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FINAL DATA COLLECTION FOR REVISED HAZARD RANKING SYSTEM SCORING  
DEFENSE FUEL SUPPLY POINT HANAHAN CNC CHARLESTON SC  
05/01/1993  
NAVFAC SOUTHERN



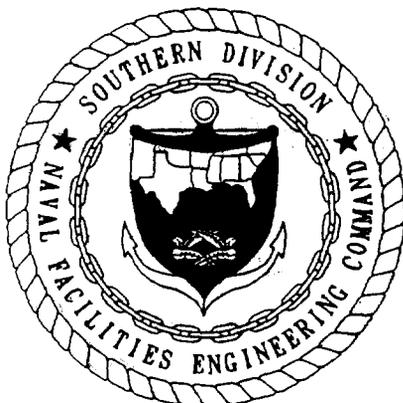
**FINAL**

**DATA COLLECTION FOR REVISED HAZARD  
RANKING SYSTEM SCORING**

**DEFENSE FUEL SUPPORT POINT CHARLESTON**

**HANAHAN, SOUTH CAROLINA**

**MAY 1993**



**SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
P.O. BOX 190010  
NORTH CHARLESTON, SOUTH CAROLINA  
29419-9010**

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Final Report

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# **FINAL**

## **DATA COLLECTION FOR REVISED HAZARD RANKING SYSTEM SCORING**

**DEFENSE FUEL SUPPORT POINT CHARLESTON  
HANAHAN, SOUTH CAROLINA**

**Contract Task Order No. 085**

**Contract No. N62467-89-D-0317**

**Prepared by:**

**ABB Environmental Services, Inc.  
2590 Executive Center Circle, East  
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**Prepared for:**

**Department of the Navy, Southern Division  
Naval Facilities Engineering Command  
P.O. Box 190010  
Charleston, South Carolina 29419-9010**

**Kim Queen, Code 1859, Engineer-in-Charge**

**May 1993**

## INTRODUCTION

This document provides responses to twelve questions posed by the U.S. Environmental Protection Agency (USEPA), Region IV for the Defense Fuel Support Point (DFSP) Charleston, Hanahan, South Carolina in support of a revised Hazard Ranking System (HRS) score for the facility. This document was prepared by ABB Environmental Services, Inc. (ABB-ES) for Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). The Defense Logistics Agency (DLA), as the lead agency for DFSP Charleston, submitted information necessary for HRS scoring to the USEPA as required by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended by the Superfund Reauthorization and Amendments Act (SARA) Section 120 on 14 November 1991. On 5 August 1992, USEPA submitted a letter to DLA requesting additional information that is necessary to complete an HRS score for DFSP Charleston [Attachment A].

On 2 October 1992, DLA submitted to USEPA a response letter which provided responses to six of the twelve questions (response numbers 5, 6, 7, 10, 11, and 12). On 22 October 1992, DLA requested assistance from SOUTHNAVFACENGCOM to provide answers for the remaining six questions and to provide additional information, should it become available, for the six questions answered in the 2 October 1992 correspondence.

This document provides a summary of all questions posed by the USEPA and their respective responses. A facility map of DFSP Charleston is provided in Attachment B. Additional attachments (i.e., maps, correspondence, etc.) are referenced, as appropriate, in the responses to the questions.

## DOCUMENTATION FOR HAZARD RANKING SYSTEM SCORING

QUESTION 1. What is the location and use of all wells within a 4-mile radius of the facility?

Answer for Question 1. There are 17 wells located within a 4-mile radius of DFSP Charleston. The South Carolina Water Resources Commission (SCWRC) provided the location and use of known wells in their database (11 total) within a 4-mile radius of DFSP Charleston. SCWRC personnel stated that there may be older wells, shallow wells, and irrigation wells which are not in the database.

Information provided by SCWRC is presented in Table 1. A map showing the location of each well and the printout from the database search are provided in Attachment C.

Based on additional conversations with personnel from Hanahan Water Plant (The North Charleston Commission of Public Works), the Bureau of Drinking Water Protection, and North Charleston Environmental Quality Control, it was concluded that relatively few wells exist within a 4-mile radius of DFSP Charleston. In fact, the North Charleston Commission of Public Works (CPW) uses the Edisto River, located 23 miles away, for all of their drinking water needs. Therefore, no municipal wells exist in the vicinity of DFSP Charleston and CPW's 400,000 customers are to use municipal water. Therefore, few private drinking or irrigation wells are thought to exist within the 4-mile radius of DFSP Charleston.

The USGS Water Resources Division was able to provide the location and use of privately owned wells (six total) in the Gold Cup Springs subdivision adjacent to DFSP Charleston [Attachment C]. These wells are also presented in Table 1. These privately owned wells are not used for drinking water.

Records of conversation with additional local and state agency personnel are included in Attachment C.

The location and use of monitoring wells installed on and adjacent to DFSP Charleston property are provided in reports previously submitted to USEPA. A photocopy of the cover of each of the following reports are included in Attachment C. These reports include:

- "Final Report, Off-Site Air Monitoring and Data Collection, Defense Fuel Supply Point Charleston, South Carolina", by RMT, Inc., July, 1987;
- "Final Report, Remedial Alternatives Report, Defense Fuel Supply Point, Charleston, South Carolina", by RMT, Inc., February, 1988;
- "Monitoring Well Installation Report, Defense Fuel Supply Point, Charleston, South Carolina", by RMT, Inc., August 1989;

**Table 1**  
**Location and Use of Wells Within a 4-Mile**  
**Radius of DFSP Charleston**

Data Collection for Revised Hazard Ranking System Scoring  
DFSP Charleston, Hanahan, South Carolina

Well #	Location (Latitude/Longitude)	Water Use	Well # on Map
<u>SCWRC</u>			
18CC-d01	325450/795855	Injection Well	1
18CC-e01	325413/795915	Recreational	2
18BB-m01	325747/795704	Water (Public) Supply	3
18CC-g01	325308/795838	Industrial, Institutional	4
18CC-g02	325354/795813	Industrial, Institutional	5
18CC-i01	325321/795604	Industrial, Institutional	6
18CC-o01	325254/795919	Unused	7
18CC-q01	325143/795811	Industrial, Institutional	8
19BB-w01	325503/800232	Domestic Use	9
19BB-w02	325512/800228	Unused	10
19BB-w03	325510/800200	Industrial, Institutional	11
<u>USGS</u>			
PW-1A	325455/795902	Intermittent Lawn Irrigation	12
PW-1B	325455/795902	Intermittent Lawn Irrigation	13
PW-2	325453/795906	Intermittent Lawn Irrigation	14
PW-3	325457/795905	Intermittent Lawn Irrigation	15
PW-4	325458/795908	Intermittent Lawn and Garden Irrigation	16
PW-5	325455/795901	Inactive	17

- "Monitoring Well Inventory Report, Defense Fuel Supply Point, Charleston, South Carolina", by RMT, Inc., September, 1989;
- "Total Petroleum Hydrocarbons in Sediments at the Defense Fuel Supply Point, Charleston, South Carolina, Administrative Report", Department of the Interior, U.S. Geological Survey, 1989; and
- "Water Quality Geohydrologic Consultation No. 24-0026-77, Defense Fuel Support Point, Charleston, South Carolina, November 1975 - May 1977" by U.S. Army Environmental Hygiene Agency, September, 1977.

QUESTION 2. Has any local fishery been closed? (A fishery is defined as any surface water body where people catch and consume fish.)

Answer for Question 2. No local fishery has been closed. The South Carolina Wildlife & Marine Resources Department (SCW&MRD) reported that some surface water bodies are prohibited or restricted to fishing. These waters have been classified as such for many years because of poor water quality. A map is provided in Attachment D that shows the location of these prohibited and restricted areas. This map shows that Goose Creek and the Cooper River are prohibited areas because, although they are still considered saltwaters, they are not saline enough to support populations of saltwater fish and shellfish. No other surface waters within 15-river miles of DFSP Charleston contain fisheries.

Records of conversation with SCW&MRD personnel are included in Attachment D.

QUESTION 3. Are there wetland areas around the facility, specifically adjacent to Goose Creek? If so, how far are they from the facility and how much area do they encompass?

Answer for Question 3. DFSP Charleston is located near tidal wetlands which are adjacent to both sides of Goose Creek along its length from Goose Creek Reservoir Dam to Cooper River. The nearest tidal wetland is approximately 0.35 miles from the northwestern edge of the facility.

The total area encompassed by wetlands, within a 4 mile radius, can be approximated using the Army Corps of Engineers general rule of thumb for the Charleston area based on professional judgement [Attachment E]. The Corps provided an estimate that approximately 50% of the land (16,000 acres) would be classified as wetlands.

An alternative method to calculate the acreage of wetlands within a 4-mile radius of DFSP Charleston is to use National Wetlands Inventory maps and U.S. Geological Survey (USGS) quadrangles [Attachment E]. By overlaying the wetland inventory maps on the USGS quadrangles, the acreage covered by wetlands may be calculated. Using this method, approximately 4,610 acres of wetlands are located within a 4-mile radius of DFSP Charleston. Table 2 presents the acreage of wetlands, estimated by this method, within each of the target distance limits.

In comparing the two estimates of wetlands acreage, it should be noted that both the National Wetlands Inventory maps and the USGS quadrangles are based on aerial photographs whereas the rule of thumb used by the Army Corps of Engineers is based on field surveys.

Records of conversations with several agencies that assisted ABB-ES in obtaining this information are provided in Attachment E.

<b>Table 2</b> <b>Acreage of Wetlands Surrounding DFSP Charleston</b>	
Data Collection for Revised Hazard Ranking System Scoring DFSP Charleston, Hanahan, South Carolina	
Radius (miles)	Approximate Wetlands (acres)
0 - ¼	1
¼ - ½	5
½ - 1	50
1 - 2	1,980
2 - 3	1,188
3 - 4	1,386
<b>TOTAL</b>	<b>4,610 Acres</b>

**QUESTION 4.** What are the flow rates for the various surface water bodies around the facility?

**Answer for Question 4.** Table 3 lists all surface water bodies within 15 river-miles of DFSP Charleston and their respective flow rates. The location of the surface water bodies is shown on the USGS quadrangles provided in Attachment E.

The South Carolina Water Resources Commission, (SCWRC) provided information regarding the flow rates of Goose Creek and the Cooper River. Personnel at the SCWRC indicated that the majority of surface water bodies in the Charleston area are tidally influenced [Attachment F].

SCWRC personnel believes that Goose Creek is "lazy" and probably averages 1 to 2 cubic feet per second (cfs) per square mile during average rainfall years and zero cfs per square mile during drought conditions. However, the velocity of Goose Creek rises considerably during tidal cycles. The 7Q10 factor throughout the coastal South Carolina area is essentially zero, according to SCWRC personnel. This means that during periods of regular drought conditions, creeks and streams probably receive zero contribution from the shallow water table, causing the creeks and streams to dry up.

SCW&MRD personnel assisted ABB-ES in establishing the segment and water type of the surface water bodies of concern [Attachment E]. Goose Creek, which is tidal, is bounded by an upstream dam (Goose Creek Reservoir) on the west end and the

Cooper River on the east end. Cooper River, which is also tidal, is bounded on the north by a dam which forms Lake Moultrie.

The North Charleston Commission of Public Works (CPW) was also contacted to obtain flow rate information for Goose Creek and the Cooper River [Attachment F]. The dam between Goose Creek Reservoir and Goose Creek is a spillway-type dam with a 7 to 7.5 foot elevation. CPW reports that there is brackish water at the base of the dam and that any effect of freshwater spilled into Goose Creek is completely negated by tidal influences. CPW also reported that Cooper River is similarly controlled and influenced.

<b>Table 3</b> <b>Surface Water Body Flow Rate Within 15-River Miles of DFSP-Charleston</b>				
Data Collection for Revised Hazard Ranking System Scoring DFSP Charleston, Hanahan, South Carolina				
Segment Name	Flow Rate* (cubic feet per second)	Segment Type	Water Type	Distance from Site (miles)
Drainage Ditch	1-10	Mixing Zone	Fresh	0-0.25
Gold Cup Lake	1-10	Lake	Fresh	0.25-0.55
Goose Creek	Flow not applicable	Coastal Tidal	Brackish	0.55-6.6
Cooper River	Flow not applicable	Coastal Tidal	Brackish	6.6-15.0
Notes:  * Exact flow rates could not be obtained, therefore the flow rates are provided by the classification system used in the HRS rule, Table 4-13.				

**QUESTION 5.** What is the operational history of DFSP Charleston (i.e., years of operation, exact list of fuels stored there and when, tank cleaning practices historically, etc.)?

**Answer for Question 5.** Please refer to the letter dated 2 October 1992 [Attachment A] for the response provided by the Defense Logistics Agency (DLA). No further clarification was obtained.

QUESTION 6. How many workers are there on the facility?

Answer for Question 6. Please refer to the letter dated 2 October 1992 [Attachment A] for the response provided by DLA. No further clarification was obtained.

QUESTION 7. What has been the quantity and frequency of tank water bottom discharges from the facility?

Answer for Question 7. Please refer to the letter dated 2 October 1992 [Attachment A] for the response provided by DLA. Some additional information regarding tank water bottom discharge procedures was obtained. DFSP Charleston personnel indicated that the tank water bottom discharges are analyzed using the Toxicity Characteristic Leaching Procedure prior to removal from the facility. A record of conversation with DFSP Charleston personnel regarding this practice is included in Attachment G.

QUESTION 8. What is the exact location and extent of contamination due to tank bottom sludges which were reportedly dumped on site?

Answer for Question 8. During the site reconnaissance completed by ABB-ES and SOUTHNAVFACENGCOCOM personnel on 10 May 1993, DFSP Charleston personnel indicated that the exact location and extent of contamination resulting from reportedly dumped tank bottom sludges are unknown. Mr. Don Matthews, Quality Assurance Representative for DLA, indicated that personnel currently employed by DFSP Charleston are not knowledgeable on these activities and personnel who may have participated in these activities no longer work at the facility. Mr. Matthews believes that the tank bottom sludges may have been placed in fields located adjacent to the facility but he has no documentation to support his theory. These fields are currently covered by grass [Attachment H].

Operations at DFSP Charleston are thought to have begun during 1951. According to DFSP Charleston personnel interviewed on 10 and 11 May 1993, the tanks are cleaned approximately once every five years. The cleaning process involves the removal and disposal of sludge from the tank bottoms. DFSP Charleston personnel estimate that between three and eight 55-gallon drums of sludge are generated per cleaning episode [Attachment G].

Prior to 1973, these sludges were weathered on the DFSP property. Weathering was a common practice, and consisted of either spreading tank sludge over a land area or removing the sludge to open barrels. By exposing the sludge to the weather, the volatiles or "light ends" were allowed to evaporate or be washed away. Since 1973, tank bottom sludges have been disposed off-site [Attachment G].

QUESTION 9. Have any soil samples been taken to confirm the presence or absence of lead contamination at the facility? If so, what were the analytical results, including quality control/assurance procedures?

Answer for Question 9. To date, no soil samples have been collected and analyzed to confirm the presence or absence of lead contamination at DFSP Charleston. Soil samples at DFSP Charleston have been collected and analyzed for volatile organic compounds and total petroleum hydrocarbons during previous site investigations. The results of these sampling efforts are summarized in several reports, including:

- "Final Report, Off-Site Air Monitoring and Data Collection, Defense Fuel Supply Point Charleston, South Carolina" by RMT, Inc., July, 1987;
- "Technical Report, Risk Assessment for The Defense Fuel Support Point, Hanahan, South Carolina" by ICF-Clement Associates, October, 1987;
- "Total Petroleum Hydrocarbons in Sediments at the Defense Fuel Supply Point, Charleston, South Carolina, Administrative Report", Department of the Interior, U.S. Geological Survey, 1989; and
- "Water Quality Geohydrologic Consultation No. 24-0026-77, Defense Fuel Support Point, Charleston, South Carolina, November 1975 - May 1977" by U.S. Army Environmental Hygiene Agency, September, 1977.

A photocopy of the cover of each of these reports are included in Attachment I.

In March 1993, a technical memorandum for a Phase II field investigation for investigation of off-site soil and groundwater was submitted to the South Carolina Department of Health and Environmental Conservation (SCDHEC). This work plan did not provide for sampling and analysis of any soil samples because SCDHEC is satisfied with the soil sampling and analysis program that has occurred to date. SCDHEC has not requested soil samples to be collected for lead analysis at DFSP Charleston. A photocopy of the cover letter of this technical memorandum is provided in Attachment I.

Previous records on the facility have indicated that JP-4 has been spilled at the facility (e.g., September 1975). JP-4 is a non-leaded fuel. Approximately 20 to 25 years ago, MOGAS and AVGAS were stored at DFSP Charleston. Both of these fuels are leaded. Mr. Matthews indicated that relatively minimal fuel spills occurred during this time [Attachment H].

QUESTION 10. Have any sediment/surface water samples been taken from any of the surface water pathways (i.e., facility drainage ditches, Gold Cup Lake, etc.)? If so, what were the results?

Answer for Question 10. Please refer to the letter dated 2 October 1992 [Attachment A] for the response provided by DLA. Information regarding surface water and sediment sampling at DFSP Charleston has been forwarded to the USEPA by SOUTHNAVFACENGCOM.

**QUESTION 11.** What is the number and location of slop waste tanks associated with the loading areas at DFSP Charleston?

**Answer for Question 11.** Please refer to the letter dated 2 October 1992 [Attachment A] for the response provided by DLA. Additional information regarding underground storage tanks (USTs) at loading areas at DFSP Charleston is presented in Table 4.

<b>Table 4</b>			
<b>Temporary Storage USTs at DFSP Charleston</b>			
Data Collection for Revised Hazard Ranking System Scoring DFSP Charleston, Hanahan, South Carolina			
<b>Tank #</b>	<b>Product Stored</b>	<b>Nominal Capacity</b>	<b>Location</b>
101	Recoverable Fuel	2,000 Gallons	At pump station for air base and tank cars
102	Recoverable Fuel	500 Gallons	Drain tank near RR rack is inactive and is slated for removal.
105	Recoverable Fuel	4,000 Gallons	Near truck rack: dedicated collection tank for spilled material
106	Recoverable Fuel	500 Gallons	Near truck rack: for trucks and samples

**QUESTION 12.** Is the Fuel System Icing Inhibitor (FSII) used at DFSP-Charleston added to the fuel at the facility, or is it added at the refinery? In addition, is FSII considered a normal jet fuel additive or is it used solely at DFSP-Charleston?

**Answer for Question 12.** Please refer to the letter dated 2 October 1992 [Attachment A] for the response provided by DLA. Additional information regarding FSII usage was obtained through DFSP Charleston personnel interviews [Attachment G]. Total FSII usage per year at DFSP Charleston is approximately 8 barrels.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

AUG 05 1992

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Return Receipt Required

4WD-FFB

W. E. Goode, Chief  
Environmental Quality Division  
Defense Logistics Agency  
Defense Fuel Supply Center  
Cameron Station  
Alexandria, VA 22304-6160

Dear Mr. Goode:

The Environmental Protection Agency (EPA) has evaluated the information submitted by your office on November 14, 1991, and other pertinent reports to score the Defense Fuel Support Point - Charleston (DFSP-Charleston) on the Hazard Ranking System (HRS). The EPA appreciates the efforts that DFSP-Charleston has made to comply with our request. However, during the HRS process, significant data gaps have been identified. Without this data, EPA cannot complete an accurate HRS score. Therefore, EPA is requesting that you provide the information needed. Please answer the enclosed questions as fully and accurately as possible. EPA realizes that some of the information will not be available and/or will require further sampling fieldwork. For information in this category, note that it is not available and provide a schedule as to when this information will be submitted.

It is the EPA's understanding that a groundwater remediation project approved by the South Carolina Department of Health and Environmental Control (SCDHEC) is currently underway at DFSP-Charleston. The EPA encourages DFSP-Charleston to continue with this effort, however, it does not affect the HRS scoring process at this point.

DFSP-Charleston must submit answers to these questions within sixty (60) days of receipt of this letter. If you have questions about the information being requested or the HRS process, please contact Ms. Caron Falconer or Mr. Robert H. Pope of this office at (404) 347-3016.

Sincerely yours,

*Jon D. Johnston*

Jon D. Johnston, Chief  
Federal Facilities Branch  
Office of RCRA and Federal Facilities  
Waste Management Division

Enclosure

cc: Mr. Hartsill Truesdale, Chief  
Bureau of Solid and Hazardous Waste  
Management  
South Carolina Department of Health  
and Environmental Control

(

EPA QUESTIONS ABOUT DFSP-CHARLESTON

1. What is the location and use of all wells within a 4 mile radius of the facility?
2. Has any local fishery been closed? (A fishery is defined as any surface water body where people catch and consume fish.)
3. Are there wetlands areas around the facility, specifically adjacent to Goose Creek? If so, how far are they from the facility and how much area do they encompass?
4. What are the flow rates for the various surface water bodies around the facility?
5. What is the operational history of DFSP-Charleston (i.e., years of operation, exact list of fuels stored there and when, tank cleaning practices historically, etc.)?
6. How many workers are there on the facility?
7. What has been the quantity and frequency of tank water bottom discharges from the facility?
8. What is the exact location and extent of contamination due to tank bottom sludges which were reportedly dumped on site?
9. Have any soil samples been taken to confirm the presence or absence of lead contamination at the facility? If so, what were the analytical results, including quality control/assurance procedures?
10. Have any sediment/surface water samples been taken from any of the surface water pathways (i.e., facility drainage ditches, Gold Cup Stream, Gold Cup Lake, etc.)? If so, what were the results?
11. What is the number and location of slop waste tanks associated with the loading areas at DFSP-Charleston?
12. Is the Fuel System Ice Inhibitor (FSII) used at DFSP-Charleston added to the fuel at the facility, or is it added at the refinery? In addition, is FSII considered a normal jet fuel additive or is it used solely at DFSP-Charleston?



DEFENSE LOGISTICS AGENCY  
DEFENSE FUEL SUPPLY CENTER  
CAMERON STATION  
ALEXANDRIA, VIRGINIA 22304-6160



02 OCT 1992

IN REPLY  
REFER TO DFSC-FQ

United States Environmental  
Protection Agency - Region IV  
Attn: Jon D. Johnston  
Chief, Federal Facilities Branch  
RCRA and Federal Facilities  
Waste Management Division  
345 Courtland Avenue  
Atlanta, Georgia 30365

Dear Mr. Johnston:

This is in response to your letter dated August 5, 1992 requesting additional information to complete the HRS scoring process for our Defense Fuel Support Point Charleston, SC. Enclosed is our response to questions we could answer without further study. We have contacted Kimberly Queen from the Naval Facilities Engineering Command, Southern Division, located in Charleston, SC for assistance in collecting the data necessary to answer the rest of your questions. She will be contacting your office to discuss this matter further to better understand the data requirements.

If you have questions about the enclosed information, contact Wayne Barnum at (703) 274-6579.

Sincerely,

S

Encl

W. E. GOODE  
Chief, Environmental Quality Division  
Directorate of Facilities Management

cc:

DFR-S

Prepared By: *W.B.*  
WBarnum/46579/28Sep92

*Green*

EPA QUESTIONS ABOUT DFSP-CHARLESTON

1. What is the location and use of all wells within a 4 mile radius of the facility?

ANSWER: Further fieldwork necessary. Answer will be provided by May 1993.

2. Has any local fishery been closed? (A fishery is defined as any surface water body where people catch and consume fish.)

ANSWER: Further fieldwork necessary. Answer will be provided by May 1993.

3. Are there wetland areas around the facility, specifically adjacent to Goose Creek? If so, how far are they from the facility and how much area do they encompass?

ANSWER: Further fieldwork necessary. Answer will be provided by May 1993.

4. What are the flow rates for the various surface water bodies around the facility?

ANSWER: Further fieldwork necessary. Answer will be provided by May 1993.

5. What is the operational history of DFSP-Charleston (i.e., years of operation, exact list of fuels stored there and when, tank cleaning practices historically, etc.)?

ANSWER: DFSP-Charleston went into operation in 1952 and started to handle and store fuel in 1953. From the beginning, JP-4, MOGAS and AVGAS were stored. After 1974, MOGAS and AVGAS storage was discontinued and the terminal began to store JP-5. JP-5 storage discontinued during 1987. The tanks were cleaned every three years until 1975. Procedures then changed to cleaning only when the quality of fuel was affected and when the tanks were taken out of service for inspection and repair. Although tank cleaning operations were not conducted on a set schedule, cleaning was accomplished every five to eight years or when determined to be necessary. In many years past, the standard practice was to weather the cleaning sludges, and dry and bury them within the dikes. We can not determine when this practice was discontinued, but know it has not been practiced since 1973. All cleaning sludges have since been disposed of off site. Listed below (see Table 1) are the times the tanks were taken out of service for repair work and/or cleaning.

TABLE 1

Tank #	Year of Service	Work Accomplished
1	1980	Sonic testing, tank was cleaned
1	1990	Tank repairs, tank was cleaned
2	1980	Sonic testing, tank was cleaned
2	1990	Tank repairs, tank was cleaned
3	1981	Sonic testing, tank was cleaned
3	1990	Tank repairs, tank was cleaned
4	1978	Sonic testing, tank was cleaned
4	1987	Routine tank cleaning, inspection and repairs
5	1987	Tank taken out of service for repairs, tank was cleaned
5	1990	Tank repairs, tank was cleaned
6	1981	Sonic testing, tank was cleaned
6	1982	Routine tank cleaning and inspection
6	1989	Tank roof repairs, tank was cleaned
7	1978	Sonic testing, tank was cleaned
7	1987	Routine tank cleaning, inspection and repairs

6. How many workers are there on the facility?

**ANSWER:** 12

7. What has been the quantity and frequency of tank water bottom discharges from the facility?

**ANSWER:** The terminal ceased discharging tank bottom waters in 1984. Prior to that time, bottom waters were drained from the tanks daily and released to an oil/water separator prior to discharge. There are no records kept indicating quantities released, however, the DFSP currently generates 60,000 gallons annually.

8. What is the exact location and extent of contamination due to tank bottom sludges which were reportedly dumped on site?

**ANSWER:** Further fieldwork necessary. Answer will be provided by May 1993.

9. Have any soil samples been taken to confirm the presence or absence of lead contamination at the facility? If so, what were the analytical results, including quality control/assurance procedures?

**ANSWER:** Further fieldwork necessary. Answer will be provided by April 1993.

10. Have any sediment/surface water samples been taken from any of the surface water pathways (i.e., facility drainage ditches, Gold Cup Lake, etc.)? If so, what were the results?

**ANSWER:** As part of the contamination investigation, surface water samples were taken from Gold Cup Lake. Contaminants of concern were either nondetectable or below regulatory limits. Copies of the reports/ analysis have been requested from SouthDiv and the USGS and will be forwarded to your office.

11. What is the number and location of slop waste tanks associated with the loading areas at DFSP-Charleston?

**ANSWER:** There are no slop waste tanks located at DFSP-Charleston, however, there are four underground tanks used to temporarily store recoverable fuel drained from tank trucks and rail cars. The fuel is reblended back into the main storage tanks. These tanks are designated as follows:

Tank #	Product Stored	Nominal Capacity	Location
101	Recoverable Fuel	2000 Gals.	At pump station
102	"	500 "	Drain tank near RR rack
105	"	4000 "	Near truck rack
106	"	500 "	Near truck rack

12. Is the Fuel System Icing Inhibitor (FSII) used at DFSP-Charleston added to the fuel at the facility, or is it added at the refinery?. In addition, is FSII considered a normal jet fuel additive or is it used solely at DFSP-Charleston?

**ANSWER:** FSII is a normal jet fuel additive which is injected into the fuel prior to delivery to our terminals. As rainwater enters the storage tanks past the roof seals and water enters through condensation, the fuel is depleted of some of its FSII while in storage. Our terminal operators are required to replenish the fuel with FSII prior to shipping to customers. This is the standard procedure at all our DFSPs, not just at DFSP-Charleston.



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22 OCT 1992

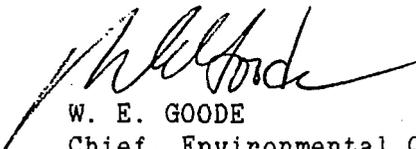
IN REPLY  
REFER TO DFSC-FQ

SUBJECT: Request for HRS Data Collection Assistance for Defense Fuel Support Point (DFSP) Charleston, Hanahan, SC

Southern Division  
Naval Facilities Engineering Command  
Code 18219, Attn: Kimberly Queen  
2155 Eagle Drive, P.O. Box 10068  
Charleston SC, 29411-0068

1. Reference telephone conversation with Wayne Barnum, DFSC-FQ, dated 21 October 1992, subject as above.
2. As discussed during the referenced telephone conversation, we are requesting support from your office in obtaining answers to questions from the Environmental Protection Agency (EPA), Region IV, to fill HRS data gaps for DFSP Charleston. The enclosure includes a copy of the EPA letter and a copy of our response.
3. Although we have provided answers to some of the questions, we request that if additional information becomes available, it be provided as an update.
4. We have informed the EPA that the data will be provided by May 1993. If you estimate that more time is needed, please send us a schedule so we can inform the EPA.
5. Thank you for your assistance. If you have any questions, contact Wayne Barnum at (703) 274-6579:

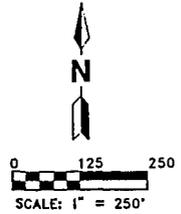
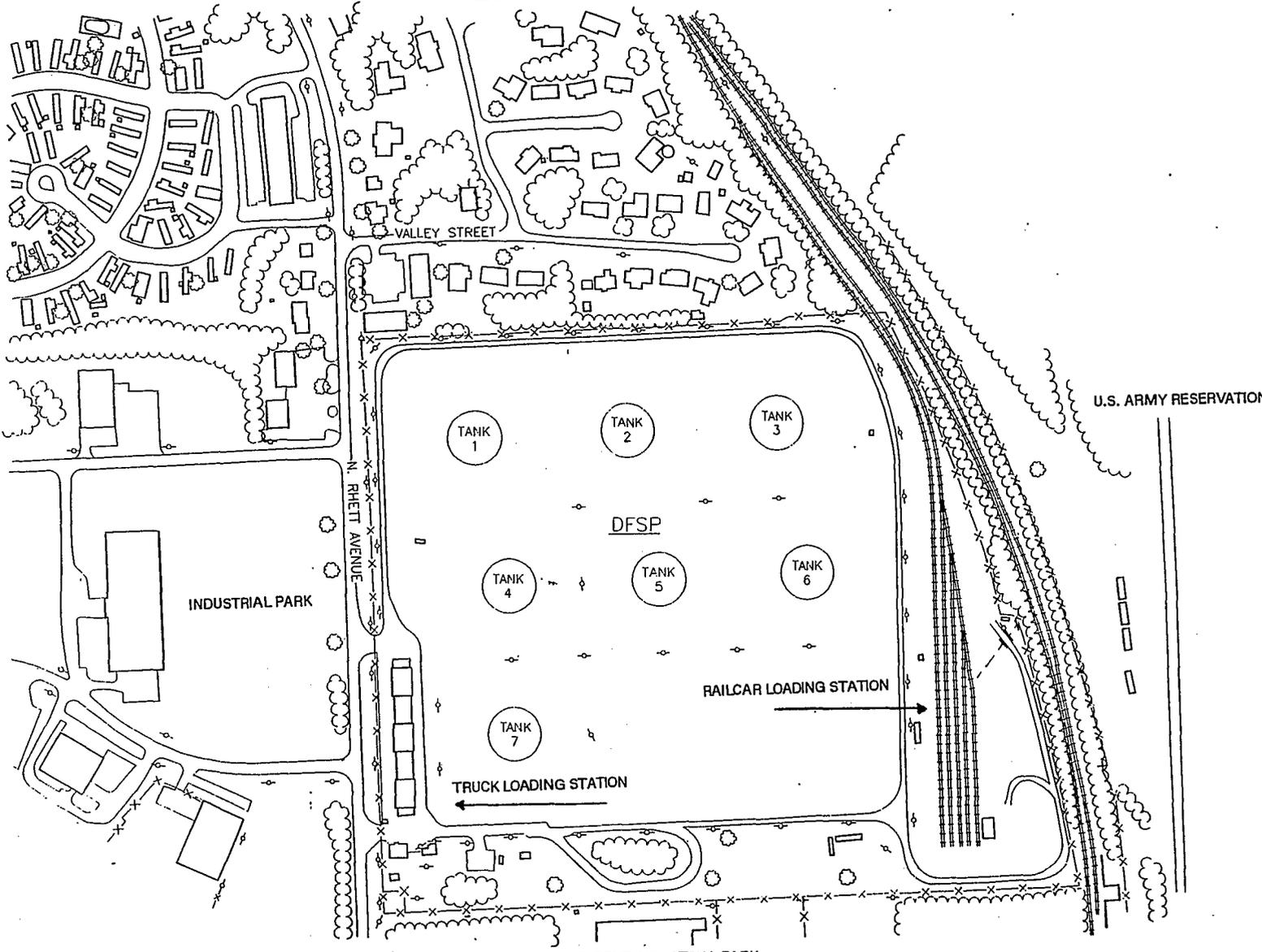
Encl

  
W. E. GOODE  
Chief, Environmental Quality Division  
Directorate of Facilities Management

**B**

SPRING VALLEY MOBILE HOME PARK

GOLD CUP SPRINGS SUBDIVISION



**LEGEND**

	Building
	Fence
	Trees
	Railroad Tracks
	Power Pole

**DFSP CHARLESTON  
FACILITY MAP**



**DATA COLLECTION  
FOR HRS II  
DFSP CHARLESTON  
HANAHAN, SC**

SOURCE: AEB Environmental Services Inc. 1993  
from RHEIT Inc. 1991



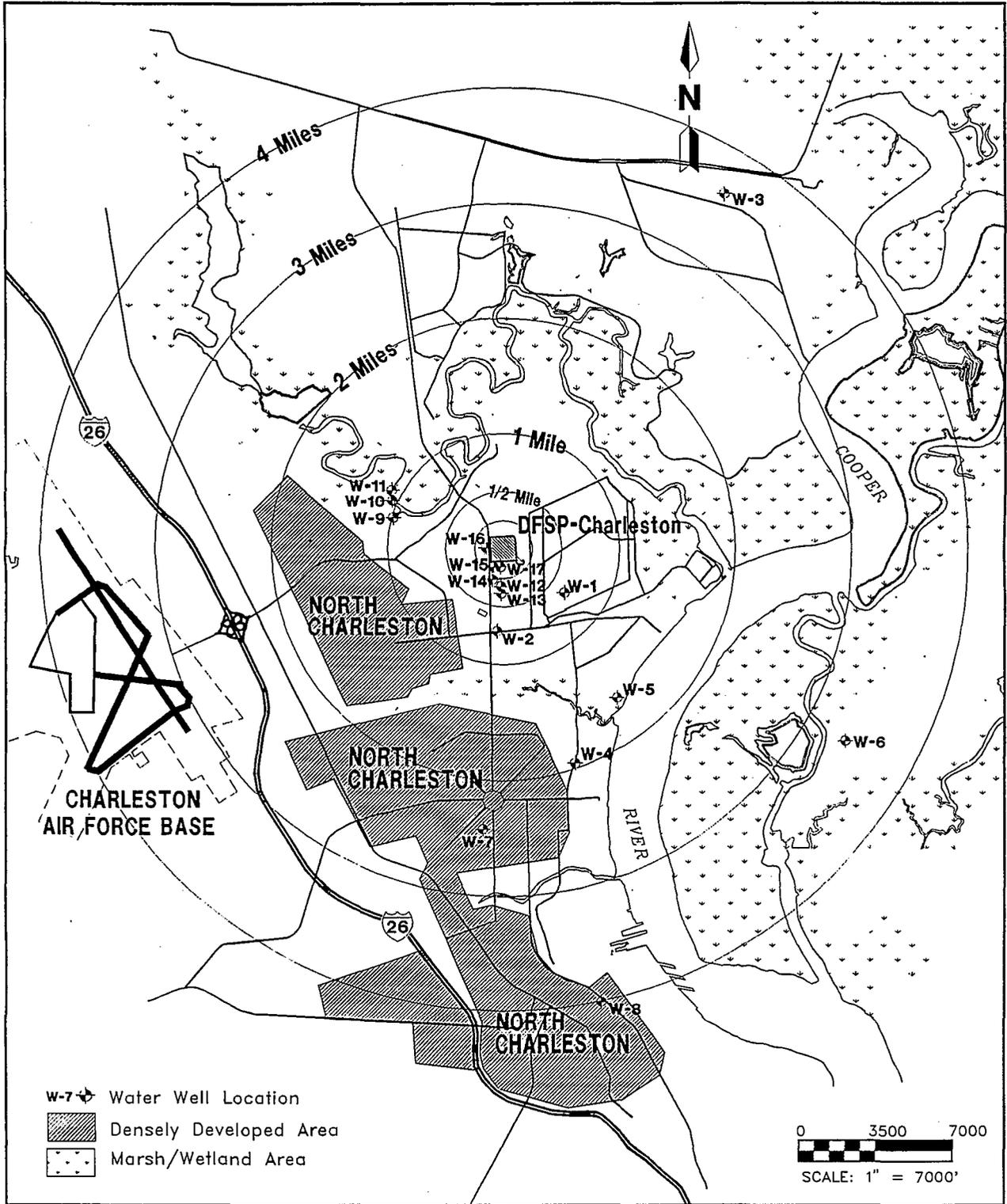


FIGURE  
WELL LOCATION MAP



DATA COLLECTION FOR  
 REVISED HAZARD RANKING  
 SYSTEM SCORING  
 DEFENSE FUEL SUPPORT POINT  
 CHARLESTON  
 HANAHAN, SOUTH CAROLINA



# United States Department of the Interior

## GEOLOGICAL SURVEY



Water Resources Division  
Stephenson Center, Suite 129  
720 Gracern Road  
Columbia, SC 29210-7651  
November 16, 1992

Mr. Bill Goode  
Defense Fuel Supply Center  
DFSC - FQ  
Cameron Station  
Alexandria, Virginia 22304-6160

Dear Mr. Goode:

As a result of our discussion in Charleston, SC, on October 20, 1992, regarding an information request from the USEPA, the U.S. Geological Survey agreed to supply you with a tabulation of wells located in the vicinity of the Defense Fuel Supply Point, Hanahan, South Carolina. The requested tabulation is enclosed. A four-mile radius, centered on tank 5 at DFSP, was used to delineate the boundary of the well search. A search of the USGS data base, including limited entries from the well files of the S.C. Water Resources Commission and the S.C. Department of Health and Environmental Control, only identified monitoring wells associated with DFSP. A search of the S.C. Water Resources Commission's data base, however, did identify several additional wells within the four-mile radius. Limited information on these wells can be found in the enclosed tabulation. Also included on the tabulation are privately owned wells that are known to exist in the Gold Cup Springs Subdivision. If additional information on these wells is required, or if we can be of any further assistance, please contact me at (803) 750-6124.

Sincerely,

Fred Robertson  
Hydrologist

enclosure

cc: Wayne Barnum, DFSC

Privately owned wells - Gold Cup Springs Subdivision:

Well ID - PW-1A

Latitude - 325455                      Longitude - 795902

Total depth - 16.5 feet (tapedown)

Owner - Vasco Blair                      Address - 929 Valley St.

Water use - Intermittent lawn irrigation

Well ID - PW-1B

Latitude - 325455                      Longitude - 795902

Total depth - 17.1 feet (tapedown)

Owner - Vasco Blair                      Address - 929 Valley St.

Water use - Intermittent lawn irrigation

Well ID - PW-2

Latitude - 325453                      Longitude - 795906

Total depth - approximately 15 feet

Owner - Benjamin Mitchum                      Address - 924 Valley St.

Water use - Intermittent lawn irrigation

Well ID - PW-3

Latitude - 325457                      Longitude - 795905

Total depth - approximately 20 feet (reported)

Owner - W.G. Southern                      Address - 929 Dogwood Ct.

Water use - Intermittent lawn irrigation

Well ID - PW-4

Latitude - 325458                      Longitude - 795908

Total depth - 32 feet (reported)

Owner - Eric Holland                      Address - 5287 N. Rhett Ave.

Water use - Intermittent lawn and garden irrigation

Well ID - PW-5

Latitude - 325455                      Longitude - 795901

Total depth - 19.4 feet (tapedown)

Owner - Mrs. Cupp                      Address - 932 Dogwood Ct.

Water use - inactive



**ABB**

ASEA BROWN BOVERI

**ABB Environmental Services, Inc.**

1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501

**TELEPHONE MEMORANDUM**

**PROJECT NO.:** 7595-03

**DATE:** May 7, 1993

**CLIENT:** Southern Division, Naval Facilities Engineering Command

**PROJECT DESCRIPTION:** Response to Comments/DFSP Charleston

**BETWEEN:** Shannon Buckley

**AND:** Brenda Hockensmith (803) 792-3225

**SUBJECT:** Obtaining information on water wells in a 4-mile radius of DFSP Charleston

Brenda will be able to provide a computer printout of all wells in a 4-mile radius of DFSP Charleston for us. She will not be in the office on Monday, but we should contact Brenda at 9:00 am on Tuesday to set up a time to meet with her. She will provide the printout on Tuesday, but indicated that if other information is needed (e.g., well permits), this would take a longer period of time.

**DISTRIBUTION:**

Lissa Miller

File

**ABB**

ASEA BROWN BOVERI

**ABB Environmental Services, Inc.**

1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501

**MEMORANDUM**

**PROJECT NO.:** 7595-03

**DATE:** May 11, 1993

**CLIENT:** Southern Division, Naval Facilities Engineering Command

**PROJECT DESCRIPTION:** Response to Comments/DFSP Charleston

**BETWEEN:** Shannon Buckley

**AND:** Brenda Hockensmith (803) 792-3225

**SUBJECT:** Obtaining information on water wells in a 4-mile radius of DFSP Charleston

Stopped by the South Carolina Water Resources Commission on Tuesday, May 11, 1993 to collect information on the location and use of all wells within a 4-mile radius of DFSP Charleston. Brenda Hockensmith, Senior Hydrogeologist, performed a records search on the WELLTAB/NEWTAB database for this information.

There are 11 wells in a 4-mile radius of DFSP Charleston. Brenda provided us the printout from the database that provides the following information: South Carolina Water Resources number, county well number, location of well, name of USGS quadrangle that well is located on, latitude and longitude, owner's name, contact name, usage category of well, depth of well, and (if available) well construction data, pump data, and hydrologic data.

Brenda also provided a list of acronyms used in this database.

**DISTRIBUTION:**

Lissa Miller

File

## INSTRUCTIONS FOR FORM GW1-a

### GENERAL

1. (8): indicates number of character spaces in field.
2. <8>: indicates number of character spaces in field; all spaces must be filled.

### HEADER INFORMATION

1. SCWRC Number <8>: format is two numbers, two upper-case letters or single upper-case letter followed by "-", "-", lower-case letter, and two sequential one-minute grid numbers, e.g., 27KK-g01, 27G--o12, 09L--a03, etc.
2. County Well Number <8>: format is three upper-case letter county abbreviation, "-", and four-digit county sequential number, e.g., BFT-1987, CHN-0009, etc.
3. SCWRC User ID <9>: number is assigned by Water Use Reporting Program and only applies to withdrawal greater than 100,000 gpd.
4. Owner's Well Name (12): self explanatory. Capacity Use Program may assign upper-case, single-letter prefix if well is part of a well system within a larger well system.
5. Well Location (30): geographic or place identifier, e.g., I-26 and US-278, Harleyville, Rocks Pond, etc.
6. Basin <11>: USDA Hydrologic Unit Map (1:500,000 or 1:1,000,000) basin identification number.
7. Quad Name (18): USGS topographic map name. Add suffix "15" for 15-minute quadrangles.
8. Latitude/Longitude <6> & UTM's <8>: UTM's are required and should be determined independently of latitude and longitude.
9. Land Surface Elevation (4): ground elevation at the well.
10. Elevation Method <1>:  
T = Topographic Map  
S = Surveyed
11. Topography <4>:  
DRAW HTOP HSID  
VALL FLAT DEPR
12. Owner (20): if no contact is listed, owner's address and phone should be entered.
13. Contact (18): authorized representative of the owner. Enter contact's address and phone.
14. Address (25), City (15), State (2), and Zip (5): see 12 and 13 above.
15. Aquifer (5): abbreviations not yet determined.
16. Water Use <2>:  
Water (Public) Supplier = WS  
Agricultural Irrigation = IR  
Golf Course Irrigation = GC  
Aquiculture = AQ  
Live stock = LS  
Industrial, Institute = IN  
Domestic = DO  
Recreation = RE

- |                       |                  |      |
|-----------------------|------------------|------|
|                       | Abandoned        | = AB |
|                       | Observation      | = OB |
|                       | Test Hole        | = TH |
|                       | Unused           | = UN |
|                       | Heat Pump Supply | = HP |
|                       | Injection Well   | = IW |
| 17. Water Source <1>: | Well             | = W  |
|                       | Mine             | = M  |
|                       | Pond, Lagoon     | = P  |
|                       | Spring           | = S  |

18. Well Yield (4): operating discharge with present pump or driller's estimate.

19. Depth Drilled (4): depth of test or pilot hole.

20. Depth Completed (4): depth of open hole or to bottom of tail pipe.

21. Construction Data, Chemical Analysis, Geophysical Logs, Pumping Test, Water Level Data, Class-A Well (1): "X" = computer file entered.

WELL-CONSTRUCTION DATA

1. Well Completed <6>: date well construction, with or without pump installation, was completed.

2. Driller (20): Well drilling company.

- |                         |                     |                 |
|-------------------------|---------------------|-----------------|
| 3. Drilling Method <2>: | Direct Rotary       | = RD            |
|                         | Reverse Rotary      | = RR            |
|                         | Air Rotary          | = RA            |
|                         | Cable Tool          | = <del>CT</del> |
|                         | Jetted              | = JT            |
|                         | Driven              | = DV            |
|                         | Air Hammer          | = HA            |
|                         | Augered, solid stem | = AS            |
|                         | Augered-hollow stem | = AH            |
|                         | Bucket Augered or   |                 |
|                         | Bored               | = AB            |
|                         | Vibracored          | = VC            |
|                         |                     | = JT            |

4. Filter, Grout <1>: Y = Yes, N = No, or blank if Unknown

5. Diagram <1>: Construction diagram in file: Y = Yes, N = No.

- |                     |                  |      |
|---------------------|------------------|------|
| 6. Casing Type <2>: | Steel            | = ST |
|                     | Stainless Steel  | = SS |
|                     | Galvanized Steel | = SG |
|                     | Black Iron Steel | = SI |
|                     | PVC              | = PV |
|                     | Fiberglass       | = FG |
|                     | Cement           | = CM |
|                     | Bronze/Brass     | = BZ |

7. Diameter (2): Self Explanatory

casings, enter upper-most, largest-diameter casing first. Enter remaining cased sections into next section in order of increasing depth.

9. Screen Type <3>: use screen-type prefix + material type abbreviations given for "casing type".

Slotted	= S
Continuous Slot	= C
Louvered	= L
Pipe-based	= P
Unknown	= U
Open Hole	= OPEN

#### PUMP DATA

1. Type Pump <2>:
- |                     |      |
|---------------------|------|
| Jet, shallow/deep   | = JT |
| Submersible         | = SU |
| Turbine             | = TR |
| Centrifugal-suction | = CS |
| Pitcher             | = PT |
| Piston              | = PS |
| Other               | = OT |

2. Make (15): Manufacturer's name.
3. HP (5): Horse Power.
4. Intake Depth (4): Depth to pump intake.

#### LOG DATA

1. Log Data (1):
- |                                  |     |
|----------------------------------|-----|
| Paper Copy on File               | = P |
| Digitized Copy on File           | = D |
| Paper and Digitized Copy on File | = B |

#### HYDROLOGIC DATA

1. Pump Test Date <6>: date test began.
2. Discharge (4): discharge during test; ending discharge for step drawdown test.
3. Test Duration (5): duration from beginning to end of DD test or beginning to end of recovery test.
4. Specific Capacity (4): at the end of the period specified in "Test Duration".
5. Storage Coefficient (6): reported as a decimal fraction.
6. Transmissivity (7): self explanatory.

SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 18CC-d01

Print Date: 05/11/93

HEADER INFO

SCWRC #: 18CC-d01

County Well #: CHN-0639

SCWRC User ID:

Owner's Well Name:

Well Location: US AIR FORCE FEUL TANK FARM

Basin: 03050201

Quad. Name: NORTH CHARLESTON

Quad #: 500

Latitude: 325450 Longitude: 795855 North UTM: 3642002 East UTM: 595199

Land Surface Elevation (ft): 35.00 Elev. Method: T Topography: FLAT

Owner: U.S. Airforce

Contact: Don Matthews

Address: P.O. Box 60039

City: N.Charleston

State: SC Zip:

Contact's Phone: 744-6393

Aquifer: Black Mingo

Water Use: IW

Water Source: W

Well Yield: 0

Depth Drilled (ft): 380

Depth Completed (ft): 381

Construction Data: X

Chemical Analysis:

Geophysical Logs: X

Pumping Test: X

Water Level Data: X

Class-A Well:

Remarks: Bioremediation purposes

WELL CONSTRUCTION DATA

Date Completed: / / Driller: LAYNE Drill Meth.:

Filter: Grout: Diagram:

Number of Casings: 1

Type: Diameter (in): 0 Top (ft): 0 Bottom: 0

Number of Screens: 1

Type: Diameter (in): 0 Top (ft): 0 Bottom: 0 Slot:

WELL CONSTRUCTION DATA

Date Completed: / / Driller: Drill Meth.:

Filter: Grout: Diagram:

Number of Casings: 0

Type: Diameter (in): 0 Top (ft): 0 Bottom: 0

Number of Screens: 0

Type: Diameter (in): 0 Top (ft): 0 Bottom: 0 Slot:

WELL CONSTRUCTION DATA

Date Completed: / / Driller: Drill Meth.:

Filter: Grout: Diagram:

Number of Casings: 0

Type: Diameter (in): 0 Top (ft): 0 Bottom: 0

Number of Screens: 0

Type: Diameter (in): 0 Top (ft): 0 Bottom: 0 Slot:

WELL CONSTRUCTION DATA

Date Completed: / / Driller: Drill Meth.:

Filter: Grout: Diagram:

Number of Casings: 0





SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 18CC-e01

Print Date: 05/11/93

HEADER INFO

SCWRC #: 18CC-e01

County Well #: CHN-0294

SCWRC User ID:

Owner's Well Name:

Well Location: N Rhett & Remount N Charleston

Basin: 03050201

Quad. Name: North Charleston

Quad #: 361

Latitude: 325413 Longitude: 795915 North UTM: 3640775 East UTM: 594690

Land Surface Elevation (ft): 40.00 Elev. Method: T Topography:

Owner: Westvaco Paper Mill

Contact: Athletic Club

Address: Remount Rd

City: N Charleston

State: SC Zip:

Contact's Phone:

Aquifer:

Water Use: RE

Water Source: W

Well Yield: -1

Depth Drilled (ft): 361

Depth Completed (ft): 361

Construction Data: X

Chemical Analysis:

Geophysical Logs:

Pumping Test: X

Water Level Data: X

Class-A Well:

Remarks:

WELL CONSTRUCTION DATA

Date Completed: 05/19/66 Driller: G W Ackerman Drill Meth.: CT

Filter:

Grout:

Diagram:

Number of Casings: 1

Type: ST Diameter (in): 6 Top (ft): 0 Bottom: 198

Number of Screens: 0

Type: OPEN Diameter (in): -1 Top (ft): -1 Bottom: -1 Slot:

PUMP DATA

Type Pump: TR

Make: Deming

H.P.: 15?

Column Diam. (in):

Intake Depth: -1

Serial #:

eeeHYDROLOGIC DATAee  
 Pump Test Date: 05/25/66 Discharge: 400  
 Q/s (pgm/ft): 17.0 Test Duration (hr): -1.0  
 Storage Coeff: -1.000000 Transmissivity (gpd/ft): -1  
 Test Type: Number of Obs. Wells: -1 Tested by: Drill  
 aee

CASINGS:

CASE#	TYPE	DIA	TOP	BOT	CASE#	TYPE	DIA	TOP	BOT
1	ST	6	0	198					

SCREENS:

SCRN#	TYPE	DIA	TOP	BOT	SLT	SCRN#	TYPE	DIA	TOP	BOT	SLT

WATER LEVELS:

Date	Time	Land Surf.	Mean Sea Lvl	Method	By
05/25/66		-56.00	-16.00		Dril

SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 18BB-m01

Print Date: 05/11/93

HEADER INFO

SCWRC #: 18BB-m01 County Well #: BRK-0274

SCWRC User ID: Owner's Well Name:

Well Location: BWSA Plant Basin: 03050201

Quad. Name: North Charleston Quad #: 361

Latitude: 325747 Longitude: 795704 North UTM: 3647391 East UTM: 598028

Land Surface Elevation (ft): 12.00 Elev. Method: T Topography: FLAT

Owner: Brk City Water/Sewer Contact:

Address: City: State: Zip:

Contact's Phone:

Aquifer: Water Use: WS Water Source: W Well Yield: 100

Depth Drilled (ft): 296 Depth Completed (ft): 289

Construction Data: Y Chemical Analysis: Y Geophysical Logs: Y

Pumping Test: Water Level Data: Class-A Well:

Remarks: Logs show cave-in @ 289'./ "?" elect. logs

WELL CONSTRUCTION DATA

Date Completed: 07/11/80 Driller: Charles Andrew & Son Drill Meth.: RD

Filter: Grout: Y Diagram:

Number of Casings: 1

Type: Diameter (in): 6 Top (ft): -1 Bottom: 219

Number of Screens: 1

Type: OPEN Diameter (in): -1 Top (ft): -1 Bottom: -1 Slot:

LOG DATA

LOG DATA

Cores Lateral Natural Gamma P Fluid res/cond

Cuttings Y Single Point Gamma-Gamma Temperature

Sieve Analysis Spon. Poten. P Neutron P Flow Meter

Driller's Log Short Normal Long Normal Acoustic

Geologist's Log Caliper P Other

Code: P = Paper D = Digital B = Both

CASINGS:

CASE#	TYPE	DIA	TOP	BOT	CASE#	TYPE	DIA	TOP	BOT
1		6	-1	219					

SCREENS:

SCRN#	TYPE	DIA	TOP	BOT	SLT	SCRN#	TYPE	DIA	TOP	BOT	SLT
1	OPEN		-1	-1							

WATER LEVELS:

Date	Time	Land Surf.	Mean Sea Lvl	Method	By

SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 18CC-g01

Print Date: 05/11/93

HEADER INFO
SCWRC #: 18CC-g01
County Well #: CHN-0049
SCWRC User ID:
Owner's Well Name:
Well Location: North Charleston
Basin: 03050201
Quad. Name: North Charleston
Quad #: 361
Latitude: 325308 Longitude: 795838 North UTM: 3638780 East UTM: 595671
Land Surface Elevation (ft): 30.00 Elev. Method: T Topography:
Owner: Raybestos-Manhattan Contact: Mr Hay
Address: SC PO Bx 5205 O'Hear Ave City: N Charleston State: SC Zip: 29406
Contact's Phone: 803-744-6261
Aquifer: Water Use: IN Water Source: W Well Yield: 310
Depth Drilled (ft): 515 Depth Completed (ft): 440
Construction Data: Y Chemical Analysis: Y Geophysical Logs: Y
Pumping Test: Y Water Level Data: Class-A Well:
Remarks:

WELL CONSTRUCTION DATA
Date Completed: 11/16/51 Driller: Layne-Atlantic Drill Meth.: RD
Filter: Grout: Diagram:
Number of Casings: 1
Type: ST Diameter (in): 8 Top (ft): 0 Bottom: 308
Number of Screens: 1
Type: Diameter (in): -1 Top (ft): -1 Bottom: -1 Slot:

PUMP DATA
Type Pump: TR Make: Layne H.P.: 40
Column Diam. (in): Intake Depth: 200 Serial #:

LOG DATA
Cores Lateral Natural Gamma Fluid res/cond
Cuttings Single Point P Gamma-Gamma Temperature
Sieve Analysis Spon. Poten. P Neutron Flow Meter
Driller's Log P Short Normal Long Normal Acoustic
Geologist's Log Caliper Other
Code: P = Paper D = Digital B = Both



SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 18CC-g02

Print Date: 05/11/93

HEADER INFO

SCWRC #: 18CC-g02 County Well #: CHN-0540
SCWRC User ID: Owner's Well Name:
Well Location: Wesvaco Mill Basin: 03050201
Quad. Name: North Charleston Quad #: 361
Latitude: 325354 Longitude: 795813 North UTM: 3640202 East UTM: 596307
Land Surface Elevation (ft): 15.00 Elev. Method: T Topography:
Owner: Wesvaco Inc Contact: Mr Terry Tsurutiss
Address: Wesvaco City: State: Zip:
Contact's Phone: 803-554-8350
Aquifer: Water Use: IN Water Source: W Well Yield: 80
Depth Drilled (ft): 450 Depth Completed (ft): 450
Construction Data: Y Chemical Analysis: Y Geophysical Logs:
Pumping Test: Water Level Data: Class-A Well:
Remarks:

WELL CONSTRUCTION DATA

Date Completed: / / Driller: John Mixon Drill Meth.:
Filter: Grout: Diagram:
Number of Casings: 1
Type: ST Diameter (in): 6 Top (ft): 1 Bottom: -1
Number of Screens: 1
Type: U Diameter (in): -1 Top (ft): -1 Bottom: -1 Slot:

PUMP DATA

Type Pump: SU Make: H.P.:
Column Diam. (in): Intake Depth: -1 Serial #:

CASINGS:

CASE#	TYPE	DIA	TOP	BOT	CASE#	TYPE	DIA	TOP	BOT
1	ST	6	1	-1					

SCREENS:

SCRN#	TYPE	DIA	TOP	BOT	SLT	SCRN#	TYPE	DIA	TOP	BOT	SLT
1	U		-1	-1	-1						

WATER LEVELS:

Date	Time	Land Surf.	Mean Sea Lvl	Method	By

SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 18CC-i01 Print Date: 05/11/93
SCWRC #: 18CC-i01 County Well #: BRK-0297
SCWRC User ID: Owner's Well Name: wo#7236
Well Location: Basin: 03050201
Quad. Name: North Charleston Quad #: 361
Latitude: 325321 Longitude: 795604 North UTM: 3639212 East UTM: 599669
Land Surface Elevation (ft): 25.00 Elev. Method: T Topography: Flat
Owner: George Deyten Contact: Same
Address: Rt. 1 Box 2 City: Charleston State: SC Zip:
Contact's Phone:
Aquifer: Water Use: IN Water Source: W Well Yield: 0
Depth Drilled (ft): 341 Depth Completed (ft): 341
Construction Data: X Chemical Analysis: N Geophysical Logs: X
Pumping Test: N Water Level Data: N Class-A Well:
Remarks:

WELL CONSTRUCTION DATA
Date Completed: 08/14/80 Driller: Ackerman Drill Meth.: Rd
Filter: Grout: Diagram:
Number of Casings: 0
Type: SI Diameter (in): 4 Top (ft): 0 Bottom: 145
Number of Screens: 0
Type: Open Diameter (in): -1 Top (ft): 145 Bottom: 341 Slot:

PUMP DATA
Type Pump: Su Make: Goulds H.P.: 1.
Column Diam. (in): Intake Depth: 340 Serial #:

LOG DATA
Cores Lateral Natural Gamma Fluid res/cond
Cuttings Single Point Gamma-Gamma Temperature
Sieve Analysis Spon. Poten. Neutron Flow Meter
Driller's Log Short Normal Long Normal Acoustic
Geologist's Log Caliper Other
Code: P = Paper D = Digital B = Both

WELLS:

CASE#	TYPE	DIA	TOP	BOT	CASE#	TYPE	DIA	TOP	BOT
aa									

SCREENS:

SCRN#	TYPE	DIA	TOP	BOT	SLT	SCRN#	TYPE	DIA	TOP	BOT	SLT
aa											

WATER LEVELS:

Date	Time	Land Surf.	Mean Sea Lvl	Method	By
aa					

SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 18CC-o01

Print Date: 05/11/93

HEADER INFO

SCWRC #: 18CC-o01 County Well #: CHN-0460

SCWRC User ID: Owner's Well Name:

Well Location: Park Circle,N Chas. Basin: 03050201

Quad. Name: North Charleston Quad #: 361

Latitude: 325254 Longitude: 795919 North UTM: 3638341 East UTM: 594610

Land Surface Elevation (ft): 30.00 Elev. Method: T Topography:

Owner: Viola Bunn Contact: or James L Bunn

Address: 4731 Park Place West City: N Charleston State: SC Zip:

Contact's Phone: 803-744-6751

Aquifer: Water Use: UN Water Source: W Well Yield: 73

Depth Drilled (ft): 325 Depth Completed (ft): 325

Construction Data: Y Chemical Analysis: Geophysical Logs: Y

Pumping Test: Y Water Level Data: Y Class-A Well:

Remarks: Piezo well.

WELL CONSTRUCTION DATA

Date Completed: 02/25/65 Driller: Drill Meth.:

Filter: Grout: Diagram:

Number of Casings: 1

Type: Diameter (in): 4 Top (ft): 0 Bottom: 126

Number of Screens: 1

Type: Diameter (in): -1 Top (ft): -1 Bottom: -1 Slot:

LOG DATA

Cores Lateral Natural Gamma P Fluid res/cond

Cuttings Single Point Gamma-Gamma Temperature

Sieve Analysis Spon. Poten. Neutron Flow Meter

Driller's Log Short Normal Long Normal Acoustic

Geologist's Log Caliper P Other

Code: P = Paper D = Digital B = Both



SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 18CC-q01

Print Date: 05/11/93

HEADER INFO

SCWRC #: 18CC-q01

County Well #: CHN-0476

SCWRC User ID:

Owner's Well Name:

Well Location: CNSY Powerhouse

Basin: 03050201

Quad. Name: Charleston

Quad #: 089

Latitude: 325143 Longitude: 795811 North UTM: 3636168 East UTM: 596398

Land Surface Elevation (ft): 20.00 Elev. Method: T Topography: FLAT

Owner: US Naval Shipyard Contact: Norman Moore

Address:

City:

State: Zip:

Contact's Phone: 803-743-3135

Aquifer: Water Use: IN Water Source: W Well Yield: -1

Depth Drilled (ft): 315 Depth Completed (ft): -1

Construction Data: Chemical Analysis: Geophysical Logs: X

Pumping Test: Water Level Data: X Class-A Well:

Remarks: Well is capped (5/26/89).

LOG DATA

Cores Lateral Natural Gamma P Fluid res/cond

Cuttings Single Point Gamma-Gamma Temperature

Sieve Analysis Spon. Poten. Neutron Flow Meter

Driller's Log Short Normal Long Normal Acoustic

Geologist's Log Caliper P Other

Code: P = Paper D = Digital B = Both

WELL MONITORING DATA

```

WATER LEVEL
ADR          From:  /  /  To:  /  /
OBSERVATION From: 03/31/81 To:  /  /
WATER QUALITY
CHLORIDE    From:  /  /  To:  /  /
OTHER       From:  /  /  To:  /  /

```

Screens - Casings - Water Levels

CASINGS:

CASE#	TYPE	DIA	TOP	BOT	CASE#	TYPE	DIA	TOP	BOT

SCREENS:

SCRN#	TYPE	DIA	TOP	BOT	SLT	SCRN#	TYPE	DIA	TOP	BOT	SLT

WATER LEVELS:

Date	Time	Land Surf.	Mean Sea Lvl	Method	By
08/17/89	1400	-52.50	-32.50	TAPE	SCWR

SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 19BB-w01

Print Date: 05/11/93

HEADER INFO

SCWRC #: 19BB-w01

County Well #: CHN-0213

SCWRC User ID:

Owner's Well Name:

Well Location: North Charleston

Basin: 03050201

Quad. Name: Ladson

Quad #: 277

Latitude: 325503 Longitude: 800232 North UTM: 3642276 East UTM: 589558

Land Surface Elevation (ft): 45.00 Elev. Method: T Topography: FLAT

Owner: James King

Contact:

Address: 2446 Raymond Avenue City: N Charleston State: SC Zip:

Contact's Phone: 803-797-6958

Aquifer: Water Use: DO Water Source: W Well Yield: -1

Depth Drilled (ft): -1 Depth Completed (ft): 300

Construction Data: Y Chemical Analysis: Geophysical Logs: Y

Pumping Test: Water Level Data: Y Class-A Well:

Remarks: Poor E-log. Well filled after logging. 20' drill rod in hole.

WELL CONSTRUCTION DATA

Date Completed: 02/01/78 Driller: Heyward Riley Drill Meth.:

Filter: Grout: Diagram:

Number of Casings: 1

Type: ST Diameter (in): 4 Top (ft): 1 Bottom: -1

Number of Screens: 1

Type: OPEN Diameter (in): -1 Top (ft): -1 Bottom: -1 Slot:

LOG DATA

Cores Lateral Natural Gamma Fluid res/cond

Cuttings Single Point P Gamma-Gamma Temperature

Sieve Analysis Spon. Poten. P Neutron Flow Meter

Driller's Log Short Normal Long Normal Acoustic

Geologist's Log Caliper Other

Code: P = Paper D = Digital B = Both

CASINGS:

CASE#	TYPE	DIA	TOP	BOT	CASE#	TYPE	DIA	TOP	BOT
1	ST	4	1	-1					

SCREENS:

SCRN#	TYPE	DIA	TOP	BOT	SLT	SCRN#	TYPE	DIA	TOP	BOT	SLT
1	OPEN	-1	-1	-1							

WATER LEVELS:

Date	Time	Land Surf.	Mean Sea Lvl	Method	By
03/01/78		-24.85	20.15	TAPE	

SOUTH CAROLINA WATER RESOURCES COMMISSION WATER WELL REPORT FORM GW-1

SCWRC#: 19BB-w02

Print Date: 05/11/93

HEADER INFO

SCWRC #: 19BB-w02 County Well #: CHN-0296
SCWRC User ID: Owner's Well Name:
Well Location: Midland Park School Basin: 03050201
Quad. Name: Ladson Quad #: 277
Latitude: 325512 Longitude: 800228 North UTM: 3642554 East UTM: 589660
Land Surface Elevation (ft): 40.00 Elev. Method: T Topography: FLAT
Owner: Midland Park School Contact:
Address: Charleston Heights City: Chas Heights State: SC Zip:
Contact's Phone:
Aquifer: Water Use: UN Water Source: W Well Yield: 40
Depth Drilled (ft): 359 Depth Completed (ft): 359
Construction Data: Y Chemical Analysis: Geophysical Logs: Y
Pumping Test: Y Water Level Data: Y Class-A Well:
Remarks: Appears capped 2' below LSD. Served school before city water.

WELL CONSTRUCTION DATA

Date Completed: 01/13/51 Driller: G W Ackerman Drill Meth.: CT
Filter: Grout: Diagram:
Number of Casings: 1
Type: ST Diameter (in): 6 Top (ft): -2 Bottom: -82
Number of Screens: 1
Type: OPEN Diameter (in): -1 Top (ft): -1 Bottom: -1 Slot:

LOG DATA

Cores Lateral Natural Gamma Fluid res/cond
Cuttings Single Point Gamma-Gamma Temperature
Sieve Analysis Spon. Poten. Neutron Flow Meter
Driller's Log P Short Normal Long Normal Acoustic
Geologist's Log Caliper Other
Code: P = Paper D = Digital B = Both







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**TELEPHONE MEMORANDUM**

**PROJECT NO.:** 7595-03

**DATE:** May 20, 1993

**CLIENT:** Southern Division, Naval Facilities Engineering Command

**PROJECT DESCRIPTION:** Response to Comments/DFSP Charleston

**BETWEEN:** Lissa Miller

**AND:** Brenda Hockensmith, South Carolina Water Resources Commission

**SUBJECT:** WELLTAB/NEWTAB database

Called Brenda because I needed additional information about the data in the WELLTAB/NEWTAB database she used to give us the location and use of all wells within a 4-mile radius of DFSP Charleston. Brenda said that all wells should be installed by certified well drillers. When certified well drillers install a new well, they are required to fill out a form which is submitted to DHEC. DHEC is then responsible for copying the form and sending it to Brenda and her staff at Water Resources. A large majority of the wells are field-located and inspected by her staff but some wells are not (the volume of work outpaces the capacity of her staff). Field-located wells and forms submitted to DHEC which contain adequate information are entered into the WELLTAB/NEWTAB database.

Types of wells which are not part of the database include those wells which are shallow, used for irrigation purposes, or other improperly installed wells.

**Brenda Hockensmith**  
South Carolina Water Resources Commission  
(803) 792-3225

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**TELEPHONE MEMORANDUM**

**PROJECT NO.:** 7595-04

**DATE:** May 24, 1993

**CLIENT:** Naval Facilities Engineering Command, Southern Division

**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston

**BETWEEN:** Steve Maguire

**AND:** Kristine Coker, Hydrologist

**SUBJECT:** Well locations within 4 miles of DFSP Charleston

Ms. Coker, a hydrologist for North Charleston Environmental Quality Control, informed me that there are no records specifying private or irrigation well locations. She suggested that I conduct a door-to-door survey to obtain my information. Short of that; I might call the Bureau of Drinking Water Protection at (803) 734-5310.

Kristine Coker  
Hydrologist  
North Charleston Environmental Quality Control  
(803) 740-1590

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Lissa Miller

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**TELEPHONE MEMORANDUM**

**PROJECT NO.:** 7595-04

**DATE:** May 25, 1993

**CLIENT:** Naval Facilities Engineering Command, Southern Division

**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston

**BETWEEN:** Steve Maguire

**AND:** David Price

**SUBJECT:** Well locations within 4 miles of DFSP Charleston

Mr. Price informed me that, through the Freedom of Information Act (FOIA), I could request the locations of wells from the resident FOIA officer, Ms. Pat Turner. The list compiled by Ms. Turner would not include irrigation wells but would include all others.

David Price  
Bureau of Drinking Water Protection  
(803) 734-5310

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Lissa Miller

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**TELEPHONE MEMORANDUM**

**PROJECT NO.:** 7595-04

**DATE:** May 25, 1993

**CLIENT:** Naval Facilities Engineering Command, Southern Division

**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston

**BETWEEN:** Steve Maguire

**AND:** Ron Copeland

**SUBJECT:** Well locations within 4 miles of DFSP Charleston

Mr. Copeland informed me that the Hanahan water company uses the Edisto River (approximately 23 miles away) exclusively in supplying water to 400,000 residents in North Charleston. The water company uses surface water for back-up needs and thus neither uses nor owns any wells.

Residents using Hanahan water are not allowed to augment their water supply using wells. If there are any wells, they are going to be private wells. Mr. Copeland also stated that the North Charleston area is predominantly an urban area and there isn't a problem of people "plunking" a hole in their backyards.

Ron Copeland  
Lab Technician  
Hanahan Water Plant  
Commission of Public Works  
(803) 863-4014

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Lissa Miller

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**TELEPHONE MEMORANDUM**

**PROJECT NO.:** 7595-03

**DATE:** May 25, 1993

**CLIENT:** Naval Facilities Engineering Command, Southern Division

**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston

**BETWEEN:** Steve Maguire

**AND:** Anthony Maglione - City of Charleston Water Supply (803) 727-6867

**SUBJECT:** Well location and use within a 4-mile radius of DFSP Charleston

Mr. Maglione is Director of Design and Construction for Charleston Water Department, Commission of Public Works (CPW). Upon being informed by me of the boundaries (4-mile radius) within which well locations are sought, Mr. Maglione described the water supply in each quadrant. He said the areas to the Southeast and Southwest within the 4-mile radius are semi-urban and are all served potable water through the CPW's public water system. He said the area to the Northeast was Federally-owned and also receives water from CPW. Mr Maglione continued and said the area to the Northwest is entirely served potable water by CPW excluding the area around Eagle Drive, Ward Avenue, and Jet Park Road which, due to its age, may have private wells. He further informed me that in South Carolina, it is not necessary to register private wells.

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Lissa Miller

File

FINAL REPORT  
OFF-SITE AIR MONITORING AND  
DATA COLLECTION  
DEFENSE FUEL SUPPLY POINT  
CHARLESTON, SOUTH CAROLINA

Prepared for:

DEFENSE FUEL SUPPLY CENTER  
Mr. W. E. Goode  
Chief, Environmental Quality Division  
Directorate of Facilities Management

Prepared by:

RMT, Inc.  
P.O. Box 16778  
Greenville, South Carolina 29609

CONTRACT NO. N62467-87-D-0027

CONFIRMATION STUDY TEAM MEMBERS

Robert Martin, Project Manager  
Dan Taylor, Air Quality Engineer  
Ian Hart, Hydrogeologist  
July, 1987



11 Regency Hills Drive  
P. O. Box 16778  
Greenville, SC 29606  
Phone: 803-292-1921

**FINAL REPORT  
REMEDIAL ALTERNATIVES REPORT  
DEFENSE FUEL SUPPLY POINT  
CHARLESTON, SOUTH CAROLINA**

Prepared for:

**DEFENSE FUEL SUPPLY CENTER**  
**Mr. W. E. Goode**  
**Chief, Environmental Quality Division**  
**Directorate of Facilities Management**

Prepared by:

**RMT, Inc.**  
**P.O. Box 16778**  
**Greenville, South Carolina 29609**

**CONTRACT NO. N62467-87-C-0027**

**CONFIRMATION STUDY TEAM MEMBERS**

**Robert Martin, P.E. Project Manager**  
**John Fields, Prj. Eng. - Tech. Coordinator**  
**Ian Hart, P.G. Hydrogeologist**  
**Dr. Larry Schutts, Hydrogeologist**  
**February, 1988**

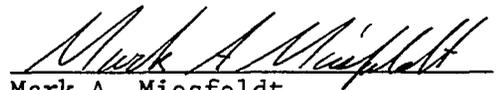
MONITORING WELL INSTALLATION REPORT  
DEFENSE FUEL SUPPLY POINT  
CHARLESTON, SOUTH CAROLINA

August 1989

Prepared for:

Southern Division  
Naval Facilities Engineering Command  
Charleston, South Carolina

Contract #N62467-87-C-0027  
Amendment 6



Mark A. Miesfeldt  
Project Hydrogeologist



Mark A. Petermann, P.G. #570  
Technical Coordinator



C. T. Sherron, P.E.  
Project Manager

Prepared by:

RMT, Inc.  
100 Verdae Blvd.  
P. O. Box 16778  
Greenville, S. C. 29606



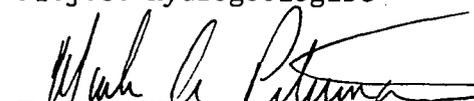
MONITORING WELL INVENTORY REPORT  
DEFENSE FUEL SUPPLY POINT  
CHARLESTON, SOUTH CAROLINA  
September 1989

Prepared for:

Southern Division  
Naval Facilities Engineering Command  
Charleston, South Carolina

Contract #N62467-87-C-0027  
Amendment 6

  
Mark A. Miesfeldt  
Project Hydrogeologist

  
Mark A. Petermann, P.G. #570  
Technical Coordinator

Prepared by:

RMT, Inc.  
100 Verdae Blvd.  
P.O. Box 16778  
Greenville, SC 29606

  
C. T. Sherron, P.E.  
Project Manager

DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

TOTAL PETROLEUM HYDROCARBONS IN SEDIMENTS AT THE  
DEFENSE FUEL SUPPLY POINT, CHARLESTON, SOUTH CAROLINA

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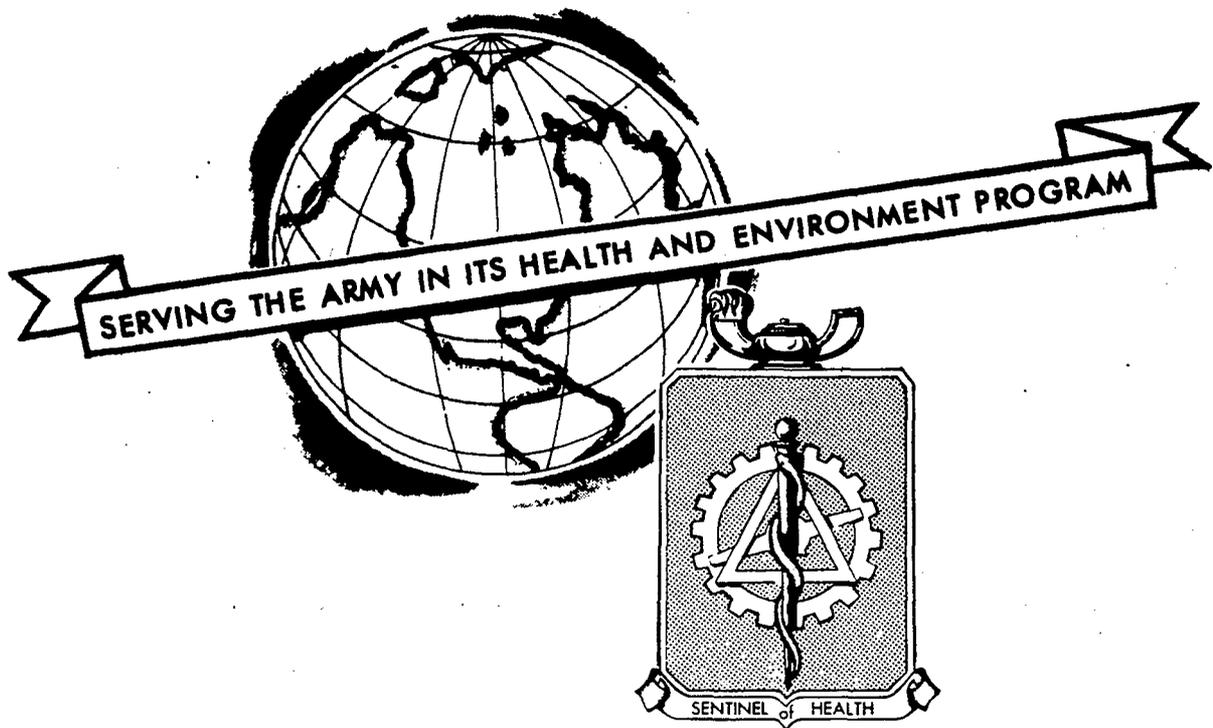
Administrative Report

Prepared for the

U.S. DEPARTMENT OF THE NAVY

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

WATER QUALITY GEOHYDROLOGIC CONSULTATION NO. 24-0026-77  
DEFENSE FUEL SUPPORT POINT  
CHARLESTON, SOUTH CAROLINA  
NOVEMBER 1975 - MAY 1977



US ARMY  
ENVIRONMENTAL HYGIENE AGENCY  
ABERDEEN PROVING GROUND, MD 21010



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**ABB Environmental Services, Inc.**1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501**TELEPHONE MEMORANDUM****PROJECT NO.:** 7595-03**DATE:** May 10, 1993**CLIENT:** Naval Facilities Engineering Command, Southern Division**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston**BETWEEN:** Ray Haggerty, South Carolina Wildlife & Marine Resources Department**AND:** Lissa Miller**SUBJECT:** Fisheries closing and wetlands maps

I called Ray at 9:00 am. I asked him if any fisheries had been closed, specifically if they had been closed due to contamination due to fuel spills at DFSP. Ray said that none had been closed due to contamination at DSFP to his knowledge. He said that DHEC might have more of that kind of information since they are responsible for classifying water bodies. Ray gave us the name of Mike Coker [(803) 740-1590] at the Shellfish Division of DHEC.

I also asked him if his office had any survey maps showing wetlands around DSFP. He said that they have survey maps showing oyster beds - all of which are in DHEC prohibited zones.

Shannon and I will be visiting him tomorrow morning, Tuesday, at approximately 8:30 am to pick up some maps and to see what other type of information he may have at his disposal. Ray indicated that some of the maps will be free of charge and that others will have a fee.

Ray Haggerty  
South Carolina Wildlife & Marine Resources Department  
(803) 795-6350, extension 2043

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**MEMORANDUM**

**PROJECT NO.:** 7595-03

**DATE:** May 11, 1993

**CLIENT:** Southern Division, Naval Facilities Engineering Command

**PROJECT DESCRIPTION:** Response to Comments/DFSP Charleston

**BETWEEN:** Shannon Buckley

**AND:** Ray Haggerty (803) 795-6350

**SUBJECT:** Obtaining information on local fisheries

Ray is a biologist for the South Carolina Wildlife and Marine Resources Department. Ray was contacted by ABB-ES because he had provided us a map of the location and use of fisheries in the Charleston area for the HRS scoring efforts conducted for NWS Charleston and NWS South Annex. Ray verified that the location and use of fisheries depicted on this map is still current.

Ray also provided maps that depict the areas where oysters are harvested. These areas do not extend to the surface water bodies within a 15 river-mile distance from DFSP Charleston and are not necessary for inclusion in the DFSP Charleston submittal.

Ray also indicated that the water quality in Goose Creek and the Cooper River are not saline enough to maintain populations of saltwater fish and shellfish. That is why these areas are prohibited from harvesting, as indicated on the map that Ray provided for us.

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**ABB Environmental Services, Inc.**1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501**MEMORANDUM****PROJECT NO.:** 7595-03**DATE:** May 12, 1993**CLIENT:** Southern Division, Naval Facilities Engineering Command**PROJECT DESCRIPTION:** Response to Comments/DFSP Charleston**BETWEEN:** Shannon Buckley**AND:** Joe Moran (803) 762-5072**SUBJECT:** Obtaining information on annual production in Charleston and Berkley Counties

*Although this information was not requested by the USEPA, ABB-ES has included the following for HRS scoring purposes.*

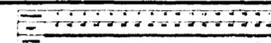
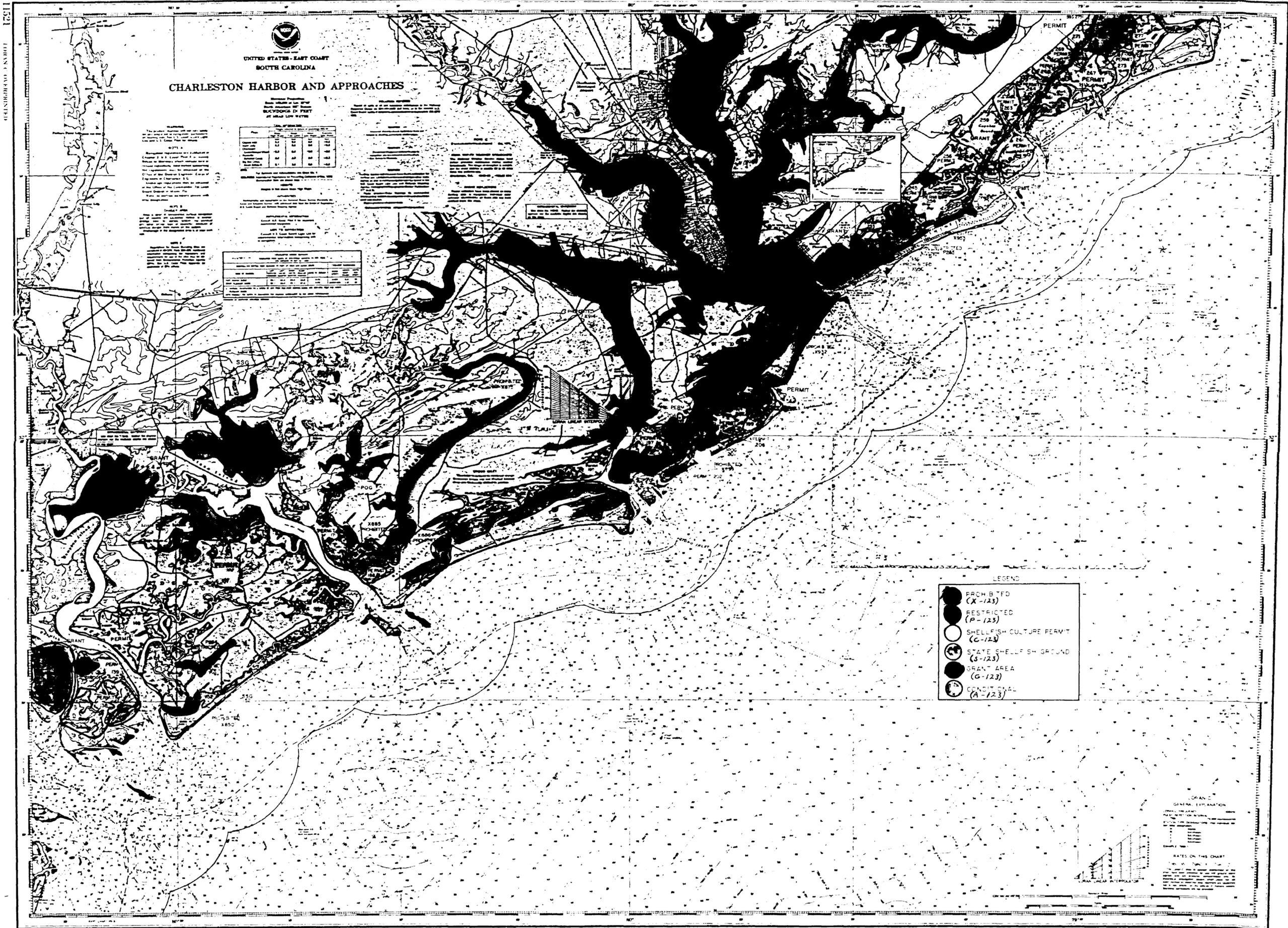
Joe is a biologist for the South Carolina Department of Wildlife and Marine Resources. Joe was able to provide me with the following information on fisheries landings in Charleston County. The information is "preliminary" as "late date" information is still arriving. The information for 1992 is:

Clams (bags)	8,490	(there are 250 clams/bag)
Crabs (lbs)	2,908,747	
Oysters (bushels)	65,275	(conversion is 3.18 * bushels = lbs of meat)
Shrimp (lbs)	1,641,064	
Fish (lbs)	1,169,900	(all fish caught in Charleston waters)

**DISTRIBUTION:**

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**TELEPHONE MEMORANDUM**

**PROJECT NO.:** 7595-03

**DATE:** May 10, 1993

**CLIENT:** Naval Facilities Engineering Command, Southern Division

**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston

**BETWEEN:** Shellfish Division, DHEC

**AND:** Lissa Miller

**SUBJECT:** Wetlands Delineations around DFSP Charleston

Called the Shellfish Division of DHEC to speak to Mike Coker at (803) 740-1590. The secretary said that Mike would be out of the office until the end of the week. The secretary transferred me to Steve. Steve did say that the harbor, the Ashley river, and the Cooper river had been closed to fishing for quite some time and that the closings were not reflective of Navy operations. Steve then referred me to Cis Nunly. She is the wetlands specialist for DHEC.

Cis was helpful but couldn't answer the questions, so she gave me the names of several other people to contact:

**Don Hill or Chalie Crosby**

**John Hensel**

**Susan Davis or Rob Dupal**

**Corps of Engineers**

**S.C. Coastal Council**

**Wildlife & Marine**

**(803) 727-4330**

**(803) 744-5838**

**(803) 795-6350**

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**ABB Environmental Services, Inc.**1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501**TELEPHONE MEMORANDUM****PROJECT NO.:** 7595-03**DATE:** May 10, 1993**CLIENT:** Naval Facilities Engineering Command, Southern Division**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston**BETWEEN:** Charlie Crosby, Corps of Engineers**AND:** Lissa Miller**SUBJECT:** Wetlands delineations

Talked to Charlie Crosby. He said that a good rule of thumb for the greater Charleston area is that 50% of all land area is jurisdictional wetlands. According to his figures, approximately 48% of the soils in Charleston county are hydric (which is indicative of wetlands).

Charlie also gave us the name of Bobbie Adams (803 - 734 - 9100). She works at the South Carolina Resources Commission in Columbia, South Carolina. She will have the maps that we need and the National Wetlands Inventory map overlays.

**Charlie Crosby**  
(803) 727-4330

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**TELEPHONE MEMORANDUM**

**PROJECT NO.:** 7595-03

**DATE:** May 10, 1993

**CLIENT:** Naval Facilities Engineering Command, Southern Division

**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston

**BETWEEN:** John Hensel, South Carolina Coastal Council

**AND:** Lissa Miller

**SUBJECT:** Wetlands delineations

I called John Hensel at the South Carolina Coastal Council. John's office has some relevant information but not a lot. He says that saltwater wetland delineations have to be done on a site-by-site basis. Freshwater wetland delineations also have to be performed on a site-by-site basis. He suggested that I call the Corps of Engineers again and ask for anyone who does wetlands delineations for further information.

**John Hensel**  
**South Carolina Coastal Council**  
**(803) 744-5838**

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**MEMORANDUM**

**PROJECT NO.:** 7595-03

**DATE:** May 11, 1993

**CLIENT:** Naval Facilities Engineering Command, Southern Division

**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston

**BETWEEN:** Rob Dunlap, South Carolina Wildlife & Marine Resources Department

**AND:** Lissa Miller, Shannon Buckley

**SUBJECT:** Identification of wetlands areas and surface water segments

Mike McKenzie, a co-worker with Ray Haggerty, referred our wetlands questions to Rob Dunlap who works in an adjacent building. Rob talked to us about the location of wetlands around DFSP Charleston and explained which surface water bodies were freshwater, which were saltwater, and which were brackish. We learned that Goose Creek Reservoir is freshwater and is the sole source of freshwater for Goose Creek.

Rob also informed us that the Back River is completely closed off to the Cooper River via a dam and the Cooper River is bounded at the North end by the Moultrie Lake Dam. Moultrie Lake is a freshwater reservoir for industry.

In addition, Rob gave us information for ordering NAPP (National Aerial Photography Program) photographs. These are available from the USDA (Department of Agriculture) aerial photography field office in Salt Lake City, Utah. The series numbers which we would need are:

1662 - 168  
167  
166  
165  
164  
163  
162  
1665 - 26  
25  
24  
23  
22

**Rob Dunlap, Resources Geographer**  
**Environmental Evaluations Section, Office of Fisheries Management**  
**Marine Resources Division**  
**P.O. Box 12559, Charleston, SC 29412**  
**(803) 762-5067, 795-6350**

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**ABB Environmental Services, Inc.**1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501**TELEPHONE MEMORANDUM****PROJECT NO.:** 7595-03**DATE:** May 10, 1993**CLIENT:** Naval Facilities Engineering Command, Southern Division**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston**BETWEEN:** Buddy Atkins, South Carolina Water Resources Commission**AND:** Lissa Miller**SUBJECT:** Flow rate of Goose Creek

Talked to Buddy Atkins. He said that Goose Creek at the Cooper River end is tidal and that Cooper River is also tidal. In addition, Lake Moultrie, which is upstream from Cooper River, is a large freshwater industrial reservoir. This reservoir has controlled release to the Cooper River and is responsible for regulating freshwater in Cooper River (especially during tidal conditions when saltwater would normally flow upstream). At the other end, Goose Creek is connected to the Goose Creek Reservoir which also has controlled release.

The 7Q10 factor throughout the coastal South Carolina area is essentially zero. This means that during periods of regular drought conditions, creeks and streams receive zero contribution from the shallow water table causing the creeks and streams to dry up.

Buddy's best guess is that Goose Creek is very lazy and probably averages 1 to 2 cfs per square mile during average conditions and zero cfs per square mile during drought conditions. He also estimates that the velocity of Goose Creek goes way up during tidal conditions.

**Buddy Atkins**  
**South Carolina Resources Commission**  
1201 Main Street, Suite 1100  
Columbia, SC  
(803) 737-0800

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**ABB Environmental Services, Inc.**1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501**TELEPHONE MEMORANDUM****PROJECT NO.:** 7595-03**DATE:** May 19, 1993**CLIENT:** Naval Facilities Engineering Command, Southern Division**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston**BETWEEN:** Steve Kinnerd, Commission of Public Works (CPW)**AND:** Lissa Miller**SUBJECT:** Flow rate of Goose Creek

Talked to Steve. He said that the dam between Goose Creek Reservoir (which is freshwater) and Goose Creek (which is saline) is a spillway-type dam with an elevation of 7 to 7.5 feet. At the base of the dam at Goose Creek, there is a pocket of brackish water.

When asked about the flow rate of Goose Creek, he said that is a very complicated question to answer. Basically, the flow rate, the direction of flow, and depth of water in Goose Creek are completely regulated by tidal influences. All freshwater inflow due to freshwater coming over the spillway dam is completely negated by the action of the tides. In some instances, CPW has discharged freshwater from Bushy Park (Foster Creek) into Gosse Creek at a rate of 50 million gallons per day and the effect on the creek was completely nullified by the inflow and outflow of the tides.

Steve was familiar with the general location of DFSP Charleston and said that all freshwater inflow should be negated by the time the water flows past the tank farm.

I asked Steve about the flow rate of the Cooper River since it also is dammed up at Lake Moultrie. He said that the Cooper River experiences the same dramatic changes.

Steve is fairly certain that USGS is developing a computer model of the Cooper River basin which should be able to estimate the flow rate of the Cooper River and its tributaries at any given time under all types of flow conditions.

Steve Kinnerd  
Commission of Public Works  
(803) 727-6800

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ASEA BROWN BOVERI

**ABB Environmental Services, Inc.**1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501**MEMORANDUM****PROJECT NO.:** 7595-03**DATE:** May 10-11, 1993**CLIENT:** Naval Facilities Engineering Command, Southern Division**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston**BETWEEN:** Don Matthews, DFSP Charleston, Hanahan, South Carolina**AND:** Lissa Miller, Shannon Buckley**SUBJECT:** Data gaps for HRSII scoring

Don is the QAR for DLA at DFSP Charleston. First we discussed the grading at the facility. At the north end of the tank farm there is a 12 foot drop down to a housing development. The south side of the facility has a 7 foot drop. The east side has an eight foot drop down to the railroad tracks while the west side is on street level (i.e., North Rhett).

We then discussed the amount of tank water bottoms bled from the tanks on a yearly basis. They estimated that 300,000 - 400,000 gallons per year are bled. DSFP Charleston personnel test tank water bottoms (e.g., TCLP) prior to discharge. Several disposal options were evaluated for the facility:

1. Treat tank bottom water discharge on-site by a mobile treatment truck then ship the treated water off-site (evaluated but not implemented);
2. Have a truck come in to the facility to haul off the tank bottom water discharge for treatment at NAS Jacksonville; or
3. Haul off the tank bottom water discharge for use at a cement kiln facility.

Slop tanks, as referred to in the letter from EPA, are called recoverable tanks. DFSP Charleston used to have 4 active tanks. The inactive tank is located near the railroad tracks, is filled with water, and is scheduled to be removed. All four of the recoverable tanks are scheduled to be replaced with aboveground storage tanks.

The facility has not collected soil samples for lead analysis to date. In addition, there is no schedule for future collection and analysis of any soil samples because the State of South Carolina is satisfied with the information gathered to date and does not require additional information.

Construction of the DFSP Charleston facility began in 1949, was completed in 1951, and began operations in 1953. DFSP Charleston personnel report that the tanks are cleaned approximately once every five years. Cleaning involves removal of all built-up tank sludge. DFSP Charleston personnel estimate that three to eight 55-gallon drums of tank sludge are generated per cleaning. Around 1973, DFSP Charleston discontinued weathering tank bottom sludge.

Don was also able to tell us that total FSII usage at DFSP Charleston is approximately 8 barrels per year.

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ASEA BROWN BOVERI

**ABB Environmental Services, Inc.**1400 16th St., NW, Suite 720/Washington, D.C. 20036  
(202) 797-6500 FAX (202) 797-6501**TELEPHONE MEMORANDUM****PROJECT NO.:** 7595-03**DATE:** May 20, 1993**CLIENT:** Naval Facilities Engineering Command, Southern Division**PROJECT DESCRIPTION:** HRSII Scoring/Data Gaps at DFSP Charleston**BETWEEN:** Don Matthews, DFSP Charleston, Hanahan, South Carolina**AND:** Lissa Miller**SUBJECT:** Weathering of tank bottom sludge

I needed to clear up several issues regarding the practice of weathering tank bottom sludges at the facility. Don said that because it was common and accepted industry practice, tank bottom sludge was weathered at the DFSP Charleston facility. Because no one currently working at DFSP Charleston has engaged in that practice and because records of these events were not kept, Don cannot say with certainty where the weathering was done. It may have occurred within the berms surrounding the tanks or it may have occurred in two fields on the facility property.

I also asked him about the different types of fuel stored on site. Don said that JP-4 is a non-leaded fuel, JP-5 is a non-leaded fuel which also does not contain benzene, and MOGAS and AVGAS are both leaded. A significant JP-4 spill occurred in 1975 which is well documented. Don said that "relatively minimal" spills (i.e., on the order of 100 gallons) did occur in the rail car area when MOGAS and AVGAS were transferred from rail cars. However, the facility has no reports of spills nor does it have any record of any dates on which these spills might have occurred.

(NOTE: previous documentation has estimated the through-put of fuel at DFSP Charleston to be in the range of 175,000,000 gallons per year, therefore a spill of 100 gallons would be considered to be "relatively minimal".)

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FINAL REPORT  
OFF-SITE AIR MONITORING AND  
DATA COLLECTION  
DEFENSE FUEL SUPPLY POINT  
CHARLESTON, SOUTH CAROLINA

Prepared for:

DEFENSE FUEL SUPPLY CENTER  
Mr. W. E. Goode  
Chief, Environmental Quality Division  
Directorate of Facilities Management

Prepared by:

RMT, Inc.  
P.O. Box 16778  
Greenville, South Carolina 29609

CONTRACT NO. N62467-87-D-0027

CONFIRMATION STUDY TEAM MEMBERS

Robert Martin, Project Manager  
Dan Taylor, Air Quality Engineer  
Ian Hart, Hydrogeologist  
July, 1987

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TECHNICAL REPORT  
RISK ASSESSMENT FOR  
THE DEFENSE FUEL SUPPORT POINT, HANAHAN, SOUTH CAROLINA

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**Clement Associates, Incorporated**

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Health and Environmental Science

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WATER QUALITY GEOHYDROLOGIC CONSULTATION NO. 24-0026-77  
DEFENSE FUEL SUPPORT POINT  
CHARLESTON, SOUTH CAROLINA  
NOVEMBER 1975 - MAY 1977



US ARMY  
ENVIRONMENTAL HYGIENE AGENCY  
ABERDEEN PROVING GROUND, MD 21010

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

TOTAL PETROLEUM HYDROCARBONS IN SEDIMENTS AT THE  
DEFENSE FUEL SUPPLY POINT, CHARLESTON, SOUTH CAROLINA

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Administrative Report

Prepared for the  
U.S. DEPARTMENT OF THE NAVY  
SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

March 16, 1993

Department of Navy  
Southern Division  
Attn: Daryle Fontenot  
Naval Facilities Engineering Command  
2155 Eagle Drive  
Charleston, SC 29411-0068

Re: Defense Fuel Supply Point Phase II Field Investigation

Dear: Mr. Fontenot:

The attached Technical Memorandum Number 2 is being submitted subsequent to the letter dated August 20, 1992 from Mr. Jack Pittman and summarizes the approach ABB-ES prefers for the continuation of Phase II Field Investigation at DFSP Hanahan.

Mark Joop, ABB-ES's Field Operations Leader, and I spoke to Mr. Robert Devlin at SCDHEC on Friday, March 12, 1993 regarding our preferred approach to Phase II. He informed us that he thought there were sufficient data to assess the extent of soil contamination, but that he would like ABB-ES to verify and characterize the groundwater contaminant plume. We discussed the proposed new monitoring well locations with him and would like to submit them to SCDHEC for approval. Mark also talked with Don Vroblesky at USGS and obtained information regarding their groundwater recovery and soil remediation efforts at the site.

ABB-ES would appreciate your time and effort to review the attached information. If you have any questions or comments regarding the information contained, please contact me (904-656-1293 ext. 211) or Mark in our Jacksonville office (904-269-7012 ext. 122).

Sincerely,  
ABB Environmental Services, Inc.

*B. Edward Watson*

B. Edward Watson  
Task Order Manager

*Mark Joop*

Mark Joop  
Field Operations Lead