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DRAFT ENVIRONMENTAL BASELINE SURVEY FOR TRANSFER FOR CHICORA TANK  
FARM CNC CHARLESTON SC  
09/01/2000  
ENSAFE INC



**DEPARTMENT OF THE NAVY**

SOUTHERN DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

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5090/11

Code 18B1

15 September, 2000

Mr. Keith Collinsworth.  
Federal Facility Liaison  
Environmental Quality Control Administration  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201

Subj: FINDING OF SUITABILITY TO TRANSFER FOR CHICORA TANK FARM

Dear Mr. Collinsworth,

This is a transmittal letter for the Finding of Suitability to Transfer (FOST) and Environmental Baseline Survey for Transfer (EBST) for the Navy-owned parcel identified as the Chicora Tank Farm which is located in North Charleston, South Carolina. The EBST identifies any hazardous substances that were stored on the property or that remain and provides a classification of the environmental condition of the property. The FOST provides the determination that all response actions have been taken to address any contamination as a result of hazardous substance release and identifies the deed restrictions that are appropriate for the property given the anticipated land use.

We request that the Department and EPA review the document and provide comment or approval as appropriate. As agreed between our agencies previously the review period is 30 days. We will be available for questions and site visit as needed during this period. If you should have any questions, you may contact me at (843) 820-5525.

Sincerely,

A handwritten signature in cursive script that reads "Matthew A. Hunt".

MATTHEW A.HUNT, P.E.  
Environmental Engineer  
BRAC Division

Enclosure: Finding of Suitability to Transfer, Environmental Baseline Survey for Transfer for  
Chicora Tank Farm, North Charleston, SC

Copy to (w/enclosure):  
SCDHEC (Keith Collinsworth)(4)  
SCDHEC (Paul Bristol)  
EPA Region IV (Dann Spariosu)

**DRAFT  
ENVIRONMENTAL  
BASELINE SURVEY  
FOR TRANSFER**

**CHICORA TANK FARM  
CHARLESTON NAVAL COMPLEX  
CHARLESTON, SOUTH CAROLINA**

Prepared for:

Department of the Navy, Southern Division  
Naval Facilities Engineering Command  
North Charleston, South Carolina

Contract Number: N62467-89-0318  
CTO-135

Prepared by:

EnSafe Inc.  
935 Houston Northcutt Boulevard, Suite 113  
Mt. Pleasant, South Carolina 29464  
(843) 884-0029

**RECEIVED**  
SEP 18 2000

Water Monitoring, Assessment &  
Protection Division

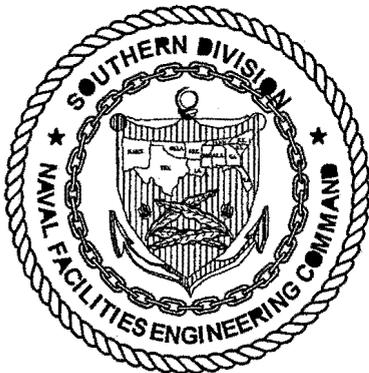
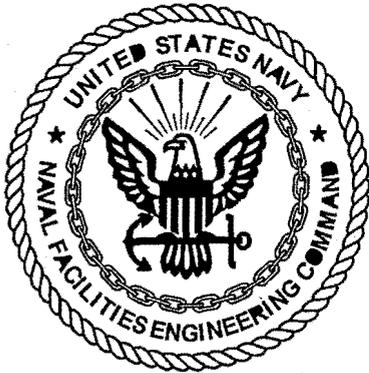
The Contractor, EnSafe/Allen & Hoshall,  
hereby certifies that, to the best of its  
knowledge and belief, the technical data  
delivered herewith under Contract No.  
N62467-89-D-0318 is complete, accurate, and  
complies with all requirements of the  
contract.

Date: September 2000

Signature: *Robert A. Maddux, Jr.*

Name: Robert A. Maddux, Jr.

Title: Task Order Manager



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*Tim's NFA*

*Deed Restrictions  
GW use LUCS*

## ACRONYM LIST

ACM	Asbestos Containing Material
AOCs	Areas of Concern
AST	Aboveground Storage Tank
BCP	BRAC Cleanup Plan
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation and Liability
CERFA	Community Environmental Response Facilitation Act
CNSY	Charleston Naval Shipyard
CSI	Confirmatory Sampling Investigation
DHEC	Department of Health and Environmental Control
DoD	Department of Defense
E/A&H	EnSafe/Allen & Hoshall
EBS	Environmental Baseline Survey
EBSL	Environmental Baseline Survey for Lease
EBST	Environmental Baseline Survey for Transfer
EIS	Environmental Impact Statement
FOSL	Finding of Suitability to Lease
FOST	Finding of Suitability to Transfer
GWPD	Groundwater Protection Division
IRP	Installation Restoration Program
mph	miles per hour
msl	mean sea level
NAVRAMP	Navy Radon Assessment and Mitigation program
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated Biphenyls
ppm	parts per million
RBSLs	Risk Based Screening Level
RCRA	Resource Conservation and Recovery Act

**ACRONYM LIST (Continued)**

RFA  
RFI  
ROD

RCRA Facility Assessment  
RCRA Facility Investigation  
Record of Decision

SOUTHNAVFACENGCOM  
SWMUs

Southern Division, Naval Facilities Engineering Command  
Solid Waste Management Units

USEPA  
UST

United States Environmental Protection Agency  
Underground Storage Tank

## EXECUTIVE SUMMARY

As a result of the Defense Base Closure and Realignment Act (BRAC) of 1990, the Charleston Naval Complex, Charleston, South Carolina, was identified as excess to the mission of the Department of Defense (DoD). Charleston Naval Complex was closed in April of 1996. The Department of the Navy intends to transfer the Chicora Tank Farm property to the BUYER for public use.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1990, as amended by the Community Environmental Response Facilitation Act (CERFA) of 1992, and the Fiscal Year 1997 National Defense Authorization Act requires the Navy to determine if excess real property can be classified as "uncontaminated." CERCLA, as amended, defines "uncontaminated" property as an area where no release, disposal, or migration of hazardous substances or petroleum products or their derivatives has occurred. To that end, DoD developed the Environmental Baseline Survey (EBS) process to assess potential impacts to human health and the environment resulting from the past use, release, disposal, and/or migration of hazardous substances and petroleum products. The EBS is based on information gathered during a site visit, a review of existing records, installation personnel interviews, and findings contained in the Charleston Naval Complex 1996 base-wide EBS. EnSafe Inc. performed an Environmental Baseline Survey for Transfer (EBST) to document the environmental condition of the subject property at the request of Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). A site visit initiating the EBST was conducted by EnSafe personnel in February 1999.

A summary of the environmental findings are provided below:

- Two areas of the site appeared to have been recently seeded; however, the vegetation on all other portions of the site appeared to be dormant during the February 1999 site survey.

- Facility 3920 (retention pond) may be classified as a wetland by the Army Corps of Engineers if this current use is discontinued and if it is subject to tide flow fluctuations. It is recommended that prior to disturbing this area, the land owner requests a wetland delineation survey to determine the final classification of the area.
- No radioactive or mixed wastes were generated or stored on the subject property.
- No asbestos containing materials (ACM) or polychlorinated biphenyls (PCBs) were identified at this subject property.
- Lead-based paint was most likely used in the transformer vaults. This paint has not been sampled; however, it was noted to be chipping and peeling.
- Five bulk-storage underground storage tanks (USTs) [four of which have been cleaned] and one fuel oil UST (which has been cleaned) are located on the subject property and are scheduled for demolition. One bulk-storage UST has been cleaned and demolished. One AST was previously used as an oil/water separator in conjunction with the retention basin. This AST and the associated piping were removed from the site prior to the February 1999 site survey.
- AOCs 645, 646, and 647 are located within the subject property boundaries. However, no further action was recommended for these sites.

The DoD and USEPA developed environmental condition of property categories to characterize the environmental condition of DoD excess property. Those categories are included in Section 2.4 of the EBST. Based on an analysis of the EBST findings and the joint environmental condition categories, the subject property has been categorized as 2 — Blue under the DoD environmental

condition of property classifications previously discussed in Section 2.4 of this report. This classification is indicative of areas where only release or disposal of petroleum products and/or their derivatives has occurred.

Subject to the restrictions on groundwater use until petroleum contaminants attenuate to levels below a risk based action level, the subject property is suitable for transfer in accordance with CERCLA and DoD guidance.

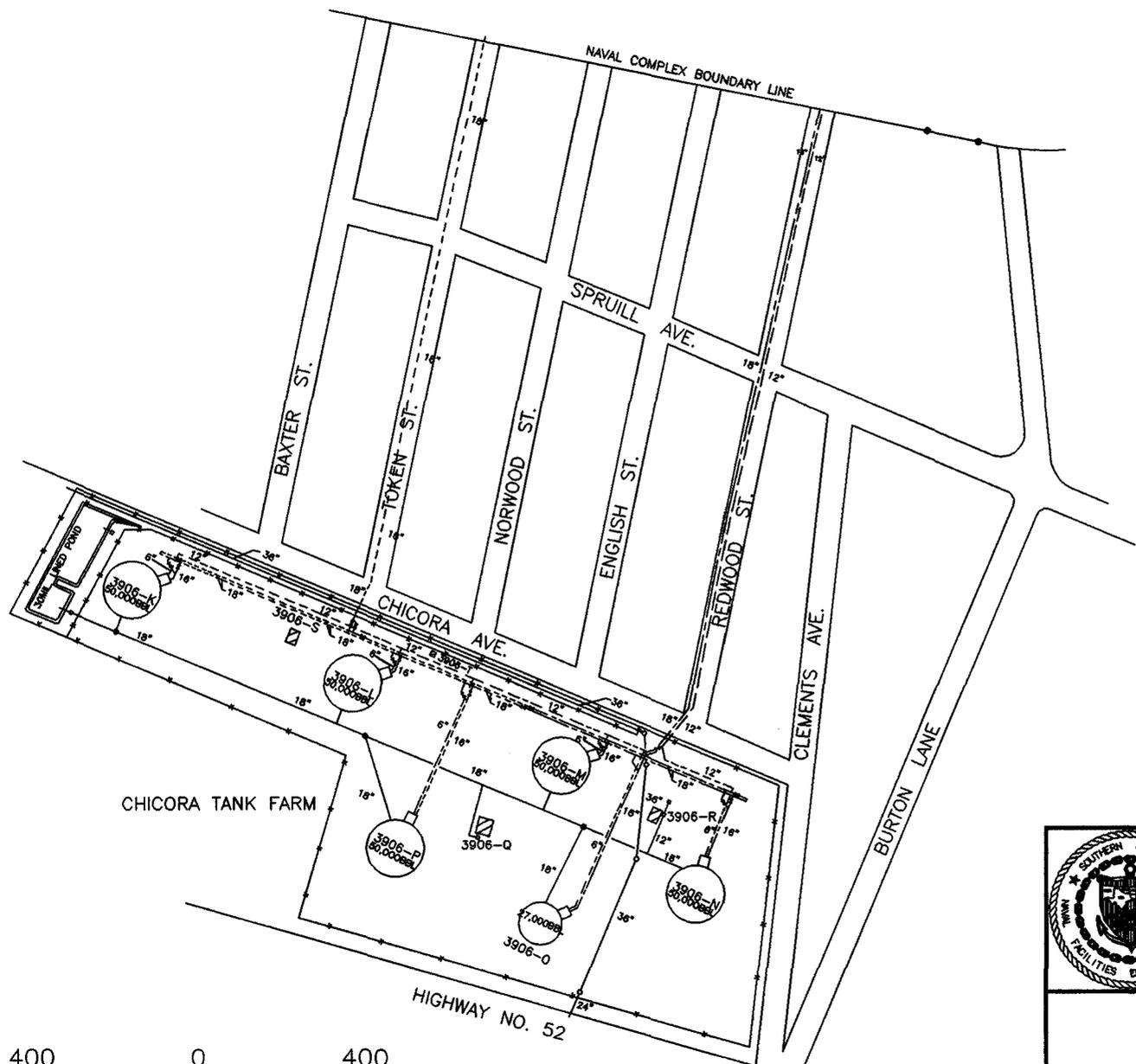
## **1.0 INTRODUCTION**

### **1.1 Introduction and Background**

This Environmental Baseline Survey for Transfer (EBST) documents the physical condition of that property known as Chicora Tank Farm in Charleston County at the Charleston Naval Complex (hereinafter referred to as subject property) (see site location map, Figure 1-1), resulting from the storage, use, and disposal of hazardous substances and petroleum products over the installation's history. The Environmental Baseline Survey (EBS) compiles into a single document all available information to establish a baseline for use by the Navy in documenting the environmental condition of the subject property.

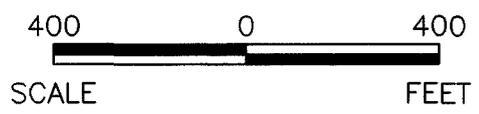
An EBST report fulfills the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Community Environmental Response Facilitation Act (CERFA) and the 1997 National Defense Authorization Act. An EBS is required by Department of Defense (DoD) policy before any property can be sold, leased, or transferred. The EBST report specifically helps the Navy to:

- Assess any human health or safety risks associated with the property surveyed, and determine what actions may be necessary to protect human health and the environment prior to effecting any proposed real property transaction.
- Support decisions for developing a Findings of Suitability to Transfer (FOST), and aid in determining transfer restrictions.
- Document and obtain regulator concurrence on any "uncontaminated" properties as required and defined under CERCLA Section 120(4).



- LEGEND**
- FUEL OIL
  - SLUDGE LINES
  - DRAIN LINES
  - DIESEL LINES
  - CATCH BASIN
  - ⊥ VALVE
  - MANHOLE

*New Maps associated w/ complex boundaries to be completed*



ENVIRONMENTAL  
BASELINE SURVEY  
NAVAL BASE CHARLESTON  
CHARLESTON, S.C.

FIGURE 1  
SITE LOCATION MAP  
CHICORA TANK FARM  
CHARLESTON NAVAL COMPLEX

DWG DATE: 02/05/99 | DWG NAME: 135CHIC1

- Support notice, (when required under Section 120[h][1] of CERCLA), of the type, quantity, and time frame of any storage, release, or disposal of hazardous substances or petroleum products on the property.
- Identify data gaps concerning environmental contamination.
- Define potential environmental liabilities associated with real property transactions.
- Aid in determining possible effects on property valuation from any contamination or concerns identified.

## **1.2 Organization of EBS**

The organization of this EBST follows the format for a base-wide EBS prescribed by the Naval Facilities Engineering Command Environmental Baseline Survey Guidance (SOUTHNAVFACENGCOM, 1995).

## **1.3 Boundaries/Properties Identification**

A real property survey will be conducted to delineate the property boundaries prior to transfer. The subject property comprises approximately 23 acres, and is located approximately 500 yards west of the Charleston Naval Complex. Table 1-1 summarizes the facilities associated with the subject property, their previous use, and current status.

Table 1-1 Chicora Tank Farm Buildings/Facilities			
Facility Number	Building/Facility Designation	Previous Use	Current Status
3906K	2,128,000-gallon UST	Diesel Fuel Storage	Cleaned and demolished
3906L	2,130,000-gallon UST	Diesel Fuel Storage	Cleaned and demolished
3906M	2,132,000-gallon UST	Ship Fuel Oil Storage	Cleaned and demolished
3906N	2,126,000-gallon UST	Ship Fuel Oil Storage	Cleaned and demolished
3906O	1,153,000-gallon UST	Ballast/Sludge Storage	Cleaned and demolished
3906P	2,128,000-gallon UST	Diesel Fuel Storage	Cleaned and demolished
3906Q	Operational Storage	Miscellaneous Equipment Storage	Out of operation
3906R	Transformer Vault	Provided Electricity to Tanks 3906M, N, and O	Out of operation
3906S	Transformer Vault	Provided Electricity to Tanks 3906K, L, and P	Out of operation
3920	Retention Pond	Collected Storm Water Runoff and French Drain System Discharge	Collects Storm Water Runoff and French Drain System Discharge

#### 1.4 Limitations

In developing the methodology for completion of this EBST, the Navy looked to a Deputy Secretary of Defense Memorandum regarding *Finding of Suitability to Transfer for BRAC Property* (June 1, 1994), DoD guidance as described in *Fast Track to FOST, A Guide to Determining if Property is Environmentally Suitable for Transfer* (February 1995), *Draft EPA Procedures for FOST/FOSLs* (October 17, 1994), and a DoD/EPA *Memorandum of Understanding*. However, while significant problems may not have been found, additional information may become available over time that may affect the conclusions presented in this report. No sampling of soil, groundwater, surface water, radon, lead, potable water, or asbestos was specifically conducted to support preparation of this EBST.

## **2.0 SURVEY METHODOLOGY**

### **2.1 Approach and Rationale**

The EBST was prepared to supplement the base-wide EBS prepared for the Charleston Naval Complex in 1996, (EnSafe/Allen & Hoshall [E/A&H]), in support of the Base Realignment and Closure (BRAC) process. Information contained in this EBST documents the environmental conditions of the subject property, including any changes noted or additional information obtained, since the base-wide EBS was performed.

This EBST employs a variety of methods to obtain the necessary information to document the environmental condition of the property. This includes a comprehensive search of facility records and applicable federal, state, and local records as well as a visual walk-through site inspection. Therefore, the following steps were taken as a minimum:

1. Review of all surveys or inspection reports regarding asbestos, polychlorinated biphenyls (PCBs), lead (including lead-based paint), radon, underground storage tanks and piping systems, solid waste management units, air pollution inventories, and Environmental Compliance Evaluation Program reports.
2. Review of all Installation Restoration Program (IRP) studies, including the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI), or other documentation produced in accordance with procedures being carried out at the installation under CERCLA or the Solid Waste Disposal Act.
3. Review of any applicable federal, state, or local regulatory agency reports, notices of violation or noncompliance, corrective action agreements, compliance orders, RCRA Facility Assessments (RFA), or similar records.

4. Review of current and/or discontinued permits pertaining to an environmentally regulated activity (e.g., air quality permits, National Pollutant Discharge Elimination System [NPDES] permits, RCRA Part B Permits, etc.)
5. Review of records of prior use contained in the 1996 base-wide EBS, or other available documents to ascertain prior uses of the real property which may have involved hazardous substances, otherwise contaminated the property, or created environmental or safety risks.
6. Site inspections of all Charleston Naval Complex real properties, examining any buildings, structures, equipment, pipe outlets, pipelines, or other improvements. The purpose of the site inspection was to detect or confirm the presence of environmentally hazardous conditions or concerns (unusual odors, stained soils, stressed vegetation, leachate seeps, or other indications of potential contamination). Furthermore, the site inspection assessed any risk conditions from a safety standpoint. Indications of concern that were discovered, were followed up and resolved within the scope of the effort involved. Executive Summaries created after the Visual Site Inspections conducted during the 1996 base-wide EBS and this 1999 EBST are included as Appendix A of this document.
7. Review of reasonable obtainable records of state and local governmental agencies that reflect the prior uses of both installation and adjacent real property.
8. Identification of all hazardous substances/petroleum products stored for one year or more, released, or disposed on the subject property. The information includes the actual or approximate types and quantities, and time or times of storage, release, or disposal, of

hazardous substances/petroleum products, to the extent that such information was reasonable available.

9. Conducting a physical inspection of adjacent property to the extent permitted by the owners/operators. "Adjacent properties" are normally defined as properties contiguous to the boundaries of the property being surveyed as well as other nearby properties, typically within a quarter-mile radius. Specifically, the survey addressed those properties relatively near the installation that could pose significant environmental concern and/or have a significant impact on the results of the EBS.
10. Review of all reasonably obtainable federal, state, and local government records of each adjacent property to ascertain if there has been a release of any hazardous substance or petroleum product or its derivatives (including aviation fuel and motor oil) which may migrate to the subject real property.
11. Interviews with current and/or former employees involved in operations concerning the property.

Existing data on contaminants in the following media are considered in the evaluation: air, soil, groundwater, surface water, soil gas and vapor, leachate, sludge, and sediment. Common sources of contaminants in these media are: hazardous material/waste, lead (including lead-based paint), solid waste, PCBs, leakage from aboveground and underground storage tanks, asbestos, petroleum spills, wastewater treatment and discharge, pesticides, radon, explosive ordnance disposal waste, biomedical waste, stationary air sources, radioactive waste, photochemical waste, oil, paints, solvents, and lubricants.

## **2.2 Data Management**

Information for this EBST was obtained through a records search, site inspections, and personnel interviews. Most of the pertinent data are included as appendices. All BRAC environmental reports concerning the Charleston Naval Complex are maintained on file by SOUTHNAVFACENGCOM at the Base Closure Team office. Final versions of all EBSTs and Environmental Baseline Surveys for Lease (EBSLs) will be placed at the Charleston County Library located at 6325 Dorchester Road in North Charleston, South Carolina.

## **2.3 Title Search**

Real property information for all Charleston Naval Complex property is maintained by SOUTHNAVFACENGCOM in Charleston, South Carolina. This information was reviewed as part of the base-wide EBS report effort in 1996. The subject property was originally acquired by the Navy as four separate parcels, with acquisition dates of 27 December 1941, 20 December 1943 (2 parcels), and 21 March 1944. The property was transferred from the Fleet Industrial Supply Center to the current owner, SOUTHNAVFACENGCOM, in April 1986.

## **2.4 Property Classification**

The following environmental categories (see Table 2-1) were developed jointly by representatives from the Office of the Secretary of Defense, the Military Services, the USEPA, and California Environmental Protection Agency to describe the environmental condition of DoD excess property. After an analysis of all available data, each parcel can be classified into one of the following seven categories.

Table 2-1 Charleston Naval Complex BRAC Area Types		
Ranking Number	Map Color	Ranking Criteria
1	White	Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).
2	Blue	Areas where only release or disposal of petroleum products has occurred.
3	Light Green	Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response.
4	Dark Green	Areas where release, disposal, and/or migration of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken.
5	Yellow	Areas where release, disposal, and/or migration of hazardous substances has occurred, removal and/or remedial actions are underway, but all required remedial actions have not yet been taken.
6	Red	Areas where release, disposal, and/or migration of hazardous substances has occurred, but required response actions have not yet been implemented.
7	Grey	Areas that are unevaluated or require additional evaluation.

Properties in categories (1) through (4) are eligible for deed transfer under CERCLA, as amended.

Properties in categories (5) and (6) may be considered for transfer upon concurrence with the South Carolina Department of Health and Environmental Control (DHEC) and USEPA in accordance with CERCLA 120(h)(3)(C). Properties in category (7) will not be considered for transfer until the necessary environmental actions have been taken and the property has been reclassified in accordance with CERCLA and DoD guidance.

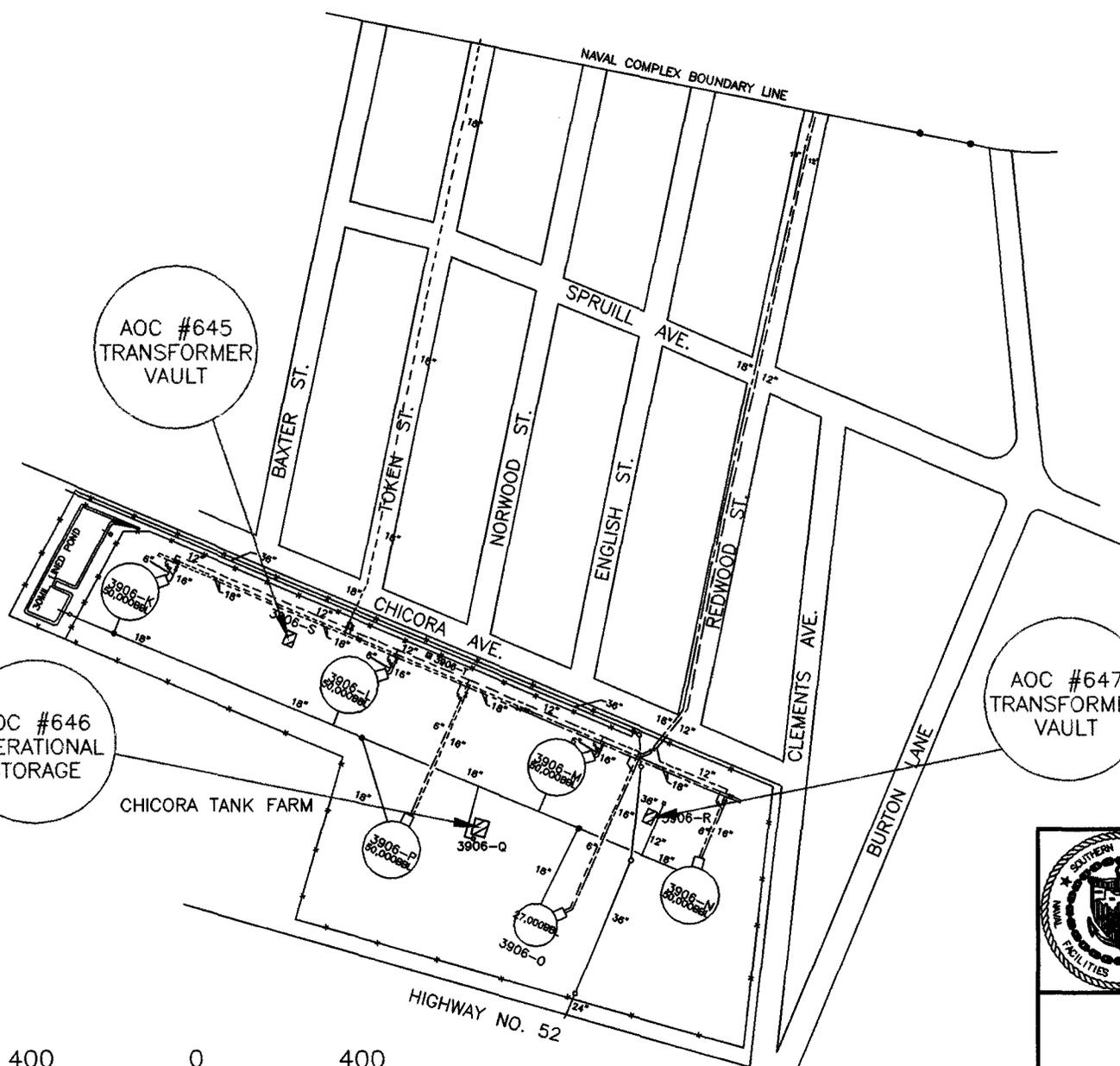
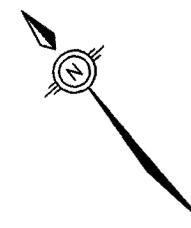
### **3.0 PAST AND CURRENT OPERATIONS**

The Chicora Tank Farm encompasses a fenced-in area of approximately 23 acres that contained six USTs that were used to store diesel and waste oil. Diesel and waste oil were transferred to/from the base via underground transfer lines. The tank farm is located approximately 500 yards west of the Charleston Naval Complex. Figure 3-1 depicts the location of the tank farm relative to the base. Figure 3-2 depicts the site layout. Photographs of the subject property are included in Appendix B.

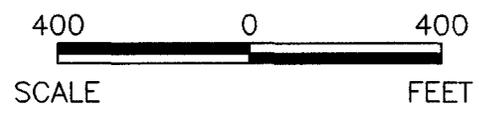
At the time the EBS was initially prepared, six USTs, which were used for bulk storage, were located on the Chicora Tank Farm property. At the time this EBST was prepared, all USTs had been cleaned and demolished.

Additionally, a 12,000-gallon UST was located adjacent to the Operational Storage Building (3906Q). This UST contained fuel oil to operate a boiler in Building 3906Q, which in turn heated ship fuel oil prior to approximately 1960. The boiler was reportedly removed in approximately 1971. The UST has been removed.

Additional facilities associated with the Chicora Tank Farm include two transformer vaults, an operational storage building, and a retention basin. The transformer vaults provided electricity to operate the pumps for the USTs. These facilities are not currently in use. The operational storage building was used to store supplies used at the tank farm. The retention basin collects water from the french drain system that surrounded the USTs as well as storm water from a drainage ditch along the eastern boundary of the tank farm. It was previously used in conjunction with a 5,000-gallon aboveground storage tank (AST) to separate oil and water prior to discharging to adjacent marsh lands and the Cooper River. The AST and the associated piping have been removed from the property. The french drains have remained in place following the removal of the demolished USTs.



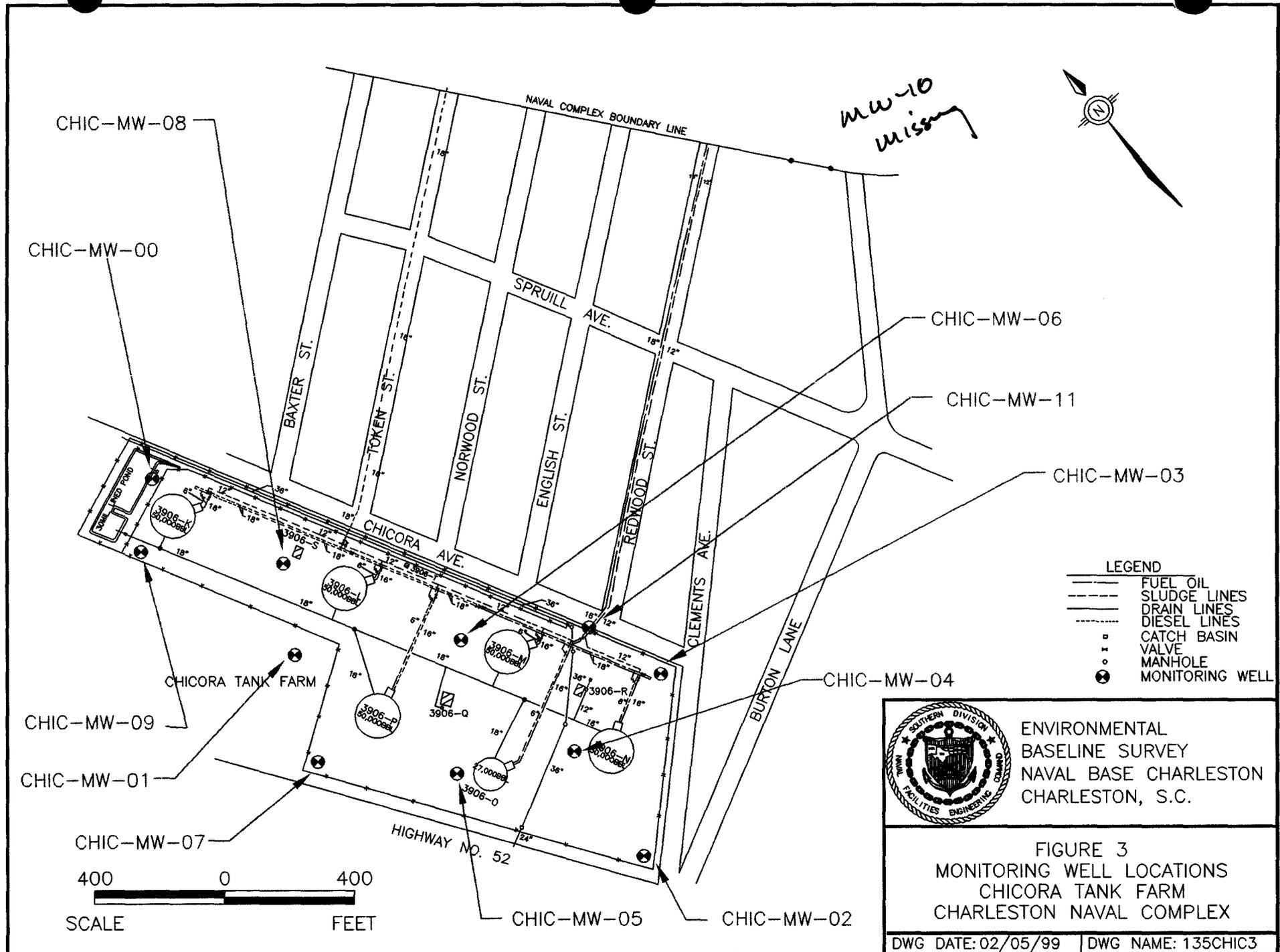
- LEGEND**
- FUEL OIL
  - SLUDGE LINES
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  - ▣ VALVE
  - MANHOLE



ENVIRONMENTAL  
BASELINE SURVEY  
NAVAL BASE CHARLESTON  
CHARLESTON, S.C.

FIGURE 2  
AREAS OF CONCERN  
CHICORA TANK FARM  
CHARLESTON NAVAL COMPLEX

DWG DATE: 02/05/99 | DWG NAME: 135CHIC2



#### **4.0 ENVIRONMENTAL SETTING**

A summary of the environmental setting for the Charleston Naval Complex is provided in the following sections.

##### **4.1 Physiography**

The Charleston Naval Complex is located in the lower South Carolina Coastal Plain Physiographic Province on the Cooper River side of the Charleston Peninsula, which is formed by the confluence of the Cooper and Ashley Rivers.

The topography of the Charleston Naval Complex is essentially flat, with elevations ranging from just over 20 feet mean sea level (msl) in the northwestern part to sea level at the Cooper River. Much of the original topography of the Charleston Naval Complex has been modified by human activities.

##### **4.2 Geology**

The geology of the Charleston, South Carolina area is typical of the southern part of the Atlantic Coastal Plain. A seaward-thickening wedge of Cretaceous and younger sediments is underlain by older igneous and metamorphic basement rock. At the Charleston Naval Complex, Recent and/or Pleistocene sands, silts, and clays of high organic content are exposed at the surface. These materials are underlain by a plastic calcareous clay known as the Cooper Marl. The Cooper Marl is underlain by the Santee Limestone and older rocks. The surface soils on the Charleston Naval Complex have been extensively disturbed and re-worked by a history of intensive use and improvement. The natural surface soils were probably fine-grained materials typical of tidal marsh environments. Most areas of the Charleston Naval Complex have been either filled or re-worked.

### **4.3 Hydrogeology**

Most potable water on the Charleston peninsula is supplied by surface water sources (Edisto River). In the Charleston area, the Cooper Marl is rather impermeable and acts as the confining bed for the Santee, which is not as permeable as in other areas and forms a confined aquifer. Groundwater in the Santee, which occurs at about 328 feet below msl, flows generally to the southeast. Some wells in the vicinity of the Charleston Naval Complex are pumping from the Santee for industrial purposes. In the shallow aquifer on the Charleston Naval Complex, water flows toward the Cooper River or Shipyard Creek, due to the fine-grained texture of the sediments and the level topography. The water table is within 3 to 7 feet of the ground surface. The shallow groundwater continually discharges to the Cooper River and Shipyard Creek.

### **4.4 Climate**

The climate in the Charleston, South Carolina area is temperate with warm summers, mild winters, and ample precipitation. The weather is largely controlled by the west-to-east motion of pressure systems and fronts, except in the summer when tropical air persists. The mountains in the northern portion of the state serve as a barrier to cold air masses from the northwest, and the Bermuda high-pressure system limits the progress of cold fronts into the area. These conditions produce relatively mild temperate winters. Summers are hot and humid, but relatively moderate with regard to temperature extremes, largely due to the influence of the Gulf Stream.

The average daily maximum and minimum air temperatures from 1970 to 1985 for the Charleston area are 76°F and 54°F. Temperatures higher than 100°F and lower than 20°F are unusual for the area. The wind direction and velocity in the Charleston area are highly variable. The inland portions of the region are subjected to a southwest to northeast wind regime. The prevailing winds are northerly in the fall and winter, and southerly in the spring and summer. The

monthly average wind velocities for the area range from a low of 7.5 miles per hour (mph) in May to a high of 10.4 mph in March.

The Charleston, South Carolina area receives an annual average precipitation of 49.2 inches, which is almost exclusively rain. Very little precipitation is recorded as snow, sleet, or hail. Relative humidity in the area ranges from 50 to 90 percent and can exhibit large fluctuations.

The primary concern with regard to climate extremes are the occurrence of tropical cyclones or hurricanes. Hurricanes frequent the east coast of the United States, and almost always have some effect on the weather around the Charleston Harbor typically between August and December. The last hurricane to make landfall in the Charleston, South Carolina area was Hurricane Hugo, a class IV hurricane which struck Charleston in September 1989 and caused severe damage.

#### **4.5 Ecological Issues**

No jurisdictional wetlands exist on the property. The retention pond contains vegetation that is typical of wetlands and the soils may exhibit hydric properties however the hydrology is controlled by man-made drainage which may be removed by redevelopment of the property.

#### **4.6 Historical and Cultural Resources**

No structures associated with the subject property are designated as historical structures.

## **5.0 FINDINGS FOR SUBJECT PROPERTY**

### **5.1 EPA, State, Local Notices of Violation**

No notices of violation were found during the records search, personnel interviews, or onsite assessments for the subject property during or since the 1996 base-wide EBS.

### **5.2 Hazardous Substance/Petroleum Product Management Practices**

Hazardous materials and/or petroleum products have been stored or handled at Chicora Tank Farm. The following paragraphs discuss the hazardous material and petroleum product management history of all subject buildings. A detailed list of the hazardous materials and wastes known to be present or to have been present at the subject buildings is provided in the 1996 EBS report as well as the EBS building files for the subject facilities maintained by SOUTHNAVFACENGCOM.

Petroleum products, including diesel fuel, ship fuel oil, and waste oil were stored in six USTs at this facility. The storage and transfer of these products is further described in Section 5.3. Additionally, there is one 12,000-gallon UST associated with the Operational Storage building. This UST was used to store fuel oil for operating a boiler that was used to heat Bunker C oil. It is also discussed in Section 5.3. An oil skimmer was associated with the retention basin on the northern portion of the site, and it is further discussed in Section 5.6.

### **5.3 Installation Restoration Program**

Figure 5-1 shows the locations of all solid waste management units (SWMUs) and areas of concern (AOCs) on or in the vicinity of the subject property. The Final RCRA Facility Assessment (RFA) report was submitted to USEPA and DHEC in June 1995. The following paragraphs provide information and preliminary conclusions identified during the RFA process, as they pertain to any onsite SWMUs and/or AOCs.

### **AOCs 645 and 647 (Transformer Vaults)**

AOCs 645 and 647 consist of Buildings 3906S and 3906R, respectively. Both are transformer vaults on the Chicora Tank Farm property. Materials used at these facilities consisted of dielectric fluids for the transformers. The transformers were classified as non-PCB containing (see Section 5.8). No further investigation was recommended for these units due to the lack of evidence of releases from the transformers and the lack of migration pathways.

### **AOC 646 (Operational Storage)**

AOC 646 consists of Building 3906Q, the Operational Storage Building for the Chicora Tank Farm. This building originally housed a boiler to heat fuel oil used at the Charleston Naval Complex. The boiler was reportedly removed in 1971. After that time, the building was used to store supplies used for maintenance activities at the Chicora Tank Farm. Waste materials associated with past storage practices include paints, lubricants, gasoline, and kerosene. Fuel oil for the operation of the boiler was also handled at the site. No significant soil or groundwater contamination was identified. However, petroleum contaminants were detected in samples collected from the french drain system and at manhole FD3. In addition, a release due to overfilling was reported to have occurred in the vicinity of Tank 3906P in 1986. A confirmatory sampling investigation (CSI) was recommended for this AOC due to the possible release from the 1986 overfilling event, the hazards associated with the potential contaminants, the multiple migration pathways, and the potential for exposure to students in the immediate vicinity. This unit was subsequently transferred to the UST program, and was addressed as part of the UST closure activities in 1999.

### **UST Program**

UST closure and investigation activities throughout the Charleston Naval Complex are conducted under the South Carolina UST program. The following summarizes the status of the USTs associated with the subject property.

According to the *Final Contamination Assessment Report for The Chicora Tank Farm* (Kemron, 1994), a preliminary contamination assessment, four quarterly groundwater monitoring events, and sediment sampling and analysis events were performed at the Chicora Tank Farm from 1992 to 1994. Data obtained from a tracer survey, soil-gas survey, soil sample analyses, and groundwater sample analyses were reviewed and resulted in the following conclusions:

- No significant leaks from the tanks or pipelines were identified at the site, although traces of petroleum contamination exist in soil and groundwater, with the exception of manhole FD-3 and the spill containment pond,
- Low-level petroleum contamination is present in the groundwater near Tank 3906P, and the contaminant detections are likely the result of reported fuel overtopping, which occurred in 1986,
- Petroleum contamination was identified in the french drain system and in manhole FD-3.

The *Final Contamination Assessment Report* recommended a “no further action” status for the groundwater at this site due to the “small quantities of petroleum residues in groundwater.” Additionally, the report also recommended a “no further action’ status for petroleum residues in site soils at this time.”

A letter dated May 17, 1994 by Mr. Timothy A. Mettlen, a hydrogeologist with the Ground-Water Protection Division (GWPD) Bureau of Drinking Water Protection at DHEC, states that the GWPD concurs with the request for “No Further Action” at the Chicora Tank Farm (see Appendix C). The letter also states, “However, if any contamination is indicated in the future, additional assessment and/or remedial activities may be necessary.” A tank closure report documenting closure activities and containing sample data is to be submitted to the GWPD.

#### 5.4 Storage Tanks and Oil/Water Separators

Six USTs, which were used for bulk storage, located on the Chicora Tank Farm property have been partially demolished in place. The underground transfer lines have been cleaned and plugged and remain in place. One 12,000-gallon UST is located adjacent to the Operational Storage Building (3906Q). This UST contained fuel oil to operate a boiler in Building 3906Q, which in turn heated ship fuel oil prior to approximately 1960. The boiler was reportedly removed in 1971. This UST has been cleaned and removed.

During removal of the UST adjacent to Building 3906Q contaminated soil was discovered. Subsequent investigation found a release of fuel oil originating apparently from the valves along the underground pipeline. The contaminated soil was removed as the assessment proceeded along the pipeline. A rapid assessment was also conducted between April and August of 1999 in order to determine the extent of groundwater contamination. The investigation found no free product in any of the monitoring wells located down-gradient of the pipeline. Naphthalene, which was detected in six well samples, was the only chemical of concern detected above Risk Based Screening Levels (RBSLs). Soil samples taken and analyzed for BTEX and PAHs after the excavation of contaminated soil were reported below SCDHEC's RBSLs for sandy soils. Site specific target levels for naphthalene were calculated and indicate that no concentrations of naphthalene exceed the most conservative migration model for the onsite construction worker which is the most likely receptor to come into contact with groundwater. The demolition of the USTs is contained in *Completion Report for the Demolition of Tanks and Pump Rooms K, L, M, N, and O at Chicora Tank Farm (EEG, November 1999)*. The assessment and excavation of the boiler tank and pipeline are described in the *Completion Report for UST CTF-3, Removal and Assessment Report (EEG, November 1999)* and the *Rapid Assessment Report for Site 42, Chicora Tank Farm, October 1999 (Tetra Tech)*.

An oil skimmer was previously used to remove oil from the retention basin (Facility 3920) prior to discharging to adjacent wetlands and the Cooper River. The retention basin collects storm water from the Chicora Tank Farm property, as well as drainage from the french drain systems beneath the USTs. Oil was collected in a 5,000-gallon AST. The AST and associated piping were removed prior to the February 1999 site survey.

### **5.5 Air Emissions**

Based on inquiries and observations, no potential air emission sources subject to air permitting requirements are known to be present at the facilities included in the Chicora Tank Farm property.

### **5.6 Asbestos**

According to the 1990 Asbestos survey, no suspect asbestos containing materials (ACM) were noted in any of the facilities included in the Chicora Tank Farm property. No formal asbestos surveys were performed to specifically support preparation of this EBST, and no samples of suspect materials were obtained.

### **5.7 Pesticides**

Pesticide use at the subject properties has been limited to mosquito control and quarterly treatment for general nuisance pests. All pesticide-related operations at the Charleston Naval Complex adhered to the Pesticide Management Plan. No records or visual evidence were found to indicate the improper use of pesticides at the subject parcels.

### **5.8 Polychlorinated Biphenyls (PCBs)**

Two transformers are located on the Chicora Tank Farm property, one in 3906R and one in 3906S. According to the 1987 *PCB Sampling Log*, both transformers were determined to have PCB concentrations below 50 parts per million (ppm). The transformers were not in use during the February 1999 site survey.

## **5.9 Radon**

Radon gas concentrations became a concern when several federal and state studies concluded that indoor radon could present a health risk. In response to this information, the Secretary of the Navy initiated the Navy Radon Assessment and Mitigation Program (NAVRAMP) in January 1989 to implement facility testing. The initial portion of this effort concentrated on living spaces, training, and hospital buildings which personnel frequent. Since the U.S. Navy issued this program, federal law (Toxic Substances Control Act, Title III) was enacted requiring all federal agencies to test for radon.

Random radon testing was completed at the Charleston Naval Complex and the Fleet and Mine Warfare Training Center (*Environmental Baseline Survey*, October 1996). No known radon testing has been conducted at the facilities associated with the subject property; however, radon gas is not expected to be a concern at these facilities.

## **5.10 Medical/Biohazardous Waste**

No medical or biohazardous wastes are known to have been generated or treated at the subject property.

## **5.11 Ordnance**

Based on inquiries and observations, no ordnance is known to have been present at the subject property.

## **5.12 Lead-Based Paint**

No known lead-based paint surveys have been conducted at the subject buildings. Interviews with CNSY Public Works Department personnel have indicated that the use of lead-containing paint was considered to be standard operating procedure throughout the Charleston Naval Complex. Therefore, all building structures, and appurtenances constructed prior to 1982 are likely to have

been treated with lead-containing paint. Since the structures at the subject property were constructed prior to 1982, it is probable that lead-based paint was used at these structures. Significant quantities of peeling paint were observed in the transformer vaults and operational storage building during the EBST site visit.

### **5.13 Wastewater Treatment and Disposal**

No wastewater (industrial or sanitary) is or was previously produced at this facility. Reportedly, this facility is not connected to any septic or sewer systems.

### **5.14 Radioactive and Mixed Waste**

Based on inquiries and observations, no radioactive materials or mixed waste (hazardous waste that is also contaminated with low level radioactivity) are known to have been present at the subject property.

### **5.15 Stressed Vegetation and Stained Areas**

The vegetative cover to the west of Tank 3906L appeared to have been recently planted, similar to the area around former Tank 3906P, which has been demolished. No stained surface areas were observed. Vegetative cover over the remainder of the subject property has been disturbed by the tank demolition and has been subsequently replanted.

### **5.16 Solid Waste**

No evidence of illegal disposal of solid waste was observed during the February 1999 site survey. No restrictions were placed on the site as the result of tank demolition in place. Appendix D contains the correspondence from SCDHEC providing a waiver on the Construction, Demolition and Debris provisions of the Solid Waste Regulations.

**5.17 Lead in Drinking Water**

Based on inquiries and observations, there is no source of potable water at this facility.

**5.18 Wetlands**

No jurisdictional wetlands are present at the facility.

## **6.0 FINDINGS FOR ADJACENT PROPERTY**

This section provides a summary of the status of properties which surround the subject property. The Chicora Tank Farm property is located approximately 500 yards west of the Charleston Naval Complex. Commercial properties are located to the south and southwest of the subject property. Major commercial enterprises include a transmission shop and a trucking facility to the southwest of the subject property. A cargo container facility is also located to the south of the subject property, beyond Clements Ferry Road. The Norman C. Toole Middle School adjoins the western property boundary of the subject property. Residential properties adjoin the eastern property boundary of the subject property, across Chicora Avenue.

## **7.0 CONCLUSIONS**

### **7.1 Property Classification**

According to a review of all reasonably available information, the facilities associated with the Chicora Tank Farm have been categorized as 2 — Blue under the DoD environmental condition of property classifications previously discussed in Section 2.4 of this report. This classification is indicative of areas where only release or disposal of petroleum products has occurred. This subject property is suitable for transfer in accordance with CERCLA and DoD guidance.

### **\* 7.2 Recommended Use Restrictions**

Restrictions will be placed on the use of groundwater on the site until monitoring indicates that petroleum contamination (naphthalene) is below risk based corrective action levels as established by SCDHEC for residential use. No other future use restrictions are recommended for the subject property.

### **7.3 Recommendations for Further Actions**

Following the completion of these activities, and the submission of a final report, no other activities are anticipated for this site.

### **7.4 Regulatory/Public Comments**

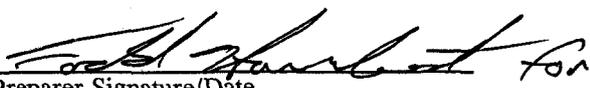
A Finding of Suitability to Transfer (FOST) has been prepared documenting the findings of this EBST and concurring with the 3 — Light Green condition of property classification. Copies of this EBST and FOST have been provided to the Region IV office of the USEPA and DHEC for their review and concurrence. A copy of the EBST and FOST was also located in the public library and a Notice of Public Review was posted in the (15 September 2000) providing a thirty-day public review period ending (15 October 2000). Copies of any comments received are located in Appendix C. The comments have been reviewed and entered into this EBST, as appropriate. Those comments which were unresolved have been listed with the Navy's response in Appendix C.

## 8.0 CERTIFICATION

### 8.1 Certification

This report describes the pertinent information obtained during the EBS assessment. I certify that the property conditions stated in this report are based on a review of available records, visual inspections, and interviews as noted, and are true and correct, to the best of my knowledge and belief.

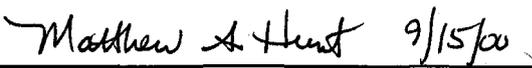
Submitted by EnSafe Inc.

  
Preparer Signature/Date

Robert A. Maddux, Jr., P.E.  
Task Order Manager  
EnSafe Inc.

I have reviewed the methodology and information presented in this report, and certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

For: SOUTHNAVFACENGCOM

  
BRAC Environmental Coordinator Signature/Date

Matthew A. Hunt, P.E.  
BRAC Environmental Coordinator  
Naval Facilities Engineering Command Southern Division

**8.2 List of Preparers**

Noel E. Pacheco, Regulatory Compliance Specialist, 6 years

Shannon Jaeger, Civil Engineer, 4 years

## 9.0 REFERENCES

*Completion Report for UST CTF-3, Removal and Assessment Report, (EEG, November 1999).*

*Completion Report for the Demolition of Tanks and Pump Rooms K, L, M, N, & O at Chicora Tank Farm (EEG, November 1999).*

*Environmental Condition of Property, Charleston Naval Complex, Charleston, SC prepared by EnSafe Inc. of Charleston, South Carolina under contract to Southern Division Naval Facilities Engineering Command (dated December 1998).*

*Final Contamination Assessment Report for The Chicora Tank Farm (Kemron, 1994).*

*Final Environmental Baseline Survey, Naval Base Charleston, Charleston, SC prepared by EnSafe/Allen & Hoshall of Charleston, South Carolina under contract to Southern Division Naval Facilities Engineering Command (dated October 1996).*

*Final RCRA Facility Assessment, Volumes I through V, Naval Base Charleston, Charleston, SC prepared by EnSafe/Allen & Hoshall of Charleston, South Carolina, under contract to Southern Division Naval Facilities Engineering Command (dated May 1995).*

*Rapid Assessment Report for Site 42, Chicora Tank Farm, October 1999 (Tetra Tech).*

**Appendix A**

**Facility Checklist: Executive summary Excerpts from the  
Environmental Baseline Survey (EBS)**

Note which documents you review in all sections of this form.

Base: Naval Base Charleston (FISC)  
 Building Number: 3906K  
 Site Location: Chicora Tank Farm

**CONCLUSION/EXECUTIVE SUMMARY**

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

**EXECUTIVE SUMMARY:**

Tank 3906K at the Chicora Tank Farm is a 50,000-bbl, reinforced concrete underground storage tank with a domed roof and an underground pump house. It is visible from the surface as a low, earthen mound and has electricity for the pumps, product and fire-fighting foam lines. A series of 12-inch french drains extend around or under the tank, relieving pressure on its base from fluctuations in the water table. Tank 3906K is currently empty and clean. The pipes and pumps associated with this UST have been removed. Tank 3906K is scheduled to be imploded in place and covered starting in March 1999. Work is expected to last five months after initiation.

The tank was originally constructed in 1943 to hold heavy "Bunker C" fuel oil, which was replaced in approximately 1960 by another heavy fuel oil "Navy Special". In 1969 the tank was changed over to Navy Distillate and, later, to Diesel Fuel Marine, another light fuel.

The tank, originally designed for heavier fuel, was never lined. When it was filled with the lighter, less viscous distillate fuels, the walls began to leak, leaving visible stains on the pump house wall.

**CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.**

**List a description of documents reviewed.**

- 1992. *Class 2 Property Records*. P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol I of I, Charleston Naval Shipyard, Charleston, SC*. Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1986. Contamination Assessment for Diesel Fuel Marine Storage at the Chicora Tank Farm, Naval Supply Center, Charleston (Point Paper) - 10 December 1986, From: Dana Weed To: Code 460.
- 1986. Contamination Assessment Chicora Tank Farm NAVBASE Charleston, Charleston, South Carolina, Environmental Science and Engineering, Inc.
- 1992. Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Results of Second Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.

**CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.**

**SUPPLEMENTAL INFORMATION**

**CURRENT AND PAST USES OF ADJOINING PROPERTIES (CONTINUED):**

Commercial areas are located primarily along the south and southwest sides of the tank farm. Major commercial enterprises include a transmission shop and a trucking facility southwest of the site. A cargo container storage facility is located south of Chicora Tank Farm, beyond Clements Ferry Road. The Norman C. Toole Middle School is located west of and adjacent to the site. Residential homes occupy properties east of the site, beyond Chicora Avenue, and north of the site.

The 1992 Preliminary Contamination Assessment Report concluded that although traces of petroleum contamination exist at the tank farm, there are currently no significant leaks from tanks or pipelines at the site. While none of the remedial actions recommended in the report are currently being implemented, preliminary site investigations are currently being performed.

**EXECUTIVE SUMMARY (CONTINUED):**

The information collected during this investigation does indicate recognized environmental impacts from this facility. The following significant observations are provided:

- Paint at this facility may contain lead and appeared to be intact.
- The 1990 Asbestos inventory found no suspect material at this facility.
- Livestock was observed grazing at the facility
- Three 55-gallon drums labeled "KEMRON Environmental Services" were observed at the west end of the tank mound.
- Stormwater drains to the retention pond at the north end of the tank farm prior to discharge to an adjacent cat-tail marsh.

Contamination Assessments conducted in 1986 and 1992 concluded that:

- No significant quantities of petroleum product were leaking into the soil from the tanks at the tank farm.
- Soil contamination at the site is primarily due to a 1986 overfilling of Tank 3906P.
- Groundwater contamination is confined to the french drain system.
- The retention pond surface water had no detectable TPH levels.

Following recommendations from the 1992 assessment, approximately 70 gallons of black, oily sludge were removed from the french drain system, samples of pond sediment were collected, and groundwater was monitored on a quarterly basis. The pond sediment was found to contain up to 1,200 ppm of TPH, but the groundwater samples have been non-detect.

This facility is classified 2/Blue because only petroleum products have been released.

**DOCUMENTS REVIEWED (CONTINUED):**

- 1993. *Remedial Investigation/Feasibility Study Compliance Oversight - Charleston Naval Shipyard, Charleston, South Carolina - Sources of Hazardous Waste Release Tables.* (Document Control No. C04163-NAVSHIP-LC-005), Dynamac Corporation, Environmental Services.
- 1983. *Initial Assessment Study of Naval Base Charleston, Charleston, South Carolina.* Environmental Science and Engineering, Inc. (ESE). Contract Number N62474-81-C-9583.
- 1939. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1941. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1949. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* University of South Carolina.
- 1954. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1957. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* University of South Carolina.
- 1963. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* SOUTHDIV Natural Resources.
- 1973. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Tax Assessors.
- 1989. *Black and White Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1992. *Black and White Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Tax Assessors.

Note which documents you review in all sections of this form.

Base: Naval Base Charleston (FISC)  
 Building Number: 3906L  
 Site Location: Chicora Tank Farm

**CONCLUSION/EXECUTIVE SUMMARY**

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

**EXECUTIVE SUMMARY:**

Tank 3906L at the Chicora Tank Farm is a 50,000 bbl reinforced-concrete underground storage tank with an underground pumphouse. A series of french drains protects the tank from fluctuations in the water table. Tank 3906 is currently empty and clean. The pipes and pumps associated with this UST have been removed. Tank 3906L is scheduled to be imploded in place and covered starting in March 1999. Work is expected to last five months after initiation.

The tank was originally constructed in 1943 to hold heavy "Bunker C" fuel oil, which was replaced in approximately 1960 by another heavy fuel oil "Navy Special". In 1969 the tank was changed over to Navy Distillate and, later, to Diesel Fuel, Marine, another light fuel.

The tank, originally designed for heavier fuel, was never lined. When it was filled with the lighter, less viscous distillate fuels, the walls began to leak, leaving visible stains on the pumphouse wall.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.

**List a description of documents reviewed.**

- 1992. *Class 2 Property Records*. P164 Database maintained by U.S. Department of the Navy, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol I of I, Charleston Naval Shipyard, Charleston, SC*. Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1993. Fuel Oil, Diesel Oil, Sludge Oil - Chicora Tank Farm, PWD Number H3906-55.
- 1993. *Remedial Investigation/Feasibility Study Compliance Oversight - Charleston Naval Shipyard, Charleston, South Carolina - Sources of Hazardous Waste Release Tables*. (Document Control No. C04163-NAVSHIP-LC-005), Dynamac Corporation, Environmental Services.
- 1986. Contamination Assessment for Diesel Fuel Marine Storage at the Chicora Tank Farm, Naval Supply Center, Charleston (Point Paper)- December 10, 1986, From: Dana Weed to: Code 460.
- 1986. Contamination Assessment Chicora Tank Farm NAVBASE Charleston, Charleston, south Carolina, Environmental Science and Engineering, Inc.
- 1992. Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.

Note which documents you review  
in all sections of this form.

Base: Naval Base Charleston (FISC)  
Building Number: 3906L  
Site Location: Chicora Tank Farm

#### SUPPLEMENTAL INFORMATION

##### EXECUTIVE SUMMARY (CONTINUED):

The information collected during this investigation does indicate recognized environmental impacts from this facility. The following significant observations are provided:

- Paint at this facility may contain lead and appeared to be in good condition.
- The 1990 Asbestos Inventory found no suspect material at this facility.
- Livestock was observed grazing at the facility.
- Storm water drains to a retention pond at the north end of the tank farm prior to discharge to an adjacent cat-tail marsh.

Contamination Assessments conducted in 1986 and 1992 concluded that:

- No significant quantities of petroleum product were leaking into the soil from the tanks at the tank farm.
- Soil contamination at the site is primarily due to a 1986 over filling of Tank 3906P.
- Groundwater contamination is confined to the french drain system.
- The retention pond surface water had no detectable TPH levels.

Following recommendations from the 1992 assessment, approximately 70 gallons of black, oily sludge were removed from the french drain system, samples of pond sediment were collected, and ground water was monitored on a quarterly basis. The pond sediment was found to contain up to 1,200 ppm of TPH, but the ground water samples have been non detect.

This facility is classified 2/Blue because of suspected petroleum release which may have occurred at the tank farm.

##### DOCUMENTS REVIEWED (CONTINUED):

1993. Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.
1993. Results of Second Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Service.

Note which documents you review in all sections of this form.

Base: Naval Base Charleston (FISC)  
 Building Number: 3906M  
 Site Location: Chicora Tank Farm

CONCLUSION/EXECUTIVE SUMMARY

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

EXECUTIVE SUMMARY:

Tank 3906M at the Chicora Tank Farm is a 50,000-bbl, reinforced- concrete underground storage tank with an underground pumphouse. A series of french drains protects the tank from fluctuations in the water table.

The tank was originally constructed in 1943 to hold heavy "Bunker C" fuel oil, which was replaced in approximately 1960 by another heavy fuel oil, "Navy Special". The tank is currently empty.

The information collected during this investigation does indicate recognized environmental impacts from this facility. The following significant observations are provided:

- Paint at this facility may contain lead and appeared to be intact.
- The 1990 Asbestos Inventory found no suspect material at this facility.
- The floor of the underground pump station was stained with what may be petroleum product.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.

List a description of documents reviewed.

- 1992. *Class 2 Property Records.* P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol I of I, Charleston Naval Shipyard, Charleston, SC.* Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1993. Fuel Oil, Diesel Oil, Sludge Oil-Chicora Tank Farm. PWD Number H3906-55.
- 1992. Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Results of Second Quarterly monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.

Note which documents you review  
in all sections of this form.

Base: Naval Base Charleston (FISC)  
Building Number: 3906M  
Site Location: Chicora Tank Farm

#### SUPPLEMENTAL INFORMATION

##### EXECUTIVE SUMMARY (CONTINUED):

- Livestock was observed grazing at the facility.
- According to Mr. Washington, a sludge pipeline break on September 25, 1985 released 50 to 100 gallons of sludge in the vicinity of Tank 3906M. The spill was reportedly contained and removed.
- Stormwater drains to a retention pond at the north end of the tank farm prior to discharge to an adjacent cat-tail marsh.

Contamination Assessments conducted in 1986 and 1992 concluded that:

- No significant quantities of petroleum product were leaking into the soil from the tanks at the tank farm.
- Soil contamination at the site is primarily due to a 1986 over-filling of Tank 3906P.
- Groundwater contamination is confined to the french drain system.
- The retention pond surface water had no detectable TPH levels.

Following recommendations from the 1992 assessment, approximately 70 gallons of black, oily sludge were removed from the french drain system, samples of pond sediment were collected, and groundwater was monitored on a quarterly basis. The pond sediment was found to contain up to 1,200 ppm of TPH, but the ground water samples have been non-detect.

This facility is classified 7/Grey because a preliminary site assessment is currently underway.

##### DOCUMENTS REVIEWED (CONTINUED):

- 1993. *Remedial Investigation/Feasibility Study Compliance Oversight - Charleston Naval Shipyard, Charleston, South Carolina - Sources of Hazardous Waste Release Tables.* (Document Control No. C04163-NAVSHIP-LC-005), Dynamac Corporation, Environmental Services.
- 1983. *Initial Assessment Study of Naval Base Charleston, Charleston, South Carolina.* Environmental Science and Engineering, Inc. (ESE). Contract Number N62474-81-C-9583.
- 1939. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1941. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1949. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* University of South Carolina.
- 1954. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1957. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* University of South Carolina.
- 1963. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* SOUTHDIV Natural Resources.
- 1973. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Tax Assessors.
- 1989. *Black and White Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1992. *Black and White Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Tax Assessors.

Note which documents you review in all sections of this form.

Base: Naval Base Charleston (FISC)  
 Building Number: 3906N  
 Site Location: Chicora Tank Farm

CONCLUSION/EXECUTIVE SUMMARY

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

EXECUTIVE SUMMARY:

Tank 3906N at the Chicora Tank Farm is a 50,000-bbl, reinforced- concrete underground storage tank with an underground pumphouse. A series of french drains protects the tank from fluctuations in the water table.

The tank was originally constructed in 1943 to hold heavy "Bunker C" fuel oil, which was replaced in approximately 1960 by another heavy fuel oil, "Navy Special". The tank is currently empty.

The information collected during this investigation does indicate recognized environmental impacts from this facility. The following significant observations are provided:

- Paint at this facility may contain lead and appeared to be intact.
- The 1990 Asbestos Inventory found no suspect material at this facility.
- The floor of the pump station was heavily stained with petroleum residue.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.

List a description of documents reviewed.

1992. *Class 2 Property Records*. P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
1990. *Asbestos Inventory Assessment & Survey, Part I, Vol I of I, Charleston Naval Shipyard, Charleston, SC*. Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
1993. *Remedial Investigation/Feasibility Study Compliance Oversight - Charleston Naval Shipyard, Charleston, South Carolina - Sources of Hazardous Waste Release Tables*. (Document Control No. C04163-NAVSHIP-LC-005), Dynamac Corporation, Environmental Services.
1993. Fuel Oil, Diesel Oil, Sludge Oil-Chicora Tank Farm, PWD Number H3906-55.
1992. Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.
1993. Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.

Note which documents you review  
in all sections of this form.

Base: Naval Base Charleston (FISC)  
Building Number: 3906N  
Site Location: Chicora Tank Farm

#### SUPPLEMENTAL INFORMATION

##### EXECUTIVE SUMMARY (CONTINUED):

- Livestock was observed grazing at the facility.
- Stormwater drains to a retention pond at the north end of the tank farm prior to discharge to an adjacent cat-tail marsh.

Contamination Assessments conducted in 1986 and 1992 concluded that:

- No significant quantities of petroleum product were leaking into the soil from the tanks at the tank farm.
- Soil contamination at the site is primarily due to a 1986 over-filling of Tank 3906P.
- Groundwater contamination is confined to the french drain system.
- The retention pond surface water had no detectable TPH levels.

Following recommendations from the 1992 assessment, approximately 70 gallons of black, oily sludge were removed from the french drain system, samples of pond sediment were collected, and groundwater was monitored on a quarterly basis. The pond sediment was found to contain up to 1,200 ppm of TPH, but the ground water samples have been non-detect.

This facility is classified 7/Grey because a preliminary site assessment is currently underway.

##### DOCUMENTS REVIEWED (CONTINUED):

1993. Results of Second Quarterly monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.
1993. (January) *Map of Charleston Naval Shipyard, Naval Station and Contiguous Activities*. Drawing No. H606-281, Charleston Naval Shipyard, Charleston, SC.
1983. *Initial Assessment Study of Naval Base Charleston, Charleston, South Carolina*. Environmental Science and Engineering, Inc. (ESE). Contract Number N62474-81-C-9583.
1939. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC*. Charleston County Soil and Water Conservation District.
1941. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC*. Charleston County Soil and Water Conservation District.
1949. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC*. University of South Carolina.
1954. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC*. Charleston County Soil and Water Conservation District.
1957. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC*. University of South Carolina.
1963. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC*. SOUTHDIV Natural Resources.
1973. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC*. Charleston County Tax Assessors.
1989. *Black and White Photograph of Charleston Naval Station, Charleston, SC*. Charleston County Soil and Water Conservation District.
1992. *Black and White Photograph of Charleston Naval Station, Charleston, SC*. Charleston County Tax Assessors.

Note which documents you review in all sections of this form.

Base: Naval Base Charleston (FISC)  
 Building Number: 39060  
 Site Location: Chicora Tank Farm

CONCLUSION/EXECUTIVE SUMMARY

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

EXECUTIVE SUMMARY:

Tank 39060 at the Chicora Tank Farm is a 27,000-bbl, reinforced- concrete underground storage tank with an underground pumphouse. A series of french drains protects the tank from fluctuations in the water table.

The tank was originally constructed in 1943 to hold waste oil and has been used continuously in this capacity since then.

The information collected during this investigation does indicate recognized environmental impacts from this facility. The following significant observations are provided:

- Paint at this facility may contain lead and appeared to be intact.
- The 1990 Asbestos Inventory found no suspect material at this facility.
- Livestock was observed grazing at the facility.
- Stormwater drains to a retention pond at the north end of the tank farm prior to discharge to an adjacent cat-tail marsh.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 19.

List a description of documents reviewed.

- 1992. *Class 2 Property Records.* P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol 1 of 1, Charleston Naval Shipyard, Charleston, SC.* Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1993. Fuel Oil, Diesel Oil, Sludge Oil - Chicora Tank Farm, PWD Number H3906-55.
- 1992. Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Results of Second Quarterly monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.
- 1983. Oil Spill at Chicora Tank Farm - March 25 and March 30, 1983, From: K. F. Palka (Code 440), To: Code 420.
- 1981. Hazardous Material Incident Report - July 16, 1981 From: Arthur M. Green, To: Code 401.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 19.

SUPPLEMENTAL INFORMATION

**EXECUTIVE SUMMARY (CONTINUED):**

- An approximately 3-foot by 4-foot rectangular depression approximately 100 feet southeast of the tank mound may be the site of a former underground storage tank.
- An approximately 5,000-gallon diesel aboveground storage tank was observed approximately 200 feet east of the tank mound. According to Mr. Teal, the tank is used for refueling fuel department vehicles.
- On March 24th a contractor spilled an unspecified amount of fuel while filling the aboveground storage tank on the east side of the site, contaminating a 30-foot by 50-foot area in the immediate vicinity of the aboveground storage tank. By March 30, 1983 the contractor had not shutdown his operation as requested and had not satisfactorily cleaned up the spill. No report of final remediation was found. On July 11, 1981 a cracked sludge oil line at the Chicora Tank Farm leaked an unknown amount of petroleum product. All oil was contained and none entered the storm drains. Forty 55-gallon drums of contaminated soil were scraped up and disposed of at the Bees Ferry Landfill.

Contamination Assessments conducted in 1986 and 1992 concluded that:

- The floor of the pump station was heavily stained with petroleum residual.
- No significant quantities of petroleum product were leaking into the soil from the tanks at the tank farm.
- Soil contamination at the site is primarily due to a 1986 over-filling of Tank 3906P.
- Groundwater contamination is confined to the french drain system.
- The retention pond surface water had no detectable TPH levels.

Following recommendations from the 1992 assessment, approximately 70 gallons of black, oily sludge were removed from the french drain system, samples of pond sediment were collected, and groundwater was monitored on a quarterly basis. The pond sediment was found to contain up to 1,200 ppm of TPH, but the ground water samples have been non-detect.

This facility is classified 7/Grey because further investigation is required.

**DOCUMENTS REVIEWED (CONTINUED):**

- 1993. *Remedial Investigation/Feasibility Study Compliance Oversight - Charleston Naval Shipyard, Charleston, South Carolina - Sources of Hazardous Waste Release Tables.* (Document Control No. C04163-NAVSHIP-LC-005), Dynamac Corporation, Environmental Services.
- 1983. *Initial Assessment Study of Naval Base Charleston, Charleston, South Carolina.* Environmental Science and Engineering, Inc. (ESE). Contract Number N62474-81-C-9583.
- 1939. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1941. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1949. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* University of South Carolina.
- 1954. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1957. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* University of South Carolina.
- 1963. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* SOUTHDIV Natural Resources.
- 1973. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Tax Assessors.
- 1989. *Black and White Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1992. *Black and White Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Tax Assessors.

**CONCLUSION/EXECUTIVE SUMMARY**

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

**EXECUTIVE SUMMARY:**

Tank 3906P at the Chicora Tank Farm is a 50,000-bbl, reinforced- concrete underground storage tank with an underground pumphouse. A series of french drains protects the tank from fluctuations in the water table.

The tank was originally constructed in 1943 to hold heavy "Bunker C" fuel oil, which was replaced in approximately 1960 by another heavy fuel oil "Navy Special". In 1969 the tank was changed over to Navy Distillate and, later, to Diesel Fuel Marine, another light fuel. The tank is currently empty.

The tank, originally designed for heavier fuel, was never lined. When it was filled with the lighter, less viscous distillate fuels, the walls began to leak, leaving visible stains on the pumphouse wall.

The information collected during this investigation does indicate recognized environmental impacts from this facility. The following significant observations are provided:

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 19.

**List a description of documents reviewed.**

- 1992. *Class 2 Property Records.* P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol I of I, Charleston Naval Shipyard, Charleston, SC.* Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1993. Fuel Oil, Diesel Oil, Sludge Oil - Chicora Tank Farm, PWD Number H3906-55.
- 1986. Contamination Assessment for Diesel Fuel Marine Storage at the Chicora Tank Farm, Naval Supply Center, Charleston (Point Paper)- December 10, 1986, From: Dana Weed To: Code 460.
- 1986. Contamination Assessment Chicora Tank Farm NAVBASE Charleston, Charleston, South Carolina, Environmental Science and Engineering, Inc.
- 1992. Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Results of Second Quarterly monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 19.

**SUPPLEMENTAL INFORMATION**

**EXECUTIVE SUMMARY (CONTINUED):**

- Paint at this facility may contain lead and appeared to be intact.
- The 1990 Asbestos Inventory found no suspect material at this facility.
- Livestock was observed grazing at the facility.
- Stormwater drains to a retention pond at the north end of the tank farm prior to discharge to an adjacent cat-tail marsh.
- The area of stressed vegetation (approximately 20 feet by 20 feet) observed on the northeast slope of the tank mound is the site of a January 11, 1987 diesel spill when approximately 5,000 gallons of diesel fuel spilled from Tank 3906P during tank filling. The spill was reportedly contained and removed.

Contamination Assessments conducted in 1986 and 1992 concluded that:

- No significant quantities of petroleum product were leaking into the soil from the tanks at the tank farm.
- Soil contamination at the site is primarily due to a 1986 over-filling of Tank 3906P.
- The retention pond surface water had no detectable TPH levels.

Following recommendations from the 1992 assessment, approximately 70 gallons of black, oily sludge were removed from the french drain system, samples of pond sediment were collected, and groundwater was monitored on a quarterly basis. The pond sediment was found to contain up to 1,200 ppm of TPH, but the ground water samples have been non-detect.

This facility is classified 6/Red because of known POL contamination with no remedial actions taken.

**DOCUMENTS REVIEWED (CONTINUED):**

- 1993. *Remedial Investigation/Feasibility Study Compliance Oversight - Charleston Naval Shipyard, Charleston, South Carolina - Sources of Hazardous Waste Release Tables.* (Document Control No. C04163-NAVSHIP-LC-005), Dynamac Corporation, Environmental Services.
- 1983. *Initial Assessment Study of Naval Base Charleston, Charleston, South Carolina.* Environmental Science and Engineering, Inc. (ESE). Contract Number N62474-81-C-9583.
- 1939. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1941. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1949. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* University of South Carolina.
- 1954. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1957. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* University of South Carolina.
- 1963. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* SOUTHDIV Natural Resources.
- 1973. *Black and White Aerial Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Tax Assessors.
- 1989. *Black and White Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Soil and Water Conservation District.
- 1992. *Black and White Photograph of Charleston Naval Station, Charleston, SC.* Charleston County Tax Assessors.

Note which documents you review in all sections of this form.

Base: Naval Base Charleston (FISC)  
 Building Number: 3906Q  
 Site Location: Chicora Tank Farm

**CONCLUSION/EXECUTIVE SUMMARY**

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

**EXECUTIVE SUMMARY:**

Building 3906Q, Operational Storage, is a single-story concrete structure with a wooden loft extending a quarter the way across the storage area. The facility has electricity for lights and is currently used to store supplies, such as absorbent materials, which are used at the tank farm.

Originally, the building housed a boiler used to heat the viscous, "Bunker C" fuel used by the Navy until approximately 1960. The boiler was removed in approximately 1970. Aerial photographs taken prior to construction of the building in 1943, at the same time the other structures at the tank farm were built, show a farm at the site.

This facility is part of the Chicora Tank Farm, a fenced-in area of approximately 23 acres containing six large underground storage tanks used to store diesel and waste oil. The tank farm is located approximately 500 yards west of the Charleston Naval Shipyard.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 17.

**List a description of documents reviewed.**

- 1992. *Class 2 Property Records.* P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol 1 of 1, Charleston Naval Shipyard, Charleston, SC.* Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1992. *Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.*
- 1993. *Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.*
- 1993. *Results of Second Quarterly monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.*
- 1993. *Remedial Investigation/Feasibility Study Compliance Oversight - Charleston Naval Shipyard, Charleston, South Carolina - Sources of Hazardous Waste Release Tables.* (Document Control No. C04163-NAVSHIP-LC-005), Dynamac Corporation, Environmental Services.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.

**SUPPLEMENTAL INFORMATION**

**CURRENT AND POAST USES OF ADJOINING PROPERTIES (CONTINUED):**

The Norman C. Toole Middle School is located west of and adjacent to the site. Residential homes occupy properties east of the site, beyond Chicora Avenue, and north of the site.

As part of its 1992 *Preliminary Contamination Assessment Report*, KEMRON Environmental Services conducted an extensive sampling program at the Chicora Tank Farm with the following results:

- A tracer survey, consisting of 351 soil gas samples retrieved from 274 sample points, indicated that no fuel leakage was occurring from any of the tanks or pipelines at the tank farm.
- Soil samples taken from boreholes drilled at nine locations showed little evidence of contamination, finding a single instance of BTEX (62 ppb) and of PAH (104 ppb) and no detectable TPH levels.
- Groundwater samples collected from the nine boreholes found a single instance of BTEX (6 ppb) and no detectable levels of PAH or TPH.
- Groundwater samples collected from the french drain system ranged from no detectable TPH at manhole FD1, at the upstream end of the system, to free product observed on the surface of the water at manhole FD3, at the downstream end.
- Two surface-water samples collected from the retention pond that receives the discharge of the french drain system had no detectable TPH levels.

Based on these results, the report concluded that:

- Substantial seepage from the tanks occurred only where the walls were dry (i.e. in the pump rooms) and that no significant quantities of petroleum product were entering the site soils or groundwater by this route.
- What soil contamination does exist at the site is due to historic releases, primarily the 1986 overfilling of Tank 3906P, and to probable migration from off-site sources.
- Groundwater contamination is confined to the french drain system with substantial contamination limited to manhole FD3 at the end of the system.

The report recommended:

- Sampling sediment from the retention pond.
- Removal of free product from manhole FD3.
- Four quarters of groundwater sampling from the monitoring wells at the site and from the three french-drain manholes.

The 1992 *Preliminary Contamination Assessment Report* concluded that although traces of petroleum contamination exist at the tank farm, there are currently no significant leaks from tanks or pipelines at the site. Some of the remedial actions recommended in the report are currently being implemented.

**EXECUTIVE SUMMARY (CONTINUED):**

The 1992 *Preliminary Contamination Assessment Report* concluded that although traces of petroleum contamination exist at the tank farm, there are currently no significant leaks from tanks or pipelines at the site. While none of the remedial actions recommended in the report are currently being implemented, a preliminary site assessment has been conducted.

This facility is classified 7/Grey because additional investigation is needed. However preliminary site assessment has been conducted at the tank farm.

Note which documents you review  
in all sections of this form.

Base: Naval Base Charleston (FISC)  
Building Number: 3906R  
Site Location: Chicora Tank Farm

CONCLUSION/EXECUTIVE SUMMARY

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

EXECUTIVE SUMMARY:

Transformer vault 3906R is a single-room, concrete building that provides electricity for pumps attached to Tanks 3906M, 3906N and 3906O at the Chicora Tank Farm. The transformer vault was constructed in 1943 at the same time as the tanks. Aerial photographs taken prior to construction show a farm at the site.

The transformer at this substation was sampled in 1987 and tested at less than 50 ppm of PCBs.

This facility is part of the Chicora Tank Farm, a fenced-in area of approximately 23 acres containing six large underground storage tanks used to store diesel and waste oil. The tank farm is located approximately 500 yards west of the Charleston Naval Shipyard. Although traces of petroleum contamination exist at the tank farm, there are currently no significant leaks from tanks or pipelines at the site. While no remedial actions are currently being implemented, a preliminary site assessment has been performed.

This facility is classified 7/Grey because of potential contaminant migration from adjacent fuel storage tanks.

List a description of documents reviewed.

- 1992. *Class 2 Property Records*. P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol I of I, Charleston Naval Shipyard, Charleston, SC*. Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1992. *Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina*, KEMRON Environmental Services.
- 1993. *Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina*, KEMRON Environmental Services.
- 1993. *Results of Second Quarterly monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina*, KEMRON Environmental Services.
- 1986. *PCB Chronology*, unattributed (Catalog Number 449).
- 1987. *PCB Sample Log*, unattributed.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 17.

Note which documents you review in all sections of this form.

Base: Naval Base Charleston (FISC)  
 Building Number: 3906S  
 Site Location: Chicora Tank Farm

**CONCLUSION/EXECUTIVE SUMMARY**

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

**EXECUTIVE SUMMARY:**

Transformer vault 3906S is a single-room, concrete building that provides electricity for pumps attached to Tanks 3906K, 3906L and 3906P at the Chicora Tank Farm. The transformer vault was constructed in 1943 at the same time as the tanks. Aerial photographs taken prior to construction show a farm at the site. The transformer at this substation was sampled in 1987 and tested at less than 50 ppm of PCBs. A pole-mounted transformer, approximately 300 feet to the south, was in good condition in 1986 and tested at less than 50 ppm of PCBs in 1987.

This facility is part of the Chicora Tank Farm, a fenced-in area of approximately 23 acres containing six large underground storage tanks used to store diesel and waste oil. The tank farm is located approximately 500 yards west of the Charleston Naval Shipyard. Although traces of petroleum contamination exist at the tank farm, there are currently no significant leaks from tanks or pipelines at the site. While no remedial actions are currently being implemented, a preliminary site assessment has been conducted.

This facility is classified 7/Grey because of potential contaminant migration from adjacent fuel storage tanks.

**List a description of documents reviewed.**

- 1992. *Class 2 Property Records.* P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol 1 of 1, Charleston Naval Shipyard, Charleston, SC.* Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1992. *Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.*
- 1993. *Final Installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.*
- 1993. *Results of Second Quarterly monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.*
- 1986. *PCB Transformers - 22 December 1986, From: John Sneed (Code 460), To: Code 400.*
- 1987. *PCB Sample Log, unattributed.*

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 17.

Note which documents you review in all sections of this form.

Base: Charleston Naval Shipyard  
 Building Number: 3920  
 Site Location: Chicora Tank Farm

**CONCLUSION/EXECUTIVE SUMMARY**

(Attach plans and photographs)

Classification (Based on the information/data/documentation available at the time of the survey)	Classification Number	Map Color
Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	1	White
Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).	2	Blue
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or a remedial action.	3	Light Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.	4	Dark Green
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.	5	Yellow
Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	6	Red
Areas that have not been evaluated or require additional evaluation.	7	Grey

**EXECUTIVE SUMMARY:**

Facility 3920, Runoff Oil/Water Separator, is an approximately 100 foot by 300 foot, shallow, rectangular pond with a concrete wier located approximately 100 feet from its west end. The pond has a three foot earthen berm around its perimeter, lined with 30-mil membrane.

The facility is currently used as a retention pond for groundwater discharged from a french drain system installed around the underground storage tanks at the tank farm, and from the lined drainage ditch that borders the east side of the tank farm. The pond discharges into an adjacent cat-tail marsh.

According to Mr. Washington, from construction in 1975 to approximately 1986, when the oil/water skimmer at the wier was dismantled, the facility was used as an oil/water separator. He said that prior to construction of the retention pond, the discharge from the french drain system and the trench flowed directly into the adjacent marsh. According to the Class 2 Property Records, the pond was built in 1975. Aerial photographs taken prior to construction show the site as undeveloped. The 1939 aerial shows a farm at the site.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 18.

**List a description of documents reviewed.**

- 1992. *Class 2 Property Records.* P164 Database maintained by U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command.
- 1990. *Asbestos Inventory Assessment & Survey, Part I, Vol 1 of 1, Charleston Naval Shipyard, Charleston, SC.* Department of the Navy, Southern Division, Naval Facilities Engineering Command. Contract #N62467-88-0649 Amendment 4, Westinghouse Project #1238-89-023.
- 1993. *Remedial Investigation/Feasibility Study Compliance Oversight - Charleston Naval Shipyard, Charleston, South Carolina - Sources of Hazardous Waste Release Tables.* (Document Control No. C04163-NAVSHIP-LC-005), Dynamac Corporation, Environmental Services.
- 1989. Environmental Compliance Program, Wastewater Management Section.
- 1980. NPDES Permit #SC0003816, issued by South Carolina Department of Health and Environmental Control, September 13, 1980.
- 1992. Preliminary Contamination Assessment Report/Contamination Assessment Plan, Chicora Tank Farm, Charleston Naval Base, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. Final installation Work Plan and Results of First Quarterly Monitoring Event for Chicora Tank Farm, Charleston, Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.

CONTINUED ON SUPPLEMENTAL INFORMATION, PAGE 17.

**SUPPLEMENTAL INFORMATION**

**EXECUTIVE SUMMARY (CONTINUED):**

An approximately 5,000 gallon welded-steel aboveground storage tank was used to hold oil recovered from the pond is located at the southwest corner of the pond in a fenced-in area.

This facility is part of the Chicora Tank Farm, a fenced-in area of approximately 23 acres containing six large underground storage tanks used to store diesel and waste oil. The tank farm is located approximately 500 yards west of the Charleston Naval Shipyard. The area surrounding CTF is a mature urban neighborhood with commercial, public, and residential land uses. Commercial areas are located primarily along the south and southwest side of the tank farm. Major commercial enterprises include a transmission shop and a trucking facility southwest of the site. A cargo container storage facility is located south of CTF, beyond Clements Ferry Road. The Norman C. Toole Middle School is located west of and adjacent to the site. Residential homes occupy properties east of the site, beyond Chicora Avenue, and north of the site.

The 1992 *Preliminary Contamination Assessment Report* concluded that although traces of petroleum contamination exist at the tank farm, there are currently no significant leaks from tanks or pipelines at the site. While none of the remedial actions recommended in the report are currently being implemented, a preliminary site assessment has been performed.

According to the 1993 *Final Installation Work Plan and Results of First Quarterly Monitoring*, eight sediment samples collected from the retention pond tested from less than 25 ppm to 1200 ppm of TPH, well above the SCDHEC levels of 100 ppm for which a complete assessment is required. However, the 1993 *CNS-Chicora Tank Farm* memo from SCDHEC, responding to these results, objected to the analytic methods used as possibly causing false positive results and recommended using methods 3550 and 5030.

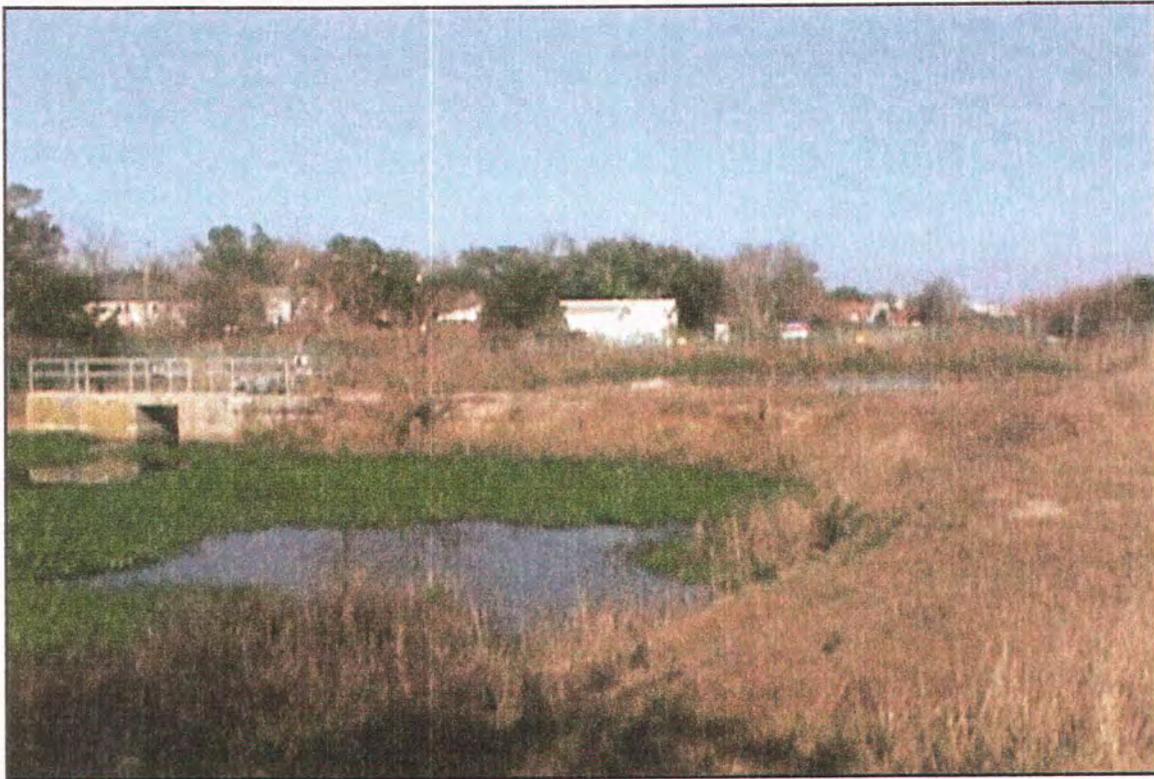
This facility is classified 6/Red because no remedial actions have been implemented at the tank farm.

**DOCUMENTS REVIEWED (CONTINUED):**

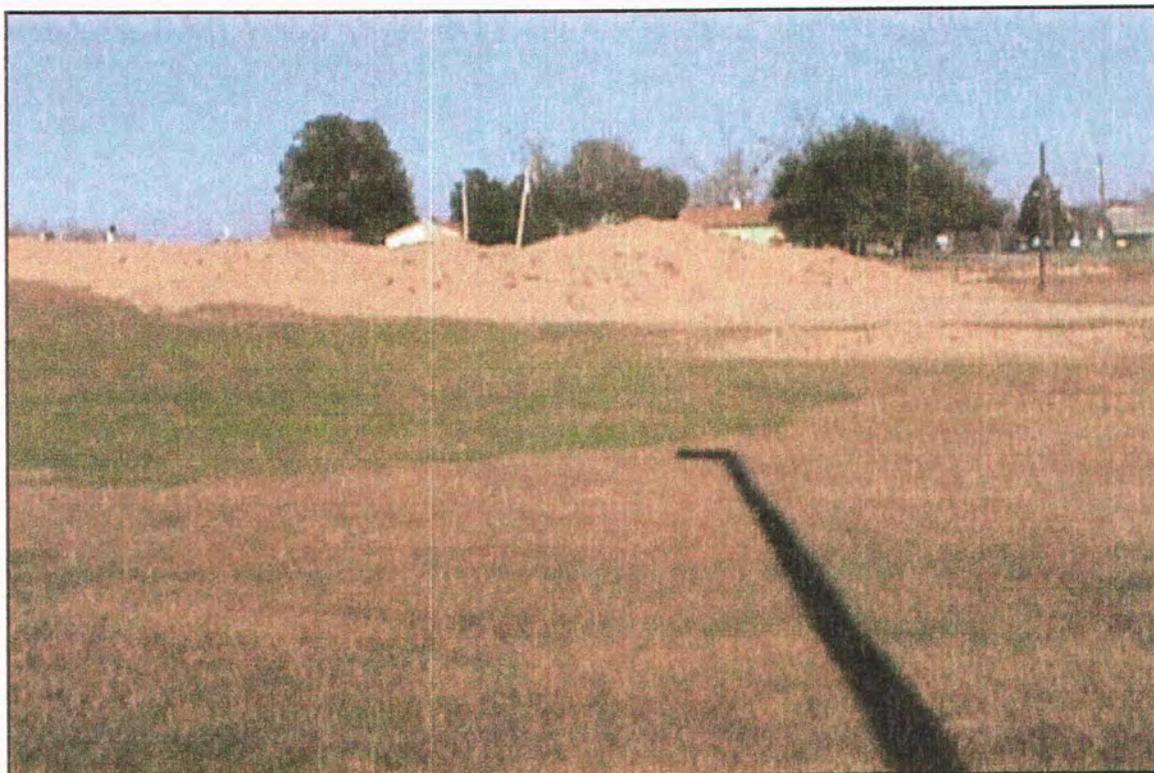
- 1993. Results of Second Quarterly Monitoring Event for Chicora Tank Farm, Charleston Naval Shipyard, Charleston, South Carolina, KEMRON Environmental Services.
- 1993. CNS-Chicora Tank Farm GWPD Site #A-10-AA-13350, First Quarterly Monitoring Report Received may 13, 1993, Charleston County - July 29, 1993, From: Timothy A. Mettlen, South Carolina Department of Health and Environmental Control, To: John Sneed, Commanding Officer, Charleston Naval Shipyard.

**Appendix B**

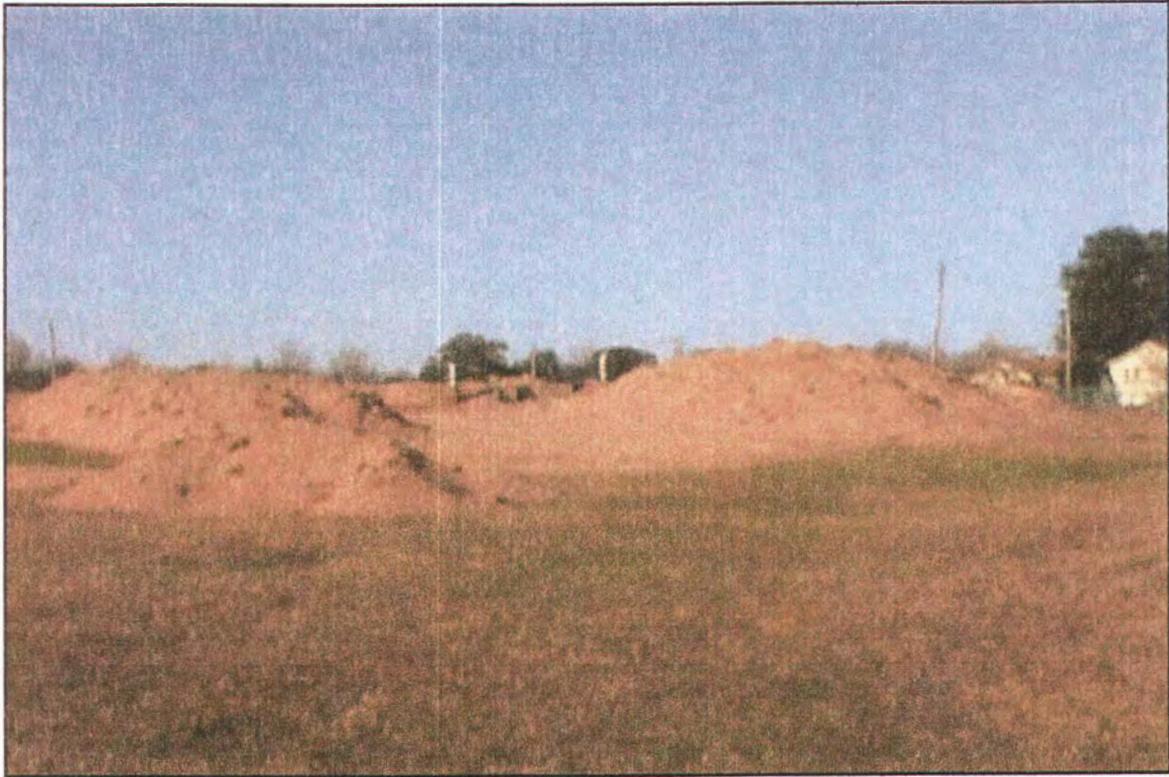
**Photographs**



Storm water retention basin



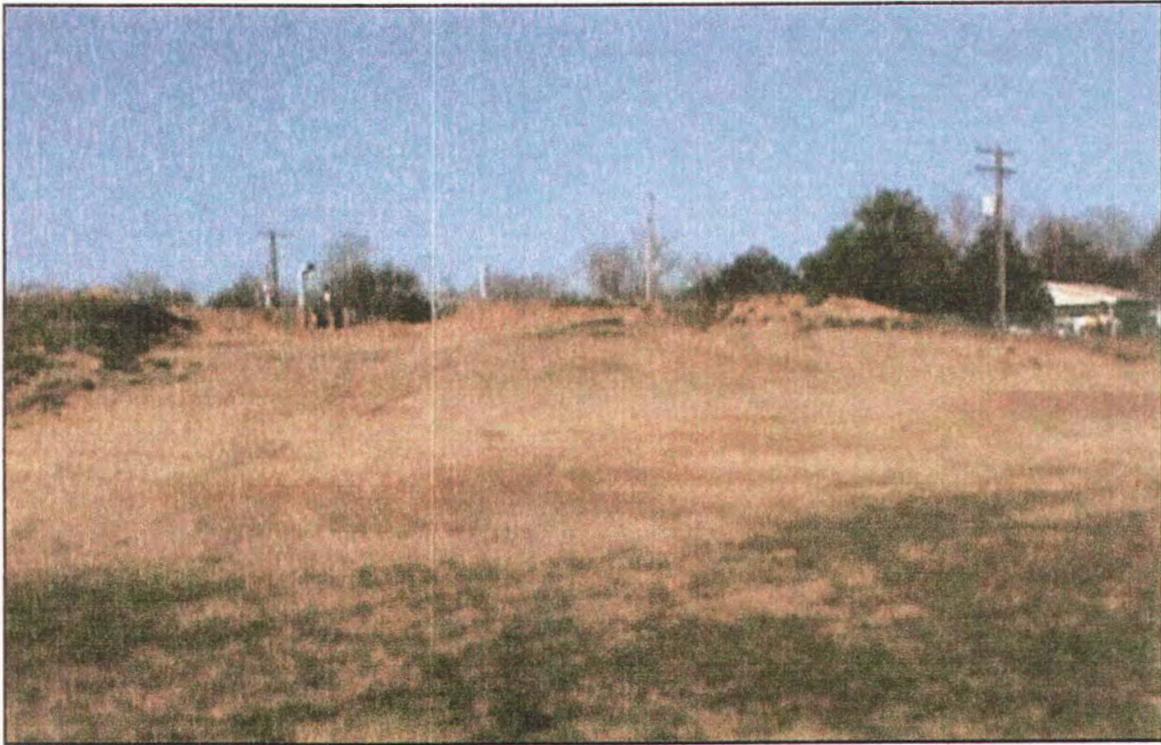
Tank 3906K and grassy area



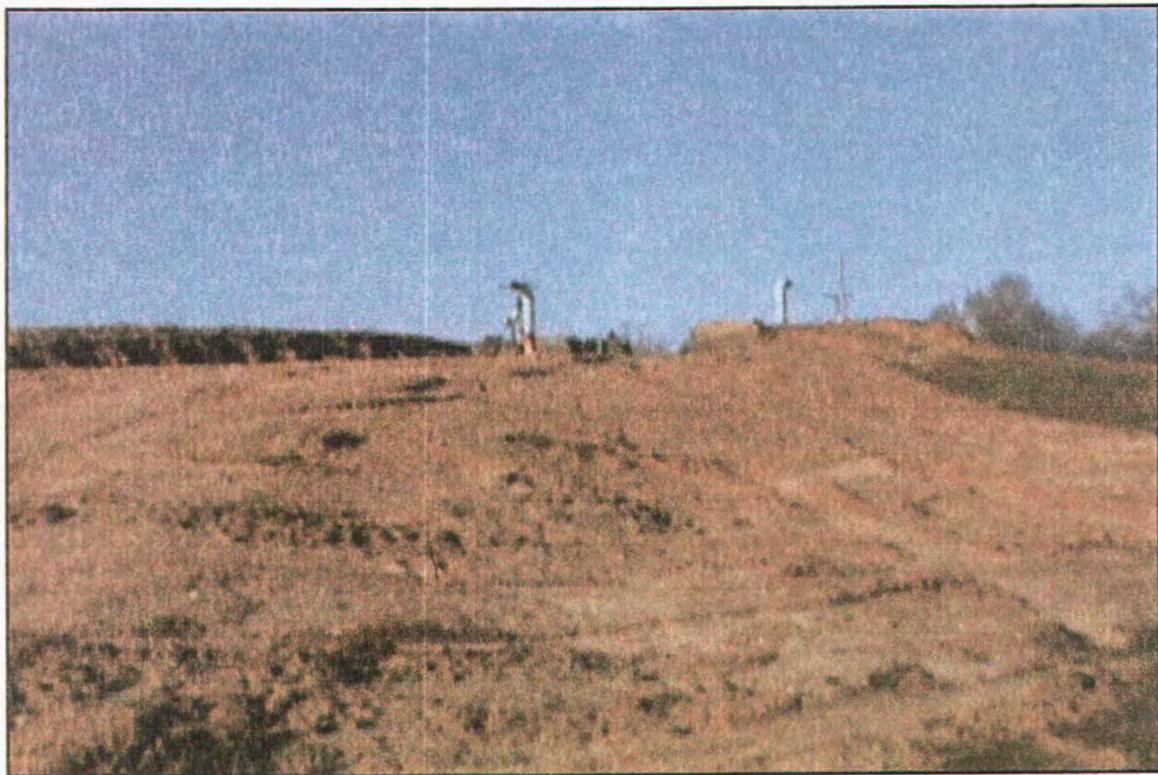
Tank 3906K



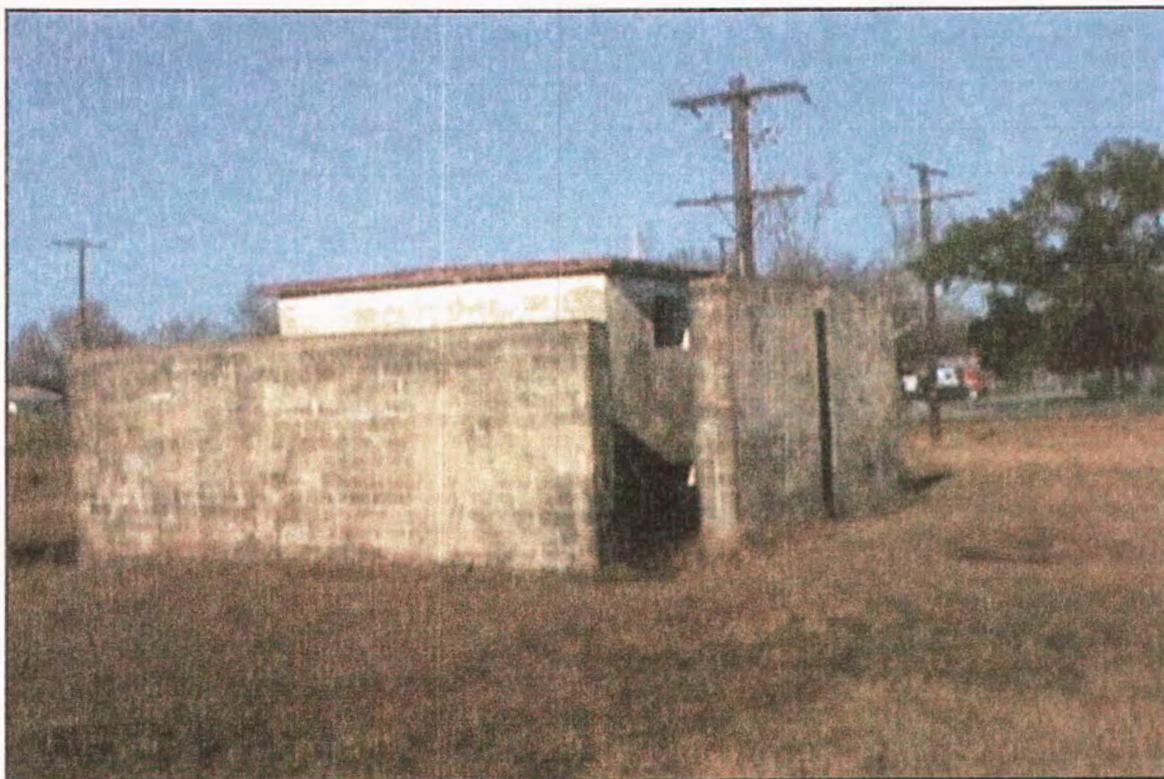
Transformer vault 3906S



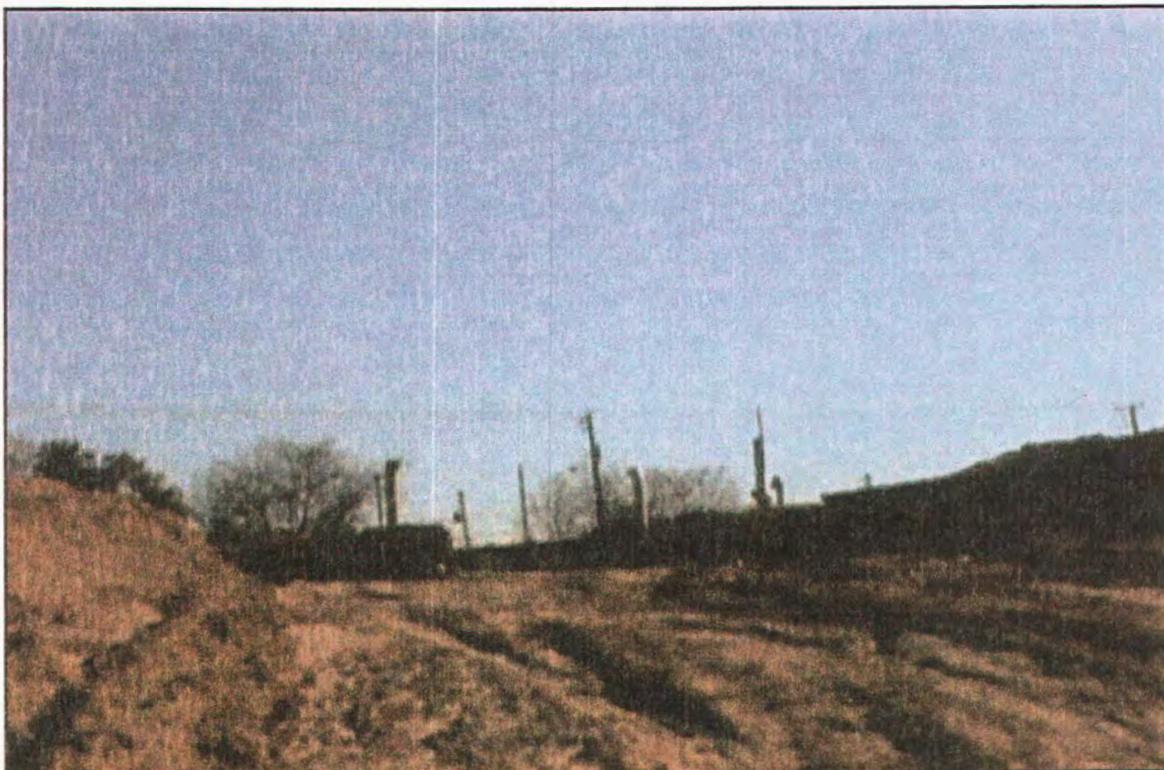
Tank 3906L



Tank 3906M



Transformer vault 3906R



Tank 3906N



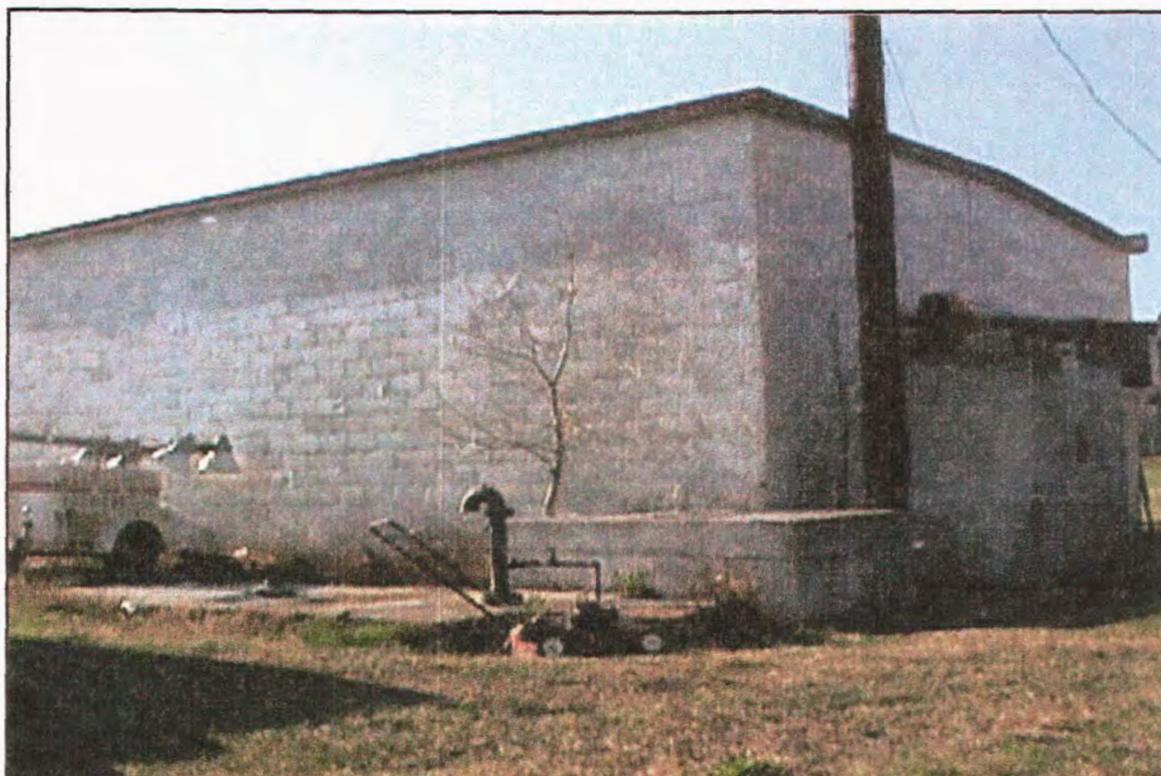
Tank 39060



Former location of Tank 3906P



Western side of Building 3906Q (operational storage)



Southern side of Building 3906Q (note: vent and fill for UST)

**Appendix C**

**EBST Comments**

**Appendix D**

**Waiver of Construction, Demolition and Debris landfill Requirements**

Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman  
Robert J. Stripling, Jr., Vice Chairman  
Sandra J. Molander, Secretary

*Promoting Health, Protecting the Environment*

William E. Applegate, III,  
John H. Burriss  
Tony Graham, Jr., MD  
John B. Pate, MD

May 17, 1994

Commanding Officer  
Attn: Mr. Daryl Fontenot (Code 1841)  
Southern Division  
Naval Facilities Engineering Command  
2155 Eagle Dr., P.O. Box 190010  
North Charleston, SC 29419-9101

RE: CNS - Chicora Tank Farm, GWPD Site #A-10-AA-13350  
Fourth Quarter Monitoring Report received February 14, 1994  
Assessment Report received April 26, 1994  
Charleston County

Dear Mr. Fontenot:

The Ground-Water Protection Division (GWPD) of the South Carolina Department of Health and Environmental Control has reviewed the referenced Monitoring Report and Assessment Report. The GWPD concurs with the request for "No Further Action" at the referenced Site. Therefore, this office will not require any further investigation at this site at this time. However, if any contamination is indicated in the future, additional assessment and/or remedial activities may be necessary.

The referenced assessment report indicates that the tanks are to be closed and that limited impact may be identified during the tanks closures. Upon completion of the tank closures, a closure report documenting the closure activities and containing sampling data, should be submitted to the GWPD.

On all future correspondence concerning the Chicora Tank Farm, please reference GWPD Site #A-10-AA-13350. If you have any questions, please contact me at (803) 734-5328.

Sincerely,

  
Timothy A. Mettlen, Hydrogeologist  
Assessment and Development Section  
Ground-Water Protection Division  
Bureau of Drinking Water Protection

tam/chicora.nfa

cc: Christine Coker, Trident District EQC  
Andrew Clark, KEMRON, Atlanta, GA



28 January 2000

2600 Bull Street  
Columbia, SC 29201-1708

COMMISSIONER:  
Douglas E. Bryant

Department of the Navy  
Southern Division NFEC  
P.O. Box 190010  
North Charleston, SC 29419-9010

BOARD:  
Bradford W. Wyche  
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William M. Hull, Jr., MD  
Vice Chairman

Attention: Mr. Gabriel Magwood

Mark B. Kent  
Secretary

Howard L. Brilliant, MD

Brian K. Smith

Rodney L. Grandy

Larry R. Chewning, Jr., DMD

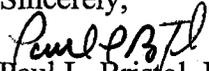
Re: Completion Report-Demolition Tank "K, L, M, N, O" dated 23 December 1999  
Chicora Tank Farm (Site Identification # 13350)  
Charleston Naval Complex/Charleston Naval Base  
Charleston, SC  
Charleston County

Dear Mr. Magwood:

The author has completed technical review of the referenced document. As submitted, the report provides a narrative describing demolition activities employed to deconstruct Fuel Storage Tank "K, L, M, N, O" at Chicora Tank Farm. Based on the information presented, it appears the employed activities were conducted in accordance with the approved Work Plan dated 6 July 1998. In this regard, the author has no further comments concerning Tank "K, L, M, N, O" at this time.

Should you have any questions please contact me at (803) 898-3559.

Sincerely,

  
Paul L. Bristol, Hydrogeologist  
Groundwater Quality Section  
Bureau of Water

cc: Trident District EQC



11 May 1999

2600 Bull Street  
Columbia, SC 29201-1708

COMMISSIONER:  
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Brian K. Smith

Rodney L. Grandy

Department of the Navy  
Southern Division NFEC  
P.O. Box 190010  
North Charleston, SC 29419-9010  
Attention: Mr. Gabriel Magwood

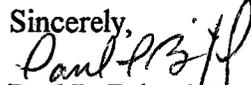
Re: Completion Report-Demolition Tank "P" dated 4 April 1999  
Chicora Tank Farm (Site Identification # 13350)  
Charleston Naval Complex/Charleston Naval Base  
Charleston, SC  
Charleston County

Dear Mr. Magwood:

The author has completed technical review of the referenced document. As submitted, the report provides a narrative describing demolition activities employed to deconstruct Fuel Storage Tank "P" at Chicora Tank Farm. Based on the information presented, it appears the employed activities were conducted in accordance with the approved Work Plan dated 6 July 1998. In this regard, the author has no further comments concerning Tank "P" at this time.

Should you have any questions please contact me at (803) 898-3559.

Sincerely,

  
Paul L. Bristol, Hydrogeologist  
Groundwater Quality Section  
Bureau of Water

cc: Trident District EQC

DEMOLITION ON SITE WAIVER FORM  
(Copy to RPM, Gabriel L. Magwood)

Regulation 61-107.11 Construction, Demolition, and Land-Clearing Debris Landfills states that wastes having been in contact with petroleum products and painted with lead-based paint to be disposed of in a lined monitored landfill such as a licensed municipal solid waste landfill or a industrial solid waste landfill. Some of the concrete has not been in direct contact with the petroleum products. The exemption to this, (SC R.61-107.11(A)(5)) states clean hardened concrete not in direct contact with petroleum products and not painted with lead-based paint when used as structural fill in the construction of a foundation for a building project in progress is "clean" and eligible for burial on site under this exemption.

SCDHEC and SOUTHDIV have negotiated a specific disposal plan for the concrete waste which is affordable and protective of the environment (See Appendix G Meeting Minutes dated 12 August 1996 from Enterprise Engineering, Inc., Project Number 95-1878).

Regulators agree that the concrete construction debris (which has been cleaned free of any petroleum products by pressure washing) from tanks/pump rooms "K, L, M, N & O" demolitions will be disposed of within the tank and pump room bottoms only. Since the concrete waste will be contained in the lower section of the tanks and pump rooms, this WAIVER authorizes the one time exemption to the solid waste regulation for the disposal of concrete debris at Chicora Tank Farm. However, during the partial demolition sound engineering and good work practices will be used ensuring the protection of the environment.

SCDHEC

*John D. Brundell*  
(Concur)

Date 4/14/99



20 August 1998

2600 Bull Street  
Columbia, SC 29201-1708

COMMISSIONER:  
Douglas E. Bryant

BOARD:  
John H. Burriss  
Chairman

William M. Hull, Jr., MD  
Vice Chairman

Roger Leaks, Jr.  
Secretary

Mark B. Kent

Cyndi C. Mosteller

Brian K. Smith

Rodney L. Grandy

Department of the Navy  
Southern Division NFEC  
P.O. Box 190010  
North Charleston, SC 29419-9010  
Attn: Mr. Gabriel Magwood

Re: Work Plan-Cleaning Tanks "K, L, M, N, O" dated 28 July 1998  
Chicora Tank Farm (Site Identification # 13350)  
Charleston Naval Complex/Charleston Naval Base  
Charleston, SC  
Charleston County

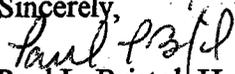
Dear Mr. Magwood:

The author has completed technical review of the referenced document. As submitted, the plan provides procedures for cleaning and inerting the remaining bulk storage tanks and pigging/grouting of transfer lines at the subject site. Based on the information, the proposed activities are approved for implementation.

Appropriate and timely notice should be provided to the Trident District EQC office (843-740-1590) prior to initiating field work at the facility. Please submit a copy of the final report, including appropriate disposal manifests, to my attention upon completion of the above activities.

Should you have any questions please contact me at (803) 734-5328.

Sincerely,

  
Paul L. Bristol, Hydrogeologist  
Groundwater Quality Section  
Bureau of Water

cc: Trident District EQC



30 July 1998

2600 Bull Street  
Columbia, SC 29201-1708

COMMISSIONER:  
Douglas E. Bryant

BOARD:  
John H. Burriss  
Chairman

William M. Hull, Jr., MD  
Vice Chairman

Roger Leaks, Jr.  
Secretary

Mark B. Kent

Cyndi C. Mosteller

Brian K. Smith

Rodney L. Grandy

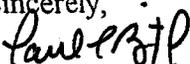
Department of the Navy  
Southern Division NFEC  
P.O. Box 190010  
North Charleston, SC 29419-9010  
Attn: Mr. Gabriel Magwood

Re: Work Plan-Demolition Tank "P" dated 6 July 1998  
Chicora Tank Farm (Site Identification # 13350)  
Charleston Naval Complex/Charleston Naval Base  
Charleston, SC  
Charleston County

Dear Mr. Magwood:

The author has completed technical review of the referenced document. As discussed during our telephone conversation on 27 July 1998 the proposed demolition activities are approved for implementation. Please find enclosed the signed waiver form as requested.

Should you have any questions please contact me at (803) 734-5328.

Sincerely,  
  
Paul L. Bristol, Hydrogeologist  
Groundwater Quality Section  
Bureau of Water

cc: Trident District EQC

DEMOLITION ON SITE WAVIER FORM  
(Copy to RPM, Gabriel L. Magwood)

Regulation 61-107.11 Construction, Demolition, and Land-Clearing Debris Landfills states that wastes having been in contact with petroleum products and painted with lead-based paint to be disposed of in a lined monitored landfill such as a licensed municipal solid waste landfill or a industrial solid waste landfill. Some of the concrete has not been in direct contact with the petroleum products. The exemption to this, (SC R.61-107.11(A)(5)) states clean hardened concrete not in direct contact with petroleum products and not painted with lead-based paint when used as structural fill in the construction of a foundation for a building project in progress is "clean" and eligible for burial on site under this exemption.

SCDHEC and SOUTHDIV have negotiated a specific disposal plan for the concrete waste which is affordable and protective of the environment (See Appendix G Meeting Minutes dated 12 August 1996 from Enterprise Engineering, Inc., Project Number 95-1878).

Regulators agree that the concrete construction debris (which has been cleaned free of any petroleum products by pressure washing) from tank "P" and pump room demolition will be disposed of within the tank and pump room bottom only. Since the concrete waste will be contained in the lower section of the tank "P" and pump room, this wavier authorizes the one time exemption to the solid waste regulation for the disposal of concrete debris at Chicora Tank Farm. However, during the partial demolition sound engineering and good work practices will be used ensuring the protection of the environment.

SCDHEC

Al. V. Brasell Date 7/1/98  
(Concur)

**Appendix E**

**Legal Boundary and Description**

CHICORA TANK FARM  
23.90 Acres

All that certain tract or parcel of land situate, lying and being in St. Philip's and St. Michael's Parish, in the City of North Charleston, County of Charleston, State of South Carolina, and more particularly described as follows:

BEGINNING at a concrete monument for the intersection of the easterly line of U.S. Route 52 (Carner Ave.) and the northerly line of Clements Ave.;

THENCE N 34° 46' 40" W along the easterly line of U.S. Route 52 (Carner Ave.) for 1138.40' to a concrete monument;

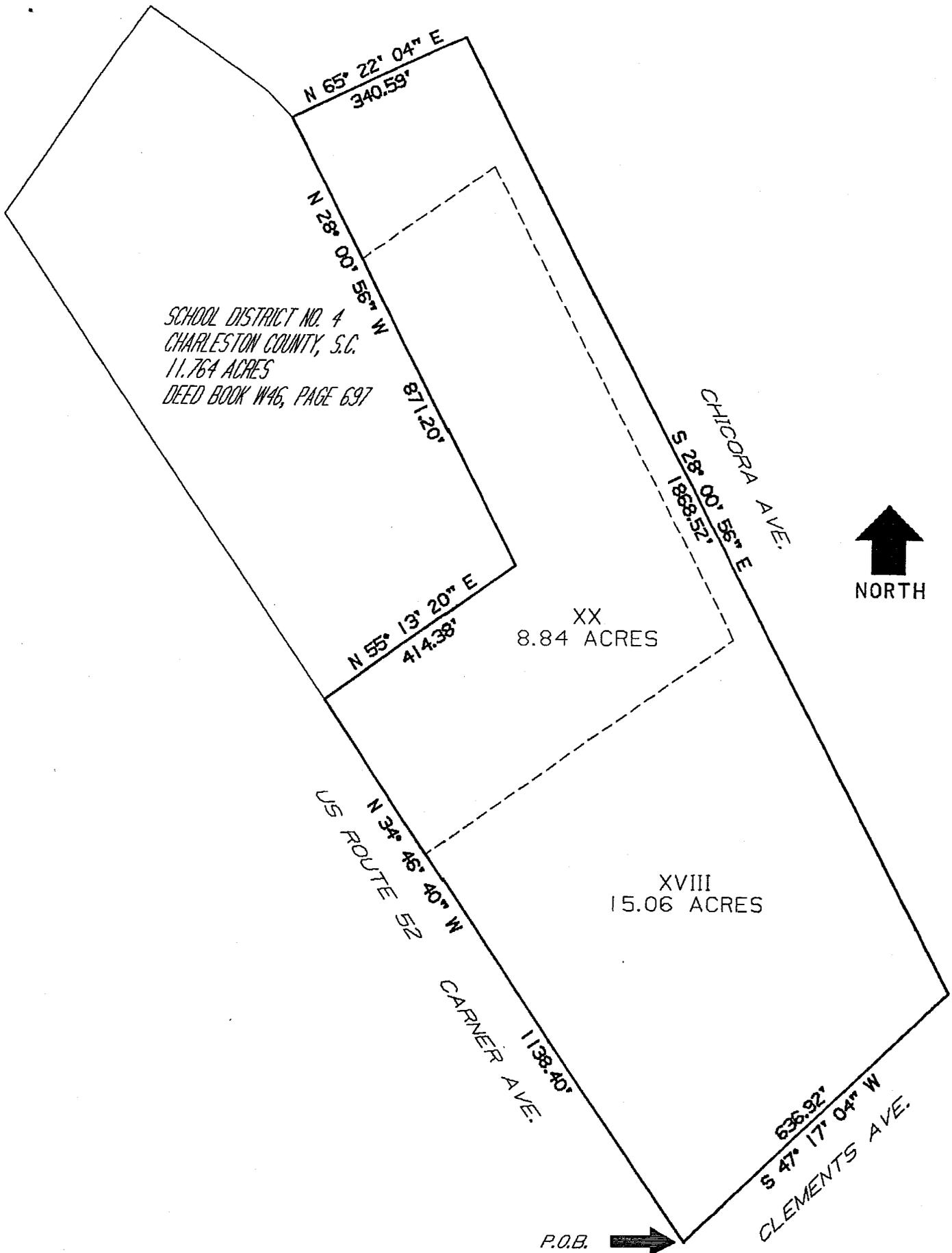
THENCE N 55° 13' 20" E for 414.38' to a concrete monument;

THENCE N 28° 00' 56" W for 871.20' to a concrete monument;

THENCE N 65° 22' 04" E for 340.59' to a concrete monument on the westerly line of Chicora Ave.;

THENCE S 28° 00' 56" E along the westerly line of Chicora Ave., for 1868.52' to a concrete monument at the intersection of the northerly line of Clements Ave.;

THENCE S 47° 17' 04" W along the northerly line of Clements Ave., for 636.92' to the POINT OF BEGINNING, containing 23.90 acres, more or less.



CHICORA TANK FARM  
 23.90 ACRES

**Appendix F**

**Affidavit of Publication**