7.3 Other Non-Storm Water Discharges**

EPA's General Permit authorizes several types of non-storm water discharges.

Allowable discharges at Ellsworth AFB may result from the following:

Fire fighting activities, not including fire training exercises;

Fire hydrant flushing;

Potable water sources, including lateral or building water line flushing;

Lawn watering;

Springs and uncontaminated ground water infiltration;

Pavement (flightline) or foundation underdrains that are not contaminated with other materials;

Routine external building wash downs in which detergents or other compounds were not used;

Pavement wash waters originating from areas where spills or leaks of toxic or hazardous materials did not occur, and in which detergents were not used; and air conditioning condensate.

## **4 STORM WATER MANAGEMENT PROGRAM**

### ***4.1 Storm Water Management Program Implementation Requirements***

The purpose of this section is to identify existing and proposed BMPs as they apply to storm water, as well as erosion controls required on construction projects, both in-house and contract. The BMPs, along with the erosion control requirements for construction projects, will minimize the exposure of storm water runoff to significant materials and erosion from construction projects.

The proposed BMPs listed below, and in Table 4.1, and the requirements for erosion control at construction sites are recommended to be implemented at Ellsworth AFB. Implementation is required within 12 weeks from the date of this plan. If implementation is contingent on allocation of funds from HQ Air Combat Command or if a design/contract is required to implement the BMP, the process to acquire the funds or to put the project under design shall be started prior to the 12-week deadline.

### ***4.2 Best Management Practices***

BMPs include the following categories of storm water management controls:

- Good housekeeping;
- Preventive maintenance;
- Visual inspections;
- Spill prevention and response;
- Sediment and erosion control;
- Management of runoff;
- Employee training;
- Record keeping and reporting; and
- Other advanced BMPs.

The following sections present the storm water management controls with existing and proposed BMPs. Detailed proposals for sediment and erosion control upstream of the outfalls

have been proposed under project number FXBM 96-1511, and 99-6005. Table 4-1 lists other advanced proposed BMPs; these are BMPs that do not fall under any of the first eight categories mentioned previously. The existing BMPs at specific exposure locations are listed in Table 3. Therefore, refer to this table for more details if required.

#### **4.2.1 Good Housekeeping**

##### ***4.2.1.1 Base Wide - Existing BMPs***

- Most work areas are kept clean and uncluttered.
- For the most part, drums containing chemicals are stored in clamshells, on spill pallets under a covered roof, or inside facilities on spill pallets.
- Materials are stored with adequate aisle space for walkways and equipment movement to facilitate materials transfer.
- Drums of materials and hazardous wastes are appropriately labeled.
- The Safety Kleen contract was replaced with government-owned parts washers that recycle the cleaning solvent via submicron filtration. The filtration process is so effective the solvent never needs changing. The only wastes produced are spent filter cartridges and small amounts of sludge.
- The Industrial Waste Management Program Plan has specific procedures for washing floors in docks.
- There are set procedures and locations for the triple rinsing of product containers.
- All investigated derived waste soils are stored in 55 gallon steel drums on wooden pallets.

##### ***4.2.1.2 Site Specific – Existing BMP***

Runway apron and hangar areas are frequently swept.

##### ***4.2.1.3 Base Wide – Proposed BMPs***

- Install wringers and oil collectors at all maintenance locations, similar to Bldg. 7616, to allow absorbents to be reused before disposal.

- Application of herbicides, insecticides, and fertilizers within 50 feet of the top of drainage ditches and inlets should be prohibited on Base, with the exception of herbicide application at recommended dose rates in drainage ditches for noxious weed control as required by the State of South Dakota.
- All dumpsters should have covers that should remain closed when not in use.
- All material such as lumber, scrap metal, piping of all types, empty drums, and any other material stored outside must be on wooden or metal pallets (i.e., stored off the ground).
- Drums/containers containing chemicals that are stored outside will be in clamshells, or on spill pallets under a covered roof.
- All government vehicles must be washed at the Base vehicle wash rack or other designated areas. There should be no washing of vehicles at any other location.
- Park all unattended AGE at least 25 feet from any storm drain inlet.
- Monitor drip pans so they do not overflow. Spilled or leaked fluids should be cleaned as the spills or leaks are found.
- Maintenance of storm water related structures should improve. Culverts should be periodically checked, cleaned, and replaced if broken or no longer functional. Debris should be removed from trash racks, ponds, channels, etc. to maintain maximum capacity and usefulness.
- Contractors should store materials properly in construction laydown yards and should remove excess materials from the sites when finished.

## **4.2.2 Preventative Maintenance**

### ***4.2.2.1 Base Wide - Existing BMPs***

- Tanks and equipment are painted and washed regularly.
- Maintenance of all work and storage areas is performed as needed.
- Oil/water separators, storm water catch basins, storage tanks, and secondary containment are on a regular maintenance schedule.
- Refueling trucks and equipment are maintained regularly.

### **4.2.3 Inspections**

#### ***4.2.3.1 Base Wide - Existing BMPs***

- All refueling equipment and facilities are inspected daily Monday through Friday and prior to use on weekends and holidays (see Appendix I for the Refueling Equipment Checklist and the forms used).
- Refueling trucks are inspected and pressure is tested prior to each refueling.
- Trucks are inspected continuously during fuel transfer, including vehicle portion of tank trucks for fluid and/or fuel leaks. Every time a truck is moved, the driver performs a walk around inspection.
- ASTs are inspected frequently for signs of leakage.
- AST dikes are inspected.
- Hazardous waste satellite accumulation points are inspected weekly by using organization.
- Oil/water separators are inspected weekly by using organization and monthly by the wastewater treatment plant.

#### ***4.2.3.2 Base Wide - Proposed BMPs***

- Where inspections occur, logbooks should be kept on site to verify that inspections have been conducted and no contamination was found.
- Construction oversight inspections should be improved. Contractors must comply with construction specifications and leave the sites in satisfactory condition.
- Inspect all flightline vehicles daily and turn in for maintenance immediately when leaks are found.
- Implement daily inspections of the manholes immediately down gradient of each oil/water separator at the pumphouses and at each valve box not connected to the oil water separators.
- Regularly inspect fire extinguishers and update tags.

## **4.2.4 Spill Prevention and Response**

### ***4.2.4.1 Base Wide - Existing BMPs***

- The Base has developed the HAZMAT Plan IAW AFI 32-4002.
- Appendix C contains the Base's procedures for Spill Reporting.
- Appendix H contains the Site Specific Spill Prevention Control and Countermeasure Plans.
- Spill kits are available in fuel handling areas and most of the hazardous waste satellite accumulation points.
- Fire department is familiar with storm water drainage routes and cutoff points for spills into the system.
- Most spilled fuel reaching the drainage system can be detained in the outfall ponds that have been fitted with oil/water separators/skimers.
- ASTs containing 660 gallons or more of product have secondary containment.

### ***4.2.4.2 Base Wide - Proposed BMPs***

- Ensure that all outdoor hazardous waste accumulation points and hazardous material storage areas have adequate secondary containment with sump pumps and cover.
- A log must be kept on site noting the visual inspections of water in the sump for contamination.
- Collect blowdown from air compressors with a drip pan or connect discharge to the sanitary sewer system.
- When aircraft have been moved from a spot, any liquid spills that have occurred should be cleaned up immediately. Liquid spills from parked aircraft should be cleaned at least daily. All locations should be checked for any missed spills prior to any rain event. Speedy Dry or vacuum sweepers will be used when cleaning up the oil/fuel stains.
- Install pumphouse tank overflow warning systems and test prior to each tank filling.
- ASTs containing less than 660 gallons should have spill containment material located in the immediate area of the tank (i.e., in a clam shell or Pig barrel) and have secondary containment. See 1996 Proposed BMPs for a list of tanks that need to be upgraded to double-walled tanks.

## **4.2.5 Sediment and Erosion Control**

### ***4.2.5.1 Base Wide - Existing BMPs***

- Most drainage areas are well vegetated.
- Most excessive slopes in drainage channels are concrete or riprap-lined.
- Street sweepers remove debris from streets, flightline areas, and parking lots.
- The Base has a new project number for the erosion control measures included in FXBM992500-03. The new number is FXBM961515. All of the remaining erosion control problems have been proposed for design under project number FXBM961511.

### ***4.2.5.2 Base Wide - Proposed BMPs***

- Silt fences and straw bales should be placed around any dirt that may be able to travel with storm water to the Base lakes or to a storm drain.
- Silt fences should be properly installed by digging down 6 inches and backfilling soil.
- Table 3-3 lists all the places on Base where erosion control measures need to be taken. Many of them are already under contract to be repaired

### ***4.2.5.3 Site Specific - Proposed BMPs***

- The silt fencing at the landfill in OU-2 is showing erosion problems. The silt fencing was not properly installed. It should have been buried six inches below the ground surface.
- Silt fences at OU-9 have filled with sediment and need to be maintained by cleaning or replacing with new fencing. A sediment trap with an outlet could be considered for this site.
- The rubble landfill needs improved sediment management. See 1997 proposed advanced BMPs for a detailed description.

## **4.2.6 Management of Runoff**

### ***4.2.6.1 Base Wide - Existing BMPs***

- Hazardous material storage areas are curbed to prevent run-on.
- Drums are stored on pallets on concrete floor that is sloped to collection sump.

- Sumps are manually pumped dry following inspection for sheen or indication of contamination. If contamination is suspected, sump is pumped to a container for disposal.
- SWD sampling locations at outfalls are marked with signs indicating the sampling point and outfall number.
- Remediated IRP sites were contoured to direct runoff away from the sites.

#### ***4.2.6.2 Site Specific - Existing BMPs***

- Skimmers/separators are installed on outfall ponds, except the Golf Course Pond.
- Aircraft will be placed in heated hangars to prevent ice accumulation when possible.
- Base uses high-powered heater blowers and brushes to remove as much snow and ice as possible before applying deicing fluid. The Base deicing policy letter limits the deicing to areas that drain to Outfall 001. See current deicing policy letter for specific locations authorized.
- Avion 50 rubber remover is used twice a year and is washed off with water. Mechanical ice removal is used whenever possible before chemicals are used. Otherwise, isopropyl alcohol and magnesium acetate products are used. EAFB does not use any runway deicing chemicals containing ethylene glycol. The Base uses a Runway Ice Detection System (RIDS) to manage airfield deicing operations.
- The fence was moved from the southwest corner of the horse pasture near the MSA to the northwest for the drainage ditch. Now there is a minimum of 50 feet of buffer zone between the fence and the edge of the ditch and the buffer zone was vegetated.
- The Base uses vacuum trucks to collect deicing fluid from the ground. The Base is researching this BMP along with more technologically advanced deicing trucks that use far less deicing fluid than current equipment.

#### ***4.2.6.3 Base Wide - Proposed BMPs***

- Maintain a log to record inspection findings.

## **4.2.7 Employee Training**

### ***4.2.7.1 Base Wide - Existing BMPs***

- All maintenance personnel are trained in proper cleanup and reporting procedures.
- Site Specific Spill Prevention, Control and Countermeasure Plans are located in each work center/industrial area.
- All personnel involved in the management and handling of oil and hazardous substances must take part in training in accordance with OSHA Rule, 29 CFR 1910.120.
- Contractors working in areas associated with oil and hazardous substances are responsible for training their personnel in spill response and reporting procedures. Contract Administrator is responsible for providing contractors with a summary of spill response and reporting procedures.

### ***4.2.7.2 Base Wide - Proposed BMPs***

- Make spill response plans available in all hazardous material and fuel handling facilities.
- All supervisors and facility managers in areas of industrial activity will be trained in the BMPs and other requirements of the SWPPP. The supervisors shall train the personnel under their supervision.
- SWPPP training should be made available online on the Base's Intranet. CEV personnel are working on this BMP.

## **4.2.8 Recordkeeping and Internal Reporting Procedures**

### ***4.2.8.1 Base Wide - Existing BMPs***

- Spills and leaks are documented and reported, including discharges of hazardous substances in reportable quantities. Information is kept in a central file.
- Site Specific Spill Prevention, Control and Countermeasure Plans can assist in the identification of facilities handling chemicals and other hazardous materials.
- All records shall be maintained for a minimum of one year after SWD permit expiration.

#### **4.2.8.2 Base Wide - Proposed BMPs**

- Inspection and maintenance activities should be recorded in field notebooks.

### **4.3 Erosion Controls Required During Construction Projects, In-house and Contract**

#### **4.3.1 In-House Projects**

All in-house projects in which construction activities include clearing, grading, stockpiling, or excavating resulting in any size disturbance of the natural cover of the soil shall be reviewed by CEVC. The work order request 332 will be reviewed to meet this requirement. Comments will be provided at that time on how to minimize erosion from the site. If the project is greater than five acres, the Base will apply to be covered under the state general permit no. SDR100000 and a site specific Pollution Prevention Plan will be developed and implemented. Refer to Appendix G for additional guidelines.

#### **4.3.2 Contractor Projects**

A Storm Water Pollution Prevention Plan shall be developed and approved by the Air Force for all delivery orders in which the construction activities include clearing, grading, stockpiling or excavation activities resulting in any size disturbance of the natural cover of the soil. This plan shall be completed and implemented prior to the time the project breaks ground and revised, if necessary, as construction proceeds. Appendix G provides additional guidelines for construction activities. The contractor's plan and its implementation will be reviewed and judged against the criteria listed in Appendix G.

**Table 4-1  
Advanced BMPs**

<b>ADVANCED BMPs</b>	
<b>Location</b>	<b>Proposed BMPs in October 1995 SWPPP</b>
CE holding area, HAZMART, Transportation, Base Supply, CE self help, AGE facility, and Base Golf Course Storage	New storage facilities have been built at these locations under Project FXBM9925003.
Building 1805, DRMO	A new RCRA-permitted hazardous waste/materials storage building has been constructed 1910. It will replace Facility 1805 (hazardous waste storage area) and also allow for storage drums. Because Facility 1805 is no longer used, drums are currently stored in large ConE.
Building 1704, Bulk Fuel Storage Areas C & D	Construct curbing/containment system around pumphouse area and truck and rail unloading from fuel transfer operations. Install holding tank similar to that south of Bldg. 8215 in B Appendix J for EAFB liquid fuels maintenance upgrade plan.)
AGE Refueling Area, South of Bldg. 7262	Install roll curbs to divert runoff from surrounding area and install canopy roof to exclude Roll curbing with a valve to release stormwater was constructed. Signs stating that fueling west side of the hydrants and the valve should be closed while fueling need to be installed protection for fueling operations on the west side only. Installation of storm drain insert va inspected for sheen prior to release.
Pride Hangar	Remove piping connecting floor drains to storm sewer. Install piping to connect floor drain system. FXBM961514 (completed)
50 Row, South of Buildings 7610 and 7612	Construct 80' x 40' metal building canopy with concrete floor and curbing. Floor will slope store drums, pipe, and miscellaneous equipment.
Central Drainage Ditch Ponds	Install oil skimmer/separator on the Golf Course Pond and the three upstream ponds. FXE
EOD Area	Reconstruct sedimentation ponds at location of former check dams #1 and #8. Ponds shot outlet riser pipes to regulate depth of permanent pool and prevent washout of the dams. P good condition. (completed)
USAF Vehicle Refueling Area	Construct roll curb under roofed area to contain spills. FXBM961510
80 Row fuel recovery system	Determine the source of the leak into the 80 row recovery tank in the fuels recovery system
<b>Location</b>	<b>Proposed BMPs in October 1996 SWPPP</b>
Ground Maintenance	Contain all herbicide chemicals in a covered spill containment basin. The entire containment area with a metal shed to house the chemicals. The basin must have pumping capabilities be able to be placed in the basin without tracking spilled chemicals outside of the basin.
Diesel Fuel Tanks North of Dock 51	The diesel fuel and MOGAS tanks need to have secondary containment provided and spill 23-204. Double-layered tanks have been ordered under project number FXBM961507 to tanks. These tanks should be inspected on a regular basis with logs recording each inspection discussed under sitespecific spill prevention and response procedures. Replacement of th
North of 7120	
Base Outfalls	Install flow measuring devices directly before the fences at outfalls to monitor the amount property. Flow measuring flumes were installed at Outfalls 001, 002, and 003 to

**Table 4-1 (continued)**

<b>ADVANCED BMPs</b>	
Base Outfalls	Measure flow leaving the Base property. Some repair/maintenance of the flumes is needed calibrating the flumes for accurate flow measurement. See 1997 BMPs.
Outfall 001	Flow measuring flume is filling with rock and sediment. The new outlet and trash rack are full of grass. The flume, outlet, and trash rack should all be cleared to promote flow through necessary one foot of freefall at the end of the flume for the purpose of accurate flow measurement.
Outfall 002	Large areas of soil are exposed on either side of the Texas crossing. The downstream channel built up on the fence. Exposed soil and downstream channel should be stabilized. Rock dirt cleared. (project in design)
Outfall 003	Construction of flume appears to be inadequate. Flume does not have the one foot of free flow measurement. The area upstream of the flume should be cleared of rock, concrete, and directs flow to the flume does not tie in with the road embankment. Water may bypass the without going through the flume. The area between the berm and the fence shows signs of northwest of the flume. Monitoring well MW941101 should be abandoned or raised since (project in design)
Pond 1 and upstream area	Erosion is rapidly occurring in the drainage leading from OU4; the rock structures in the continued erosion, the area surrounding the confluence of the drainage channel and the riprap 001 will likely fail. This area should be improved to prevent failure.
Pond 2	Old absorbent booms floating in the pond should be removed. East of the Airman Leader were at the culvert outlet, blocking the flow. This debris should also be removed. Gully eroded the road.
Pond 3	Old absorbent booms floating in the pond should be removed. The liner is failing near the be addressed. (completed)
New wetland system	The wetland system was observed to be in good condition. Water was seeping from under fabric liner via a gap. Although the water was likely ground water seepage, the situation is that might compromise the culvert.
Dock 52	Although not necessarily a storm water issue, the flushmount monitoring well near the storage
Areas of Deicing	For Deicing policies refer to Appendix F of SWPPP
	<p>The landfill should be managed so that no sediment leaves the permitted landfill boundary. extends beyond the permitted boundary. The north slope must be revegetated and stabilize prevent soil from leaving the boundary. The following action items should be taken starting the landfill:</p> <ol style="list-style-type: none"> <li>1. The four silt fences just south of the Base boundary need to be repaired and hay bales placed</li> <li>2. Riprap should be placed up gradient of the four old culverts to help hold back sediment.</li> <li>3. Riprap should be placed at the outlet of the drain tile on the north slope of the landfill.</li> <li>4. Silt fence should be placed along the entire length of the existing fence to keep the horizontal landfill boundary. The silt fence should be reinforced with old poles/railroad ties in the direction greater.</li> </ol>

**Table 4-1 (continued)**

<b>ADVANCED BMPs</b>	
	<p>5. Silt fence should be placed the entire length of the existing north side landfill boundary soils. The silt fence should be reinforced with poles/railroad ties in the draws where the fence is located.</p> <p>6. Halfway between the north landfill boundary fence and the existing drainage terrace, a silt fence should be placed the entire length of the disturbed soil. Hay bales should be placed behind the silt fence.</p> <p>7. Silt fences should be placed every 100 feet across the entire length of disturbed soil up to the existing terrace.</p> <p>8. A survey should be performed from the slope reference line just south of the existing terrace to the landfill. A determination should be made from the survey as to what slope will be required to maintain the reference line to the south side of the landfill (i.e. the elevation of the road.) Stakes should be placed on the east and west side of the landfill as markers to be used to ensure the slope is maintained during construction.</p> <p>9. Landscape mesh should be placed on the north slope from the slope reference line to the landfill boundary fence prior to hydro seeding/seeding.</p> <p>10. Hydro seeding/seeding will be performed on all areas where the final cover and grade has been established.</p> <p>11. Sediment control is not a ONETIME fix. The controls will need to be evaluated and replaced as needed. Once the area has been stabilized and revegetated. The measures taken will need to be reevaluated after 6 months or greater. Based on the evaluation, the current controls may need to be repaired and new measures may be required. Once is getting done, it is required that the landfill manager keep a log book to record the data and actions taken based on each inspection.</p>
<b>Location</b>	<b>Proposed in August 2000 SWPPP</b>
Building 8216	Line unlined AST dikes at Building 8216 with impervious floors to prevent seepage of spillage.
USAF Vehicle Refueling Area	Provide spill containment for vehicle filling and tank loading areas.

### **4.3.3 Excavation Dewatering and Hydrostatic Tests**

1. The contractor shall follow one of the following procedures for excavation dewatering and hydrostatic testing in areas that are outside of operable units. Any construction within operable units shall be coordinated with 28 CES/CEVR during the work planning stage.

a. The contractor can apply to be covered under the General Permit to Discharge under the National Pollutant Discharge Elimination System for Construction Activities in South Dakota permit number SDG-070000 (see Appendix G for this general permit). If the permit is requested for an area inside an operable unit, water quality data must be forwarded to the SD DENR along with the notice of intent.

b. The contractor can discharge the water to a level area at such a rate that it infiltrates and does not run off into a road ditch, storm drain, or any drainage ditch. This disposal method cannot be used for construction activities in operable units or if the water is known to be contaminated.

c. The water can be placed in containers and disposed of in the sanitary sewer system. For construction activities in operable units, the water must first be analyzed for the contaminants of concern in the specific operable unit. The results will be reviewed and disposal must be approved by 28 CES/CEVC prior to discharge to the sanitary sewer system.

### ***4.4 Additional Requirements for Storm Water Discharges Associated with Industrial Activities from Facilities Subject to EPCRA Section 313 Requirements***

The only water priority chemical of concern at EAFB under EPCRA Section 313 is chlorine, which is used for the treatment of waste water. Although chlorine was historically used in amounts exceeding the annual 10,000 lb reporting threshold, it is now used in smaller amounts annually and does not qualify as a reportable chemical. This reduction was caused by the change in chlorinating requirements of the Waste Water Treatment Plant (WWTP), which is no longer required to chlorinate all months of the year.

#### **4.5 Multi-Sector General Permit Requirements and Guidance**

In December, 1998, the EPA published a new MSGP to replace the Baseline General Permit that was published in 1992. Both permits were to be used by industrial facilities to permit storm water discharges under the National Pollutant Discharge Elimination (NPDES) program. In states that do not have delegated NPDES permit authority (South Dakota is not one of them), all dischargers of storm water exposed to industrial activity must apply to EPA for and comply with this general permit unless they wish to apply for an individual discharge permit. The MSGP must be adopted by the states that do not have NPDES permit authority over the next few years. South Dakota intends to implement an MSGP-type program in the year 2001. Facilities, such as Ellsworth AFB, that have a SWD permit that covers both storm water and wastewater, will have MSGP requirements incorporated into their permit at the next permit renewal.

In anticipation of complying with this new permit program, Ellsworth AFB has included a summary of the requirements and guidance from the EPA's MSGP in the 2000 Storm Water Pollution Prevention Plan. All industrial activity sites at Ellsworth have been classified under the appropriate MSGP industrial sector – the four industrial sectors that apply to Ellsworth AFB are:

- Sector AD    Miscellaneous Industrial Activities
- Sector P     Vehicle Maintenance and Related Activities
- Sector S     Aircraft Maintenance and Related Activities
- Sector T     Treatment Works

Please note that in Table 3-2, Exposed Significant Materials, each industrial activity site is given a sector designation. Appendix L provides additional regulatory detail and potentially applicable BMPs on each of the four applicable sectors and summarizes the requirements and guidance from the MSGP. These BMPs are not required but EPA expects facilities to evaluate these BMPs and apply them where appropriate.

##### **4.5.1 Endangered Species Protection**

MSGP requirements include evaluation of a facility's potential impact on endangered species and certification that storm water will not adversely affect any identified endangered species.

Ellsworth AFB has not identified the presence of any listed endangered species on or adjacent to the facility.

#### **4.5.2 National Historic Preservation Act**

MSGP requirements include evaluation of a facility's potential impact on any properties that are listed or eligible for listing in the National Historic Register.

Ellsworth AFB's storm water discharge does not affect any properties listed or eligible for listing in the National Historic Register.

#### **4.6 Personnel Training**

All first-line supervisors, facility manager, and commanders attending training on storm water management on an annual basis. This training is offered quarterly to insure that all personnel can attend sometime during the year. Storm water management training is given in conjunction with Spill Plan training since much of the information is common to both plans and programs.

## **5 COMPREHENSIVE SITE COMPLIANCE EVALUATION**

As part of the SWPPP requirements, Ellsworth AFB will conduct an annual Comprehensive Site Compliance Evaluation (CSCE). The next one is due by 30 June 2001. This evaluation will ensure that the Base is complying with the requirements and guidelines prescribed in the previous SWPPP and that the SWPPP reflects current conditions and operations at the Base. To conduct the CSCE, the SWPPT will appoint qualified personnel to form a Compliance Evaluation Team. The Compliance Evaluation Team (CET) will be composed of members from the SWPPT, other qualified Base personnel, or qualified outside contractors. The CSCE consists of three main tasks: an annual inspection, preparation of a summary report, and correction of any deficiencies discovered.

### ***5.1 Summary Report for the 2000 Update Site Compliance Inspection***

The CET consisted of Ms. Jean Decker and Ms. Janet Wood of ENSR, an environmental consulting firm. Areas contributing to storm water discharge associated with industrial activity were visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loading were evaluated to determine whether they were adequate and properly implemented in accordance with terms of the permit and previously written Best Management Practices (BMPs). New BMPs were assigned as needed. A visual inspection of equipment needed to implement the plan, such as spill response equipment, was conducted by each work center in completion of their Site Specific Spill Prevention, Control and Countermeasure plan.

Table 5-1 summarizes the actions taken as part of the annual inspection and was used as a checklist to complete the evaluation activities.

### ***5.2 Annual Site Compliance Report***

The following annual site compliance report summarizes the results of the compliance inspection:

- Personnel performing the inspection: Ms. Jean Decker and Ms. Janet Wood;
- Dates of the inspection: 14 June to 21 June 2000;

- Outline of inspection procedures (see Table 5-1); and
- Major observations relating to the implementation of the SWPPP were as follows:

Buildings inspected externally during the site visit were: 100 Row Load Crew Facility; 90 Row, Docks 90-92; 80 Row, Docks 80-83; 70 Row, Docks 70-74; 60 Row, Docks 60-63; 50 Row, Docks 51-53; 40 Row, Docks 42-43; 30 Row, Docks 31-33; and 20 Row, Dock 22; Munitions Storage Area buildings 88020, 88031, 88032, 88130, 88149, 88240, 88307, 88328, 88358, 88421, 88801, 88869, and Vehicle Refueling Area; Buildings 101, 102, 104, 410, 601, 602, 606, 618, 619, 740, 909, 910, 920, 1007, 1008, 1011, 1107, 1211, 1500, 1501, 1801, 1805, 1910, 1911, 1913, 2801, 3005, 4307, 4400, 4610, 4704, 5912, 6905, 6908, 6922, 7101, 7114, 7120, 7154, 7160, 7221, 7235, 7237, 7238, 7243, 7510, 7520, 7522, 7523, 7524a, 7540, 7610, 7612, 7616, 8101, 8108, 8115, 8117, 8118, 8217, 8301, 8401, 88408, 88411, 88414, 88512, 88532, 88538, and 88554;

Additional facilities visited were the Firing Range, AFFF Storage Area, new Fire Station, Aircraft Refueling Area, Bulk Fuels Storage Areas C and D, SABER, USAF Vehicle Refueling Area, MSA Refueling Area, Railroad Staging Area North of CE, Horizontal Equipment Training Site, PI Contractor Construction Yard, Landfarm, Fire Training Area, and Horse Stables. Facilities that were not inspected from the inside during the 1421 June time frame due to accessibility included: deicing areas and the runway. Descriptions of these facilities and the activities that take place within were provided.

Many positive actions have been continued in the last year to decrease the potential for storm water contamination. Most of the shops have complied with the BMP requiring all materials stored outside to be placed on pallets. Continued implementation of the HAZMART procedure, which centralizes the storage of hazardous materials and hazardous wastes, has meant that the shops are allowed to keep only a 30-day supply of chemicals on hand at any given time.

The general level of knowledge about storm water pollution prevention among AFB personnel was good. Implementing good housekeeping practices and preventive maintenance are priorities for most departments. General storm water quality appeared to be very good.

**Table 5-1**  
**Annual Site Compliance Evaluation**  
**Summary of Activities**

Item	Summary
1. <u>X</u>	Update list of SWPPT positions and descriptions and personnel in these positions (Table 21).
2. <u>X</u>	Check SARA/EPCRA 313 reporting for Section 313 Water Priority Chemicals (WPCs) (See list in Appendix D). If WPCs identified as being reported, upgrade plan and facility to comply with special storm water requirements for EPCRA 313 WPC use.
3. <u>X</u>	Inspect storm water drainage areas and outfalls associated with industrial activities (Figures 3-2 and 3-4 and Table 3-2) for evidence of or potential for pollutants entering the storm drainage system.
a. <u>X</u>	Update Site Specific Spill Prevention, Control and Countermeasure Plans for all Industrial Shops.
b. <u>X</u>	Note any changes in material handling practices.
c. <u>X</u>	Identify any evidence of spillage (staining, color, foam, sheen, etc.)
4. <u>X</u>	Evaluate existing BMPs to assure that they are adequate and properly implemented.
a. <u>X</u>	Inspect all areas to determine if existing Basewide BMPs such as good housekeeping, sediment and erosion control, etc. are being followed (Section 4.0)
b. <u>X</u>	Inspect individual areas to ensure that specific area BMPs are being followed (Table 4-1).
c. <u>X</u>	Note any newly implemented or proposed BMPs.
d. <u>X</u>	Inspect all structural storm water controls (catch basins, etc.) and structural pollution prevention measures (secondary containment, etc.) for effectiveness.
e. <u>X</u>	Inspect any equipment required to implement the SWPPP such as spill kits.
5. <u>X</u>	Ensure that all storm water monitoring data have been summarized in Table 3-5. Evaluate any storm water monitoring data for elevated levels of pollutants.
6. <u>X</u>	Update the Base spill list (Table 3-4).
7. <u>X</u>	Review the above information and note any non-compliance and determine if additional BMPs or structural controls are needed.
8. <u>X</u>	Revise Plan (including appropriate maps) within 2 weeks of CSCE inspection.
9. <u>X</u>	Implement changes specified in revised plan within 12 weeks of the CSCE inspection.

The 28th Bomb Wing Commander has implemented a Basewide deicing policy. The policy letter can be found in Appendix F. This policy limits the number of Base areas that drain deicing fluid run-off to Outfall 001. An additional BMP that has been implemented has been a system to capture and collect the deicing fluid using vacuum trucks to collect excess deicing fluid from the ground. The use of deicing fluid has continued to decrease since 1993. The 28<sup>th</sup> Bomb Wing Commander has also implemented an “Aircraft Spot Washing” policy. Please see Appendix K.

### **5.2.1 Compliance Inspection Observations**

Ellsworth AFB has recently installed a dedicated area for fundraising car washes that has a set of valves that can be manually switched to direct car wash water to the sanitary sewer (see Appendix M).

Culverts, drainage swales, and other storm water conveyances were generally in unsatisfactory condition. Many were filled with debris, trash, sediment, plant growth, and rocks and flow was often restricted or even blocked. Many culverts were partially or almost wholly crushed.

At many sites, riprap or gravel that had been placed at the discharge of storm water culverts or drains had moved downstream.

Many erosion sites noted in the last compliance inspection had not be reseeded or sodded. There were additional new erosion sites that also needed re-seeding.

At the Bulk Fuels Area “C”, the underground fuel pits are often full of water (from groundwater seepage and storm water infiltration). This water was observed to be contaminated due to a visible sheen. It is recommended that the pits be repaired or redesigned to prevent water contamination.

Many vehicles and mobile equipment units appear to be parked for extended periods of time. Some of these vehicles and equipment exhibit stains from leaks. Drip pans should be placed under these units if they are parked for long periods.

Many fire extinguishers did not have inspection tags or had outdated inspection tags. Many extinguishers did not have intact plastic loops to indicate discharge status.

All OUs and previously used landfills at Ellsworth AFB are inactive.

Under Project Number FXBM 99-6005, Gateway Lake, Heritage Lake, Bandit Lake, and the Golf Course Lake will each have oil/water separators with skimmers installed.

Many different pollution prevention projects and Base improvement projects have been budgeted for the fiscal years of 2000 through 2004. Each separate entity was given a project number and a work order number.

Additional proposed BMPs are listed in Section 4.

### ***5.3 Plan Revision/Correction of Deficiencies***

The SWPPP was reviewed and revised as a result of the June 2000 site compliance evaluation and will continue to be updated as a result of the yearly site compliance evaluation. Additional reviews will be conducted under any of the following conditions:

- A major change in Base design, construction, operations or maintenance which may impact the potential for pollutants to be discharged to storm water;
- Notification from the State to perform a review of the SWPPP;
- A significant spill has exceeded containment;
- Construction activities have or will affect storm water flows and/or discharges;
- Circumstances (i.e., malfunctioning storm water pollution prevention controls) arise that might impact storm water quality; or
- If the plan is determined to be ineffective in some way.

The SWPPP shall be revised immediately upon recommendations in the annual compliance report or under the other circumstances listed above. The maximum time allowed for revision of the plan is two weeks from the date of the CSCE inspection. Any changes to the facility specified in the revised plan must be implemented in a timely manner but at least within 12 weeks of the CSCE inspection. However, if implementation is contingent on allocation of funds from HQ Air Combat Command or if a design and/or contract is required to implement the BMP, the process to acquire the funds or to put the project under design shall be started prior to the 12 week deadline.

#### ***5.4 Records Retention***

All records associated with compliance under the storm water pollution prevention plan including monitoring records must be held for the term of the permit (typically five years) plus one year; or for monitoring information, a total of 6 years; whichever is greater. This is the minimum federal requirement under the storm water pollution prevention regulations.

#### ***5.5 Compliance with Other Reports***

The SWPP Plan is intended to be a stand-alone document, however some of the data such as the Site Specific Spill Prevention, Control, and Countermeasure plans and the chemical inventories are part of other plans. The coordination and the writing of the other plans that have feeder material into this plan will happen prior to the writing of this document. Therefore, there will be times when all of the documents do not completely agree.

## **6 PROCEDURES FOR SWD MONITORING AND REPORTING IN SUPPORT OF PERMIT NO. SD-0000281**

### ***6.1 Sampling Responsibilities***

a. The Flight Commander, Bioenvironmental Engineering (BES), 28<sup>th</sup> Medical Group (28 MDG), Aerospace Medicine Squadron (28 AMDS/SGPB), is responsible for overseeing all sampling in support of the Surface Water Discharge (SWD) permit. All samples will comply with the monitoring requirements listed in the SWD permit and be unbiased and representative of the volume and nature of the monitored discharge. Any deviations or suspected sampling protocol bias will immediately be reported to the Bioenvironmental Engineer (BEE) who will in turn notify the Civil Engineering Environmental Flight (28 CES/CEV) Water Quality Program Manager (WQPM). The BEE will notify 28 AMDS/CC and 28 MDG/CC. The WQPM will notify 28 CES/CC and 28 SPTG/CC. The BEE and WQPM will investigate the facts and circumstances involving the situation with assistance from the Environmental Lawyer from the Judge Advocate office (28 BW/JA). Findings will be forwarded as required to the BEE and WQPM chain of command.

b. The Civil Engineer Operations Flight Waste Water Treatment Plant (WWTP) responsibilities are as follows:

- (1) Obtain samples identified in paragraph 6.2;
- (2) Perform all inspection requirements as outlined in paragraph 6.3; and
- (3) Perform the following sampling as a good management practice to ensure proper operations of the plant:

<b>SAMPLE CHARACTERISTIC</b>	<b>FREQUENCY</b>	<b>SAMPLE TYPE</b>
BOD Influent	3 Times/Week	24 Hr Composite
TSS Influent	3 Times/Week	24 Hr Composite
TSS After Primary Clarifiers	3 Times/Week	24 Hr Composite
TSS After Trickling Filter	3 Times/Week	24 Hr Composite
BOD After Trickling Filter	3 Times/Week	24 Hr Composite
TSS after Secondary Clarifiers	3 Times/Week	24 Hr Composite

c. Bioenvironmental Engineering (BES) responsibilities are as follows:

- (1) Take the samples outlined in this document at the frequency stated to meet the requirements the SWD permit;
- (2) Ensure all analyses performed in the laboratory meets SD DENR and Region VIII EPA requirements;
- (3) Operate the composite sampler used in support of the SWD monitoring (i.e., turn on prior to the sampling event, off after the sampling event, handle the sample, and maintain the sampler);
- (4) Provide chain of custody and transport the samples to the laboratory;
- (5) Track the sample until results are received and then forward the results to the appropriate organizations as outlined in these procedures; and
- (6) Perform all quality assurance (QA) sampling as outlined below.
  - (a) For quality assurance, collect duplicate samples for ten percent of SWD samples in paragraph 6.2. The QA samples shall be a split of the original sample. The sample splitting will be performed at the time the sample is picked up from the composite sampler.
  - (b) The QA samples will be taken to an EPA approved laboratory. This laboratory will not be the same as the laboratory used to support the sampling in paragraph 6.2.
  - (c) Conduct audits of the two laboratories if the results from the sample and the QA sample vary more than what is allowed by either contract laboratory

internal quality assurance program. BES will inform the contract laboratories in writing of any discrepancies found during the audit. BES will request the contact laboratories to respond in writing as to the actions taken to correct the discrepancies found in the audit. Failure to do so disqualifies the laboratories from performing analysis in support of the SWD permit.

Develop Operations Instructions for sample collection and analysis.

## 6.2 Sampling Requirements

a. Outfall 005 effluent:

SAMPLE CHARACTERISTIC	FREQUENCY	SAMPLE TYPE	RESPONSIBLE PARTY
Rate of Discharge, MGD	Continuous	Recorder	WWTP
BOD <sub>5</sub> , mg/L	3 Times/Week	24 Hr Composite	BES
TSS, mg/L	3 Times/Week	24 Hr Composite	BES
Fecal Coliform (May 1 – Sep 30), no./100 ml	5 Times/Month	Grab	BES
Oil & Grease, mg/L, <u>a/</u>	Daily	Visual	WWTP
TPH, mg/L, <u>b/</u>	Daily	Visual	WWTP
PH, standard units	5 times/week	Display Reading	WWTP
Total Chlorine Residual, mg/L (Required only if effluent is chlorinated), WWTP will notify BE if Cl <sub>2</sub> happens outside of May 1-Sep 30.	Weekly	Grab	BES
Whole Effluent Toxicity	Quarterly	24 Hr Composite	BES
Parameters Listed in ARSD 74:03:18:44	Annually	Instantaneous	BES

b. Outfalls 001, 002, and 003:

SAMPLE CHARACTERISTIC	FREQUENCY	SAMPLE TYPE	RESPONSIBLE PARTY
Rate of Discharge, MGD	Weekly	Instantaneous	BES
BOD <sub>5</sub> , mg/L, (Site 001 only) (Nov 1 - Apr 30)	Monthly	Grab	BES
TPH, mg/L, <u>b/</u>	Weekly	Visual	BES
Total BETX, mg/L, <u>c/</u>	Quarterly	Grab	BES
Napthalene, mg/L, <u>c/</u>	Quarterly	Grab	BES
Surfactants, mg/L	Monthly	Grab	BES
pH, standard units	Monthly	Grab	BES

a/ In the event that an oil sheen or floating oil is observed in the discharge, a grab sample shall be taken immediately by BES, analyzed using EPA method 413.1 and reported.

b/ In the event that an oil sheen or floating oil is observed in the discharge, a grab sample shall be taken immediately by BES, analyzed using EPA modified method 8015 and reported.

c/ Quarterly samples shall be collected during the months of January, April, July, and October, if a continuous discharge occurs. If the discharge occurs on an intermittent basis, the quarterly sample shall be collected during the period that the intermittent discharge occurs.

### **6.3 *Inspection Requirements***

The Waste Water Treatment Plant (WWTP) personnel shall inspect the facilities to include the H-flumes at Outfalls 001, 002, and 003 at least weekly, and five times per week at Outfall 005. The inspection shall be conducted to determine if a discharge is occurring, has occurred since the previous inspection, and/or if a discharge is likely to occur before the next inspection. In addition, the inspection shall be performed to determine if proper operation and maintenance procedures are being undertaken at the outfalls. The WWTP personnel shall maintain a notebook recording the information obtained during the inspection. At a minimum, the notebook shall include the following:

- (1) Date and time of the inspection;
- (2) Name of the inspector(s);
- (3) The facility's discharge status;
- (4) The measured amount of pond freeboard at the outlet works; not required at Outfall 005
- (5) Identification of operational problems and/or maintenance problems;
- (6) Recommendations, as appropriate, to remedy identified problems;
- (7) A brief description of any actions taken with regard to problems identified;
- (8) Other information, as appropriate.

The WWTP shall maintain the notebook in accordance with proper recordkeeping procedures and shall make the notebook available for inspections, upon request, by authorized representatives of the SD DENR or the USEPA.

### **6.4 *Internal Results/Data Flow***

a. Bioenvironmental Engineering will deliver the results of monthly sampling to the WWTP at the end of each month.

b. The WWTP will compile the data from their weekly sampling (operational and compliance) and the results received from BEE and provide them to the WQPM monthly.

c. By the 5th of each month, the WWTP will provide to BEE the results of the sampling performed in support of the SWD permit so that BEE can complete the Discharge Monitoring Reports.

d. The WWTP will provide the monthly water pollution control utility operating log to the WQPM by the 5th of each month.

e. The WWTP will determine the plant efficiency and provide charts to the I/SW CFT.

The BEE, BES NCOIC of Environmental Protection, and the WQPM will meet NLT the 20<sup>th</sup> day of each month and complete the DMR.

### **6.5 Official Record Keeping**

a. The WWTP is responsible for the official Records as required by the SWD permit. As a minimum the WWTP will maintain records of all sampling results performed by the WWTP and BES, operational data, and copies of the Discharge Monitoring Reports (DMRs).

b. BES will keep copies of DMRs and transmittal correspondence to the state concerning DMR monthly reports.

c. The BEE and WQPM will keep copies of all Notices of Violation (NOVs) and related correspondence, five day follow-up letters, requests for permit modifications, and the permit application information.

### **6.6 Violation Reporting**

a. For all sample results that exceed the SWD permit standards, or any potential permit violation, BES/WWTP will immediately notify the BEE. The BEE will immediately notify the AMDS commander, MDG commander, and 28 BW/JA, of the circumstances for the potential violation. The BEE will also notify the WQPM or his/her supervisor. The BEE will notify SD DENR of the violation within 24 hours of the finding.

b. Once the determination of a permit violation has been made, the WWTP, WQPM, CEO, and BEE will work as a team to determine the following information needed for the five-day follow-up letter:

- (1) The cause of the noncompliance;
- (2) The period of noncompliance, including exact dates and times;
- (3) The estimated time noncompliance is expected to continue if it has not been corrected; and
- (4) Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

c. Once the internal reporting is completed the BEE will proceed with the twenty-four hour notice of noncompliance reporting and the five day written submissions as required by the SWD permit for violation of a permit limit. The WQPM will perform the reporting for all other permit violations.

## **6.7 Discharge Monitoring Reports**

a. BES is responsible for DMR completion, cover letter writing, routing, and final mailing of all permit required correspondence concerning DMRs to SD DENR and the EPA. The WQPM will assist in all DMR reviews and completions monthly.

b. BES will provide copies of the DMRs to the WWTP and WQPM.

c. When a laboratory duplicate or a QA sample is performed, the reported results for that day will be the average of the results for each analysis. This daily average will be used to compile any monthly or weekly average.

## **6.8 *Communications with SD DENR & EPA Region VIII***

The BEE is the main point of contact for all telephonic communication with SD DENR and EPA Region VIII concerning SWD sampling and reporting. The WQPM is responsible for all other reporting.

DERRICK SANKS, Major, USAF  
Operations Flight Commander

NEAL WILLIAMS, Captain, USAF, BSC  
Bioenvironmental Engineering Flight Commander

MARK WHEELER, P.E.  
Chief, Environmental Flight

**APPENDIX A**

**INDUSTRIAL/STORM WATER CROSS FUNCTIONAL  
TEAM MEMBERSHIP AND RESPONSIBILITIES**

APPENDIX B

PHOTOGRAPHS OF OUTFALLS AT ELLSWORTH AFB

## APPENDIX C

### CHECKLIST FOR REPORTING SPILLS

## REQUIREMENTS FOR SPILL REPORTING

1. The following actions will be implemented in accordance with the following flowcharts as necessary by the person(s) discovering the spill. The order of the actions will depend on the area's spill prevention plan guidelines, signs, absorbent materials, and existing conditions.

- a. Initiate evacuation, if necessary.
- b. Notify Fire Department at 117 if required by spill reporting flowcharts.
- c. Stop source of spill when possible without risk of personal injury.
- d. Refer to SSSPCC Plan if available. The SSSPCC Plan lists the pertinent spill response measures for handling a leak or spill, site specific to the nature of the hazardous material on hand.
- e. Make spill scene OFF LIMITS to unauthorized personnel.
- f. Restrict all sources of ignition when flammable or unknown substances are involved.
- g. Report to the Initial Response Force (IRF) or the IC upon arrival. Have available any information relative to the substance spilled, Material Safety Data Sheets, Information Folders for Hazardous Materials/Waste, or any other pertinent information which could aid the response team.

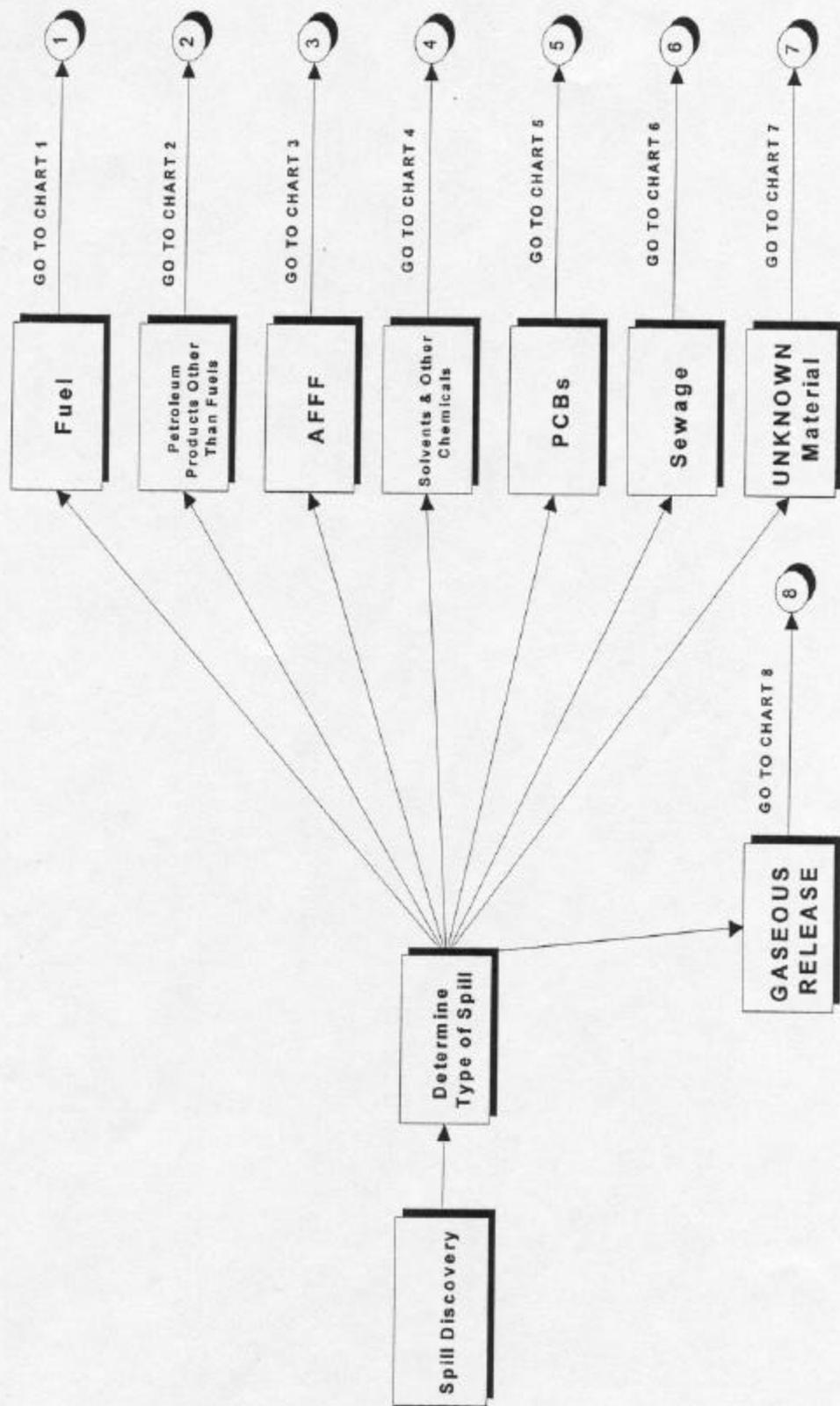
2. When notifying the Fire Department of the spill occurrence, the following information should be provided if known or can reasonably be determined:

- a. Name of individual reporting spill.
- b. Time and date of spill.
- c. Type of spill (if known).
- d. Amount spilled if spill has stopped (estimated).
- e. Rate material currently spilling if spill is continuing (estimated).
- f. Location of spill.
- g. If a fuel spill, provide class of spill (as defined on flow chart 1).
- h. Number of injured personnel and nature of injuries (if applicable).
- i. Whether spill reached storm drains (outdoors) or surface water.
- j. Whether spill reached industrial or sanitary drains (indoors).
- k. Whether the spill reached the dirt.

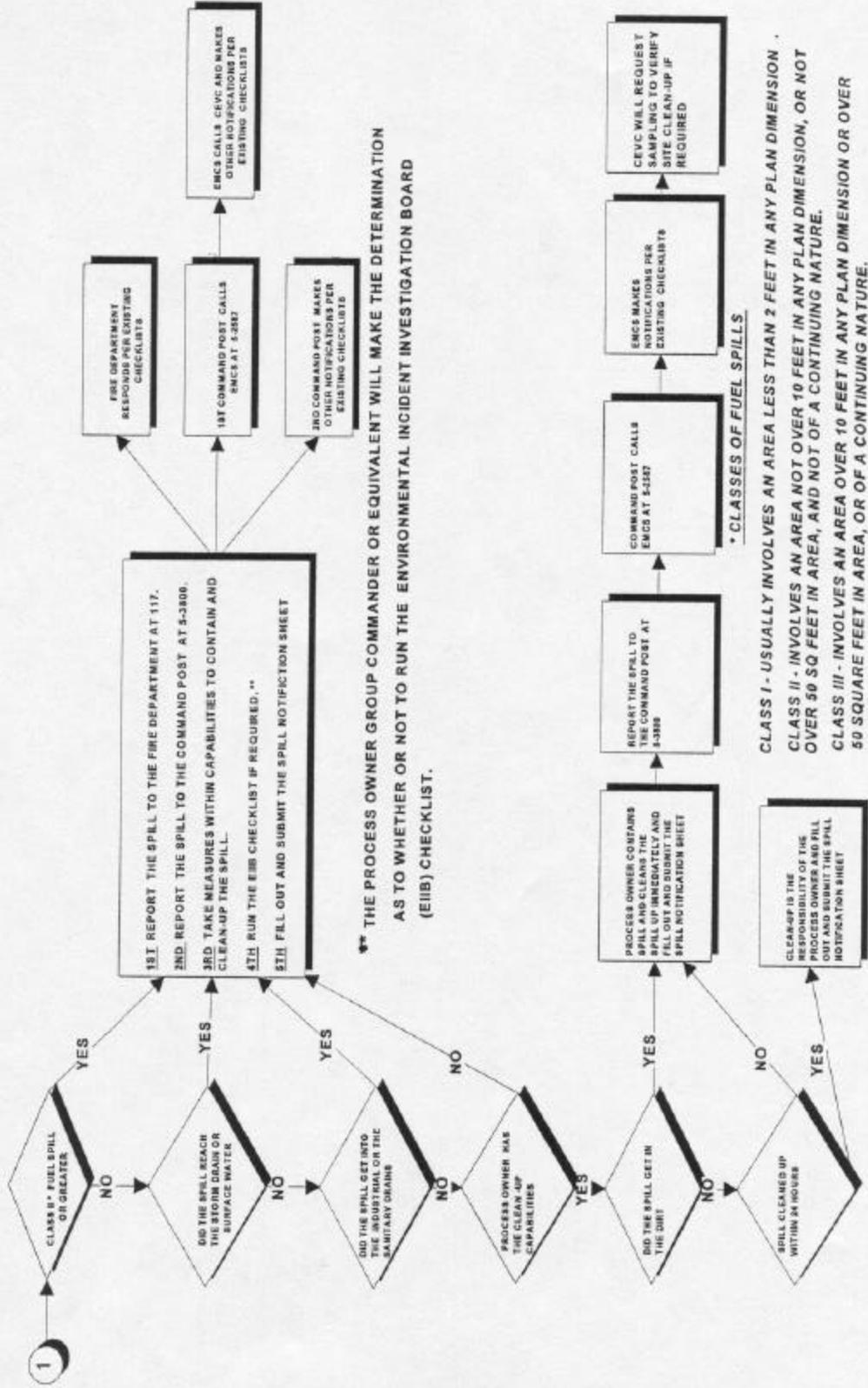
3. Personnel other than the Fire Department receiving reports shall aid in channeling the report to the Fire Department who will respond as outlined.

4. The spill notification sheet will be completed for all spills. This data will be used for analysis of spill potential, development of possible preventative measures, ensure appropriate reporting, and for historical data.

# SPILL REPORTING

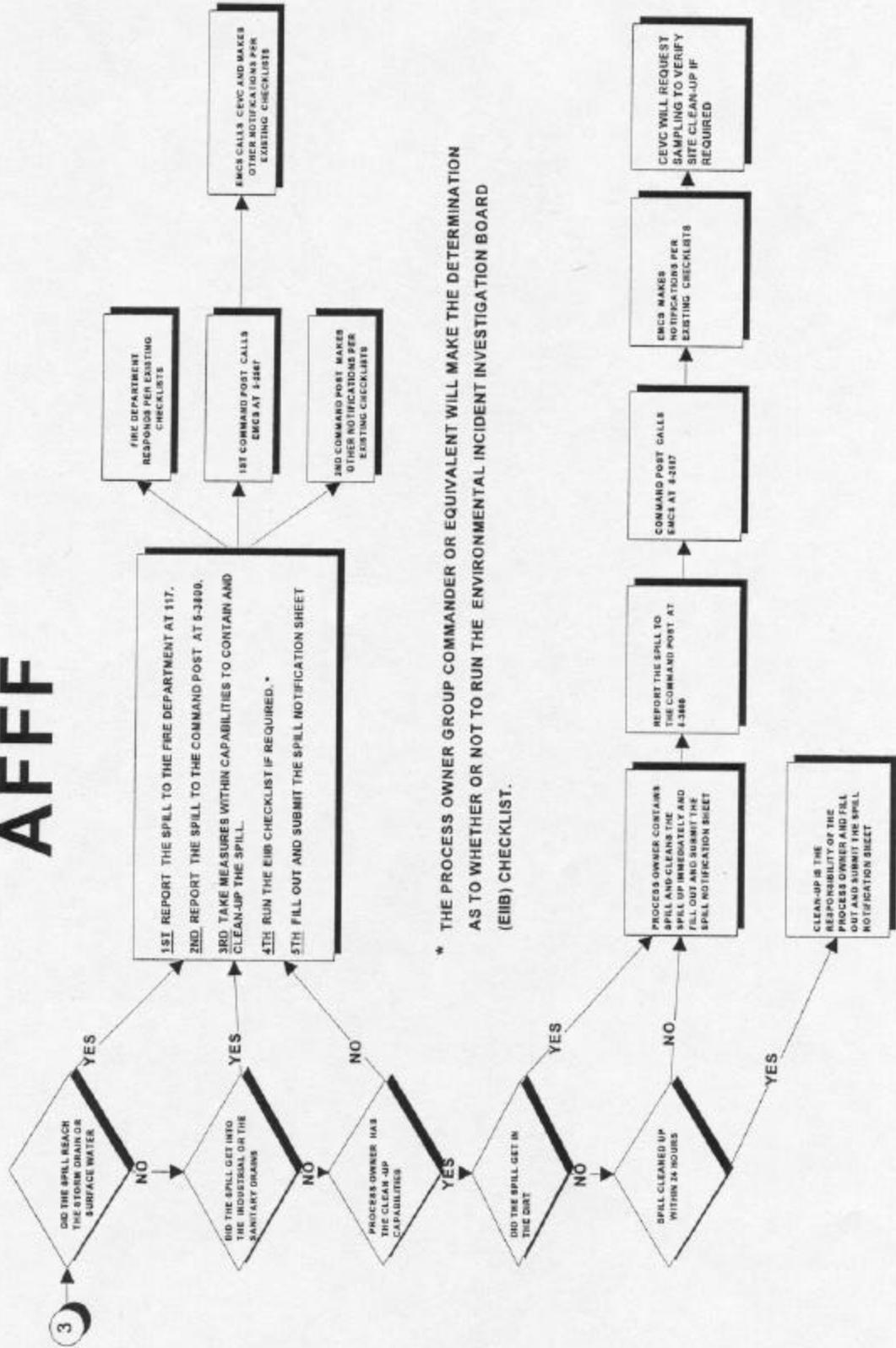


# FUELS

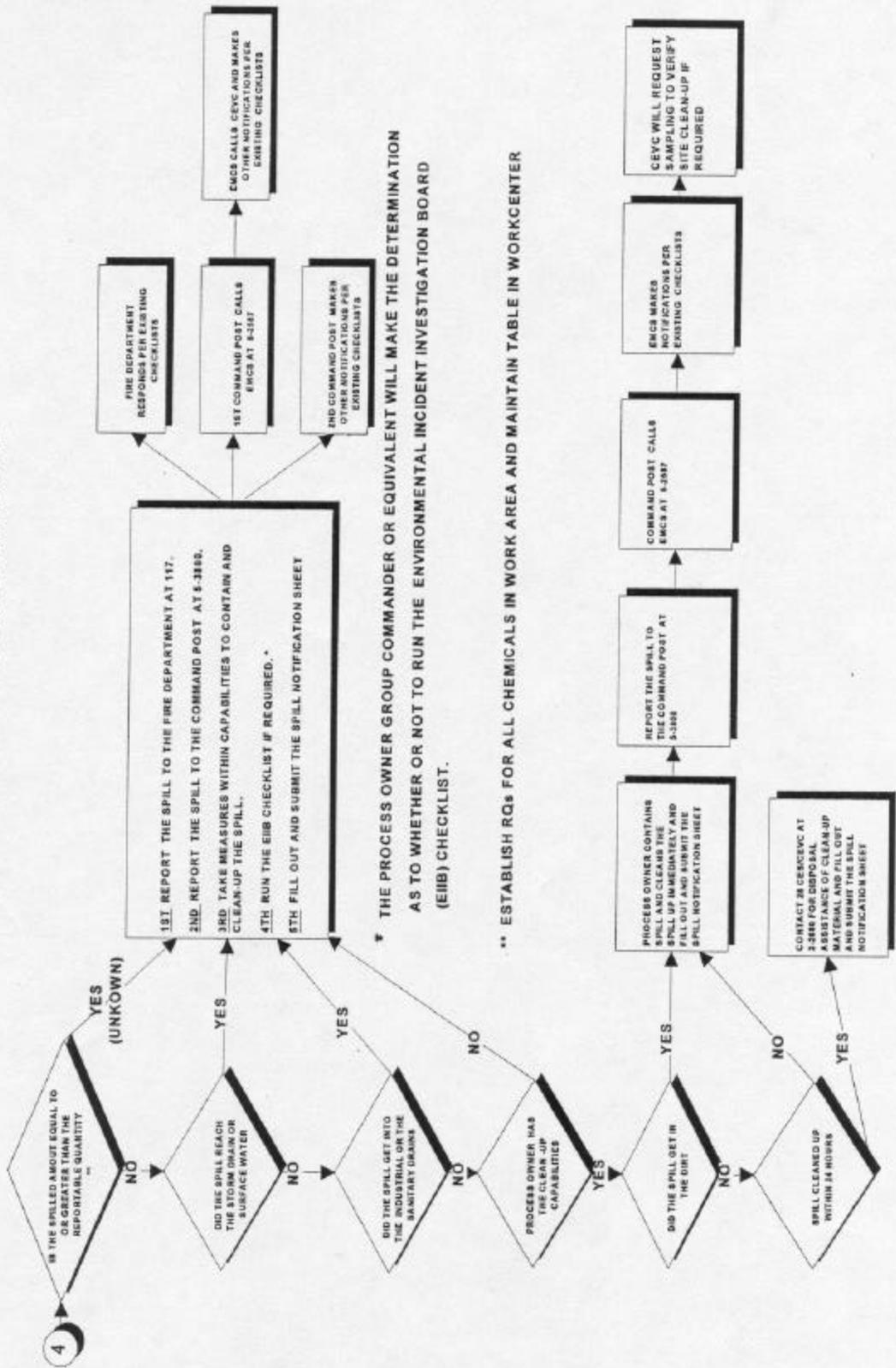




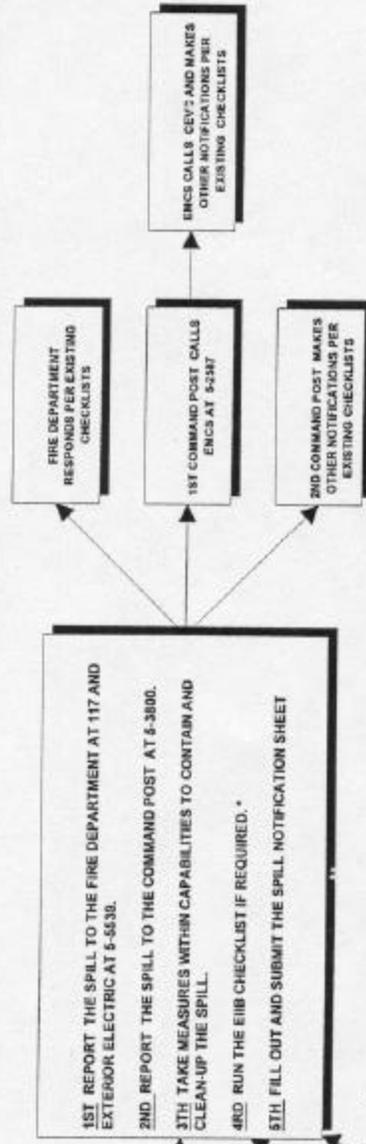
# AFFF



# SOLVENTS AND OTHER CHEMICALS



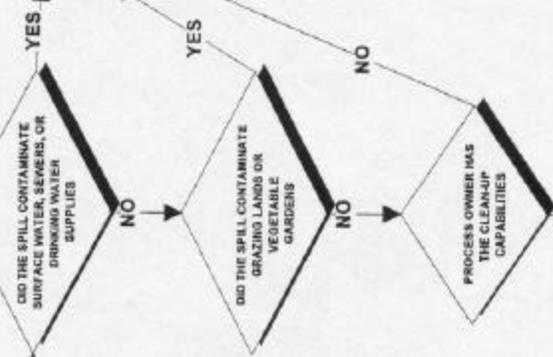
# MATERIAL CONTAINING PCBs \*\*



\* THE PROCESS OWNER GROUP COMMANDER OR EQUIVALENT WILL MAKE THE DETERMINATION AS TO WHETHER OR NOT TO RUN THE ENVIRONMENTAL INCIDENT INVESTIGATION BOARD (EIIB) CHECKLIST.

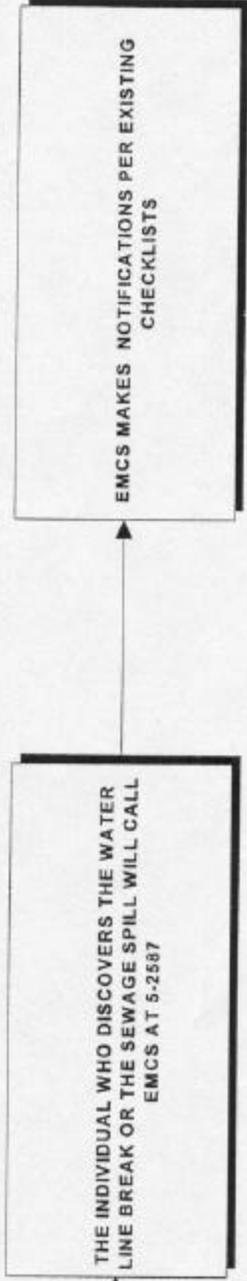
\*\* AT EAFB ALL KNOWN MATERIALS CONTAINING PCBs ARE IN LABELED ELECTRICAL EQUIPMENT

5

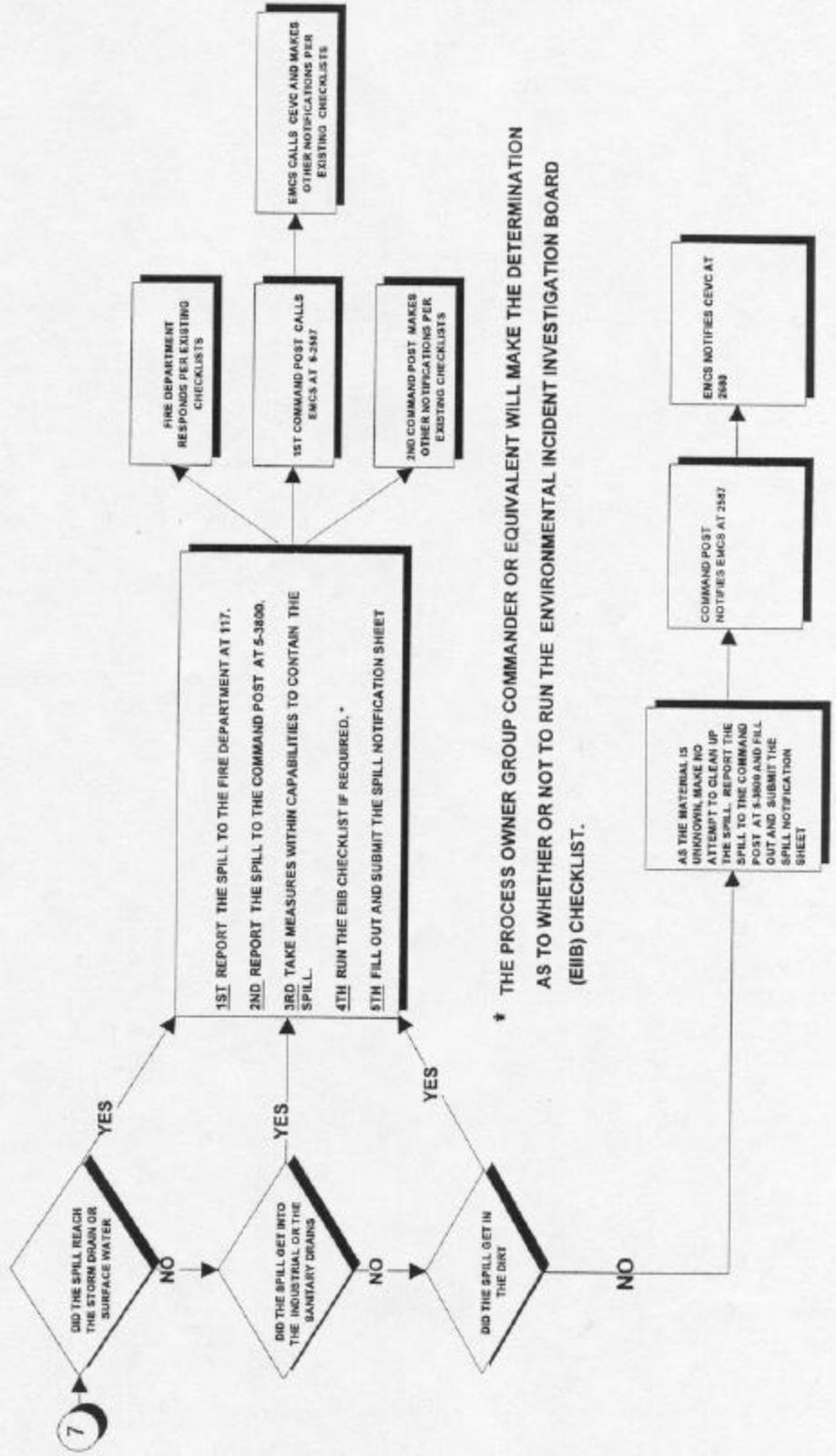


# SEWAGE SPILLS & WATER LINE BREAKS

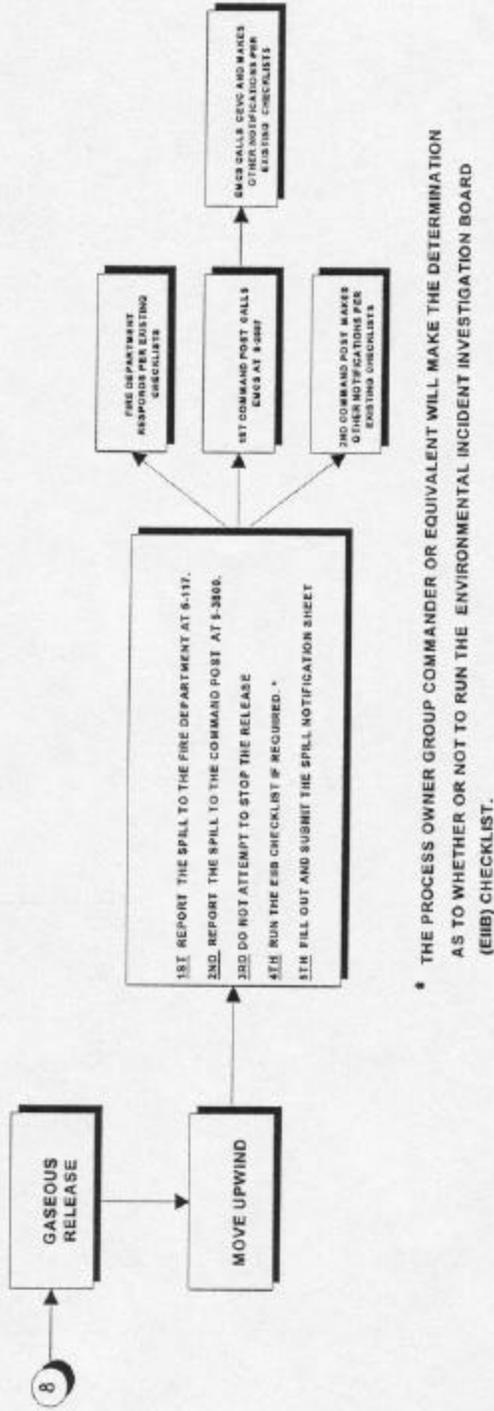
6



# SPIILLED MATERIAL UNKNOWN



# GASEOUS RELEASE



## SPILL NOTIFICATION SHEET

The following information is required on all spills. Information must be completed in full by applicable shift supervisor on duty at the time of the incident. The completed form will be faxed or emailed to CES at 385-6619 or Buchanm@ces28.ellsworth.af.mil and also to Legal at 385-288BWA@JA28.ellsworth.af.mil on the same day as the spill.

1. Name, phone, and organization of reporter: \_\_\_\_\_
2. Date and time of release: \_\_\_\_\_
3. Name of CEV personnel on scene: \_\_\_\_\_
4. Notification of Fire Department: By: \_\_\_\_\_ Time: \_\_\_\_\_  
 Person(s) contacted at the Fire Department, if applicable, was: \_\_\_\_\_  
 Time the Fire Department arrived on scene, if applicable: \_\_\_\_\_ HRS \_\_\_\_\_
5. Notification of Command Post/MOC, if applicable: Time: \_\_\_\_\_  
 Person(s) contacted at the Command Post/MOC: \_\_\_\_\_
6. Equipment/Facilities involved: Include (1) Aircraft tail numbers if applicable. (2) AGE/ground equipment.  
 \_\_\_\_\_
7. Cause of Spill: \_\_\_\_\_
8. Location: \_\_\_\_\_
9. Type of Substance: \_\_\_\_\_ Class of Spill\*, if fuel: I II III (circle one)
10. Estimated Quantity of Spill: \_\_\_\_\_ Gallons  
 (For spills spread out on a hard surface)  
 2 ft. diameter = .245 gal  
 4 ft. diameter = .979 gal  
 6 ft. diameter = 2.20 gal  
 8 ft. diameter = 3.92 gal  
 10 ft. diameter = 6.12 gal  
 (For spills that have puddled or reached the soil, calculate the volume of the spill in ft<sup>3</sup> and then convert to gallons using 1 ft<sup>3</sup> = 7.48 gallons.)  
 Puddled spill = length \* width \* depth = ft<sup>3</sup>  
 Spill in Soil = length \* width \* depth \* 30% = ft<sup>3</sup>
11. Corrective Action Taken: \_\_\_\_\_
12. Printed Name and Signature of Shift Supervisor: \_\_\_\_\_
- 13.

	Yes	No	Amount
Was spill contained on a hard surface?			
Did the fuel spill reach the storm drains or surface water?			
Did the spill get into the industrial or sanitary drains?			
Does the process owner have clean-up capabilities?			N/A
Did the spill get into the dirt?			
Was the spill cleaned up within 24 hours?			N/A
Was the spilled amount equal to or greater than the reportable quantity? (not required for petroleum products)			

- To be filled out by CEV Officials:** \_\_\_\_\_ **Initials of CEV Spill Response Person** \_\_\_\_\_
14. Was the spill reportable? YES / NO
  15. Any continuing threat to health environment? YES / NO
  16. Notified Agencies:
 

(1) _____	Date: _____	Time: _____
(2) _____	Date: _____	Time: _____
(3) _____	Date: _____	Time: _____



APPENDIX D

EPCRA SECTION 313  
WATER PRIORITY CHEMICALS



APPENDIX E

SWD PERMIT FOR ELLSWORTH AFB



## APPENDIX F

### AIRCRAFT DEICING ACTIVITY AT ELLSWORTH AFB

### **6.8.1 Appendix F to EAFB SWPPP**

#### **28<sup>th</sup> Bomb Wing Aircraft Deicing Policy**

Updated January 2001

1. To ensure environmental compliance, please establish and implement the necessary procedures to comply with the following aircraft deicing policy. Whenever possible, aircraft will be placed in heated hangars to prevent snow/ice accumulation and towed out just prior to crew show. Use the air blast system to remove snow/ice to the maximum extent possible. Finally, if deicing fluid is required, use only the amount required. These efforts will ensure use of deicing fluid is kept to a minimum.
2. Our Surface Water Discharge Permit No. SD-0000281 requires that aircraft deicing fluid only be allowed to discharge to outfall 001 (pond 1). Because of this, deicing can only be accomplished on spots 5-22, DV1, DV2, 60 and 70 rows to include taxiway alpha in front of 60 and 70 rows, spots 205 & 206 on the alert apron, the hot cargo pad on taxiway delta west and taxiway delta. Prepositioning of aircraft scheduled to fly during inclement weather conditions could alleviate possible delays or negative impacts to mission. Although discharge is allowed in these areas every effort shall be made, to collect excess deicing fluid from the ramp using the Tennant sweepers to minimize impact to storm waters. Amounts of recovered fluid shall be recorded in the logbook described in paragraph 4.8.
3. In addition to the “discharge” areas outlined in paragraph 2, other areas have been modified with storm drain insert valves. These valves will allow deicing crews to isolation storm drains, perform deicing operations, and collect the deicing fluid. These additional areas shall be designated as “Non-discharge Areas” and may be used for deicing purposes at any time as long as the proper procedures for fluid recover are followed as described in paragraph 4.
4. The following procedures have been approved by the State of South Dakota and shall be strictly adhered to during deicing events in “Non-discharge Areas.” The current “Non-discharge Areas” modified for deicing include 80 and 90 Rows, Spots 1-4, 328 & 329. If all these procedures cannot be met, deicing shall not occur in these areas. The aircraft must then be towed to one of the “Discharge Areas” listed in paragraph 2.

8 4.1. Flightline Super will determine where to perform the deicing and be responsible for signing the log to indicate all actions have been properly performed.

4.2. Ensure that all drains within the area of the designated deicing spot are valved off using insert basin key prior to deicing. All deicing fluid flow shall be monitored during the deicing event to ensure no fluid enters an unblocked drain.

4.3. The deicing fluid recovery vehicle shall be prepositioned to recover fluid as quickly after or during deicing as is operationally possible. No deicing fluid shall be left on the ramp or in the catchbasins of these areas.

4.4. Hangar doors shall be closed prior to deicing to prevent fluid from entering hangar drains.

4.5. Aircraft may be towed to centerline to deice if not feasible on spot due to large snow accumulation on ground.

4.6. When deicing fluid recovery vehicle tank is full, the fluid may be transferred into designated trailer tank.

4.7. Recovered deicing fluid shall be transferred to either the underground holding tank located south of facility 618 or the 70-row AFFF/Deicing fluid holding tank located west of the 70-row, both of which are appropriately labeled.

4.8. A logbook shall be kept which will track each deicing event at these locations. The log shall include the location of the deicing (ie. Spot 83) date, start and stop time of event (start time shall be when deicing began and stop time shall be when all fluid is recovered), and approximate amount of fluid sprayed and recovered. The log shall also reflect the date and amount of recovered deicing fluid transferred to each holding tank. This log shall be signed by the Flightline Super or designated individual. Copies of this logbook shall be provided monthly to the Environmental Water Program Manager (28 CES/CEVC).

5. This deicing policy supercedes all previous deicing policy letters. Thank you for your continued support of our environmental program. If you have any questions, please contact Mr. Mark Howard, 28 CES/CEVC, at 5-2680.

## APPENDIX G

### CONSTRUCTION ACTIVITY GUIDELINES

## **9 Construction Activity Guidelines for Prevention of Storm Water Contamination**

10 The following guidelines are to be followed by EAFB personnel and contractors when construction activities are in progress.

### **Soil Erosion and Sediment Controls**

The objective of soil erosion and sediment controls is to minimize the release of solids to storm water runoff during construction activities. Where appropriate, the following controls should be implemented.

#### Silt Fences:

Silt fences are temporary measures for sedimentation control. Silt fences should be installed downslope of any disturbed areas upon completion of site clearing but prior to any earth disturbance. Silt fencing should be routinely inspected, cleaned, repaired, and replaced as necessary. It should remain in place until ground cover or pavement is established and soils are stabilized.

#### Riprap and Erosion Control Mat Material:

Riprap material consists of fieldstone or rough unhewn quarry stone and should be placed at various locations with high erosion potential and at outlets of drainage channels. Permanent erosion control mat material can be placed in areas of high erosion potential. Topsoil placement and seeding should be conducted before installation of matting. Both riprap and matting should be routinely inspected for sediment flowthrough and repaired or replaced, if necessary.

#### Temporary Seeding:

Temporary seeding is a stabilization measure for areas where construction activities will be suspended for more than 2 weeks but resumed at a later date. Local seed type selection and application guidelines should be used. Supplemental watering also should be employed, if necessary. During periods of extended and/or frequent rainfall, sod can also be placed for immediate stabilization.

### Permanent Seeding:

When construction and grading activities have been completed for a specific area, permanent seeding should be initiated as soon as possible. As with temporary seeding, local seed selection guidelines should be consulted and application recommendations should be followed. Supplemental watering should be applied as necessary, depending on the season and current year rainfall.

### Other Stabilization Practices

Where possible, existing vegetation and trees should be protected and maintained. Vegetative buffer strips can be used to minimize sediment transport. Other practices, such as mulching and geotextiles, should be considered where appropriate. The use of impervious surfaces for stabilization should be avoided.

“Final stabilization” is defined as a uniform perennial vegetative cover of at least 70 percent of the native background cover for the area.

### **Storm Water Management Controls**

For larger construction projects or projects in sensitive environmental areas, additional storm water management controls may be appropriate. Where possible, structural controls should be used to minimize run-on of storm water from upgradient areas or control of runoff to reduce solids transport. These structural controls may include temporary berming, installation of temporary or permanent ditches, and construction of a sediment basin. Ditches, swales, and basins also can be used to collect storm water runoff from the construction area and promote sedimentation before discharge. These structures should be regularly inspected and cleaned out when they are over 50 percent full of sediment.

Other structural controls that should be considered include sediment traps, level spreaders, check dams, subsurface drains, pipe slope drains, and gabions.

### **Other Controls**

### Waste Management and Disposal

Potential wastes generated from construction activities include:

- Trees and shrubs from clearing operations;
- Trash and debris from construction materials and workers;
- Sand blasting grit; and
- Sanitary sewage.

Each of these wastes should be managed to prevent storm water pollution. Trees and shrubs should be hauled from the site to approved disposal sites. All construction trash, debris, and sandblasting grit should be collected in appropriate containers and disposed of offsite. Sanitary waste should be managed using portable sanitary facilities that are regularly maintained by a reliable outside contractor.

### Fuels and Materials Management

Any fuels or oils stored on the construction site should be stored in appropriate containers and tanks with secondary containment. Construction vehicles and equipment should be inspected on a daily basis for evidence of leaks. If petroleum products are stored on the construction site, spill response materials, such as dry absorbent, also should be maintained at the site. In the event of a spill or leak that cannot be immediately controlled, personnel should call **385-1113** for emergency response support.

Any outdoor painting should be performed with drop cloths or plastic sheeting to prevent spills or leaks from contacting ground surface.

Construction materials should be stored in a designated area; where appropriate, silt fencing should be placed on the downslope sides of the storage area to control sediment run-off.

### Construction Site Housekeeping:

Construction site housekeeping will consist of the neat and orderly storage of materials and containerized fluids that are being stored at the site. Wastes will be regularly collected and temporarily stored in sealed containers. If spills occur, prompt cleanup will be required to minimize any commingling of waste materials with storm water runoff.

Routine maintenance will be limited to fueling and lubrication of equipment. Drip pans will be used during routine fueling and maintenance to contain spills or leaks. Any waste product from maintenance will then be containerized and transported off site for recycling.

There will be no major construction equipment repairs conducted on site. Construction equipment will be transported off site by the contractor responsible for these activities.

No washing of construction vehicles on site will be permitted. Stabilized temporary construction roads will be installed to prevent the tracking of sediment across and off the site by mobile equipment. Also, dust will be controlled on the entrance roads and plant roads by sprinkling water on needed areas.

Pickup of trash and discarded material will be done at the end of each work day. Cleanup will consist of policing the construction and access areas to pick up trash, scrap steel, and any contaminated soil. This refuse will then be hauled by truck to an approved disposal site.

### **Inspection and Maintenance Procedures**

Inspection and maintenance of erosion and sedimentation controls must occur during the entire period of construction activities. Inspections should include:

- Disturbed areas without stabilization;
- Material storage areas;
- Silt fences;
- Ditches, swales, and basins; and
- Locations where vehicles enter or exit the site.

Inspections should occur at least once every two weeks and within 24 hours of any storm of at least 0.5 inches of rainfall.

Repairs and adjustments should be made promptly to any erosion and sedimentation control structure found to be performing inadequately. Repairs should be made prior to the next anticipated storm event.

Contractors should have on site all materials necessary to make any reasonably expected repairs, such as replacement of silt fence material.

### **Personnel Training**

Contractors are expected to familiarize all construction workers with the purpose and importance of site storm water control structures and procedures. Workers should understand that any identified source of storm water pollution should be addressed and controlled immediately, even if construction activities must be stopped temporarily.

Personnel from EAFB's Environmental Flight will perform regular, unscheduled inspections of construction sites and contractor activities. If an inspection discovers a source of actual or potential storm water pollution, EAFB personnel may immediately contact the contracting officer to stop construction activities and direct the contractor to address the pollution source.

## APPENDIX H

### SITE SPECIFIC SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLANS

APPENDIX I

REFUELING EQUIPMENT CHECKLIST



APPENDIX J

EAFB LIQUID FUELS  
MAINTENANCE UPGRADE PLAN

## APPENDIX K

### SPOT WASHING PROCEDURE



APPENDIX L

MULTI SECTOR GENERAL PERMIT REQUIREMENTS  
AND GUIDANCE

APPENDIX M

CHECKLIST FOR FUNDRAISING CARWASH

This checklist has been revised due to the installation on a new automatic valve system.

Keys are no longer required. Coordination for Fundraising carwashes is still required through Services

The instructions for operation of the new valve system are given below and are also located on the control panel at the carwash location.

**TO WASH VEHICLE:** Press “CYCLE START”

After 2 minutes, water will be available from spigot to the left

System automatically shuts down in 30 minutes– water stops

Press “CYCLE START” at any time to reset timer to 30 min

When finished press “CYCLE STOP”

Remove all trash when complete

QUESTIONS/PROBLEMS: CE Customer Service – 5-2580.