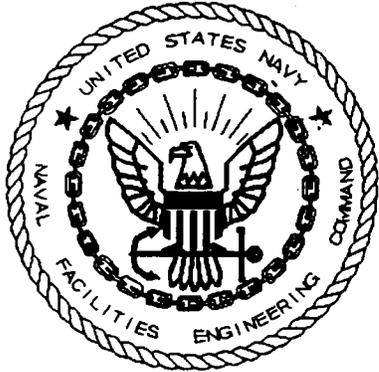


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ENSAFE/ALLEN & HOSHALL

**RCRA CORRECTIVE ACTION  
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REVISION 01**

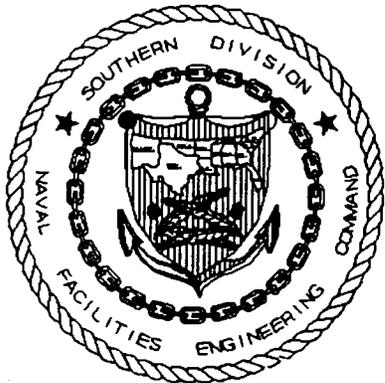


**NAVAL AIR STATION MEMPHIS  
MILLINGTON, TENNESSEE**

**CONTRACT N62467-89-D-0318  
CTO - 016**

**Prepared for:**

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**November 22, 1994**

**NAVAL AIR STATION MEMPHIS  
RCRA CORRECTIVE PLAN REVISION 01 — CTO-016**

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## **1.0 INTRODUCTION**

This Corrective Action Management Plan (CAMP) provides the overall management structure for implementing the RCRA Corrective Action Program at Naval Air Station (NAS) Memphis, Millington, Tennessee. It was originally approved by USEPA Region IV on June 29, 1993, and is being revised now to reflect changing priorities resulting from the Base Closure and Realignment Act of 1990 (BRAC). The plan: (1) groups known solid waste management units (SWMUs), (2) ranks the groups, (3) summarizes the strategy for implementing the Corrective Action Program, and (4) proposes an initial schedule for program activities.

NAS Memphis received RCRA Permit No. TN2-170-022-600 from USEPA Region IV in September 1986. The Hazardous and Solid Waste Amendments (HSWA) portion of the permit (HSWA-TN002) required NAS Memphis to conduct a RCRA Facility Assessment (RFA) to identify and characterize all active and inactive SMWUs located on the facility. The Navy retained Engineering, Design and Geosciences Group, Inc. (EDGE) in December 1986 to conduct the RFA and perform a RCRA Facility Investigation (RFI) to evaluate the SWMUs known, suspected, or presumed to have releases of hazardous constituents. EDGE prepared the Draft RFA and RFI reports concurrently and submitted them in April 1987. The reports identified 58 potential SWMUs and recommended 34 of them for additional study. Since 1987, seven more sites have been added and a formerly identified site has been divided into two sites, bringing the total number of SWMUs to 66.

EDGE submitted a revised Draft Final RFA in July 1989 based on USEPA's decision the previous year that the two reports were inadequate. In a letter dated 22 February 1990, USEPA established an official SWMU list and instructed the Naval Facilities Engineering Command Southern Division (SOUTHDIV) to proceed with an RFI Work Plan. SOUTHDIV prepared and submitted a Draft-Final RFI Work Plan in July 1990 and received comments on the plan from USEPA and the Tennessee Department of Environment and Conservation (TDEC) in November 1991. EnSafe/Allen & Hoshall (E/A&H) will respond to these comments and prepare a Final RFI Work Plan for each group of SWMUs. Upon approval of each work plan, the United States Geological Survey (USGS) and E/A&H will implement the field work.

Regarding the 66 total SWMUs (Table 1-1), the following actions are planned or in progress:

- Fifteen will require full RFI characterization. This number includes SWMU 65, which was recommended for addition to the list in a September 16, 1993 letter from NAS Memphis to USEPA Region IV.
- Thirty-five will require a Confirmatory Sampling Investigation (CSI). This number includes SWMU 62, which was added to the list in an August 5, 1992 letter from USEPA commenting on the Draft CAMP and SWMUs 63 and 64, which were recommended for addition to the list by NAS Memphis in a letter to USEPA dated December 11, 1992.

It also includes SWMUs 10, 11, 16, 31, and 36, which were originally determined to require no further action. On September 26, 1994, the BRAC Cleanup Team (BCT) decided that confirmation sampling should be conducted at these SWMUs because they are on property that will be excised as a result of BRAC.

Two of the CSI SWMUs (22 and 23) are Areas of Concern (AOC) that may be addressed under the Navy's Underground Storage Tank (UST) Program. Two others (42 and 53) were covered by approved, implemented closure plans; however, confirmatory sampling will be conducted at these SWMUs because wastes have been handled at these sites since closure.

- The CSI at SWMU 45 is currently being conducted as an interim measure to facilitate a construction project related to the realignment of NAS Memphis.
- SWMU 66 was recommended for addition to the list by NAS Memphis in a letter to USEPA dated September 12, 1994. An interim measures (IM) removal action will be conducted at this site. Confirmation sampling results from the interim measure will determine if a followup RFI characterization will be required.
- The remaining 15 SWMUs require no further work.

<b>Table 1-1 Solid Waste Management Units</b>		
<b>SWMU No.</b>	<b>Description</b>	<b>Action Required</b>
1	Fire Department Drill Area	RFI
2	Southside Landfill	RFI
3	Building N-121 Plating Shop Dry Well	RFI
4	Building N-121 Plating Shop Storm Sewer and Drainage Ditch	RFI
5	Aircraft Fire Fighting Training Area	RFI
6	Building N-126 Battery Shop Storm Sewer and Ditch	RFI
7	Building N-126 Plating Shop Dry Well	RFI
8	Cemetery Disposal Area	RFI
9	Sewage Lagoons	RFI
10	Northside Landfill (Eastern Portion)	CSI
11	Oiled Dirt Roads	CSI
12	Galley Disposal	None
13	Building 499 Grease Pit	None

Table 1-1 Solid Waste Management Units		
SWMU No.	Description	Action Required
14	Building S-140 Site and 7th Avenue Ditch	RFI
15	N-94 Underground Tank Farm	CSI
16	N-94 Aboveground Waste Tanks	CSI
17	S-9 Underground Waste Tank	CSI
18	N-112 Underground Waste Tank	CSI
19	N-757 Underground Waste Tank (formerly 341 and 1648 UWT)	CSI
20	1594 Underground Waste Tank	CSI
21	N-10 Underground Waste Tank	CSI
22	S-75 Underground Fuel Tanks	CSI
23	S-8 Underground Fuel Tank	CSI
24	N-114 Auto Hobby Shop Waste Oil Tanks	CSI
25	Big Creek Landfill	None
26	N-102 Battery Acid Treatment (underground tank only)	CSI
27	Northside Sewage Treatment Plant	CSI
28	Southside Sewage Treatment Plant	None
29	Lakehouse Sewage Treatment Plant	None
30	Park Field Waste Treatment Tank	CSI
31	Aircraft Wash Rack @ 4th Street	CSI
32	N-7 Aircraft Wash Rack	None
33	H-10 Incinerator	None
34	H-109 Incinerator	None
35	1579 Incinerator	None
36	Northside Sewage Treatment Plant Incinerator	CSI
37	Southside Sewage Treatment Plant Incinerator	None
38	Miscellaneous Drainage Ditches	RFI
39	S-74 PCB Storage Area	CSI
40	Salvage Yard No. 1	RFI
41	Salvage Yard No. 2	CSI

Table 1-1 Solid Waste Management Units		
SWMU No.	Description	Action Required
42	N-12 Interim Hazardous Waste Storage Area	CSI
43	Hazardous Waste Accumulation Point @ S-176	CSI
44	Hazardous Waste Accumulation Point @ N-102	CSI
45	Hazardous Waste Accumulation Point @ S-142	CSI/IM
46	Hazardous Waste Accumulation Point @ S-140	CSI
47	Hazardous Waste Accumulation Point @ 344	CSI
48	Hazardous Waste Accumulation Point @ S-9	CSI
49	Hazardous Waste Accumulation Point @ N-757	CSI
50	Hazardous Waste Accumulation Point @ N-126, MAG-42	CSI
51	Hazardous Waste Accumulation Point @ N-126, VR-60	CSI
52	Hazardous Waste Accumulation Point @ N-126, VP-67	CSI
53	Hazardous Waste Accumulation Point @ N-126, AIMD	CSI
54	Hazardous Waste Accumulation Point @ Dental Clinic	None
55	Hazardous Waste Accumulation Point @ Medical Clinic	None
56	Hazardous Waste Accumulation Point @ 352	None
57	Hazardous Waste Accumulation Point @ S-183	None
58	Hazardous Waste Accumulation Point @ S-360	None
59	Pesticide Storage Facility (Old Pesticide Shop)	RFI
60	Northside Landfill (Western Portion)	RFI
61	Building N-26 Former Printing Shop	CSI
62	M-21 Arresting Gear Drainage Area	CSI
63	Underground Waste Tank S-75N	CSI
64	Materials Storage Area N-16	CSI
65	Building S-362 (Training Mockup Site)	RFI
66	Radar Area Dump	IM

Before BRAC, construction of a new Firemat Training Mockup Facility was planned at the locations of SWMUs 4 (N-121 Plating Shop Storm Sewer and Ditch) and 5 (Aircraft Firefighting Training Area). Because construction would affect the investigation of these areas and possibly expose construction workers to unnecessary health risks, SOUTHDIV requested to proceed as quickly as possible with the investigations for these SWMUs. In response, USEPA suggested that "the most rapid means of investigating and remediating these areas would be to perform an Interim Measure on the contaminant source and soil for these areas." This approach was adopted and required submittal of an Interim Measures Work Plan (IMWP) for SWMUs 4 and 5 only. Another facility, the P-170 Shore Aircraft Fire and Rescue Training Facility, was planned for construction adjacent to and directly east of SWMU 5. Constructing the Applied Instruction Building for this new facility would require rerouting a portion of SWMU 4. Therefore, investigation of the affected portion of SWMU 4 was also included in the IMWP.

The purpose of the interim measure field investigation was to identify the need for and expedite the completion of corrective measures for areas of these SWMUs to be affected by construction, thus allowing construction of the training facilities to proceed. The investigation, conducted during October, November and December 1992, concluded that immediate corrective action would not be required at these SWMUs. The findings of the investigation were reported in a Technical Memorandum dated February 23, 1993. In a May 12, 1993 letter, USEPA Region IV concurred that immediate corrective action was not necessary and requested additional investigation during the RFI. Data generated during the investigation will be used to supplement the full characterization of these SWMUs during the RFI.

During the interim measure field work at SWMUs 4 and 5, a lease of NAS Memphis property to the City of Millington for development of a municipal light-aircraft landing strip was proposed. The property included a portion of SWMU 1 (Fire Department Drill Area). Therefore, an interim measure investigation was conducted there to determine if past fire fighting training activities had resulted in soil contamination that might require corrective measures before leasing the land. The field work at this site, conducted during October and November 1992, also concluded that immediate corrective action would not be required. The findings of the investigation were reported in a Technical Memorandum dated March 1, 1993, and will be used to supplement the full characterization of the SWMU during the RFI. USEPA Region IV concurred with the "no immediate corrective action" conclusion in the same May 12, 1993 letter referred to above.

As a result of BRAC, a portion of NAS Memphis (primarily the airfield and associated buildings) will be closed and prepared for property disposal, while the remainder will be realigned as Naval Support Activity (NSA) Memphis. Under the closure, airfield operations are scheduled to cease October 1995. Under the realignment, training operations are scheduled to move to NAS Pensacola at the end of calendar year 1996, and Navy Bureau of Personnel (BUPERS) operations are scheduled to be moved from the Washington, D.C. area to NSA Memphis in 1997. Because of base closure, the planned construction projects described above were canceled.

Other construction and/or remodeling projects will result from the planned realignment of the portion of the base that is not closing. At this time, only one SWMU (SWMU 45, S-142 Hazardous Waste Accumulation Point) has been affected by realignment. A planned parking lot expansion will cover the location of this former accumulation point. To facilitate this project, the CSI for SWMU 45 began on November 7, 1994, under an Interim Measures Work Plan dated November 4, 1994 (E/A&H).

This CAMP has been prepared in response to USEPA's suggestions and comments on the Draft RFI Work Plan. It ranks the SWMU groups for investigation, describes the corrective action management strategy, and proposes a schedule for site activities and report submittals. Dividing the SWMUs into groups to be addressed under separate schedules should expedite the RFI for the closing portion of the base and allow the remaining SWMUs to be divided into smaller, more manageable groups that can be ranked and addressed in a phases.

## **2.0 OBJECTIVES**

The purpose of a CAMP is to outline the strategy for achieving the objectives of a RCRA Corrective Action Program. The Corrective Action Program evaluates the potential for releases of hazardous wastes and/or constituents to the environment from SWMUs at a facility and implements corrective actions when needed. The program was extended under HSWA to cover all past waste management practices at RCRA facilities. It applies to all operating, closed or closing RCRA facilities and consists of the RFA, the RFI, the Corrective Measures Study (CMS) and remedy selection, and the Corrective Measures Implementation (CMI).

The NAS Memphis CAMP describes the strategy for verifying and characterizing suspected releases of hazardous substances to the environment. This report is in accordance with the requirements of the HSWA portion (HSWA-TN002) of RCRA Permit No. TN2-170-022-600 and applicable regulations.

Implementing this strategy involves accomplishing the following objectives:

- Conduct RFIs at 15 SWMUs to adequately determine the magnitude and extent of releases to all potentially affected media at each SWMU.
- Conduct CSIs, or verification sampling, at 31 SWMUs to confirm whether releases have occurred and, if so, whether RFI characterization is needed.
- Conduct CSIs at two previously closed SWMUs to confirm whether releases have occurred due to activities that occurred after closure and, if so, whether RFI characterization is needed.
- Assess the need for a CSI at two SWMUs where USTs were removed under the Navy's UST Program. If necessary, conduct this sampling to confirm whether releases have occurred and RFI characterization is needed.
- Implement interim measures at SWMU 66 and wherever else warranted. If necessary, conduct a followup RFI characterization at SWMU 66.
- Define the hazards and risks to human health and the environment associated with the confirmed releases of hazardous substances.
- Conduct a CMS to identify and evaluate potential corrective measures for future response actions at RFI SWMUs where the need for such action has been identified.
- Comply with President Clinton's "fast-track cleanup initiative" for closing bases to facilitate conveyance of property to communities for redevelopment and economic recovery.

The strategy for achieving these objectives is based on the following assumptions:

- Field work will be implemented by E/A&H and the USGS. Both the USGS and E/A&H will perform the field work at the RFI SWMUs. E/A&H will conduct the field work at the CSI SWMUs and will be responsible for preparing and submitting deliverables for all SWMUs.
- RFI and CSI activities for each group, such as work plan development, field implementation, laboratory analyses, and report writing, will be conducted in multiple independent phases.
- Each phase will address a specific group of SWMUs. The SWMU groups will be referred to as *assemblies*.
- RFI and CSI SWMUs will be assigned to separate assemblies. The 15 RFI SWMUs will be subdivided into three assemblies based on their BRAC status and the type of field activities and wastes involved. The 35 CSI SWMUs will also be subdivided into five assemblies based on their BRAC status, the type of field activities involved, whether the wastes at the SWMUs were stored below or above ground, and whether those involving waste storage or accumulation are in active or inactive operational areas.
- The RFI and CSI SWMUs will also be assigned to assemblies according to the type of funds that will be used to investigate them. Investigation of SWMUs on the closing portion of the base will be paid for with BRAC funds, while investigation of the remaining SWMUs will be paid for with Defense Environmental Restoration Account (DERA) funds.
- RFI and CSI investigations will sometimes be conducted concurrently. The timing of each RFI and CSI phase will be determined by the priority assigned to the assembly associated with it. Assemblies will be ranked by their BRAC status and the estimated levels of risk to human health and the environment associated with each. Higher-risk assemblies will be addressed before lower-risk assemblies and BRAC assemblies will have priority over DERA assemblies to expedite property transfer.
- The CMS and CMI for an assembly requiring full RFI characterization will not occur until RFI activities have been completed for all SWMUs within the same assembly. This does not preclude Interim Corrective Measures, if they are warranted.

- An IMWP addressing the source of contamination and contaminated soil was prepared and implemented for the areas of SWMUs 4 and 5 that would have been affected by constructing the proposed firemat and shore aircraft training facilities. A letter work plan for an interim investigation of SWMU 1 was also prepared and implemented. Full RFI characterization of SWMUs 1, 4, and 5 will be included in the Final RFI Work Plan for their SWMU assembly.
- An IMWP was prepared for SWMU 45 to conduct the CSI ahead of schedule to facilitate a construction project associated with the realignment of NAS Memphis. Implementation of the plan began on November 7, 1994.
- Separate deliverables (e.g., work plans or reports) will be prepared for each assembly. A Comprehensive RFI Work Plan will also be prepared that includes information (sampling procedures, analytical methods, etc.) applicable to all assemblies. Site-specific investigation plans will then be prepared for each SWMU on an assembly-by-assembly basis. The site investigation plans will reference the procedures, protocols, etc., described in the comprehensive work plan.

### 3.0 SOLID WASTE MANAGEMENT UNIT ASSEMBLIES

Eight SWMU assemblies (i.e., groups) have been defined for the NAS Memphis RCRA Corrective Action Program. Four assemblies will be BRAC-funded and four will be DERA-funded. SWMUs were assigned to assemblies based on the type of investigation required (RFI or CSI), the waste sources associated with the SWMUs (surface or subsurface), and/or the type of field sampling methods involved (drilling, hand auger, etc.). Table 3-1 summarizes the SWMU groupings and the type of investigation each assembly requires.

#### *BRAC Assemblies*

**Assembly A** is composed of six SWMUs (1, 3, 5, 7, 8, and 60) requiring full RFI characterization because they have had known or suspected releases in the past. SWMUs 3 and 7 (plating shop drywells) will be investigated first because past subsurface disposal of concentrated plating wastes poses a potential threat to nearby drinking water wells. A potentially wide variety of buried wastes are associated with SWMUs 8 and 60. SWMUs 1 and 5 (surface burning of waste fuels and possibly solvents) are also included in this group because they had or have a potential for frequent releases to the environment and the interim measure investigation did not fully characterize them. A Direct Push Technology (DPT) field screening survey and monitoring wells extending into the (shallow) loess and (deeper) fluvial deposits are planned for Assembly A SWMUs.

**Assembly B** is made up of four RFI SWMUs (4, 6, 38, and 40) and two CSI SWMUs (10 and 31). The RFI SWMUs will be characterized because they have had known or suspected releases in the past. Verification sampling will be conducted at the CSI SWMUs because they are on property that will be excised due to BRAC. SWMUs 4, 6, and 38 (Northside only) are ditches requiring sediment sampling. SWMU 10 is a landfill that will be investigated by sampling the ditch along its western border to investigate whether contaminants are leaching from the landfill. SWMU 31 is an aircraft wash rack that discharged to a storm sewer. The storm sewer inlet (at the wash rack) and outfall will be sampled. SWMU 40 was a salvage yard where previous sampling indicated shallow (less than 3 feet) petroleum and metals contamination. There is reportedly an abandoned UST associated with SWMU 40, as well. A DPT survey and shallow monitoring wells are planned for SWMU 40.

**Assembly C** consists of six SWMUs (15, 18, 21, 26, 27, and 62) requiring CSIs to confirm whether releases have occurred and, if so, whether RFI characterization is needed. Wastes at these SWMUs were stored or potentially released below ground surface, thus a DPT survey or drill rig borings will be required for their investigation.

**Assembly D** includes 10 SWMUs (11, 16, 36, 42, 44, 50, 51, 52, 53, and 64) requiring CSI sampling. Seven of these SWMUs are past or present hazardous waste accumulation points (HWAPs) or storage areas. The other three (11, 16, and 36) were previously "No Further

Action" SWMUs that will now be investigated because of BRAC-related property disposal. An IMWP will be prepared for removal/closure of SWMU 16 (two aboveground tanks storing aviation gasoline and waste oil) under the Navy UST Program. Because the wastes at these SWMUs were stored or potentially released above ground, hand auger and/or trowel sampling will be proposed for the verification sampling.

***DERA Assemblies***

**Assembly E** is composed of the six SWMUs (2, 9, 14, 38 [Southside only], 59, and 65) on the non-closing portion of the base that will require full RFI characterization. A wide variety of waste types and sources are represented in this assembly, thus a full range of sampling techniques (drill rig and hand auger borings, sediment sampling, monitoring wells, etc.) will be required.

**Assembly F** consists of six SWMUs (17, 19, 20, 22, 30, and 63) requiring CSI sampling to verify whether releases have occurred. Underground tanks are the potential contaminant source for all of these SWMUs. DPT surveys, drill rig borings, or tank integrity tests will be used to determine if releases have occurred.

Table 3-1 Solid Waste Management Unit Assemblies	
BRAC Assemblies	
<b>Assembly A</b>	RFI SWMUs; wide variety of buried or subsurface wastes; some surface releases; DPT surveys, drill rig borings, monitoring wells.
SWMU 1	Fire Department Drill Area
SWMU 3	N-121 Plating Shop Dry Well
SWMU 5	Aircraft Fire Fighting Training Area
SWMU 7	N-126 Plating Shop Dry Well
SWMU 8	Cemetery Disposal Area
SWMU 60	Northside Landfill (western portion)
<b>Assembly B</b>	RFI/CSI SWMUs; ditches and/or surface releases; sediment, surface, and hand auger soil sampling; DPT survey and shallow monitoring wells (SWMU 40 only).
SWMU 4	N-121 Plating Shop Storm Sewer and Ditch
SWMU 6	N-126 Plating Shop Storm Sewer and Ditch
SWMU 10	Northside Landfill (eastern portion)
SWMU 31	Aircraft Wash Rack at 4th Street
SWMU 38	Miscellaneous Drainage Ditches in Industrial Areas (Northside)
SWMU 40	Salvage Yard No. 1

<b>Table 3-1 Solid Waste Management Unit Assemblies</b>	
<b>Assembly C</b>	CSI SWMUs; primarily subsurface releases; DPT surveys and/or drill rig borings.
SWMU 15	N-94 Underground Tank Farm
SWMU 18	N-112 Underground Waste Tank (Ground Support Equipment Shop)
SWMU 21	N-10 Underground Waste Tank
SWMU 26	N-102 Battery Acid Neutralization Unit
SWMU 27	Northside Sewage Treatment Plant
SWMU 62	M-21 Arresting Gear Drainage Area
<b>Assembly D</b>	CSI SWMUs; primarily HWAPs or storage areas; wastes stored or released above ground; hand auger borings and/or trowel sampling (no drill rig).
SWMU 11	Oiled, Dirt Roads
SWMU 16	N-94 Aboveground Storage Tanks
SWMU 36	Northside Sewage Treatment Plant Incinerator
SWMU 42	N-126 Hazardous Waste Interim Storage Area
SWMU 44	N-102 HWAP
SWMU 50	N-126 HWAP MAG-42
SWMU 51	N-126 HWAP VR-60
SWMU 52	N-126 HWAP VP-67
SWMU 53	N-126 HWAP AIMD
SWMU 64	N-16 Materials Storage Area
<b>DERA Assemblies</b>	
<b>Assembly E</b>	RFI SWMUs; DPT surveys, drill rig borings, and monitoring wells.
SWMU 2	Southside Landfill
SWMU 9	Sewage Lagoons
SWMU 14	Former Building S-140 Site and 7th Avenue Ditch
SWMU 38	Miscellaneous Drainage Ditches in Industrial Areas (Southside)
SWMU 59	Old Pesticide Shop
SWMU 65	Building S-362 (Training Mockup Site)
<b>Assembly F</b>	CSI SWMUs; buried tanks; DPT surveys, drill rig borings, or tank integrity tests.
SWMU 17	S-9 Underground Waste Tank (PW Transportation Dept.)
SWMU 19	N-757 Underground Waste Tank (Navy Exchange Service Station)
SWMU 20	1594 Underground Waste Tank
SWMU 22	S-75 USTs (Boiler Fuel)
SWMU 30	Park Field Waste Treatment Tank (Septic Tank)
SWMU 63	S-75N Underground Waste Tank

<b>Table 3-1 Solid Waste Management Unit Assemblies</b>	
<b>Assembly G</b>	CSI SWMUs; wastes stored above ground; inactive operational areas; hand auger borings and/or trowel sampling.
SWMU 43	S-176 HWAP
SWMU 45	S-142 HWAP
SWMU 46	S-140 HWAP
SWMU 47	S-344 HWAP
SWMU 48	S-9 HWAP
SWMU 49	N-757 HWAP
SWMU 61	N-26 Former Print Shop
<b>Assembly H</b>	CSI SWMUs; wastes stored above ground (except one with closed petroleum USTs); active operational areas; hand auger borings and/or trowel sampling.
SWMU 23	S-8 UST (FD Emergency Generator; clean closure achieved)
SWMU 24	N-114 Auto Hobby Shop Waste Oil Tanks (aboveground tanks)
SWMU 39	S-74 PCB Transformer Storage Area
SWMU 41	Salvage Yard No. 2

**Assembly G** is made up of seven SWMUs (43, 45, 46, 47, 48, 49, and 61) requiring CSI sampling. SWMUs 43 through 49 are inactive HWAPs. The SWMU 45 CSI is currently being expedited by implementing an IMWP to facilitate a BRAC-related construction project. SWMU 61 is a concrete pad outside a former print shop. The pad has containment barriers and a drain leading to the sewer. Stained soil was noted around the pad. Hand augers and/or trowels will be proposed for verification sampling.

**Assembly H** includes four CSI SWMUs (23, 24, 39, and 41) in active operational areas. SWMUs 24, 39, and 41 are associated with wastes stored above ground. Hand augers and/or trowels will be proposed for verification sampling at these SWMUs. The waste source at SWMU 23 was a UST removed in 1992 under the Navy's UST Program. The removal report indicated clean closure was achieved, so no further action will be proposed for this SWMU.

#### **4.0 PRIORITY**

Dividing the SWMUs into assemblies should make implementing field work more manageable and ranking the SWMU investigations easier. The 15 SWMUs requiring full RFI characterization (BRAC Assemblies A and B and DERA Assembly E) have been assigned the highest priority for investigation because they are believed to present the greatest threat to human health and the environment based on known or suspected releases. Field work for RFI and CSI assemblies will overlap, at times. This could result in some CSI work being conducted before RFI activities with a higher priority, but it must be done to shorten the time required to complete the overall investigation.

##### ***RFI SWMUs***

The SWMUs in BRAC Assemblies A and B have priority over those in DERA Assembly E because they are on the closing portion of the base. Early investigation of the BRAC SWMUs is needed to facilitate transferring property to the public.

**BRAC Assembly A** will be investigated before Assembly B because its potential for impacting groundwater is considered to be greater due to the types of disposal practices involved (landfills, drywells, etc.). SWMUs 3 and 7 (drywells) will be investigated first because of the possibility they might impact nearby drinking water wells.

**BRAC Assembly B** SWMUs were grouped together because they are associated with surface releases.

**DERA Assembly E** consists of all of the RFI SWMUs on the non-closing portion of the base.

##### ***CSI SWMUs***

The SWMUs in BRAC Assemblies C and D have priority over the other CSI SWMUs in DERA Assemblies F, G, and H because they are on the closing portion of the base.

**BRAC Assembly C** was assigned a higher priority than Assembly D because its wastes were stored or released underground, which is believed to present a greater threat to groundwater than the aboveground storage associated with Assembly D.

**BRAC Assembly D** consists of sites where wastes were stored or potentially released above ground.

**DERA Assembly F** was ranked higher than Assemblies G and H because its SWMUs consist of USTs with a greater potential for impacting groundwater than the aboveground storage associated with Assemblies G and H.

**DERA Assembly G** has a higher priority than Assembly H (active operational areas) because its SWMUs are inactive hazardous waste accumulation points that were less likely to be constructed (concrete pads, berms, roofs, etc.) and operated in a manner posing a low risk to human health and the environment.

**DERA Assembly H** SWMUs have the lowest priority because they are associated with aboveground storage in active operational areas; thus, releases are more likely to be observed and reported in a timely manner.

## **5.0 SUMMARY OF CORRECTIVE ACTION MANAGEMENT STRATEGY**

Fifty-one SWMUs have been identified that must be assessed or investigated to implement the RCRA Corrective Action Program at NAS Memphis. A strategy has been developed to make this cumbersome task more manageable and to ensure that high-priority SWMUs are investigated in a timely fashion. Fifty of these SWMUs have been subdivided into eight ranked assemblies (groups) that will be investigated in overlapping phases (assignment of SWMU 66 to an assembly will depend upon the outcome of the planned interim measure removal action). Discussed below are the general tasks and sequences anticipated for each phase of the program. The proposed duration of tasks and timing of events are described in Section 6.

The SWMUs requiring investigation have been assigned to assemblies according to their funding source (BRAC or DERA), the type of investigation required, and the types of field activities and wastes associated with the SWMUs. Current plans are for both the USGS and E/A&H to conduct field work for RFI SWMUs, and E/A&H to conduct field work for CSI SWMUs. Final preparation and submittal of all deliverables will be the responsibility of E/A&H.

A complete rewrite of the May 1990 Draft-Final RFI Work Plan was submitted to the USEPA and TDEC on September 15, 1993. Following receipt of USEPA and TDEC comments, revisions were made and the work plan resubmitted on October 6, 1994. The current RFI work plan includes a comprehensive document addressing information applicable to all assemblies (e.g., sampling and analytical methods, data management, quality assurance, etc.) and individual site investigation plans (SIPs) for the Assembly A SWMUs. Conditional TDEC approval of the work plan (based on additional revisions) was received in an October 31, 1994 letter. Following USEPA approval of these documents, the RFI field work for Assembly A will begin, along with work on the SIPs for Assemblies B and C.

The SIPs for Assemblies B through H will refer to applicable parts of the comprehensive work plan (e.g., the Quality Assurance Plan and the Field Sampling Plan) submitted with the Assembly A SIPs. Referencing the comprehensive document should make subsequent SIPs much smaller and easier to review. CSI field work for Assembly C should begin during the RFI field work for Assembly A.

A separate RFI or CSI report will be prepared for each assembly following its investigation. Providing smaller documents on a staggered basis should simplify and facilitate the USEPA review process.

If necessary, a CMS will be conducted by E/A&H for each RFI assembly after USEPA approves the RFI Report for that assembly.

## **6.0 SCHEDULE**

The NAS Memphis Corrective Action Program will be implemented in overlapping phases based on the priority assigned to the three RFI assemblies and five CSI assemblies. RFI and CSI work will sometimes be performed concurrently. This will result in some CSI activities being conducted before RFI activities with a higher priority. This is necessary to speed up completion of the overall RFI.

The anticipated schedule of phase implementation:

- Phase 1: RFI activities at Assembly A SWMUs
- Phase 2: RFI/CSI activities at Assembly B SWMUs
- Phase 3: CSI activities at Assembly C SWMUs
- Phase 4: CFI activities at Assembly D SWMUs
- Phase 5: RFI activities at Assembly E SWMUs
- Phase 6: CSI activities at Assembly F SWMUs
- Phase 7: CSI activities at Assembly G SWMUs
- Phase 8: CSI activities at Assembly H SWMUs

Table 6-1 summarizes the schedule. The durations for document submittal include two-week periods for SOUTHDIR to review and comment on the draft, followed by two-week periods for E/A&H to change and produce the documents in time for NAS Memphis to submit them. Regulatory review periods were assigned a duration of four weeks. Review periods may exceed four weeks; therefore, the projected submittal dates for the beginning of each phase are for illustrative purposes only. A time line schedule based on the durations in Table 6-1 is included as Appendix A.

Table 6-2 provides enforceable due dates for deliverables associated with DERA-funded assemblies. Due to the uncertainties associated with review periods, the enforceable due dates have been assigned based on elapsed time from approval of prior submittals. An enforceable schedule has not been prepared for BRAC-funded assemblies because of their already accelerated schedule.

Table 6-1 Corrective Action Management Plan Schedule NAS Memphis RFI					
Assembly	Phase No.	Activity No.	Activity Description	Projected Submittal Date	Duration (Weeks)
A	1	1	Prepare and submit revised RFI Work Plan	09/15/93	10
		2	USEPA/TDEC review		*
		3	Revise and submit RFI Work Plan	10/06/94	4
		4	USEPA/TDEC review and approval	11/03/94	4
		5	Coordinate field work		3
		6	Conduct RFI		22
		7	Receive analytical data/begin data validation		4
		8	Complete data validation		2
		9	Prepare and submit Draft RFI Report		8
		10	USEPA/TDEC review		4
		11	Revise and submit RFI Report		4
		12	USEPA/TDEC review and approval		4
		13	Prepare and submit Draft CMS		6
		14	USEPA/TDEC review		4
		15	Revise and submit CMS		4
		16	USEPA/TDEC review and approval		12
		17	Submit Remedy Proposal		2
		18	USEPA/TDEC review and approval		4
		19	Remedy Selection (Permit Modification)		12
		20	Prepare and submit Draft Remedy Design		12
		21	USEPA/TDEC review		4
		22	Revise and submit Remedy Design		4
		23	USEPA/TDEC review and approval		4
		24	Remedy Implementation		20
		25	Remedy Report		4
		26	USEPA/TDEC review and approval		4
		27	Remedy Complete (Permit Modification) or Operation & Maintenance/Long-Term Monitoring		12
					—
B	3	1	Prepare and submit Draft RFI/CSI Work Plan	12/19/94	6
		2	USEPA/TDEC review		4
		3	Revise and submit RFI/CSI Work Plan		4
		4	USEPA/TDEC review and approval		4
		5	Coordinate field work		3
		6	Conduct RFI/CSI		4
		7	Receive analytical data/begin data validation		4
		8	Complete data validation		2
		9	Prepare and submit Draft RFI/CSI Report		8
		10	USEPA/TDEC review		4
		11	Revise and submit RFI/CSI Report		4
		12	USEPA/TDEC review and approval		4
		13	Prepare and submit Draft CMS		6
		14	USEPA/TDEC review		4
		15	Revise and submit CMS		4
		16	USEPA/TDEC review and approval		12
		17	Submit Remedy Proposal		2
		18	USEPA/TDEC review and approval		4
		19	Remedy Selection (Permit Modification)		12
		20	Prepare and submit Draft Remedy Design		12
		21	USEPA/TDEC review		4
		22	Revise and submit Remedy Design		4
		23	USEPA/TDEC review and approval		4
		24	Remedy Implementation		20
		25	Remedy Report		4
		26	USEPA/TDEC review and approval		4
		27	Remedy Complete (Permit Modification) or Operation & Maintenance/Long-Term Monitoring		12
					—

Table 6-1 Corrective Action Management Plan Schedule NAS Memphis RFI					
Assembly	Phase No.	Activity No.	Activity Description	Projected Submittal Date	Duration (Weeks)
C	2	1	Prepare and submit Draft CSI Work Plan	01/10/95	8
		2	USEPA/TDEC review		4
		3	Revise and submit CSI Work Plan		4
		4	USEPA/TDEC review and approval		4
		5	Coordinate field work		2
		6	Conduct CSI		2
		7	Receive analytical data and test results		4
		8	Validate data		1
		9	Prepare and submit Draft CSI Report		6
		10	USEPA/TDEC review		4
		11	Revise and submit CSI Report		4
		12	USEPA/TDEC review and approval		4
		13	Prepare RFI Work Plan, if necessary		TBD
D	4	1	Prepare and submit Draft CSI Work Plan	05/31/95	8
		2	USEPA/TDEC review		4
		3	Revise and submit CSI Work Plan		4
		4	USEPA/TDEC review and approval		4
		5	Coordinate field work		2
		6	Conduct CSI		2
		7	Receive analytical data and test results		4
		8	Validate data		1
		9	Prepare and submit Draft CSI Report		6
		10	USEPA/TDEC review		4
		11	Revise and submit CSI Report		4
		12	USEPA/TDEC review and approval		4
		13	Prepare RFI Work Plan, if necessary		TBD
E	5	1	Prepare and submit Draft RFI Work Plan	05/31/95	8
		2	USEPA/TDEC review		4
		3	Revise and submit RFI Work Plan		4
		4	USEPA/TDEC review and approval		4
		5	Coordinate field work		3
		6	Conduct RFI		14
		7	Receive analytical data/begin data validation		4
		8	Complete data validation		2
		9	Prepare and submit Draft RFI Report		8
		10	USEPA/TDEC review		4
		11	Revise and submit RFI Report		4
		12	USEPA/TDEC review and approval		4
		13	Prepare and submit Draft CMS		6
		14	USEPA/TDEC review		4
		15	Revise and submit CMS		4
		16	USEPA/TDEC review and approval		12
		17	Submit Remedy Proposal		2
		18	USEPA/TDEC review and approval		4
		19	Remedy Selection (Permit Modification)		12
		20	Prepare and submit Draft Remedy Design		12
		21	USEPA/TDEC review		4
		22	Revise and submit Remedy Design		4
		23	USEPA/TDEC review and approval		4
		24	Remedy Implementation		20
		25	Remedy Report		4
		26	USEPA/TDEC review and approval		4
		27	Remedy Complete (Permit Modification) or Operation & Maintenance/Long-Term Monitoring		12

Table 6-1 Corrective Action Management Plan Schedule NAS Memphis RFI					
Assembly	Phase No.	Activity No.	Activity Description	Projected Submittal Date	Duration (Weeks)
F	6	1	Prepare and submit Draft CSI Work Plan	10/19/95	8
		2	USEPA/TDEC review		4
		3	Revise and submit CSI Work Plan		4
		4	USEPA/TDEC review and approval		4
		5	Coordinate field work		2
		6	Conduct CSI		3
		7	Receive analytical data and test results		4
		8	Validate data		1
		9	Prepare and submit Draft CSI Report		6
		10	USEPA/TDEC review		4
		11	Revise and submit CSI Report		4
		12	USEPA/TDEC review and approval		4
		13	Prepare RFI Work Plan, if necessary		TBD
G	7	1	Prepare and submit Draft CSI Work Plan	03/19/96	8
		2	USEPA/TDEC review		4
		3	Revise and submit CSI Work Plan		4
		4	USEPA/TDEC review and approval		4
		5	Coordinate field work		2
		6	Conduct CSI		3
		7	Receive analytical data		4
		8	Validate data		1
		9	Prepare and submit Draft CSI Report		6
		10	USEPA/TDEC review		4
		11	Revise and submit CSI Report		4
		12	USEPA/TDEC review and approval		4
		13	Prepare RFI Work Plan, if necessary		TBD
H	8	1	Prepare and submit Draft CSI Work Plan	07/25/96	6
		2	USEPA/TDEC review		4
		3	Revise and submit CSI Work Plan		4
		4	USEPA/TDEC review and approval		4
		5	Coordinate field work		2
		6	Conduct CSI		2
		7	Receive analytical data		4
		8	Validate data		1
		9	Prepare and submit Draft CSI Report		6
		10	USEPA/TDEC review		4
		11	Revise and submit CSI Report		4
		12	USEPA/TDEC review and approval		4
		13	Prepare RFI Work Plan, if necessary		TBD

**Notes:**

\* All subsequent USEPA/TDEC review durations are four weeks.

This schedule includes time for all deliverables to be reviewed by the Navy and revised per their instructions before submittal to USEPA.

Implementation of the proposed schedule is contingent upon availability of funds.

TBD = To Be Determined

<b>Table 6-2</b>	
<b>Enforceable Schedule for DERA Assemblies</b>	
<b>NAS Memphis RFI</b>	
<b>Assembly E</b>	
Draft RFI Work Plan RFI Work Plan	8 weeks from approval of Assembly C Work Plan 4 weeks from comments on Draft RFI Work Plan
Draft RFI Report RFI Report	31 weeks from approval of Work Plan 4 weeks from comments on Draft RFI Report
Draft Corrective Measures Study Corrective Measures Study	6 weeks from approval of RFI Report 4 weeks from comments on Draft CMS
<b>Assembly F</b>	
Draft CSI Work Plan CSI Work Plan	8 weeks from approval of Assembly D and E Work Plans 4 weeks from comments on Draft CSI Work Plan
Draft CSI Report CSI Report	15 weeks from submittal of Draft CSI Report 4 weeks from comments on Draft CSI Report
<b>Assembly G</b>	
Draft CSI Work Plan CSI Work Plan	8 weeks from approval of Assembly F Work Plan 4 weeks from comments on Draft CSI Work Plan
Draft CSI Report CSI Report	16 weeks from approval of Work Plan 4 weeks from comments on Draft CSI Report
<b>Assembly H</b>	
Draft CSI Work Plan CSI Work Plan	6 weeks from approval of Assembly G Work Plan 4 weeks from comments on Draft CSI Work Plan
Draft CSI Report CSI Report	15 weeks from approval of Work Plan 4 weeks from comments on Draft CSI Report

## **7.0 REFERENCES**

Letter of 31 October 1994

From: TDEC, Clinton W. Willer, Director, Division of Superfund  
To: David Porter, Southern Division, Naval Facilities Engineering Command  
Re: The Comprehensive RFI Work Plan and the Assembly A Site Investigation Plans for Naval Air Station Memphis, Millington, Tennessee, dated October 6, 1994. TDSF #79-719, cc 82

Letter of 12 September 1994

From: Dept. of the Navy, Cdr. D.J. Clark, Public Works Officer, NAS Memphis  
To: Mr. David Williams, USEPA Region IV, Federal Facilities Branch (BRAC)  
Re: Drum and debris disposal area near Radar Facility 1696

Letter of 29 June 1993

From: USEPA Region IV, Joseph R. Franzmathes, Director, Waste Management Division  
To: Capt. Earl Straut, USN  
Re: Approval of Corrective Action Management Plan, NAS Memphis, TN

Letter of 12 May 1993

From: USEPA Region IV, Joseph R. Franzmathes, Director, Waste Management Division  
To: Capt. Earl Straut, USN  
Re: USEPA Review of Technical Memoranda for SWMUs 1, 4, & 5; Compliance schedule for CAMP resubmittal

Letter of 05 August 1992

From: USEPA Region IV Jon D. Johnston, Chief, Federal Facilities Branch, Waste Management Division  
To: Capt. Earl Straut, USN  
Re: Corrective Action Management Plan, NAS Memphis, TN

Letter of 14 June 1992

From: Dept. of the Navy, D.H. Litton, Acting Public Works Officer, NAS Memphis  
To: Ronnie Bowers, TDEC, Division of Solid Waste Management, Hazardous Waste Management Section  
Re: USEPA ID #TN2170022600

Letter of 11 February 1992

From: Dept. of the Navy, Cdr. P.M. Motolenich, Public Works Officer, NAS Memphis  
To: TN Dept of Environment and Conservation, Director Hazardous Waste Management Section  
Re: USEPA ID #2170022600

Letter of 10 February 1992

From: Dept. of the Navy, Cdr. P.M. Motolenich, Public Works Officer, NAS Memphis  
To: Ms. Allison Drew, USEPA, Region IV, Waste Management Division, RCRA and Federal Facilities Branch

Letter of 4 November 1991

From: USEPA Region IV James Scarbrough, P.E., Chief — RCRA & Federal Facilities Branch, Waste Management Division, USEPA Region IV  
To: Commander, NAS Memphis  
Re: Notice of Technical Inadequacy, RFI Work Plan, NAS Memphis, TN

Letter of 01 July 1991

From: R. David Criswell, P.E., Mgr. — Installation Restoration, West Section (SOUTHDIV)  
To: Ms. Allison Drew, USEPA Region IV, RCRA & Federal Facilities Branch, RCRA & Federal Facilities Branch, Waste Management Division

Letter of 22 February 1990

From: James Scarbrough, P.E., Chief — RCRA & Federal Facilities Branch, Waste Management Division, USEPA Region IV, and Tom Tiesler, Director — Division of Solid Waste Management, TDHE  
To: Commanding Officer, U.S. NAS Memphis, ATTN: Cdr. R.G. Carpenter  
Re: RCRA Facility Assessment (RFA) Findings, U.S. NAS Memphis

RCRA Permit No. TN2 170 022 600 (HSWA-TN 002) (USEPA Region IV, 9/15/86).

*Draft-Final RCRA Facility Investigation Work Plan.* Memphis Naval Air Station, Millington, Tennessee. (May 1990). Southern Division, NAVFACENGCOM.

*Interim Measures Work Plan.* NAS Memphis, Millington, Tennessee. (November 1992). EnSafe/Allen & Hoshall: Memphis, TN.

*Technical Memorandum, SWMUs 4 and 5.* NAS Memphis, Millington, Tennessee. (February 1993). EnSafe/Allen & Hoshall: Memphis, TN.

*Technical Memorandum, SWMU 1.* NAS Memphis, Millington, Tennessee. (March 1993). EnSafe/Allen & Hoshall: Memphis, TN.

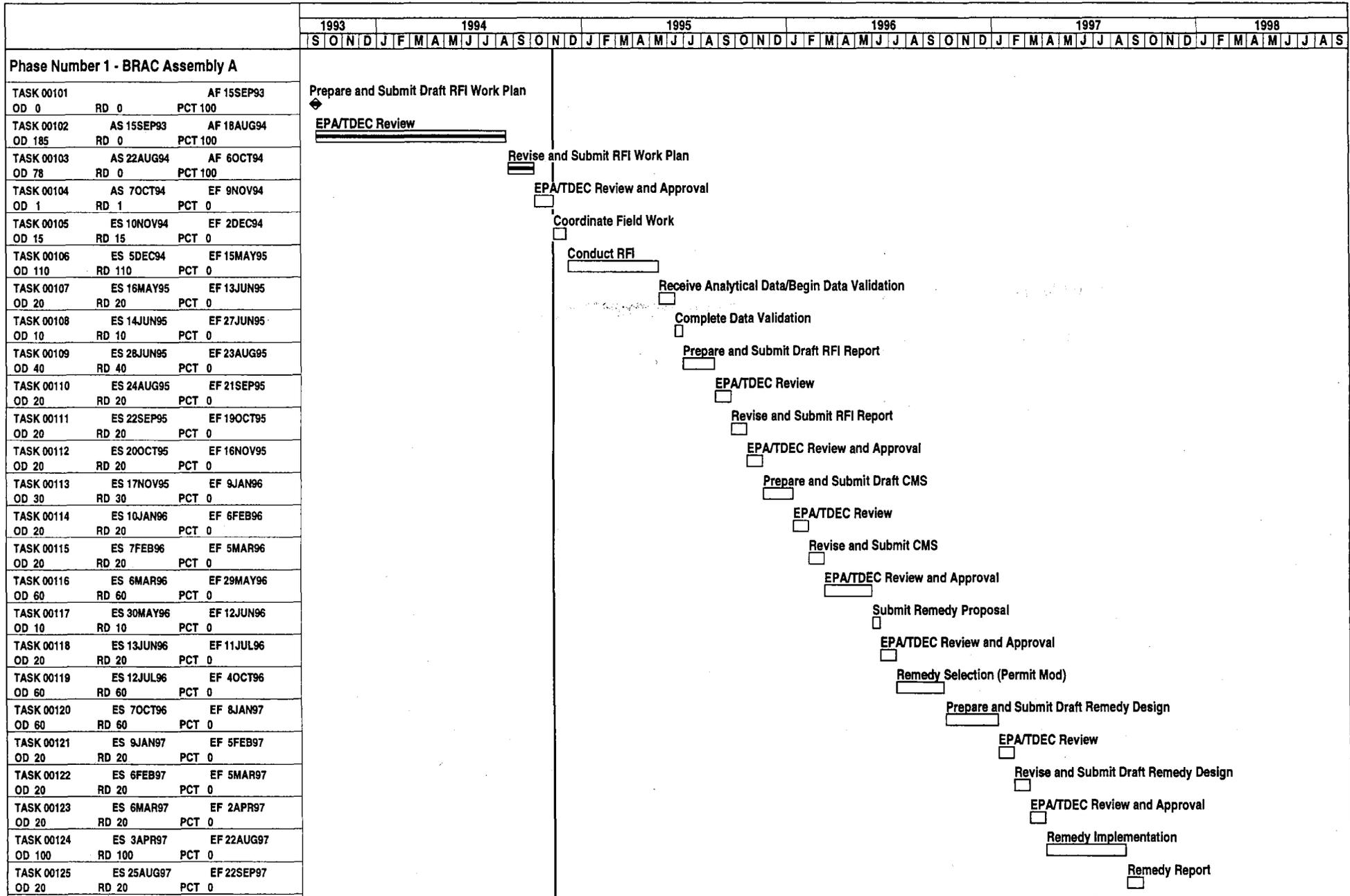
*Corrective Action Management Plan. NAS Memphis, Millington, Tennessee. (May 1993, Revision 0). EnSafe/Allen & Hoshall: Memphis, TN.*

*Draft Comprehensive RFI Work Plan/Group II Site Investigation Plans. NAS Memphis, Millington, Tennessee. (September 1993). EnSafe/Allen & Hoshall: Memphis, TN.*

*Comprehensive RFI Work Plan/Assembly A Site Investigation Plans. NAS Memphis, Millington, Tennessee. (October 1994). EnSafe/Allen & Hoshall: Memphis, TN.*

*Interim Measures Work Plan, SWMU 45, S-142 Hazardous Waste Accumulation Point, Revision 01. NAS Memphis, Millington, Tennessee. (November 1994). EnSafe/Allen & Hoshall: Memphis, TN.*

**APPENDIX A**  
**Time Line Schedule**



Plot Date 23NOV94  
 Data Date 9NOV94  
 Project Start 1SEP93  
 Project Finish 8SEP98

Activity Bar/Early Dates  
 Critical Activity  
 Progress Bar  
 Milestone/Flag Activity

76DT

Sheet 1 of 7

U.S. Navy SOUTH DIVNAVFACENCOM, N62467-89-D-0318

Date	Revision	Checked	Approved

NAS Memphis  
 Projected RFI Schedule

	1993				1994				1995				1996				1997				1998																															
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

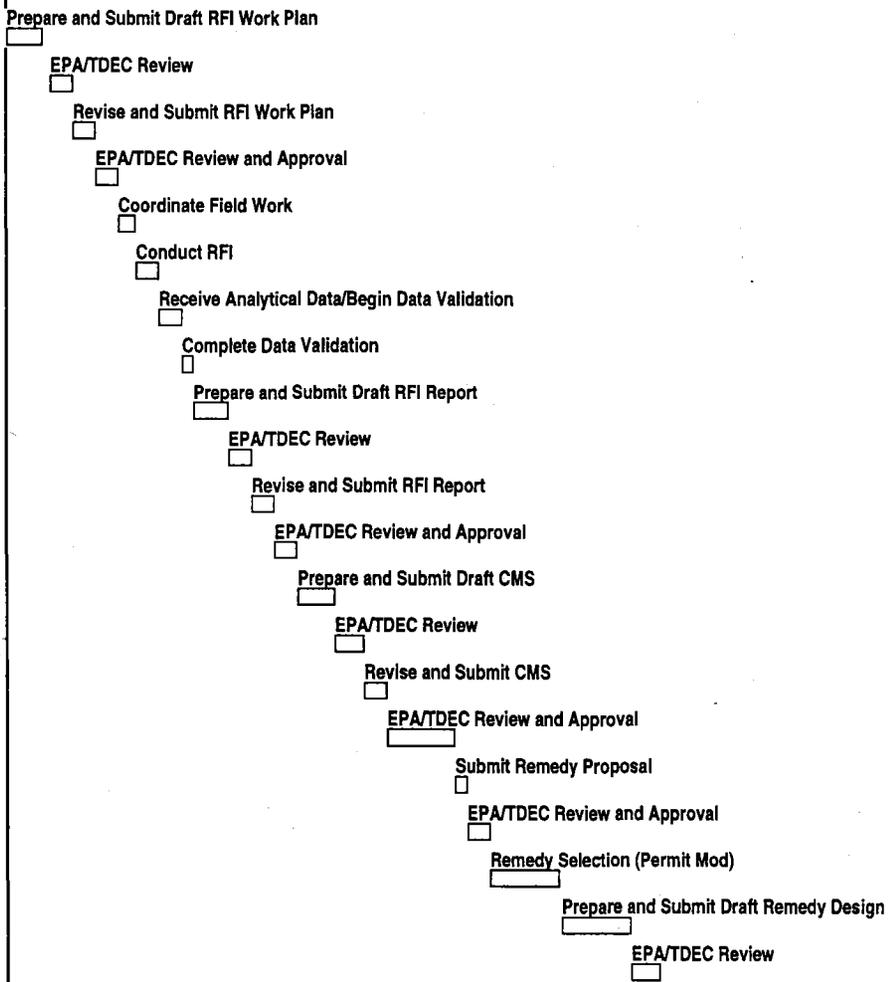
**Phase Number 1 - BRAC Assembly A**

TASK 00126	ES 23SEP97	EF 20OCT97
OD 20	RD 20	PCT 0
TASK 00127	ES 21OCT97	EF 22JAN98
OD 60	RD 60	PCT 0
TASK 00128	ES 22JAN98	EF 22JAN98
OD 0	RD 0	PCT 0

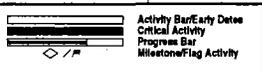
EPA/TDEC Review and Approval  
  
 Remedy Complete (Permit Mod)  
  
 Operation & Maintenance/Long Term Monitoring

**Phase Number 2 - BRAC Assembly B**

TASK 00201	ES 10NOV94	EF 23DEC94
OD 30	RD 30	PCT 0
TASK 00202	ES 3JAN95	EF 30JAN95
OD 20	RD 20	PCT 0
TASK 00203	ES 31JAN95	EF 27FEB95
OD 20	RD 20	PCT 0
TASK 00204	ES 28FEB95	EF 27MAR95
OD 20	RD 20	PCT 0
TASK 00205	ES 28MAR95	EF 17APR95
OD 15	RD 15	PCT 0
TASK 00206	ES 18APR95	EF 15MAY95
OD 20	RD 20	PCT 0
TASK 00207	ES 16MAY95	EF 13JUN95
OD 20	RD 20	PCT 0
TASK 00208	ES 14JUN95	EF 27JUN95
OD 10	RD 10	PCT 0
TASK 00209	ES 28JUN95	EF 9AUG95
OD 30	RD 30	PCT 0
TASK 00210	ES 10AUG95	EF 7SEP95
OD 20	RD 20	PCT 0
TASK 00211	ES 8SEP95	EF 5OCT95
OD 20	RD 20	PCT 0
TASK 00212	ES 6OCT95	EF 2NOV95
OD 20	RD 20	PCT 0
TASK 00213	ES 3NOV95	EF 18DEC95
OD 30	RD 30	PCT 0
TASK 00214	ES 19DEC95	EF 23JAN96
OD 20	RD 20	PCT 0
TASK 00215	ES 24JAN96	EF 20FEB96
OD 20	RD 20	PCT 0
TASK 00216	ES 21FEB96	EF 14MAY96
OD 60	RD 60	PCT 0
TASK 00217	ES 15MAY96	EF 29MAY96
OD 10	RD 10	PCT 0
TASK 00218	ES 30MAY96	EF 26JUN96
OD 20	RD 20	PCT 0
TASK 00219	ES 27JUN96	EF 20SEP96
OD 60	RD 60	PCT 0
TASK 00220	ES 23SEP96	EF 17DEC96
OD 60	RD 60	PCT 0
TASK 00221	ES 18DEC96	EF 22JAN97
OD 20	RD 20	PCT 0



Plot Date 23NOV94  
 Data Date 9NOV94  
 Project Start 15EP93  
 Project Finish 8SEP98



78DT

Sheet 2 of 7

U.S. Navy SOUTHDIIVNAFACENCOM, N62467-89-D-0318

Date	Revision	Checked	Approved

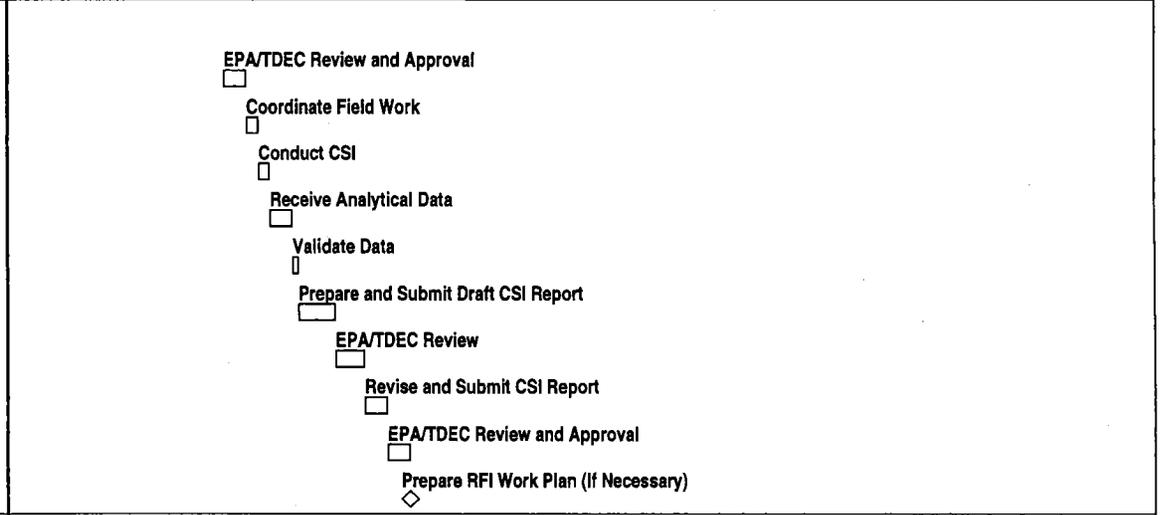
NAS Memphis  
 Projected RFI Schedule



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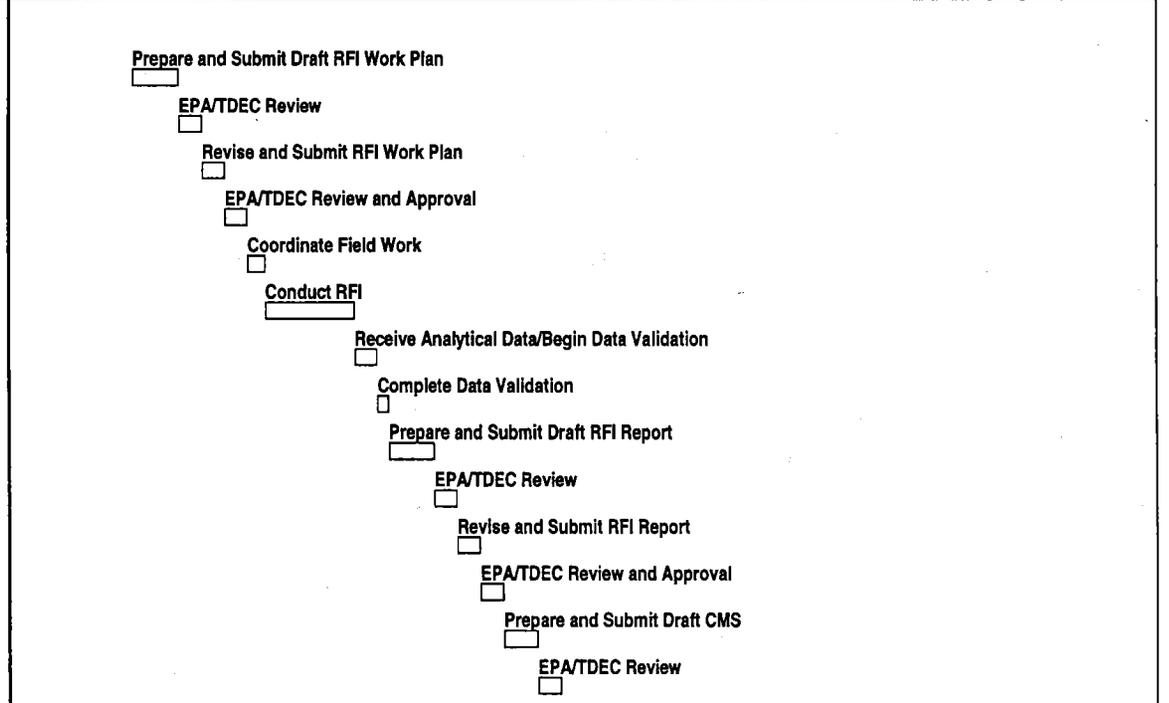
**Phase Number 4 - BRAC Assembly D**

TASK 00404	ES 3AUG95	EF 30AUG95
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TASK 00405	ES 31AUG95	EF 14SEP95
OD 10	RD 10	PCT 0
TASK 00406	ES 15SEP95	EF 28SEP95
OD 10	RD 10	PCT 0
TASK 00407	ES 29SEP95	EF 26OCT95
OD 20	RD 20	PCT 0
TASK 00408	ES 27OCT95	EF 2NOV95
OD 5	RD 5	PCT 0
TASK 00409	ES 3NOV95	EF 18DEC95
OD 30	RD 30	PCT 0
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OD 20	RD 20	PCT 0
TASK 00411	ES 24JAN96	EF 20FEB96
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OD 0	RD 0	PCT 0

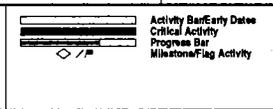


**Phase Number 5 - DERA Assembly E**

TASK 00501	ES 11APR95	EF 6JUN95
OD 40	RD 40	PCT 0
TASK 00502	ES 7JUN95	EF 5JUL95
OD 20	RD 20	PCT 0
TASK 00503	ES 6JUL95	EF 2AUG95
OD 20	RD 20	PCT 0
TASK 00504	ES 3AUG95	EF 30AUG95
OD 20	RD 20	PCT 0
TASK 00505	ES 31AUG95	EF 21SEP95
OD 15	RD 15	PCT 0
TASK 00506	ES 22SEP95	EF 9JAN96
OD 70	RD 70	PCT 0
TASK 00507	ES 10JAN96	EF 6FEB96
OD 20	RD 20	PCT 0
TASK 00508	ES 7FEB96	EF 20FEB96
OD 10	RD 10	PCT 0
TASK 00509	ES 21FEB96	EF 16APR96
OD 40	RD 40	PCT 0
TASK 00510	ES 17APR96	EF 14MAY96
OD 20	RD 20	PCT 0
TASK 00511	ES 15MAY96	EF 12JUN96
OD 20	RD 20	PCT 0
TASK 00512	ES 13JUN96	EF 11JUL96
OD 20	RD 20	PCT 0
TASK 00513	ES 12JUL96	EF 22AUG96
OD 30	RD 30	PCT 0
TASK 00514	ES 23AUG96	EF 20SEP96
OD 20	RD 20	PCT 0



Plot Date	23NOV94
Data Date	9NOV94
Project Start	1SEP93
Project Finish	8SEP98



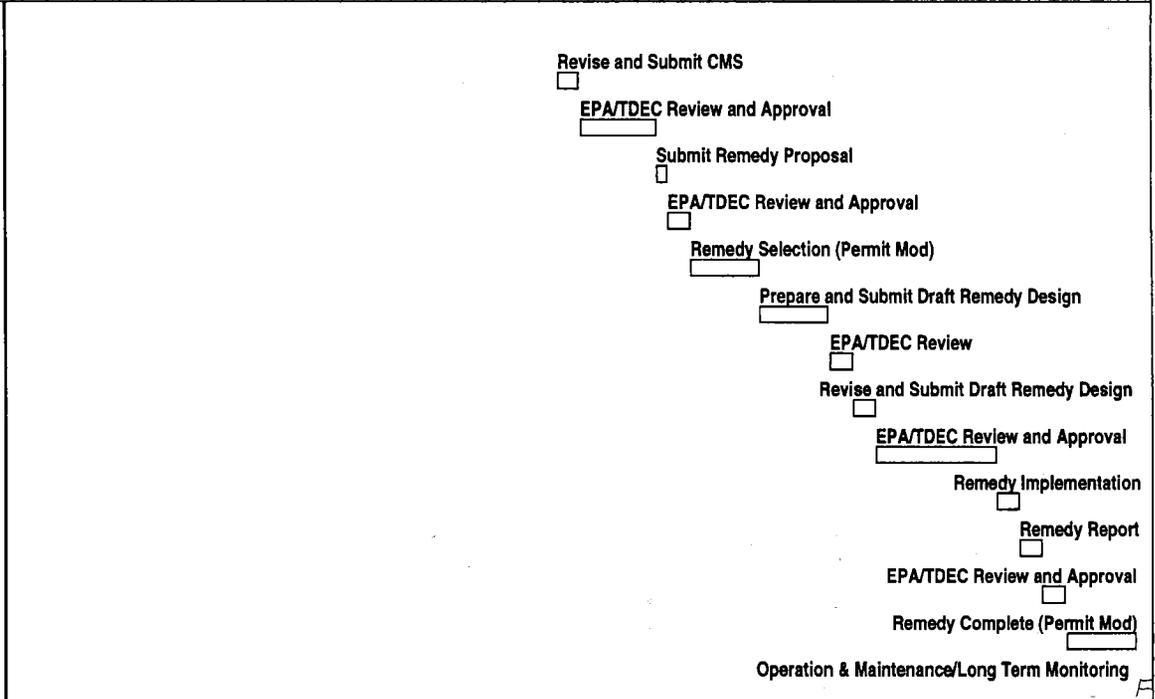
U.S. Navy SOUTH DIVNAVFACENCOM, N62467-89-D-0318			
Date	Revision	Checked	Approved

(c) Primavera Systems, Inc.

	1993				1994				1995				1996				1997				1998																															
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

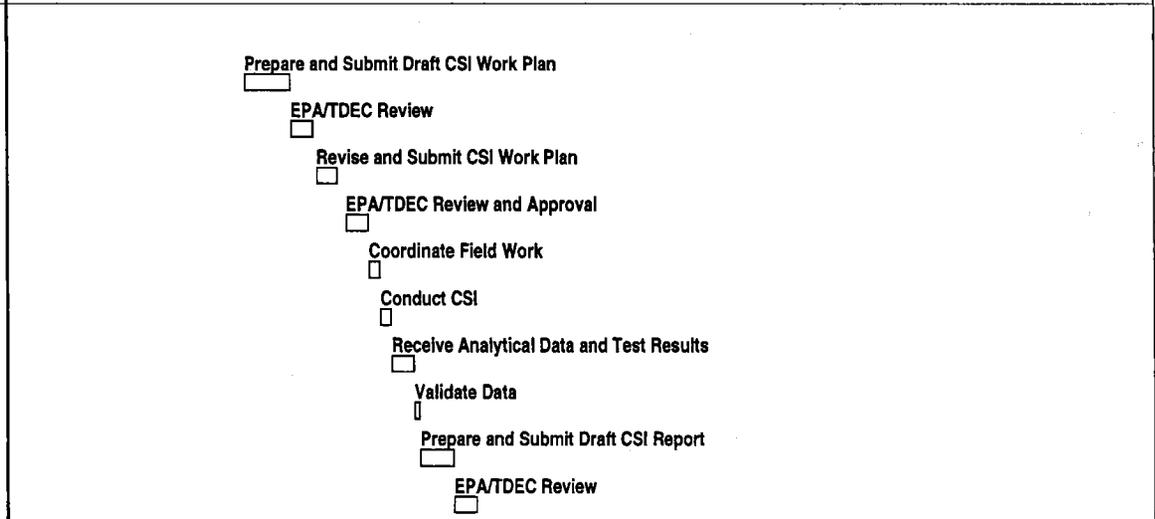
**Phase Number 5 - DERA Assembly E**

TASK 00515	ES 23SEP96	EF 18OCT96
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TASK 00516	ES 21OCT96	EF 22JAN97
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TASK 00517	ES 23JAN97	EF 5FEB97
OD 10	RD 10	PCT 0
TASK 00518	ES 6FEB97	EF 5MAR97
OD 20	RD 20	PCT 0
TASK 00519	ES 6MAR97	EF 29MAY97
OD 60	RD 60	PCT 0
TASK 00520	ES 30MAY97	EF 22AUG97
OD 60	RD 60	PCT 0
TASK 00521	ES 25AUG97	EF 22SEP97
OD 20	RD 20	PCT 0
TASK 00522	ES 23SEP97	EF 20OCT97
OD 20	RD 20	PCT 0
TASK 00523	ES 21OCT97	EF 19MAR98
OD 100	RD 100	PCT 0
TASK 00524	ES 20MAR98	EF 16APR98
OD 20	RD 20	PCT 0
TASK 00525	ES 17APR98	EF 14MAY98
OD 20	RD 20	PCT 0
TASK 00526	ES 15MAY98	EF 12JUN98
OD 20	RD 20	PCT 0
TASK 00527	ES 15JUN98	EF 8SEP98
OD 60	RD 60	PCT 0
TASK 00528		EF 8SEP98
OD 0	RD 0	PCT 0



**Phase Number 6 - DERA Assembly F**

TASK 00601	ES 30AUG95	EF 25OCT95
OD 40	RD 40	PCT 0
TASK 00602	ES 26OCT95	EF 22NOV95
OD 20	RD 20	PCT 0
TASK 00603	ES 27NOV95	EF 22DEC95
OD 20	RD 20	PCT 0
TASK 00604	ES 2JAN96	EF 29JAN96
OD 20	RD 20	PCT 0
TASK 00605	ES 30JAN96	EF 12FEB96
OD 10	RD 10	PCT 0
TASK 00606	ES 13FEB96	EF 26FEB96
OD 10	RD 10	PCT 0
TASK 00607	ES 27FEB96	EF 25MAR96
OD 20	RD 20	PCT 0
TASK 00608	ES 26MAR96	EF 1APR96
OD 5	RD 5	PCT 0
TASK 00609	ES 2APR96	EF 13MAY96
OD 30	RD 30	PCT 0
TASK 00610	ES 14MAY96	EF 11JUN96
OD 20	RD 20	PCT 0



Plot Date 23NOV94  
 Data Date 9NOV94  
 Project Start 1SEP93  
 Project Finish 8SEP98



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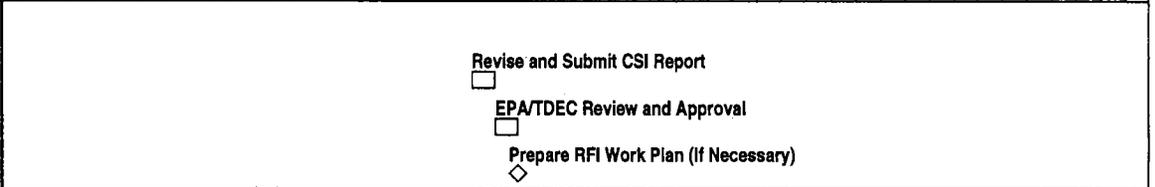
U.S. Navy SOUTH DIV NAV FAC ENGCOR, NS2467-89-D-0318

Date	Revision	Checked	Approved

	1993				1994				1995				1996				1997				1998																															
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

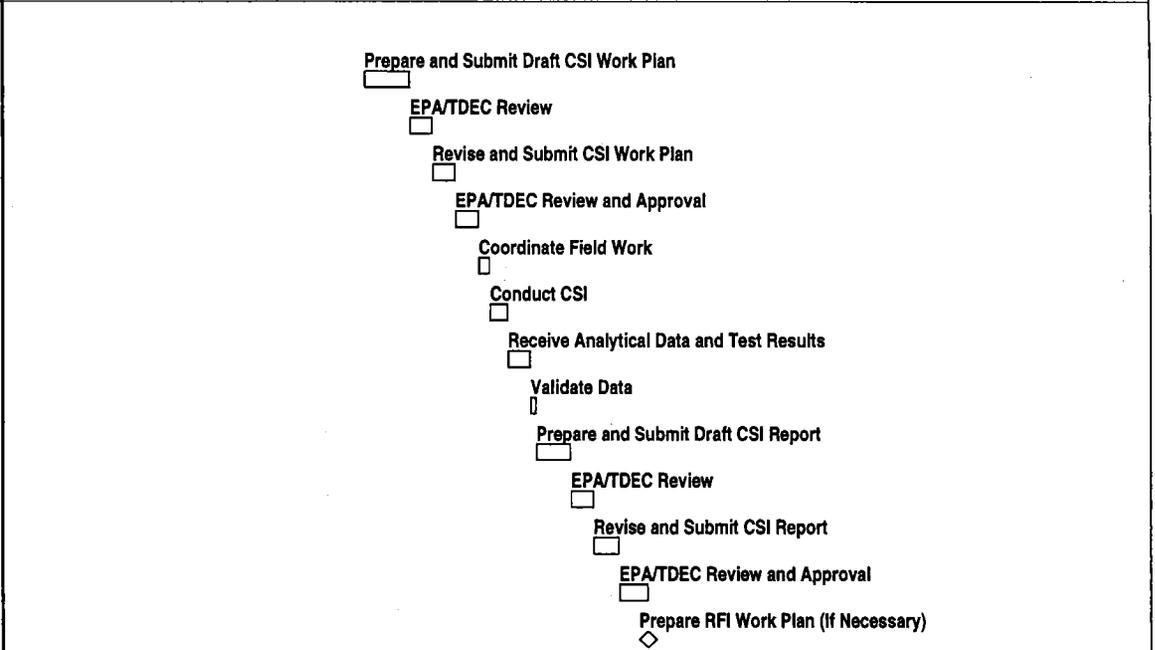
**Phase Number 6 - DERA Assembly F**

TASK 00611	ES 12JUN96	EF 10JUL96
OD 20	RD 20	PCT 0
TASK 00612	ES 11JUL96	EF 7AUG96
OD 20	RD 20	PCT 0
TASK 00613	ES 8AUG96	
OD 0	RD 0	PCT 0



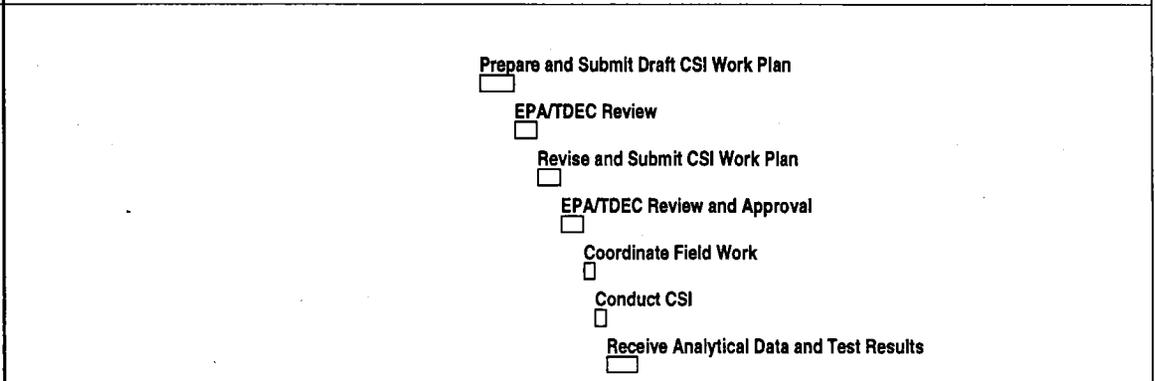
**Phase Number 7 - DERA Assembly G**

TASK 00701	ES 30JAN96	EF 25MAR96
OD 40	RD 40	PCT 0
TASK 00702	ES 26MAR96	EF 22APR96
OD 20	RD 20	PCT 0
TASK 00703	ES 23APR96	EF 20MAY96
OD 20	RD 20	PCT 0
TASK 00704	ES 21MAY96	EF 18JUN96
OD 20	RD 20	PCT 0
TASK 00705	ES 19JUN96	EF 2JUL96
OD 10	RD 10	PCT 0
TASK 00706	ES 3JUL96	EF 24JUL96
OD 15	RD 15	PCT 0
TASK 00707	ES 25JUL96	EF 21AUG96
OD 20	RD 20	PCT 0
TASK 00708	ES 22AUG96	EF 28AUG96
OD 5	RD 5	PCT 0
TASK 00709	ES 29AUG96	EF 10OCT96
OD 30	RD 30	PCT 0
TASK 00710	ES 11OCT96	EF 7NOV96
OD 20	RD 20	PCT 0
TASK 00711	ES 8NOV96	EF 9DEC96
OD 20	RD 20	PCT 0
TASK 00712	ES 10DEC96	EF 14JAN97
OD 20	RD 20	PCT 0
TASK 00713	ES 15JAN97	
OD 0	RD 0	PCT 0

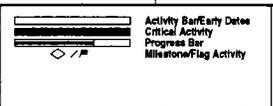


**Phase Number 8 - DERA Assembly H**

TASK 00801	ES 19JUN96	EF 31JUL96
OD 30	RD 30	PCT 0
TASK 00802	ES 1AUG96	EF 28AUG96
OD 20	RD 20	PCT 0
TASK 00803	ES 29AUG96	EF 26SEP96
OD 20	RD 20	PCT 0
TASK 00804	ES 27SEP96	EF 24OCT96
OD 20	RD 20	PCT 0
TASK 00805	ES 25OCT96	EF 7NOV96
OD 10	RD 10	PCT 0
TASK 00806	ES 8NOV96	EF 21NOV96
OD 10	RD 10	PCT 0
TASK 00807	ES 22NOV96	EF 30DEC96
OD 20	RD 20	PCT 0



Plot Date 23NOV94  
Data Date 9NOV94  
Project Start 1SEP93  
Project Finish 8SEP96



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Date	Revision	Checked	Approved

	1993				1994				1995				1996				1997				1998																															
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

**Phase Number 8 - DERA Assembly H**

TASK 00808	ES 31DEC96	EF 7JAN97
OD 5	RD 5	PCT 0
TASK 00809	ES 8JAN97	EF 18FEB97
OD 30	RD 30	PCT 0
TASK 00810	ES 19FEB97	EF 18MAR97
OD 20	RD 20	PCT 0
TASK 00811	ES 19MAR97	EF 15APR97
OD 20	RD 20	PCT 0
TASK 00812	ES 16APR97	EF 13MAY97
OD 20	RD 20	PCT 0
TASK 00813	ES 14MAY97	
OD 0	RD 0	PCT 0

- Validate Data
- Prepare and Submit Draft CSI Report
- EPA/TDEC Review
- Revise and Submit CSI Report
- EPA/TDEC Review and Approval
- Prepare RFI Work Plan (If Necessary)

Plot Date 23NOV94  
 Data Date 9NOV94  
 Project Start 1SEP93  
 Project Finish 8SEP98

Activity Bar/Early Dates  
 Critical Activity  
 Progress Bar  
 Milestone/Flag Activity

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 Projected RFI Schedule**

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Date	Revision	Checked	Approved