



UNITED STATES ENVIRONMENTAL PROTECTIO
REGION IV
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ATLANTA, GEORGIA 30365

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DEC 17 1990

4WD-RCRA & FF

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Ted Campbell
Southern Division
NAVFACENGCOM
Mail Code 18214
2155 Eagle Drive, P.O. Box 10068
Charleston, S.C. 29411-0068

Re: Comments on the Draft Site Management Plan (SMP)
for Naval Air Station Pensacola,
Pensacola, Florida

Dear Mr. Campbell:

The Environmental Protection Agency (EPA) has reviewed the above referenced document dated November 16, 1990 and has enclosed our comments in accordance with Section XXIII.D. of the Federal Facility Agreement (FFA). EPA received the Draft SMP on November 21, 1990. Significant deficiencies were identified in the document which must be addressed prior to approval of the plan. The major deficiency identified was failure to describe the overall site management approach which must include a justification for the designation of operable units and a basis for the prioritization of work. Additionally, the 1991 schedule does not clearly define the "deadline" dates for which stipulated penalties may be assessed if these dates are missed.

To assist you in developing a more complete SMP, we have enclosed a copy of a Draft SMP for another site along with the EPA comments generated from the review of that draft SMP. Together, the enclosed site-specific comments and the "example SMP" should provide sufficient guidance for submission of a complete plan.

In accordance with Section XXIII.D. of the FFA, the SMP must be revised and re-issued, as appropriate, within thirty (30) days of your receipt of this letter. Failure to comply with this schedule for re-issuing the proposed SMP may be the basis for assessment of stipulated penalties in accordance with Section XXII of the FFA.

If there **are** any questions regarding the EPA comments, please contact Mr. Jeff Crane at (404) 347-3016.

Sincerely yours,


James H. Scarbrough, P.E., Chief
RCRA and Federal Facilities Branch
Waste management Division

cc: Eric Muzie, FDER
Ron Joyner, NAS Pensacola

EPA COMMENTS ON
DRAFT SITE MANAGEMENT PLAN FOR
NAVAL AIR STATION - PENSACOLA

General Comments

1. In accordance with Section XXIII.A.1. thru 3, The plan must include a description of the overall management approach from the investigation stage through remedial action and site-closeout. A brief description of each step in the assessment and remedial action process (e.g., all primary documents and secondary documents, consultation requirements, etc.) should be provided. A justification for the duration of the steps should be included to support the schedule. The site management description must provide the rationale for grouping potential sources of contamination into individual operable units for both investigation and remedial action purposes. The basis for designating operable units must consider a method of prioritizing work which could enable expedited remedial action for units that are amenable to an accelerated schedule and/or units that may pose a more significant environmental risk. The selection of operable units must be consistent with the definition of operable units under Section III of the Federal Facilities Agreement (FFA) and consider the discussion below. The site management description must also address the need, or lack thereof, of any actions necessary to mitigate any immediate threat to human health or the environment.

EPA recommends each group of sources designated with a letter be a separate operable unit; ie., Group A would be operable unit 1, Group B would be operable unit 2, and so on. Essentially the way that the sources were originally divided into groups fits the operable unit concept. Although you may plan on moving your current "groups" A through E on the same schedule and reaching a Record of Decision (ROD) at the same time, eventual scheduling differences could occur if additional data such as treatability studies or more detailed risk assessment are needed on individual sources that might potentially slow down decision making which could otherwise proceed onward for the other sources. Also having the operable units in the ROD correspond to those in the approved RI/FS Work Plans will make it less confusing for Agency reviewers as well as the public when reviewing the Administrative Record. Additionally, it would be difficult from a construction as well as a budgetary viewpoint to do remedial action on all the sources and media that are now grouped under one operable unit.

2. As specified in Sections XII and XIII of the FFA, the dates scheduled for EPA receipt of the current calendar year (1991) draft primary documents are deadlines for which failure to comply may lead to assessment of stipulated penalties. For the purpose of clearly establishing these enforceable deadlines, the project scheduling in the SMP should be separated under two different schedules. First, a "deadline schedule" must clearly identify the 1991 scheduled dates for EPA receipt of draft primary documents and all other 1991 projected activities and deliverables (e.g., draft/final documents, secondary documents, etc.). Second, a "projected schedule" must identify tentative dates for completion of all other draft primary documents and projected activities/deliverables beyond 1991, including tentative dates for a Record of Decision for each operable unit.
3. In accordance with Section VIII of the FFA, the SMP must be labeled "Draft" until it is approved by the agencies. The re-issued SMP in response to these comments should be labeled "Draft/Final."
4. The RI/FS is scheduled to be conducted in two phases. The second phase must be submitted and approved in accordance with the consultation process specified under Section VIII of the FFA. The Phase II Work Plan is a primary document and must be submitted in draft form on the proposed date (6/18/90), which upon SMP approval shall become an enforceable deadline.

Specific Comments

1. Page 1, The SMP list of operable units include some units listed in Part II of Appendix A to the FFA as subject to screening assessment and does not include Units 17 and 22 which are listed in Appendix A as requiring an RI/FS. All Appendix A units must be accounted for in the SMP. The SMP must describe any site screening assessment activities and include the activities in the schedule.
2. Page 1, Change the heading Projected Date to Due Date. This is to be the enforceable one year schedule specified in the Federal Facility Agreement for submission of only draft primary documents and will be subject to stipulated penalties. Projected dates should be used for outyear scheduling and secondary documents. This section should identify only those activities subject to a 1991 deadline.
3. Page 1, What is the schedule for development and implementation of the Work Plan for the Ecological Assessment for Bayou Grande and the wetlands?

4. Page 2, 4 and 6, Again the heading Due Date should be used for 1991 deliverables.
5. Page 2, 4 and 6, The date for submission of the draft RI Report as shown under Projected Events should also be in the timeline on page 3.
6. Page 2, 4 and 6, Why is a Final Community Relations Plan listed as a deliverable in 1991 EPA has already approved the CRP at NAS Pensacola.
7. Page 3, 5 and 7, Outyear projections should at a minimum be through the Record of Decision. The timeline charts should clearly highlight all deadlines for 1991 and illustrate all projected activities leading up to a ROD for each operable unit. The activities illustrated must include all primary and secondary documents, at a minimum.
8. The timelines should show all projected dates for submission of draft/final and final documents assuming the maximum review and revision periods allowed for in Section VIII of the FFA.

GENERAL COMMENTS

(On Shaw AFB Draft Site Management Plan)

The Draft Site Management Plan (SMP) satisfies the requirements of Subsections B.1 and B.2 of Section VI (Work To Be Performed) of the Administrative Order and Agreement (Agreement) for Shaw Air Force Base. However, there are requirements of the Agreement which are not addressed adequately by the SMP, and they are as follows:

The Draft SMP does not satisfy Subsection B.3 of Section VI (Work To Be Performed) of the Agreement which requires that the SMP document a prioritization scheme and a schedule of remedial investigation and feasibility study (RI/FS) and remedial design and remedial action (RD/RA) response activities based on such scheme. Due to the fact that the Air Force must characterize the nature and extent of contamination at twenty (20) solid waste management units (SWMUs), EPA recommends that the Air Force plan the field investigation of SWMUs such that the schedule will allow for the contamination characterization and remedial/corrective actions implementation at prioritized SWMUs, while phasing the start of field characterization of lower priority SWMUs, as appropriate. The prioritization scheme must provide for decisions based on potential risk to human health and the environment, and the schedule must reflect such decisions.

The Draft SMP does not adequately satisfy Subsection B.4 of Section VI (Work To Be Performed) of the Agreement which requires that the SMP document activities and schedules for work planned for the current fiscal year (i.e., FY-91). While the Draft SMP provides for FY-91 submittals, the documentation must be modified to provide more detail within the schedule, and to ensure that the titles and associated objectives of deliverables correspond to Region IV's Federal Facility Agreement Guidance provided earlier in a letter from Scarbrough to Gatliff dated November 28, 1990. As an example, the "Final Remedial Action Plan" referred to by the Draft SMP should be modified to "Draft Proposed Plan". Additionally, the SMP should provide for the development and submittal of Draft Final Records of Decision (RODs) for all Proposed Plans within forty-five (45) business days of the completion of the required forty-five (45) day public comment period on such Proposed Plans. The Draft Final RODs must include a Responsiveness Summary to public comment, and will be subject to EPA final approval according to the requirements of Subsection A of Section VI (Work To Be Performed) of the Agreement.

The Draft SMP does not adequately satisfy Subsection B.5 of Section VI (work To Be Performed) of the Agreement which requires that the SMP document work projections for subsequent fiscal years. While the Draft SMP provides for projected FY-92 submittals, the documentation must be expanded to provide work projections for FY-93, FY-94 and FY-95. Such work projections should include both RI/FS and RD/RA activities and deliverables, as appropriate. Long-term projections should be based on generic timelines for anticipated tasks.

The Draft SMP does not satisfy Subsection C of Section VI (Work To Be Performed) of the Agreement which requires that the SMP provide for the FY-91 development and submittal of a Draft Community Relations Plan (CRP) for Shaw Air Force Base. The SMP must be modified to provide a schedule indicating the development and submittal of a Draft CRP. Such CRP should provide for the integration of all Resource Conservation and Recovery Act (RCRA) Comprehensive Environmental Response Compensation and Liability Act (CERCLA) public participation requirements at Shaw Air Force Base.

SPECIFIC COMMENTS

- 1) Section 1.0, Page 1-1: This section should include more detail in terms of the purpose of the SMP as it relates to the requirements and purpose of the Agreement (e.g., RCRA/CERCLA integration).
- 2) Sections 1.1 through 1.12, Pages 1-1 through 1-14: The operable unit specific information should be expanded to include a summary of existing characterization data, and documentation of past and ongoing remedial/corrective action activities (e.g., design of JP-4 extraction system for SWMU No. 2). Also, grouping of SWMUs into operable units must be determined based on the potential that such SWMUs will be addressed through common RD and RA work plans. The-SMP should be modified to provide for operable units composed of SWMUs potentially serving as sources of common media contamination (i.e., SWMUs serving as sources to a singular groundwater plume).
- 3) Section 2.0, Page 2-1: Operable Units must be prioritized within the SMP. The prioritization is required to help ensure that those Operable Units posing the greatest potential threat to human health and the environment are addressed as priority.
- 4) Section 3.0, Page 3-1: The second paragraph of this section should be deleted. The term "Interim" in the third paragraph should be deleted.
- 5) Section 4.0, Figure 3, Page 4-2: The Operable Unit specific schedule should document by timeline, as appropriate, the following tasks:
 - field sampling;
 - laboratory analysis;
 - draft document development;
 - draft document submittal to EPA highlighted by milestone indicator;
 - EPA draft document review;

- draft final document development;
- draft final document submittal to EPA highlighted by milestone indicator; and
- draft final document approval highlighted by milestone indicator within thirty (30) business days of EPA receipt of draft final document.

Each Operable Unit's schedule should indicate submittal dates for all documents required in Regions IV's Federal Facilities Agreement Guidance. For Operable Units that are at the beginning of the remedial response process, the schedule must provide for the following documents:

- 1) "RI/FS Workplan," which includes the Sampling and Analysis Plan (i.e., "Quality Assurance Project Plan" and "Field Sampling Plan") and the Health and Safety Plan;
- 2) "RI Report";
- 3) "Baseline Risk Assessment Report";
- 4) "Feasibility Study Report";
- 5) "Proposed Plan";
- 6) "Record of Decision".

For Operable Units with contamination characterization, the schedule must provide for the following documents:

- 1) "Proposed Plan";
- 2) "Record of Decision".
- 3) "Remedial Design Work Plan";
- 4) "Remedial Design Report (s)"
- 5) "Remedial Action Work Plan";
- 6) "Remedial Action Post-Construction Reports"; and
- 7) "Final Remediation Report".

The schedule should provide for the following:

- Concurrent Draft RI Report and Draft Baseline Risk Assessment Report development and submittal;

- Draft FS Report development concurrent with Draft Final RI Report and Baseline Risk Assessment Report development;
- Draft Proposed Plan development concurrent with Draft Final FS Report development; and
- Draft Final Rod submittal within forty-five (45) business days of the completion of the forty-five (45) day public comment period on Proposed plans.

6) Section 5.0, Page 5-1: Scope of Work Summaries must have precise calendar dates specified for FY-91 deliverables only. Projections for documents delivered in FY-92, FY-93, FY-94 and FY-95 are estimates, and need only be indicated on the Site Management Schedule. The FY-91 budget, presented on a operable unit specific basis, should be included with the scope of work summaries. The budget should be itemized by activity (i.e., RI/FS or RD/RA).

7) Section 5.0, Page 5-1: All summary sheets should be identified by page number. Also, more detail as to the purpose of each deliverable must be documented by the "Description" portion of each summary sheet.

100000

DRAFT

SITE MANAGEMENT PLAN

FOR

SHAW AIR FORCE BASE, SOUTH CAROLINA
Contract DACA45-86-C-0045

Prepared for:

U.S. Army Corps of Engineers
Missouri River Division
Omaha District
Omaha, Nebraska

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LEGS Project No. 11-8523-01.07

September 1990

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1.0 INTRODUCTION

Shaw AFB is located in Sumter County, South Carolina approximately seven miles west of the City of Sumter and 44 miles east of Columbia, the state capital (Figure 1). The base contains 3,326 acres of land in a semi-rural area. It is surrounded primarily by wooded and agricultural land. Some residential and commercial development has occurred on property adjacent to the west and southeast boundaries of the base.

Beginning as a basic flying school in 1941, Shaw is now under the command of the Tactical Air Command. The 363rd Tactical Reconnaissance Wing and the 507th Tactical Air Control Center are two wings located at Shaw. The 17th and 19th Tactical Fighter Squadrons, both of which are F-16 flying squadrons, have been recently activated at Shaw AFB.

Shaw AFB has been actively involved in the Installation Restoration Program (IRP) and has identified 20 Potential Sources of Contamination (PSCs) in the Phase I - Records Search. These PSCs have been grouped and defined as twelve operable units (OU) at the installation. A brief background of each operable unit follows:

1.1 OU-1

1.1.1 Former Leaking Underground JP-4 Fuel Tank

The Petroleum, Oil, Lubricants (POL) Depot rail siding is located between Building 200 and Shaw Drive (Figure 2). Fuels are off-loaded from large railroad tank cars at the rail siding and delivered by underground pipelines to two above-ground storage tanks and 26 underground storage tanks in the Bulk Fuel Storage Area east of Shaw Drive.

FIGURE 2
**OPERABLE UNITS LOCATION
MAP**
SHAW AIR FORCE BASE

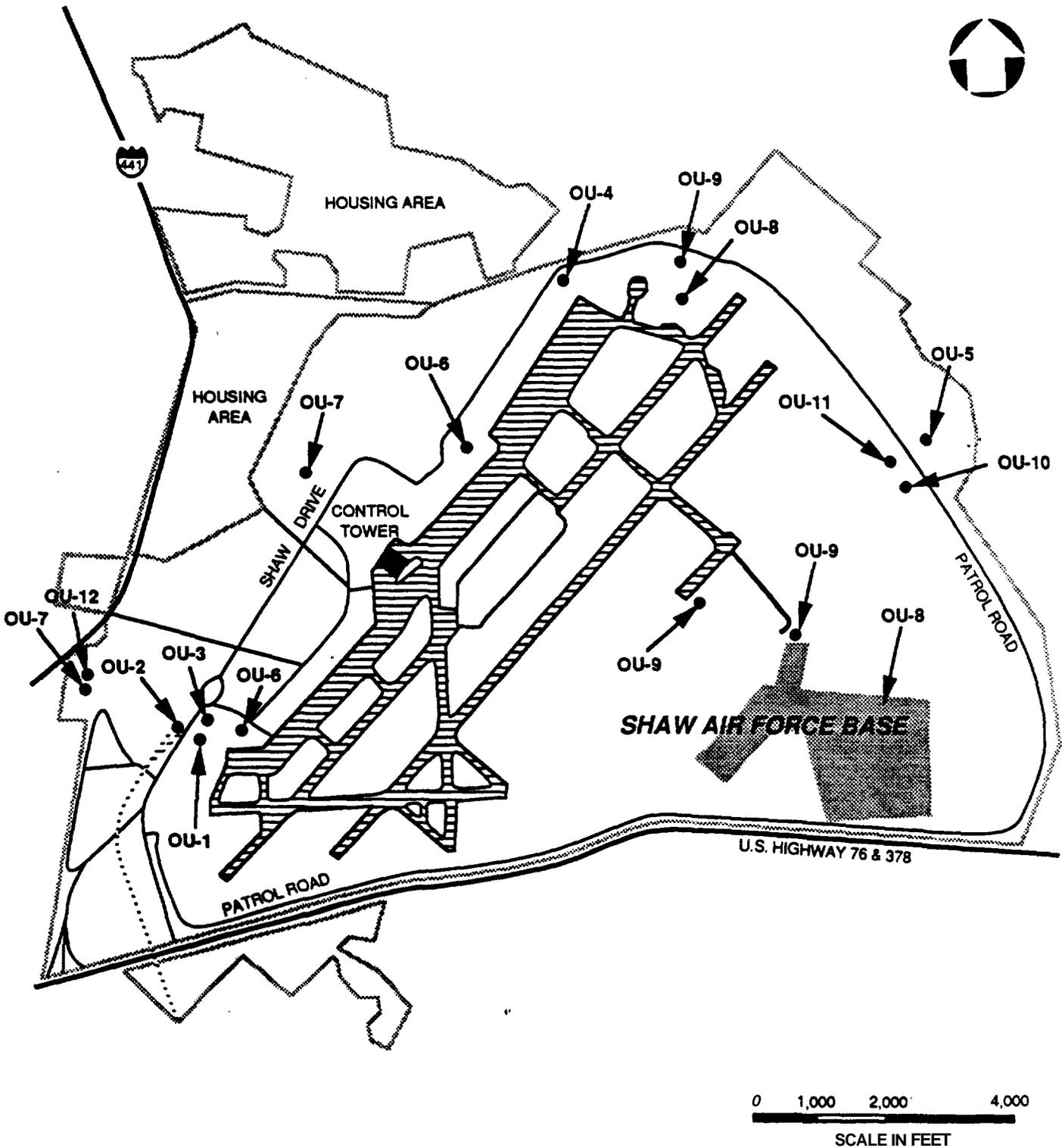
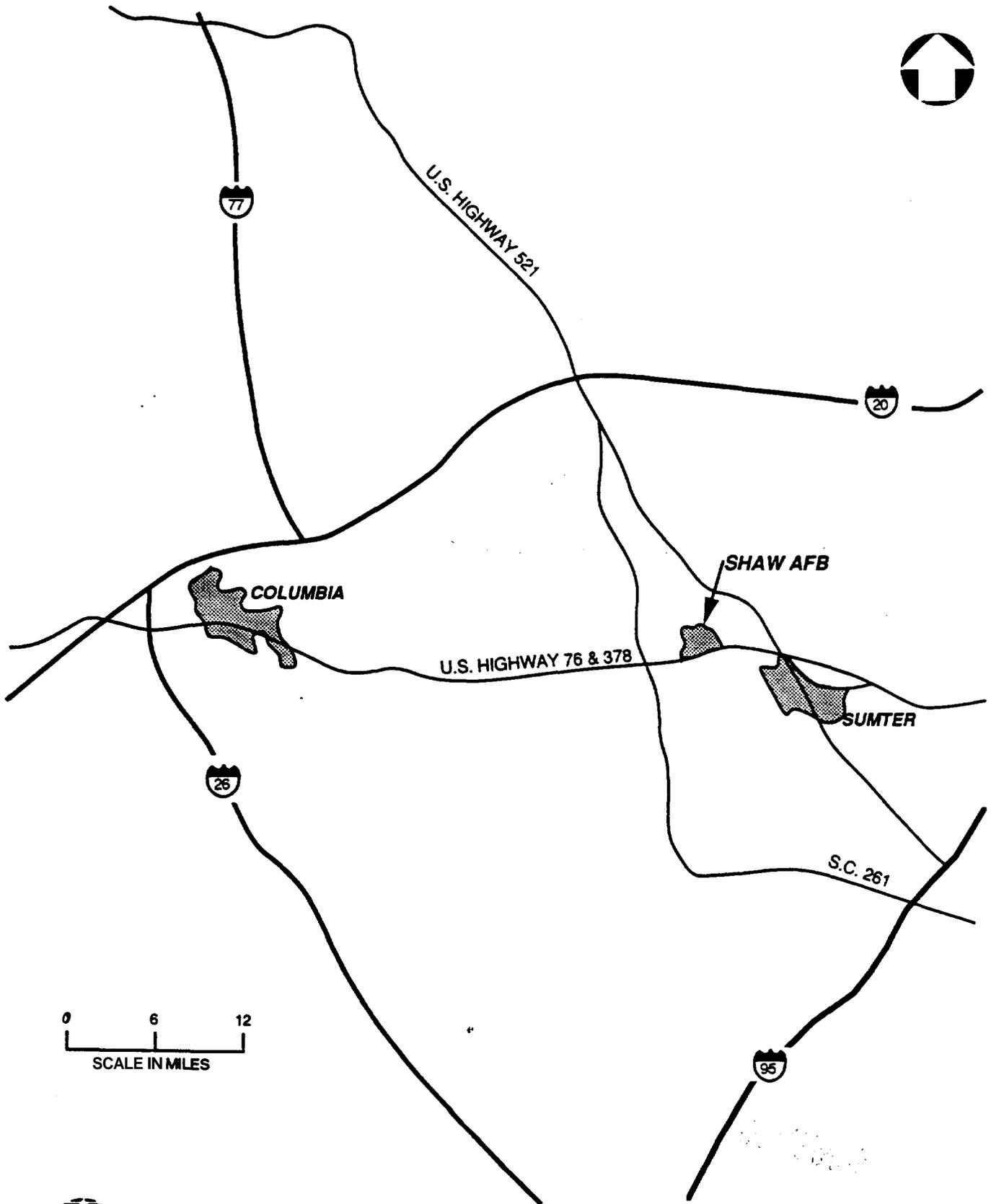


FIGURE 1
SHAW AFB LOCATION MAP



The underground storage tanks (USTs) are primarily used for temporary storage prior to fuel transfer into tanker vehicles for delivery to planes on the flightline. There are nineteen 25,000 gallon and five 50,000 gallon USTs located in the POL area. A 6,000 gallon tank located at the railhead is used to maintain fuel in the delivery lines.

A large portion of the total system (USTs and piping) is of 1942 - 1954 vintage, having no cathodic protection devices. The early system was an aqua-system, where water was used to displace the fuel in the tanks and force the fuel into delivery lines. That system was eventually abandoned and the aqua-system disconnected. This tank system represents the oldest portion of the depot at 45 years .

1.2 OU-2

1.2.1 JP=4 SPILL AREA AT RAIL SIDING

The location of OU-2 is depicted in Figure 2. The rail siding is between Building 200 and Shaw Drive. Fuels are offloaded from 10,000-gallon tank cars at the rail siding and delivered by underground pipelines to two above-ground storage tanks and 26 underground storage tanks in the bulk fuel storage area east of Shaw Drive.

Several minor spills were reported to have occurred in this area during the 1950's. The largest spill from the site involved several thousand gallons of JP-4 that were released in the early 1970's when a tank car valve was reported to have ruptured. The fuel was spilled on the ground, surface in the vicinity of Building 207 and discharged into the southwest drainage ditch that parallels Shaw Drive. No fuel was known to have left the base property, and

the JP-4 evaporated and seeped into the ground. The ground surface at the site has an elevation of about 265 ft, msl.

1.3 OU-3

1.3.1 Fuel Tank Sludae Burial Site

The study area for OU-3 is depicted in Figure 2. The site is located just southwest of the bulk fuel storage area adjacent to Shaw Drive. The site is underlain by a series of storm drains and fuel lines. The main 48-inch diameter storm drain beneath the site empties into the southwest drainage ditch just south of the fence that encloses the bulk fuel storage area. The ground surface at the site has an elevation of about 260 ft, msl.

The base's fuel storage tanks were cleaned on an as-needed basis until the mid 1970's. Since then the tanks have been inspected every 3 years and cleaned as needed based on fuel quality control analyses. The sludge accumulated from the tank cleaning operations was disposed of in three ways:

- Allowed to weather, then buried in a shallow pit located in the southwest corner of the bulk fuel storage area in the early 1960's (OU-3).
- Allowed to weather, then buried at Fire Training Area No. 1 (OU-5) from the mid-1960's to mid-1970's.
- Drummed and disposed of off base.

1.4 ou-4

1.4.1 Former Landfill No. 1

Landfill No. 1 is located on the northern side of the base in an area which is now used as offices and storage for the on-base disposal contractors (Figure 2). The landfill is less than two acres and was used between 1941 and 1945 for disposal of all general refuse generated on the base during this period. The wastes were placed in trenches (20 to 30 feet deep and 15 to 20 feet wide) and burned before cover material was added. Only small quantities of waste chemicals and petroleum products are suspected to have been disposed of in this landfill.

1.5 OU-5

1.5.1 Former Fire Training Area No. 1

From approximately 1941 until 1969, the Fire Department conducted fire protection training exercises within a 3.5 acre area located in the northeast sector of the base across the perimeter road from the ammo storage area (Fire Protection Training Area No. 1). The site is comprised of sandy soils. Burning was conducted throughout the area on different occasions during this period. Close examination revealed discolored, charred soils covering the entire area. The site now supports a sparse vegetative cover.

From 1941 until the mid-1960's, various types of combustible waste chemicals generated at the base were brought to this area in 55-gallon drums and burned during routine training exercises, typically conducted on a weekly basis. These materials were reported to have included waste oils, waste avgas and jet fuel, hydraulic fluid, spent solvents and even napalm on occasions. The

burn area did not have a liner system nor was there any pre-application of water to prevent the percolation of the waste chemicals into the soil. The materials were applied directly to the soil and ignited. Participants in the operation reported that the liquid wastes would typically soak into the sandy soils. The extinguishing agents used during the period included CO₂, protein foam and water. Some aqueous film forming foam (AFFF) was used as an extinguishing agent during the later period of use. It was reported that many of the empty drums used for transporting the combustible materials were buried in shallow pits within the fire training area. From the mid-1960's until 1969 only JP-4 was burned during the training exercises.

1.6 OU-6

Former Underground Waste Oil Tanks (2), and Former Underground Heating Oil Tanks Contamination Area

1.6.1 Former UG Heating Oil Tanks Contamination Area at Bldg. 105

Building 105 is located at the intersection of Killian and Houston Avenue. Building 105 was undergoing a major rehabilitation and as part of the contract, two 500 gallon underground heating oil tanks which were in use since 1942 were removed. An inspection of the pits revealed that the tanks had leaked. A 12-foot x 12-foot area was excavated to a depth of 10 feet in an attempt to remove all contaminated soil. Even though a strong odor of fuel still existed, with the approval of South Carolina Department of Health and Environmental Control (SCDHEC), the decision was made to backfill the excavation in order to prevent damage to the existing building foundation. The contaminated soil was approved for disposal at the Sumter County Landfill by SCDHEC.

1.6.2 Former UG Waste Oil Tanks (2) at Blda. 1602

Building 1602 is located just east of the flight line. During the removal of two 550 gallon underground storage tanks in 1989, a sample analyzed for TPH produced a concentration of 720 mg/L.

1.7 OU-7

1.7.1 Building 325 Vehicle Maintenance Area

The unit is an area approximately 300 feet in length and 200 feet in width that is used for the servicing of vehicles used at the base. The unit is located at the west end of the base, just north of the Wastewater Treatment Plant (SWMU No. 1). Building 325 is approximately 250 feet in length and 150 feet in width with a sealed concrete floor. Other units located at this site are a Waste Oil Accumulation Tank (SWMU No. 6), two Oil/Water Separators (SWMU Nos. 30 and 31), a downdraft Paint Spray Booth (SWMU No. 75), the Battery Neutralization Tank (SWMU No. 79), seven Omniclean Units (SWMU No. 80), and the Battery Acid Spill Site (AOC C). Prior Disposal practices at the unit were unknown by facility representatives.

1.7.2 Oil Accumulation Tanks

The units are temporary holding areas in various locations of the facility for the accumulation of waste oil. The waste oil is collected in 55-gallon steel drums in areas of smaller volume operations, and steel tanks of variable sizes in areas of larger volume generators. All tanks, with the exception of one, are aboveground units. The one underground tank is located at the base service station (SWMU No. 19). Testing of the tank had been done in 1988 and no leaks were detected. This unit will be replaced by an aboveground tank within the next year according to a facility

representative. All the waste oil in the tanks is removed monthly by vacuum truck by a contractor for off-site removal. The waste oil accumulated in drums is taken to the Hazardous Waste Storage Building 31 (SWMU No. 59) (1941 to mid-1960's), or contracted for off-site disposal (mid-1960's to 1980).

1.7.3 Building 325 Oil/Water Separators

The 25 units are concrete-lined, in-ground basins approximately 18 inches in width, two feet in length, and four feet in depth, located in various maintenance areas of the base. The units are cascading oil interceptors receiving rinsewaters which can contain small amounts of oil and/or jet fuel. Rinsewaters flow into the units from the maintenance areas. The oil or jet fuel cascades over a steel plate in the basin and collects on the other side. The water at the bottom is piped to go to the Wastewater Treatment Plant (SWMU No. 1). The oil collected is pumped out by vacuum truck biweekly and taken to the Waste Oil Separator Tank (SWMU No. 93) prior to off-site recycling. Prior to the installation of these units, rinsewaters were presumably routed to surface streams or drain fields located adjacent to the individual buildings.

1.8 OU-8

1.8.1 Former Landfill No. 2

Landfill No. 2 is also located on the northern side of the base approximately 600 feet east of Landfill No. 1, near building 1702. The site comprises less than 0.5 acres and was used during 1945 for less than one year because of the high water table in the area causing water to enter the trenches. The trenches were reported to have been less than 20 feet deep. Only general refuse was disposed of in this area. The refuse was burned prior to covering.

Small quantities of waste chemicals and petroleum products may have been disposed of in this landfill. The landfill has been closed. Cover material consists of natural soils which support local vegetation.

1.8.2 Land Spreading Sludge Area 58 - Former Landfill #3

Shaw AFB treats domestic sanitary waste from base facilities and the housing area in an extended aeration treatment process followed by multi-media filtration. The plant was upgraded to the current system in 1974. The design capacity is 1.2 MGD; however, average flows are approximately 750,000 gallons per day. The effluent from the treatment plant is piped 4370 feet to Beech Creek which empties into Wateree Swamp. The effluent from the treatment plant has been sampled monthly at the discharge weir. Based on the data all parameters, with the exception of phenol, are within the South Carolina NPDES permit criteria. Phenol concentrations in the treatment plant effluent were typically 10 ug/l and the standard for this parameter is 5 ug/l. The majority of the phenols originate from the industrial shop areas due to the rinsing of miscellaneous chemicals into the sanitary sewer.

Sludge from the sewage treatment plant is either dried in the sludge drying beds or diverted to a sludge holding tank until it can be hauled to the area on base designated as the sludge landfarm. Dried sludge was disposed of in past years within the on-base landfills. Since Approximately 1976, the dried sludge and liquid sludge have been disposed of in the sludge landfarm located along the southern edge of the base. The EPA leachate extraction test was performed on representative sludge samples collected from the sewage treatment plant. The constituents analyzed were all found to be well below the RCRA EP Toxicity Standards.

1.9 OU-9

1.9.1 Former Fire Training Area No. 2 (FPTA No. 2)

In 1970, the Fire Protection Training Area was relocated to an open grassy area on the east side of the main runway (Fire Protection Training Area No.2). This area was utilized for training exercises between 1970 and 1981. A visit to the area revealed an unlined, circular training pit approximately 100 feet in diameter with an eighteen inch berm along the perimeter of the pit. The soil within the pit is of a sandy clay composition. The crust of the soil was discolored due to the burning that occurred in the pit. Rain occurred one day prior to the site inspection and some ponding of water within the bermed area was still evident. JP-4 was the only fuel used at this site. Exercises were conducted on a monthly basis and would utilize 300 to 1000 gallons of fuel. Water was applied to the pit prior to the application of fuel to reduce the amount of fuel percolation into the soil. AFFF and water were generally used as extinguishing agents. The site was not equipped with any system for collecting or treating the runoff from the training operations.

1.9.2 Fire Training Area No.3 (FPTA No. 3)

A new fire protection training area was constructed and put into operation in 1981 (Fire Protection Training Area No. 3). At that time, the use of FPTA No. 2 was discontinued. FPTA No. 3 is located approximately 1,200 feet east of FPTA No. 2. The new training area was constructed over compacted soil. The pit is approximately 75 feet in diameter and is surrounded by a two-foot berm. A drain has been installed in the center of the pit to direct the contaminated water to a nearby underground oil/water separator. The oil/water separator is routinely inspected and pumped on an as-needed basis. Discharge from the oil/water

separator is directed to an underground tile field. The new fire protection training area is operated in a similar manner to that described under FPTA No. 2.

1.9.3 Former Fire-In Bunker

The unit is located at the north end of the flight line, just south of Patrol Road. The unit consists of a large, three-sided concrete bunker. Large mounds of earth extend outward from both sides of the Bunker. The unit was used as a backstop while testing the aircraft weapons systems before the aircraft took off. Information is not available on the operation range, such as how often, if ever, the bunker was cleared of expended ordnance. Operations ceased at the unit due to safety considerations. Surface runoff from the unit would flow to the north towards Long Branch of the north ditch drainage.

1.10 ou-10

1.10.1 Water Wash Paint Spray Booth

The Water Wash Paint Spray Booth is located in Building 1817, the ordnance and trailer maintenance facility, which is in the northeast portion of the base. The unit consists of a paint spray booth approximately 12-feet square, an Oil/Water Separator (SWMU No. 26), and a tile drain field. A concrete trough at the back of the unit is the reservoir for the wastewater. During painting operations, water from the reservoir is pumped to the top of the back wall. The water is allowed to trickle down the back wall, while a fan blows the paint fumes toward the water curtain. The water curtain traps the paint mist and carries the waste back into the trough. The water is recirculated for a period of time and then replaced. The wastewater goes to the Building 1817 Oil/Water

Separator (SWMU No. 26). The wastewater from the oil/water separator is discharged to a tile drain field adjacent to Building 1817.

1.11 OU-11

1.11.1 Former and Present Drain Field Areas

The units consist of tile drain fields which are believed to be located adjacent to all of the main buildings on the base. The units were used for disposal of both domestic and process wastewaters prior to the start-up of the Wastewater Treatment Plant (SWMU No. 1). The actual size and locations of most of these units are unknown. Building 1817 is the only active Drain Field Area on base which is known to accept process wastewater.

There are four septic tanks and tile fields located at Shaw AFB. Tanks range in size from 1000 gallons to 2800 gallons. All four are located in outlying areas within the base boundary, east of the runway. No hazardous wastes are known or suspected to have been disposed of by these septic tanks.

1.12 OU-12

1.12.1 Battery Acid Spill Site

The unit was located adjacent to Building 327 which is at the west end of Building 325 Vehicle Maintenance area (SWMU No. 78). The unit was used by the motor pool as a new battery storage area. In the early 1970s, a water supply line beneath the unit failed. The suspected cause of the failure was corrosion due to leakage of acid from the batteries. The actual spill location has not been defined.

2.0 OPERABLE UNITS

The sites shown on Table 2-1 (ordered according to SWMU No.) have been defined as operable units OU-1 through OU-12 at Shaw AFB. These OUs are defined and are being investigated under the RI/FS guidelines in accordance with CERCLA Section 106 (a), Section 3008 (h) of RCRA and DERP. Section 5.0 contains site specific scopes of work and the expected delivery dates.

TABLE 2-1
SHAW AFB OPERABLE UNITS
List of all SMWUs Requiring RFA Phase II Sampling or RFI

<u>Operable Unit No.</u>	<u>SWMU No.</u>		<u>IRP Site No.</u>	<u>LEGS Site No.</u>
1	2	Former Leaking Underground JP-4 Fuel Tank	55-15	Site 6
7	6,19	Oil Accumulation Tanks		
7	30,31	Building 325 Oil/Water Separators		
2	49	JP-4 Spill Area at Rail Siding	55-4	Site 4
3	50	Fuel Tank Sludge Burial Site	OT5	Site 5
4	52	Former Landfill No. 1	LF9	Site 7
9	54	Fire Training Area No. 3	FT6	
9	55	Former Fire Training Area No. 2	FT7	
8	56	Land Spreading Sludge Area 58-Former Landfill No. 3	STP WP-12	
5	59	Former Fire Training Area No. 1	FT1	Site 1
10	77	Water Wash Paint Spray Booth		
7	70	Building 325 Vehicle Maintenance Area	0t-16	
9	84	Former Fire-In Bunker		
8	85	Former Landfill No. 2	LF8	
6	87	Former Underground Waste Oil Tanks (2)	5t-18	
6	91	Former UG Heating Oil Tanks Contamination Area	55-20	
11	95	Former and Present Drain Field Areas		
12	AOC C	Battery Acid Spill Site	55-10	

3.0 SCOPE OF WORK

The current scope of work for the Shaw AFB includes field investigations to characterize each of the OUs in order to determine remedial alternatives. These investigations include additional installation of monitoring wells, soil borings, groundwater analyses, soil analyses and waste characterizations.

Based on the sites that have been previously investigated none have been identified which pose an immediate threat to human health or the environment. The institutional controls that are in place on the base (the existing base security) are adequate in providing the public with the proper protection.

The following sections contain the Interim Site Management Schedule and summaries of the proposed scope of work for each OU.

4.0 INTERIM SITE **MANAGEMENT** SCHEDULE

The following schedule (Figure 3) shows the duration of activities for each operable unit for approximately the next two fiscal years.

Please note that the schedule is based on business days.

5.0 SCOPE OF WORK SUMMARIES

The following sheets provide details of the scope of work, schedule and deliverables for fiscal year 1991 and 1992 for each SWMU identified for further action.

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Former Leaking Underground JP-4 Fuel Tank (IRP
Site No. SS-15) LEGS Site #6 SWMU No. 2

DESCRIPTION: Draft Recommended Clean-up Report

OPERABLE UNIT NUMBER: 1

SCHEDULED START: January 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Field pump testing is now under way. With the completion of this effort the Recommended Clean-up Report will be completed and submitted as a proposed plan.

FY 91 DELIVERABLES: Draft Final Report

FY 92 DELIVEDABLES: Draft Final Report, Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: JP-4 Spill Area at Rail Siding (IRP Site No.
SS-4) LEGS Site #4 SWMU No.49

DESCRIPTION: Final Remedial Action Plan

OPERABLE UNIT NUMBER: 2

SCHEDULED START: January, 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Extended monitoring of the wells in the vicinity of Site 4/5 is the preferred action for the site. This monitoring program will occur as part of a long-term ground-water monitoring and cleanup program that addresses the Site 6 POL Depot fuel contamination problem and remediation.

FY 91 DELIVERABLES: Draft Report, Draft Final

FY 92 DELIVERABLES: Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Fuel Tank Sludge Burial Site (IRP Site No. OT5)
LEGS Site #5 SWMU No. 50

DESCRIPTION: Final Remedial Action Plan

OPERABLE UNIT NUMBER: 3

SCHEDULED START: March 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Extended monitoring of the wells in the vicinity of Site 4/5 is the preferred action for the site. This monitoring program will occur as part of a long-term ground-water monitoring and cleanup program that addresses the Site 6 POL Depot fuel contamination problem and remediation. The extended monitoring program would provide information on types, location, and rates of change of contamination at the POL Fuel Depot Site as a result of the leaking tanks.

FY 91 DELIVERABLES: Draft Report, Draft Final Report

FY 92 DELIVERABLES: Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Former Landfill No. 1 (IRP Site No. LF9) LEGS
Site #7. SWMU No. 52

DESCRIPTION: Final Pre-Remedial Investigation Report

OPERABLE UNIT NUMBER: 4

SCHEDULED START: April 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: The results of the laboratory chemical analyses indicate that although the shallow aquifer shows slightly elevated levels of several organic and metal constituents, the extent of contamination appears to-be minimal. The laboratory samples and public health - environmental assessments indicated that existing conditions at site 7 do not pose a threat to public health or the environment. Therefore, it is recommended that the shallow and deep monitoring wells be sampled as part of the quarterly monitoring program.

FY 91	DELIVERABLES:	Draft Report, Draft Final Report
FY 92	DELIVERABLES:	Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Former Fire Training Area No. 1 (IRP Site No.
FT1) LEGS Site #1 SWMU No. 59

DESCRIPTION: Final Remedial Action Plan

OPERABLE UNIT NUMBER: 5

SCHEDULED START: May 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK; *An* extended monitoring program is the preferred action at the site. The monitoring program would consist of sampling upgradient and downgradient monitoring wells as well as creek samples. Sampling frequency will be 4 samplings per year for two years. This would provide information on changes in contamination and provide data to determine if action is needed in the future.

FY 91 DELIVERABLES : Draft Report

FY 92 DELIVERABLES : Draft Final Repot, Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Former Underground Waste Oil Tanks (2) (IRP
Site No. SS-20) SWMU No. 91

DESCRIPTION: Phase I Remedial Investigation

OPERABLE UNIT NUMBER: 6

SCHEDULED START: February 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Monitoring wells will be drilled and installed in order to evaluate the extent of hydrocarbon contamination. Ground water and soil samples will be collected. A Preliminary Risk Assessment and Preliminary Site Characterization Summary Report will be prepared.

FY 91 DELIVERABLES: Draft Report, Draft Final Report

FY 92 DELIVERABLES: Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Former Underground Heating Oil Tanks (2) (IRP
Site No. ST-18) SWMU No. 87

DESCRIPTION: Phase I Remedial Investigation

OPERABLE UNIT NUMBER: 6 ..

SCHEDULED START: February 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Monitoring wells will be drilled and installed in order to evaluate the extent of hydrocarbon contamination. Ground water and soil samples will be collected. A Preliminary Risk Assessment and a Preliminary Site Characterization Summary Report will be prepared.

FY 91	DELIVERABLES:	Draft Report, Draft Final Report
FY 92	DELIVERABLES:	Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Oil Accumulation Tanks SWMU Nos. 6, 19

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 7

SCHEDULED START: April 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Removal of the underground tank at SWMU No. 19 is recommended. Soil samples should be chemically analyzed below the unit at the time of removal. Soil samples should be chemically analyzed at the aboveground tank at SWMU No. 6.

FY 91 DELIVERABLES: RI/Draft Report, Draft Final Report
FS/Draft Report

FY 92 DELIVERABLES: RI/Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Building 325 Oil/Water Separators
SWMU Nos. 30, 31

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 7

SCHEDULED START: April 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Soil should be sampled and chemically analyzed near these units.

FY 91	DELIVERABLES:	RI/Draft Report, Draft Final Report FS/Draft Report
FY 92	DELIVERABLES:	RI/Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Building 325 Vehicle Maintenance Area (IRP Site
No. OT-16) SWMU No. 78

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 7

SCHEDULED START: April 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: This unit is currently in the evaluation stage of the Installation Registration Program. The initial Draft planning documents have been submitted to EPA and reviewed. Monitoring Wells and soil borings will be placed in this area to determine the nature and extent of contamination at the building and to develop feasible alternatives for remediation of the contamination.

FY 91	DELIVERABLES:	RI/Draft Report, Draft Final Report FS/Draft Report
FY 92	DELIVERABLES:	RI/Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Land Spreading Sludge Area 58 Former Landfill
No. 3 (IRP Site No. STP WP-12)
SWMU No. 56

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 8

SCHEDULED START: June 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Analysis of site characteristics and evaluation of
environmental and health risks.

FY 91 DELIVERABLES : RI/Draft Report
FS/Draft Report

FY 92 DELIVERABLES : RI/Draft Final Report, Final Report
FS/Draft Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Former Landfill No. 2 (IRP Site No. LF8)

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 8

SCHEDULED START: February 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Analysis of site characteristics and evaluation of environmental and health risks.

FY 91	DELIVERABLES :	Draft Report, Draft Final Report
FY 92	DELIVERABLES:	Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Fire Protection Training Area No. 3 (IRP Site
No. FT6) SWMU No. 54

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 9

SCHEDULED START: July 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Define and characterize the presence and source of contamination. Conduct preliminary soil sample to determine the depth of potential contamination. If necessary, drill and install monitoring wells to further establish the nature and extent of contamination.

FY 91 DELIVERABLES:

FY 92 DELIVERABLES: RI Work Plans - June 1992

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Fire Protection Training Area No. 2 (IRP Site
No. FT7) SWMU No. 55

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 9

SCHEDULED START: July 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Define and characterize the presence and source of contamination. Conduct preliminary soil sample to determine the depth of potential contamination. If necessary, drill and install monitoring wells to further establish the nature and extent of contamination.

FY 91 DELIVERABLES: RI/Draft Report
FS/Draft Report

FY 92 DELIVERABLES: RI/Draft Final Report Final Report
FS/Draft Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Former Fire-In Bunker
SWMU No. 84

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 9

SCHEDULED START: July 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: The unit is currently in the evaluation stage of the Installation Restoration Program. Sampling and analysis of site soils is recommend to identify the release of contaminants to the native soils.

FY 91 DELIVERABLES :

FY 92 DELIVERABLES : RI Work Plans - June 1992

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Water Wash Paint Spray Booth
SWMU No. 77

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 10

SCHEDULED START: August 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: The entire water wash system at Building 1817, including the oil/water separator and the tile drain, is currently in the evaluation stage of the Installation Restoration Program. Although analysis indicated this wastewater is nonhazardous, sampling of the wastewater is recommended.

FY 91 DELIVERABLES: RI/Draft Reports

FY 92 DELIVERABLES: RI/Draft Final Report, Final Report
FS/Draft Report, Draft Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Former and Present Drain Field Areas
SWMU No. 95

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 11

SCHEDULED START: September 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: Prior to sampling, research will be required to locate all former Drain Field Areas and identify the hazardous constituents managed at each building.

FY 91 DELIVERABLES: RI/Draft Report

FY 92 DELIVERABLES: RI/Draft Final Report, Final Report
FS/Draft Report, Draft Final Report

SHAW AIR FORCE BASE
Sumter, South Carolina

AS OF: September, 1990

OPERABLE UNIT NAME: Battery Acid Spill Site (IRP Site No. SS-10)
SWMU No. AOC C

DESCRIPTION: Remedial Investigation/Feasibility Study

OPERABLE UNIT NUMBER: 12

SCHEDULED START: October 1991

DURATION: Continues through two fiscal years.

SCOPE OF WORK: The entire Building 325 Vehicle Maintenance Area is in the evaluation stage of the Installation Program. The source (Battery Storage Area) should be identified and sampling and analysis of site soils is recommended to identify the release of contaminants to the native soils.

FY 91	DELIVERABLES:	RI/Draft Report
FY 92	DELIVERABLES:	RI/Draft Final Report FS/Draft Report, Draft Final Report