N61165.AR.005809
CNC CHARLESTON
5090.3a

LABORATORY REPORT OF VOLATILE ORGANICS, POLYAROMATIC HYDROCARBONS AND PERCENT SOLIDS FOR TRENCH SPOILS CNC CHARLESTON SC

9/21/1991

SAVANNAH LABORATORIES

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0166

Received: 21 SEP 91

Mr. Greg Beck
Kemron Environmental
2987 Clairmont Road, Suite 150
Atlanta, Georgia 30329-1635

Project: 03-458/DFSP
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
36163-1	Trench Spoil #1	09-20-91
36163-2	Trench Spoil #2	09-20-91
36163-3	Trench Spoil #3	09-20-91
36163-4	G Spoil #1	09-20-91

PARAMETER	36163-1	36163-2	36163-3	36163-4
Hydrocarbons (Modified 8100)				
Hydrocarbons as Kerosene, mg/kg dw	<12	<12	<12	<13
Hydrocarbons as Diesel Fuel, mg/kg dw	<12	<12	<12	<13
Hydrocarbons as Heavy Oils, mg/kg dw	68	71	150	410
Hydrocarbons as Mineral Spirits, mg/kg dw	<12	<12	<12	<13
Hydrocarbons as Varsol, mg/kg dw	<12	<12	<12	<13
Hydrocarbons as Fuel Oil, mg/kg dw	<12	<12	<12	<13
Percent Solids, %	83 %	84 %	83 %	77 %

Post-It™ brand fax transmittal memo 7671 | # of pages ▸ 12

To David Baize	From Angela Jones
Co. SC DHEC	Co. Navy - So. Div
Dept. Ground H2O Protection	Phone # 803-743-0658
Fax # 803-734-4661	Fax # 803-743-0563

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S1-36163

Received: 21 SEP 91

Mr. Greg Beck
Kemron Environmental
2987 Clairmont Road, Suite 150
Atlanta, Georgia 30329-1635

Project: 03-458/DFSP
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID
36163-5	Method Blank-Soil
36163-6	Detection Limit-Soil
36163-7	Accuracy (Mean % Recovery)-Soil
36163-8	Precision (% RPD)-Soil
36163-9	Date Analyzed

PARAMETER	36163-5	36163-6	36163-7	36163-8	36163-9
Hydrocarbons (Modified 8100)					
Hydrocarbons as Kerosene, mg/kg dw	<10	10	---	---	09.26.91
Hydrocarbons as Diesel Fuel, mg/kg dw	<10	10	78 %	3.8 %	09.26.91
Hydrocarbons as Heavy Oils, mg/kg dw	<10	10	---	---	09.26.91
Hydrocarbons as Mineral Spirits, mg/kg dw	<10	10	---	---	09.26.91
Hydrocarbons as Varsol, mg/kg dw	<10	10	---	---	09.26.91
Hydrocarbons as Fuel Oil, mg/kg dw	<10	10	---	---	09.26.91

Methods: EPA SW-846.

Steven J. White

Steven J. White

Received: 09/21/91 09/25/91 13:55:17

REPORT TO Wapora, Inc.
2987 Clairmont Rd.
Suite 150
Atlanta,GA 30329
ATTEN Greg Beck

PREPARED BY KEMRON ENVIRONMENTAL SERVICES
109 STARLITE PARK
MARIETTA, OHIO 45750
ATTEN
PHONE (614) 373-4071

CERTIFIED BY
CONTACT D HILL

CLIENT WAPATL 59227 SAMPLES 4
COMPANY Wapora, Inc.
FACILITY Atlanta
FAX # (404) 636-7162

ANALYTICAL METHODS AND DOCUMENTATION ARE FOUND AT THE END OF THIS REPORT. ALL RESULTS ON SOILS/SLUDGES ARE REPORTED "AS RECEIVED" UNLESS OTHERWISE SPECIFIED.

WORK ID 03-458/DFSP
TAKEN Cord Lomauro
TRANS Fed Ex
TYPE
P.O. #
INVOICE under separate cover

SAMPLE IDENTIFICATION

01 Trench Spoil-1
02 Trench Spoil-2
03 Trench Spoil-3
04 G. Spoil

TEST CODES and NAMES used on this workorder

BETX5 Volatile Organics (BETX)
M8100 Polyaromatic Hydrocarbons
PCT_S Percent Solids

PRELIMINARY

10/09/91 09:42 ☎803 743 0563 SOUTH NAVFAC ☑003
SEP-27-'91 FR 6:33 ID:WAPORA / KEMRON TEL 404 636 7162 #567 P04
SEP-25-'91 WED 15:50 TEL NO: #617 P02/11

Received: 09/21/91

KEMRON REPORT
Results by Sample

Work Order # N1-09-253

SAMPLE ID Trench Spoil-1

FRACTION 01A TEST CODE BETX5 NAME Volatile Organics (BETX)
Date & Time Collected 09/20/91 12:30:00 Category SOIL

ANALYST: MEL
INSTRMT: HP_III INJECTED: 09/21/91

FILE #: 0923B01A
FACTOR: 1 UNITS: ug/kg VERIFIED: RJW

CAS#	COMPOUND	RESULT	PQL
71-43-2	Benzene	23	5.0
100-41-4	Ethylbenzene	BQL	5.0
108-88-3	Toluene	11	5.0
1330-20-7	Xylenes, Total	10	5.0

NOTES AND DEFINITIONS FOR THIS REPORT.
BQL= BELOW PRACTICAL QUANTITATION LIMIT (PQL)
NA = NOT ANALYZED

10/09/91 08:43 ☎803 743 0583 SOUTH NAVFAC 004
SEP-27-'91 FR 6:34 ID:VAPORA / KEMRON TEL 404 67 7162 #567 P06
SEP-27-'91 WED 15:51 ID: TEL NO: #617 P04/11

SAMPLE Sample Id	Test: PCT_S % wt.
01 Trench Spoil-1	81
02 Trench Spoil-2	82
03 Trench Spoil-3	83
04 G. Spoil	77

10/09/91 08:43 ☎803 743 0583 SOUTH NAVFAC ☑005
SEP-27-'91 FR 5:33 ID:WAPORA / KEMRON TEL 404 63 7162 #567 P05
SEP-25-'91 WED 15:50 TEL NO: #617 P03/11

KEMRON REPORT
Results by Sample

Work Order # N1-09-253

SAMPLE ID Trench Spoil-1

FRACTION 01A TEST CODE M8100 NAME Polyaromatic Hydrocarbon
Date & Time Collected 09/20/91 12:30:00 Category SOIL

ANALYST: DST EXTRACTED: 09/23/91 FILE #: 878
INSTRMT: HP_II INJECTED: 09/25/91 FACTOR: 1 UNITS: ug/kg VERIFIED: RJW

CAS#	COMPOUND	RESULT	DET LIMIT
91-20-3	Naphthalene	BDL	1
208-96-8	Acenaphthylene	BDL	1
83-32-9	Acenaphthene	160	1
86-73-7	Fluorene	100	1
85-01-8	Phenanthrene	220	1
120-12-7	Anthracene	200	1
206-44-0	Fluoranthene	380	1
129-00-0	Pyrene	370	1
56-55-3	Benzo(a)anthracene	BDL	5
218-01-9	Chrysene	220	5
205-99-2	Benzo(b)fluoranthene	170	5
207-08-9	Benzo(k)fluoranthene	BDL	5
50-32-8	Benzo(a)pyrene	BDL	5
193-39-5	Indeno(1,2,3-cd)pyrene	330	5
53-70-3	Dibenzo(a,h)anthracene	BDL	5
191-24-2	Benzo(g,h,i)perylene	BDL	5

NOTES AND DEFINITIONS FOR THIS REPORT
DET LIMIT = DETECTION LIMIT
BDL = BELOW DETECTION LIMIT
NA = NOT ANALYZED
NF = NOT FOUND
DL = DILUTED OUT

10/09/91 08:44 ☎803 743 0563 SOUTH NAVFAC 008
SEP-27-'91 FR 6:34 ID:WAPORA / KEMRON TEL 404 67 7162 #567 P07
SEP-25-'91 WED 15:51 ID: TEL NO: #617 P05/11

Received: 09/21/91

KEMRON REPORT
Results by Sample

Work Order # N1-09-253

SAMPLE ID Trench Spoil-2

FRACTION 02A TEST CODE BETX5 NAME Volatile Organics (BETX)
Date & Time Collected 09/20/91 13:00:00 Category SOIL

ANALYST: MEL
INSTRMT: HP_III INJECTED: 09/23/91

FILE #: 0923B02A
FACTOR: 1 UNITS: ug/kg VERIFIED: RJW

CAS#	COMPOUND	RESULT	PQL
71-43-2	Benzene	7	5.0
100-41-4	Ethylbenzene	BQL	5.0
108-88-3	Toluene	14	5.0
1330-20-7	Xylenes, Total	BQL	5.0

NOTES AND DEFINITIONS FOR THIS REPORT.
BQL= BELOW PRACTICAL QUANTITATION LIMIT (PQL)
NA = NOT ANALYZED

10/09/91 08:41 ☎803 743 0563 SOUTH NAVFAC ☑007
SEP-27-'91 FR :35 ID:NAPORA / KEMRON TEL 404 6 7162 #567 P08
SEP-25-'91 WED 15:52 ID: TEL NO: #617 P06/11

Received: 09/21/91

KEMRON REPORT
Results by Sample

Work Order # N1-09-253

SAMPLE ID Trench Spoil-2

FRACTION 02A TEST CODE M8100 NAME Polyaromatic Hydrocarbons
Date & Time Collected 09/20/91 13:00:00 Category SOIL

ANALYST: DST EXTRACTED: 09/23/91 FILE #: 879
INSTRMT: HP_II INJECTED: 09/25/91 FACTOR: 1 UNITS: ug/kg VERIFIED: RJW

CAS#	COMPOUND	RESULT	DET LIMIT
91-20-3	Naphthalene	BDL	1
208-96-8	Acenaphthylene	BDL	1
83-32-9	Acenaphthene	78	1
86-73-7	Fluorene	54	1
85-01-8	Phenanthrene	280	1
120-12-7	Anthracene	280	1
206-44-0	Fluoranthene	630	1
129-00-0	Pyrene	1000	1
56-55-3	Benzo(a)anthracene	640	5
218-01-9	Chrysene	660	5
205-99-2	Benzo(b)fluoranthene	280	5
207-08-9	Benzo(k)fluoranthene	BDL	5
50-32-8	Benzo(a)pyrene	BDL	5
193-39-5	Indeno(1,2,3-cd)pyrene	310	5
53-70-3	Dibenzo(a,h)anthracene	BDL	5
191-24-2	Benzo(g,h,i)perylene	BDL	5

NOTES AND DEFINITIONS FOR THIS REPORT
DET LIMIT = DETECTION LIMIT
BDL = BELOW DETECTION LIMIT
NA = NOT ANALYZED
NF = NOT FOUND
DL = DILUTED OUT

10/09/91 08:45 ☎803 743 0563 SOUTH NAVFAC ☑008
SEP-27-'91 FRI 6:35 ID:NAPORO / KEMRON TEL 404 63 7162 #567 P09
SEP 25 '91 15:52

KEMRON REPORT
Results by Sample

Work Order # N1-09-253

SAMPLE ID Trench Spoil-3 FRACTION 03A TEST CODE BETX5 NAME Volatile Organics (BETX)
Date & Time Collected 09/20/91 [illegible]:30:00 Category SOIL

ANALYST: MEL
INSTRMT: HP [illegible] INJECTED: [illegible] [illegible] ug/kg VERIFIED: RJW

CAS#			
71-43-2	[illegible]	[illegible]	[illegible]
100-41-4	[illegible]	[illegible]	5.0
108-88-3	[illegible]	[illegible]	[illegible]
1330-20-7	[illegible]	[illegible]	[illegible]

[illegible] DEFINITIONS FOR THIS REPORT
[illegible] BELOW [illegible] QUANTITATION LIMIT
[illegible]

SOUTH NAVFAC TEL 404 63[illegible] 7162 #567 P10 009
#617 P08/11
[illegible] ID:NAFORA / KEMRON

KEMRON
ENVIRONMENTAL SERVICES

1815 Century Blvd. ▪ Suite 150 ▪ Atlanta, Georgia 30345 ▪ Telephone (404) 636-0928 ▪ FAX (404) 636-7162

Project 458

13 May 1991

Entered
RECEIVED
MAY 16 1991
GROUNDWATER
PROTECTION DIVISION

Department of Health and
Environmental Control
Groundwater Protection Division
2600 Bull Street
Columbia, SC 29201

ATTN: Mr. David Baize:

KEMRON Environmental Services, on behalf of Southern Division Naval Facilities Engineering Command, is pleased to submit Remedial Activities Progress Reports Nos. 3 and 4 for the Defense Fuel Supply Point, Charleston Naval Shipyard, Charleston, South Carolina. Please do not hesitate to contact either myself or Kurt Hausner at (404) 636-0928 is you have any questions or comments.

Sincerely,

Gregory A. Beck

Gregory A. Beck
Project Manager

Enclosures
cc: SouthDiv (Code 11521)

KEMRON
ENVIRONMENTAL SERVICES

1815 Century Blvd. ▪ Suite 150 ▪ Atlanta, Georgia 30345 ▪ Telephone (404) 636-0928 ▪ FAX (404) 636-7162

Project 458

13 December 1990

Department of Health and
Environmental Control
Groundwater Protection Division
2600 Bull Street
Columbia, SC 29201

ATTN: Mr. David Baize:

KEMRON Environmental Services, on behalf of Southern Division Naval Facilities Engineering Command, is pleased to submit the Remedial Activities Progress Report #1 for the Defense Fuel Supply Point, Charleston Naval Shipyard, Charleston, South Carolina. Please do not hesitate to contact either myself or Kurt Hausner at (404) 636-0928 is you have any questions or comments.

Sincerely,

Gregory A. Beck

Gregory A. Beck
Project Manager

Enclosures
cc: SouthDiv (Code 11521)

RECEIVED
DEC 17 1990
GROUND-WATER
PROTECTION DIVISION

File

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary
Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

Monitor Well Approval

Approval is hereby granted to: Kemron Environmental
ATTN: Charles Beck
1815 Century Blvd, Suite 150
Atlanta, GA 30345

RE: DFSP - Charleston Naval Shipyard
Charleston County

for the construction of monitoring wells designated MW-1 thru MW-8 in accordance with the construction plans and specifications submitted on August 2, 1990.

These wells will be constructed to the approximate depth of 15 feet below the surface and screened in the surficial aquifer for the purpose of monitoring ground water quality.

Conditions: That the latitude and longitude and actual construction details for each well be submitted within 30 days after installation. That the analytical results be submitted within 30 days of receipt of laboratory analyses. That the District Hydrologist, Christine Sanford-Coker, be notified at least 72 hours prior to installation.

This approval is pursuant to the provisions of Section 44-55-40 and Section 48-1 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71.

Date of Issue September 17, 1990.

David G. Baize, Hydrologist
Assessment and Development Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

DB/sa
MW 1665
0917901665/DB

cc: Trident District EQC

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary
Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

September 17, 1990

Mr. Reese Batten
Southern Division
2155 Eagle Drive
P.O. Box 10068
Charleston, SC 29411-0068

Re: DFSP - Charleston Naval Shipyard
Final Contamination Assessment Report/Remedial
Action Plan dated July, 1990 (submitted August 2, 1990)
Charleston County

Dear Mr. Batten:

The referenced corrective action plan has been reviewed, and the following comments and recommendations are provided:

1) The proposal to implement an in-situ landfarming and biostimulation pilot project to remediate the contaminated soils/ground-water at this site is approvable. As discussed in our meeting on April 16, 1990, the in-situ landfarming of the contaminated soils is considered to be a pilot study to determine the effectiveness of bioremediation at this site.

2) If the data obtained from the pilot study indicates that biostimulation has not adequately remediated the soils <u>and</u> ground water at this site, the Navy has agreed to implement the necessary additional measures to complete site remediation. A conceptual plan has been included in the referenced document proposing that horizontal injection wells be used to complete site remediation (if necessary). The operation of the horizontal injection wells, to be installed in the new tank pads, will require an Underground Injection Control (UIC) permit. The UIC permit application must include details on injection rates, types and concentrations of injectate , and data indicating proper hydraulic control. Please contact Mr. Stanley Swartzel (734-4613) for more detailed information and to obtain an UIC application with instructions.

recycled paper

Chas. Nav. Shipyard

Mtg.

Cpt. Pfieffer is commander

Southern Division acts as a consultant

CNS wants to replace two tanks in area which is impacted

$1M budgeted for soil removal to sanitary landfill for FY 90

Seeking conceptual concurrence on remedial approach

Diesel & heavy fuel oil are contaminants

Money to spend in FY 90 or it will be lost.

~4'-5' ▽ fluctuation in response to tides

DFSP is (a command under) operated by Defense Logistics Agency

Deese Batton
743-0578

Paul Bristol

Sent April 25th

To: Don Duncan

Call Dist.
Solid Waste
Disposal
Wharn Fanning
554-5533

Base Tank Farm - Charlestown NB

By/ESC

3900 G + H

Req. ESC to recieve cont. soil
not cons. hazard waste

Diesel fuel

(Remove foundation at 3900 G + H
— classified as non-hazard
Pg 6-2 (3))

set up GW monitor plan after soil removal

Permission
To remove soils
+ have contractor
accept soil
Mr. Fanning

☆ a statement
of oily soil
as non-hazardous
waste so contractor
can haul 14,000 cf

Solid + Hazardous
Waste — Herald Seabrook

CHARLESTON Naval Shipyard

IRP - Phase I + II ?

TWO ABOVE GRD TANKS - replaced old w/ NEW - NO ACTION ON LEAKAGE FROM old tank

NACP Phase II

IAS

1) caustic - pond area
2) chemical - disposal area
3) landfill AREA (1)
4) Pesticide mixing AREA
5) electrical - transformer storage Area
6) oil - sludge pit
7) POL - transfer area
8) Fire training pit

IAS

3.2 All 8 recommended for Phase II

POL STORAGE TANKS

Base Tank Farm 39-J 3900-6

3900-H ?

KEMRON
ENVIRONMENTAL SERVICES

1815 Century Boulevard ■ Suite 150 ■ Atlanta, Georgia 30345 ■ (404) 636-0928 ■ FAX: (404) 636-7162

Project 819-400

31 July 1990

Department of Health and
Environmental Control
Groundwater Protection Division
2600 Bull Street
Columbia, SC 29201

Attn: Mr. David Baize:

KEMRON Environmental Services, on behalf of Southern Division Naval Facilities Engineering Command, is pleased to submit the amended Final version (2 copies) of the Contamination Assessment Report-Remedial Action Plan (CAR-RAP) for the Defense Fuel Supply Point, Charleston Naval Shipyard, Charleston, South Carolina. The Navy and KEMRON greatly appreciate your time and effort in reviewing the Draft Final version of this report.

Sincerely,

Kurt D. Hausner
Project Manager

Enclosures
cc: SouthDiv (Code 11521)

RECEIVED
AUG 02 1990
GROUNDWATER PROTECTION DIVISION

KH: 819400af.USN
7/31/90

File

KEMRON
ENVIRONMENTAL SERVICES

1815 Century Boulevard ■ Suite 150 ■ Atlanta, Georgia 30345 ■ (404) 636-0928 ■ FAX: (404) 636-7162

Project 819-400

29 May 1990

Department of Health and
Environmental Control
Groundwater Protection Division
2600 Bull Street
Columbia, SC 29201

Attn: Mr. David Baize:

KEMRON Environmental Services, on behalf of Southern Division Naval Facilities Engineering Command, is pleased to submit the Final version (2 copies) of the Contamination Assessment Report-Remedial Action Plan (CAR-RAP) for the Defense Fuel Supply Point, Charleston Naval Shipyard, Charleston, South Carolina. The Navy and KEMRON greatly appreciate your time and effort in reviewing the Draft Final version of this report.

Sincerely,

Kurt D. Hausner
Project Manager

Enclosures
cc: SouthDiv (Code 11521)

RECEIVED
MAY 31 1990
PROTECTION DIVISION

File

South Carolina
DHEC
Department of Health and Environmental Control

April 24, 1990

Mr. Reese Batten
Southern Division
2155 Eagle Dr.
P.O. Box 10068
Charleston, SC 29411

Re: Charleston Naval Shipyard (CNS) - DFSP
Remedial Action Plan (RAP) dated March 29, 1990
and Meeting on April 16, 1990
Charleston County

Dear Mr. Batten:

The referenced plan has been reviewed. The purpose of this letter is to provide written documentation of our discussions concerning the RAP at the meeting on April 16, 1990. The following points were discussed:

1) CNS proposes to use an in situ land-farming (bioremediation) method to remediate the contaminated soil and ground water at the referenced aboveground tank farm.

   I stated that the Department was concerned with this approach, as no site specific "bench scale" studies had been conducted to determine the optimal rate and amount of nutrient addition. Mr. Beck stated that no nutrient concentrations would be added in excess of MCL's.

   It was decided that the in situ landfarming could be implemented as a test pilot study. Mr. Batten stated that the Navy was committed to cleaning up this site. If it is determined by the Department that in situ landfarming is not effectively remediating this site, another remedial option will be implemented. As discussed in our phone conversation of April 24, 1990, this remedial option (if necessary) would most probably include the installation of recovery/injection wells to enhance bioremediation.

2) CNS intends to install eight additional monitoring wells at this site to monitor the effectiveness of the in situ landfarming pilot study. Since the cement pads located at the former AGT sites cannot be removed before the remedial action plan is implemented, a soil venting system was proposed to enhance bioremediation under the tank pads. Kemron will submit monitor well and soil vent

Commissioner: Michael D. Jarrett Board: Henry S. Jordan MD, Chairman John B. Pate, MD, Vice Chairman William E. Applegate, III, Secretary
Toney Graham, Jr., MD John H. Burriss Richard E. Jabbour, DDS Currie B. Spivey, Jr.

2600 Bull Street Columbia, South Carolina 29201

Sincerely,

David G. Baize, Hydrogeologist
Assessment and Development Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

DGB/CNS-DFSP

cc: Victor Weeks
U.S. EPA Region IV

Christine Sanford
Trident District EQC

CNS — DAP
4-16-90

Pilot study

— will look at tidal, etc.

— install wells
— backhoe - test pits — corr. field & lab data
— Berm area
— pad — pump air towards pad
NO pad — turn w/ backhoe + add fert.
— N below 10 mg/l
— cont. by Sept — start Nov (remove pad)

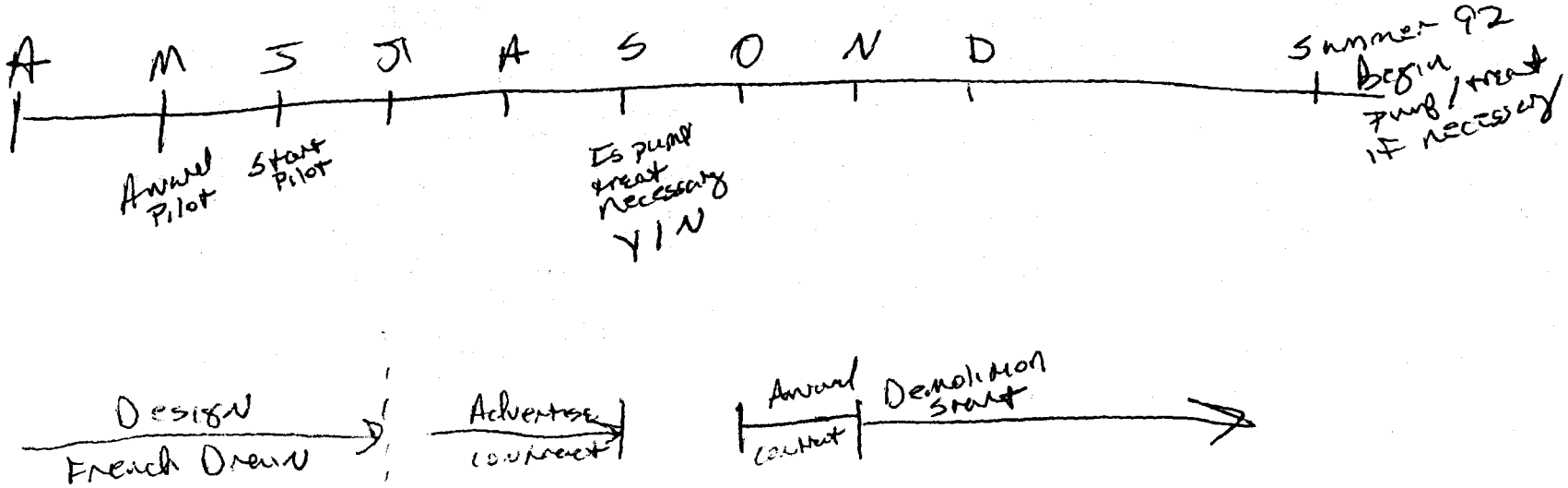
— start NPDES
— internal — french drain — injection gallery
potable — poss.

— look at PAH data in test pit

MW details
soil vent details
What look at in test — cont. samples
— outline cont. plan.

— can use wells for UC — need perc + K values

— check w/ Harold + Air on permits needed
SRC


A
M
J
J
A
S
O
N
D
Summer 92
Begin pump / treat if necessary
Award Pilot
Start Pilot
Is pump treat necessary Y / N
Design
French Drain
Advertise
contract
Award
contract
Demolition Start

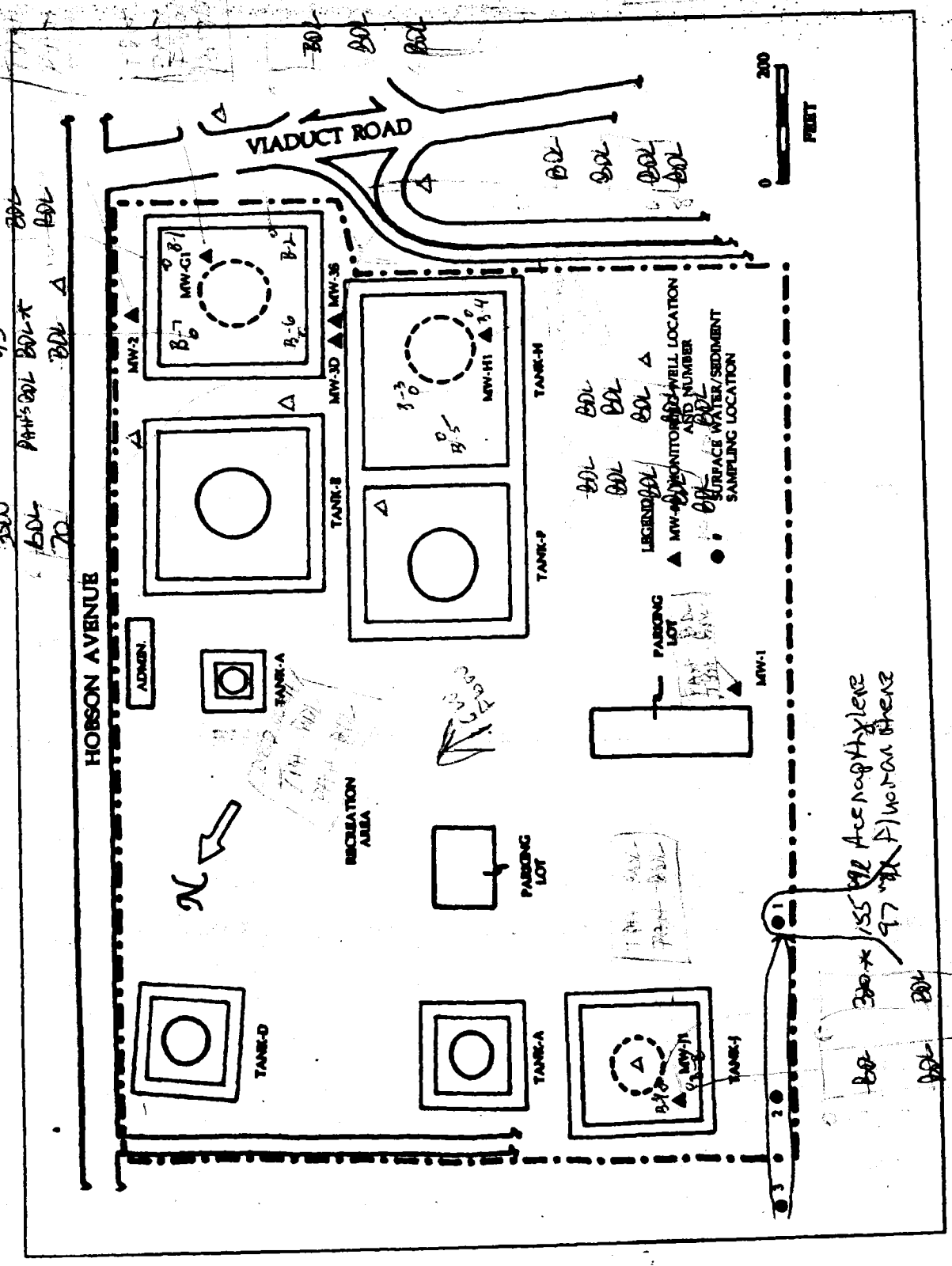
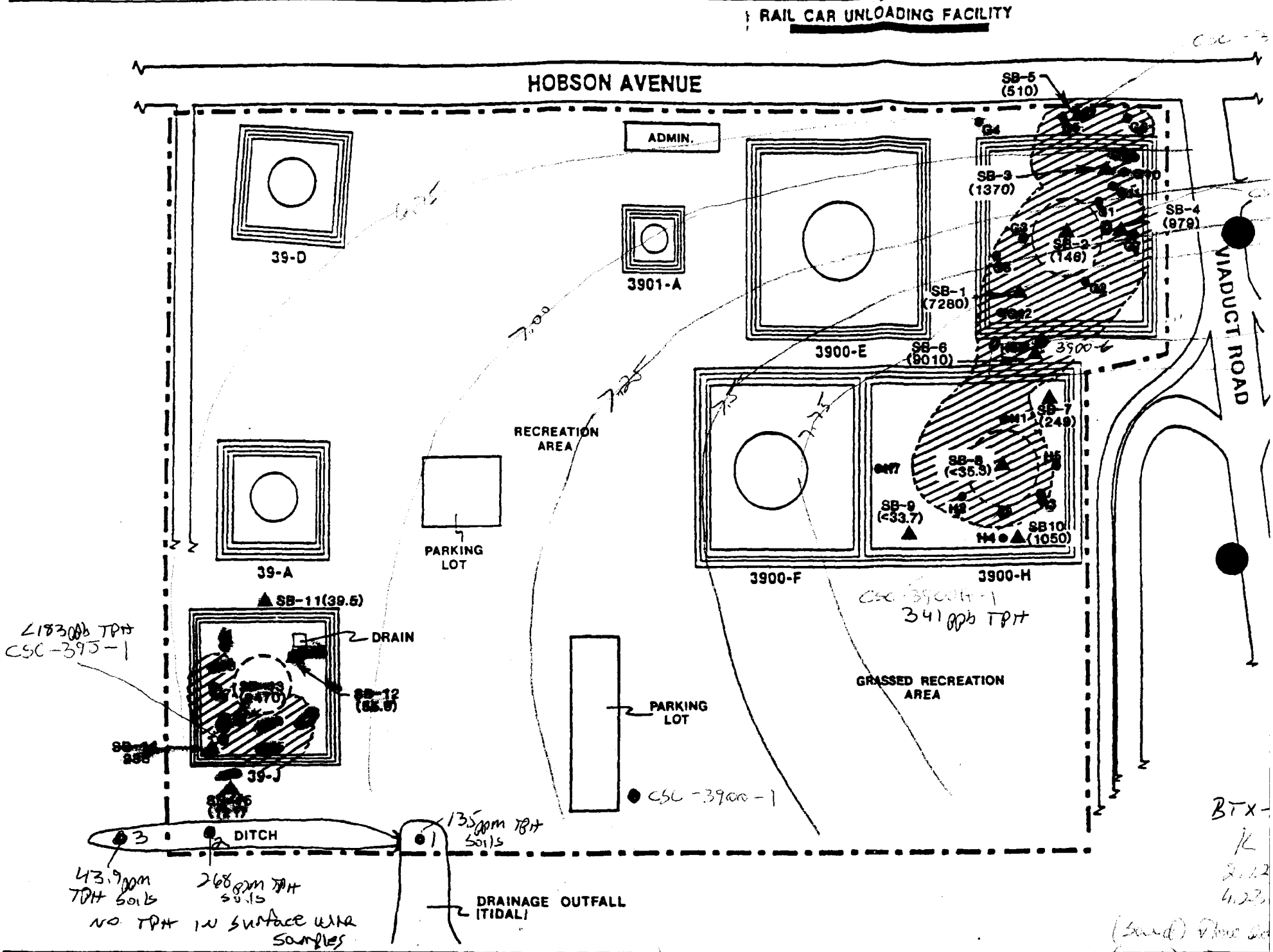


Figure 2-1. Monitoring well and surface water/shallow sediment sampling locations.


RAIL CAR UNLOADING FACILITY
HOBSON AVENUE
ADMIN.
39-D
3901-A
3900-E
3900-F
3900-H
39-A
39-J
SB-5 (510)
SB-3 (1370)
SB-4 (979)
SB-2 (146)
SB-1 (7280)
SB-6 (9010)
SB-7 (249)
SB-8 (<35.3)
SB-9 (<33.7)
SB10 (1050)
SB-11(39.5)
SB-12
DRAIN
RECREATION AREA
PARKING LOT
PARKING LOT
GRASSED RECREATION AREA
VIADUCT ROAD
DITCH
DRAINAGE OUTFALL (TIDAL)
<183ppb TPH
CSC-395-1
CSC-3900H-1
341 ppb TPH
CSC-3900-1
135 ppm TPH soils
43.9 ppm TPH soils
268 ppm TPH soils
NO TPH IN surface water samples
BTX-

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
2155 EAGLE DR., P. O. BOX 10068
CHARLESTON, S. C. 29411-0068

PLEASE ADDRESS REPLY TO THE COMMANDING OFFICER, NOT TO THE SIGNER OF THIS LETTER. REFER TO:

5090
Code 11521/OC

06 APR 1990

Mr. David Baize
Department of Health and Environmental Control
Bureau of Solid Hazardous Waste
Groundwater Protection
2600 Bull Street
Columbia, South Carolina 29201

DEFENSE FUEL SUPPLY POINT (TANK 3900 SERIES) CHARLESTON NAVAL SHIPYARD, CHARLESTON, SC

Dear Mr. Baize:

You have been provided copies of the Draft Remediation Plan submittal for your review and comment by the Kenron letter of 29 March 1990.

As discussed during the 4 April 1990 telephone conversation with you, a Remediation Action Plan meeting is scheduled for 10:00 a.m. on 16 April 1990 at the Department of Health and Environmental Control, Columbia, SC. By copy of this letter, Naval Supply Center representatives are invited to attend.

If there are any questions, please contact Mr. Reece Batten, Code 11521, at (803) 743-0578.

Sincerely,

G. C. BRADLEY, P.E.
HEAD, REMEDIAL ACTIVITIES BRANCH

Copy to:
NAVPETOFF Alexandria (Code 30)
NSC Charleston (Code 44)

RECEIVED
APR 12 1990
GROUNDWATER PROTECTION DIVISION

SOUTH CAROLINA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL CONTROL
J. MARION SIMS BUILDING • COLUMBIA, SOUTH CAROLINA 29201
PHONE 803-734-5000

RWO
F:6

To: GWPD Files
From: David Bauze, Hydrogeologist
Re: Charleston Naval Supply
Charleston County

MEMO

DATE: 10-30-89

I had a conference call today with Lt. Currence and Howard Moseley (BSHWM). As a by-product of construction of the two new tanks, approximately 3100 cubic yards of contaminated soil will be removed. Howard Moseley and I suggested stock-piling the soil on an impermeable barrier, testing the soil (contaminant levels), treatment (possible incineration), and post-treatment testing. The option of "mixing" contaminated soil with clean soil for disposal at a landfill was not approved by Howard Moseley. He suggested possibly using a portable incinerator (SRC in Lexington), or on site-treatment. These procedures will not remediate this site, but some of the source will be removed.

[redacted]

SOUTH CAROLINA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL CONTROL
J. MARION SIMS BUILDING • COLUMBIA, SOUTH CAROLINA 29201
PHONE 803-734-5000

MEMO

DATE: 10-25-89

To: GWPD Files
From: David Baize, Hydrogeologist
Re: Charleston Naval Supply
NSC Tank Farm
Charleston County

I had a phone conversation with Lt. Dan Currence about the referenced site today. Lt. Currence is proposing to remove the existing tank pad and two feet of contaminated soil below each of the two pads. I asked him to obtain data on three areas; 1) confirm the extent of tidal influence by measurement of water levels in existing ~~water~~ monitor wells, 2) the type of treatment of contaminated soils prior to disposal at a landfill, and 3) vertical extent of soil contamination beneath the tank pads. I suggested additional soil samples in the excavations (after removal of 2' of soil) may be appropriate.

(DLA OWNS - DFSP)

Mtg. 9-7-89

— Naval Supply Ctr. owns NSC + Chicora (shipyard separate command)

South Div — owns facility (consultant for Navy)

— Get copy of Draft RAP
— Get copy of Blue Book
— Corrective action from DERA funds
Construction from Special Appropriation

— need to define vertical extent of soil (depth of soil borings?)

(1) soil removal in tank area w/ new data

(2) pump to establish hydraulic control

— remedial plan should be on going
— storage of soil until removal possible

— check w/ Harold for TPH levels

TO: Commanding Officer, Naval Supply Center
Bldg 198 - Code 44, 29408
cc: South Div

Admiral Bump — CSN commander

— Environmental Coordinator

E CSN Environmental

Chicora — prop
Naval Supply Center

8-29-89

— OWNERS of tanks —
— at odds with DHEC
asked Southern Division to Represent

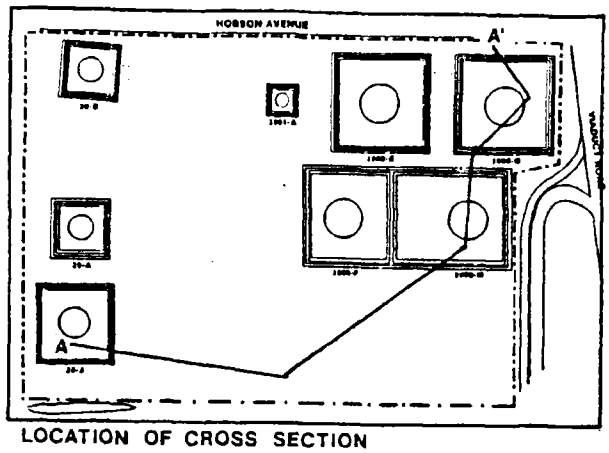
CO Naval Supply Ctr — Chem
Capt. Robert H. Peiffer
803-743-3730

XO Capt. Georg E. Newton
Commander
Bldg. 198
Charleston 29264

Civil Engineering Officer
Lt Dan Currence
743-6385

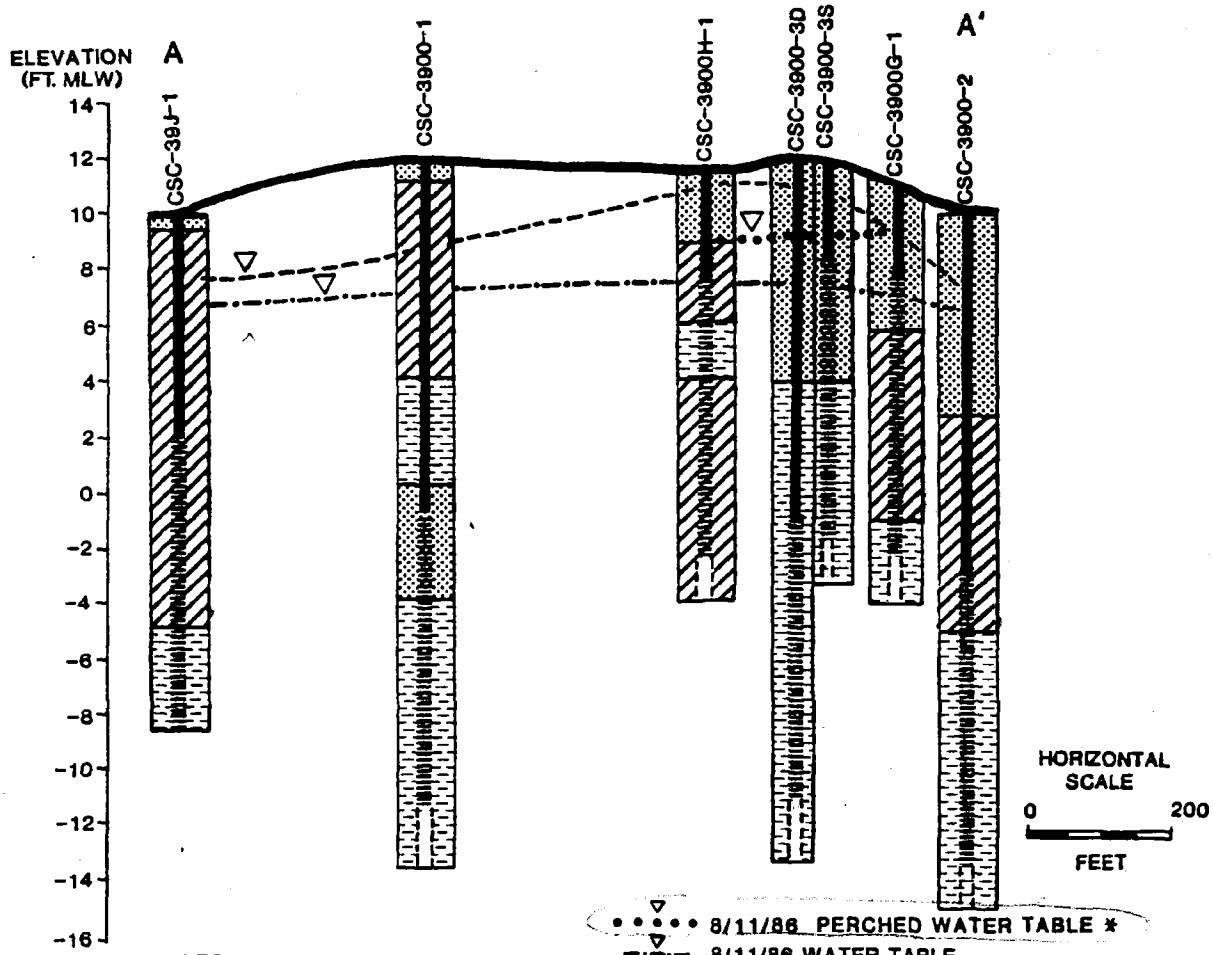
Fuel Specialist
Lt. Charlie Sullivan
743-6086

Environmental
Bob Belonnee
743-4086



LOCATION OF CROSS SECTION

* NOTE: 8-11-86 PERCHED WATER TABLE LEVELS AS FOUND IN MONITOR WELLS CSC-3900H-1, CSC-3900-3S AND CSC-3900G-1



SOURCE: ESE, 1987

FIGURE 4.1-1

SHALLOW LITHOLOGY Significant tidal influence Screens below WT ~~defunate~~

CHARACTERIZATION STUDY - BASE TANK FARM NAVBASE, CHARLESTON, S.C.

Vertical migration confirmed

Table 5.1-1 Analytical Results for Soil Samples (Page 1 of 2)

Parameter	Units	Method	Detection Limits *	SB-1	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7
Moisture	% Wet Wt.	70320	-	18.9	60.6	7.0	13.1	15.3	16.6	1.2
TRPH	mg/kg (ppm)	98233	33.7 - 35.3	7280	146	1370	979	510	9010	249
Benzene	µg/kg (ppb)	34237	84.1 - 200	<102	<200	<89.4	<95.9	<98.4	<99.4	<84.1
Chlorobenzene	µg/kg (ppb)	34304	84.1 - 200	<102	<200	<89.4	<95.9	<98.4	<99.4	<84.1
Dichlorobenzene, Total	µg/kg (ppb)	98578	84.1 - 200	<102	<200	<89.4	<95.9	<98.4	<99.4	<84.1
Ethylebenzene	µg/kg (ppb)	34374	84.1 - 200	<102	<200	<89.4	<95.9	<98.4	<99.4	<84.1
Toluene	µg/kg (ppb)	34483	84.1 - 200	<102	<200	<89.4	<95.9	<98.4	<99.4	<84.1
Xylenes, Total	µg/kg (ppb)	45510	84.1 - 200	<102	<200	<89.4	<95.9	<98.4	<99.4	<84.1

Source: ESE 1986

Note: mg/kg = Milligram per kilogram
µg/kg = Micrograms per kilogram

* Detection limits vary according to soil moisture content

Table 5.1-1 Analytical Results for Soil Samples (Page 1 of 2)

Parameter	Units	Method	Detection Limits *	SB-8	SB-9	SB-10	SB-11	SB-12	SB-13	SB-14	SB-15
Moisture	% Wet Wt.	70320	-	22.2	18.5	24.0	28.7	25.0	22.7	15.7	28.0
TRPH	mg/kg (ppm)	98233	33.7 - 35.3	<35.3	<33.7	1050	39.5	55.9	2470	238	121
Benzene	µg/kg (ppb)	34237	84.1 - 200	<106	<102	<109	<117	<111	<107	<98.4	<115
Chlorobenzene	µg/kg (ppb)	34304	84.1 - 200	<106	<102	<109	<117	<111	<107	<98.4	<115
Dichlorobenzene, Total	µg/kg (ppb)	98578	84.1 - 200	<106	<102	<109	<117	<111	<107	<98.4	<115
Ethylebenzene	µg/kg (ppb)	34374	84.1 - 200	<106	<102	<109	<117	<111	<107	<98.4	<115
Toluene	µg/kg (ppb)	34483	84.1 - 200	<106	<102	<109	<117	<111	<107	<98.4	<115
Xylenes, Total	µg/kg (ppb)	45510	84.1 - 200	<106	<102	<109	<117	<111	<107	<98.4	<115

Source: ESE 1986

Note: mg/kg = Milligram per kilogram
µg/kg = Micrograms per kilogram

* Detection limits vary according to soil moisture content

Table 5.1-2 Analytical Results for Ground Water Samples Sampled on August 11, 1986

Parameter	Units	Method	Detection Limits	CSC-3900-1	CSC-3900-2	CSC-3900-3D	CSC-3900-3S	CSC-3900G-1	CSC-3900H-1	CSC-39J-1
pH	S.U.	Field	-	7.1	7.9	7.6	7.8	8.0	7.7	7.7
Temperature	°C	Field	-	23.6	23.0	22.0	26.3	26.5	27.2	21.1
Conductivity	µmhos/cm	Field	-	12,600	38,500	24,300	22,200	5,320	3,800	31,200
TRPH	µg/l	45501	183 - 194	<190	<194	<190	130,000	2,850	341	<183
Benzene	µg/l	3403D	1.00	<1.00	<1.00	<1.00	1.23	<1.00	<1.00	<1.00
Chlorobenzene	µg/l	34301	1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dichlorobenzene, Total	µg/l	81524	1.00 - 3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<1.00	<1.00
Ethylebenzene	µg/l	34371	1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Toluene	µg/l	34010	3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00
Xylenes, Total	µg/l	81551	1.00 - 3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<1.00	<1.00

Source: ESE 1986

Note: S.U. = Standard Units
µmhos/cm = Micromhos per centimeter
µg/l = Micrograms per liter

Table 5.1-3 Analytical Results for Surface Water Samples

Parameter	Units	Method	Detection Limits	SW-1	SW-2	SW-3
pH	S.U.	Field	-	7.1	7.4	6.5
Temperature	°C	Field	-	29.4	28.5	27.7
Conductivity	µmhos/cm	Field	-	26,000	27,900	26,700
TRPH	µg/l	45501	184 - 190	<184	<190	<188
Benzene	µg/l	34030	1.0	<1.00	<1.00	<1.00
Chlorobenzene	µg/l	34301	1.0	<1.00	<1.00	<1.00
Dichlorobenzene, Total	µg/l	81524	1.0	<1.00	<1.00	<1.00
Ethylebenzene	µg/l	34371	1.0	<1.00	<1.00	<1.00
Toluene	µg/l	34010	3.0	<3.00	<3.00	<3.00
Xylenes, Total	µg/l	81551	1.0	<1.00	<1.00	<1.00

Source: ESE 1986

Note: S.U. = Standard Units
µmhos/cm = Micromhos per centimeter
µg/l = micrograms per liter

Table 5.1-4 Analytical Results for Sediment Samples

Parameter	Units	Method	Detection Limits	SE-1	SE-2	SE-3
Moisture	% Wet Wt.	70320	-	36.8	33.7	17.8
TRPH	mg/kg (ppm)	98233	35	135	268	43.9
Benzene	µg/kg (ppb)	34237	161 - 211	<211	<200	<161
Chlorobenzene	µg/kg (ppb)	34304	161 - 211	<211	<200	<161
Dichlorobenzene, Total	µg/kg (ppb)	98578	161 - 211	<211	<200	<161
Ethylebenzene	µg/kg (ppb)	34374	161 - 211	<211	<200	<161
Toluene	µg/kg (ppb)	34483	161 - 211	<211	<200	<161
Xylenes, Total	µg/kg (ppb)	45510	161 - 211	<211	<200	<161

Source: ESE 1986

Note: mg/kg = Milligram per kilogram
µg/kg = Micrograms per kilogram

Table 5.1-7 Analytical Results for Ground Water Samples Sampled on May 18 and 19, 1987

Parameter	Units	Detection Limits	Monitor Well No. CSC-3900-1	CSC-3900-2	CSC-3900-3D	CSC-3900-3S	CSC-3900G-1	CSC-3900H-1	CSC-39J-1
Water Temp.	°C	-	23.2	21.8	22.6	22.5	21.6	23.1	22.1
pH, field	Std Uts	-	5.30	7.10	6.90	7.00	7.60	7.10	6.30
Sp. Cond. field @25°C	umhos/cm	-	9750	33500	24600	21000	5880	3050	25600
Petroleum Hydrocarbons	µg/l	217 - 260	<233	<222	6,680	9,410	<222	<217	<260
PURGEABLE AROMATICS									
Benzene	ug/l	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Toluene	ug/l	20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Xylenes, Total	ug/l	3	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00
POLYNUCLEAR AROMATIC HYDROCARBONS									
Acenaphthene	ug/l	0.363	<0.363	<0.363	4.10	82.1	5.86	<0.363	<0.363
Acenaphthylene	ug/l	0.202	<0.202	0.377	<2.02	<10.1	15.2	<0.202	0.252
Anthracene	ug/l	0.023	<0.023	0.105	4.06	53.6	2.15	0.027	<0.023
Benzo(a)anthracene	ug/l	0.017 - 0.168	<0.017	0.035	5.37	16.1	<0.168	<0.017	0.019
Benzo(a)pyrene	ug/l	0.029	<0.029	<0.029	0.644	3.61	0.302	<0.029	0.031
Benzo(b)fluoranthene	ug/l	0.017	<0.017	<0.017	0.846	4.74	0.186	<0.017	<0.[illegible]
Benzo(ghi)perylene	ug/l	0.059 - 2.96	<0.059	<0.059	<0.593	<2.96	<0.593	<0.059	<0.059
Benzo(k)fluoranthene	ug/l	0.018 - 0.180	<0.018	<0.018	0.398	2.94	<0.180	<0.018	<0.018
Chrysene	ug/l	0.012	<0.012	<0.012	0.999	7.75	1.86	<0.012	<0.012
Diben(a,h)anthracene	ug/l	0.715 - 3.58	0.425	0.287	<0.715	<3.58	<0.715	0.287	0.383
Fluoranthene	ug/l	0.049	<0.049	0.331	13.0	123	6.01	0.107	0.061
Fluorene	ug/l	0.043	<0.043	3.34	2.71	38.3	6.53	<0.043	1.62
Indeno(1,2,3-cd)pyrene	ug/l	0.044 - 2.20	<0.044	<0.044	<0.440	<2.20	<0.440	<0.044	<0.044
Naphthalene	ug/l	0.156	<0.156	2.64	8.00	49.0	6.42	0.342	1.22
Phenanthrene	ug/l	0.156	0.178	3.06	17.1	1410	24.3	0.782	0.387
Pyrene	ug/l	0.048	<0.048	0.214	12.6	59.9	4.90	0.094	0.050
Total PAHs*	µg/l	-	0.6	10.4	69.8	1851.04	73.7	1.6	4.0

* Total PAHs include arithemic summation of detected compounds only.

Source: ESE, 1987

File
ell

South Carolina Department of Health and Environmental Control

2600 Bull Street
Columbia, S.C. 29201

Commissioner
Michael D. Jarrett

Board
Henry S. Jordan, M.D., Chairman
John B. Pate, M.D., Vice-Chairman
William E. Applegate, III, Secretary
Toney Graham, Jr., M.D.
John H. Burriss
Richard E. Jabbour, D.D.S.
Currie B. Spivey, Jr.

September 26, 1989

Commanding Officer
Naval Supply Center
Bldg. 198, Code 44
Charleston, SC 29408

Re: NSC Tank Farm
Meeting on September 7, 1989
Charleston County

Dear Sir:

The purpose of this letter is to provide a written record of our discussions at the referenced meeting. A list of attendees is attached (Lt. Dan Currence is speaking for the commander).

1) The cost of the previously proposed remedial activity (soil removal to a landfill) has been re-evaluated, and the cost would greatly exceed the allocated amount (1 million dollars).

2) The Naval Supply Center (the owner - responsible party for the NSC Tank Farm) and Southern Division (acting as a consultant for NSC) is seeking Departmental concurrence for a new remedial approach.

3) NSC and Southern Division agreed to submit a proposal which will help better define the vertical extend of soil contamination to provide a more accurate estimate of the amount of soil to be removed.

4) Since a primary concern of NSC is to construct new tanks on the impacted area of this site, DHEC suggested that contaminated soil could be removed/remediated in the construction area first, and the other areas of concern could be addressed later.

5) Remediation of the impacted ground-water was discussed. The use of a slurry wall to establish hydraulic control was not recommended by DHEC. A ground-water remedial action plan could be developed concurrently with the soil removal/remediation activities.

The Department would like to thank you for the cooperative and constructive attitude displayed at the meeting. If you have any questions, please call me at 734-5329.

Sincerely

David Baize, Hydrogeologist
Assessment and Development Section
Ground-Water Protection Division

DB/dwb
NSC.TXT

Attachment

cc: Victor Weeks
US EPA Region IV

Harold Seabrook
BSHWM

Trident District EQC

NSC Tank Farm – Meeting 9-8-89

Name	Title / Representing	Phone #
David Baize	Hydrogeologist / DHEC	734-532
HERBERT FRASER	ENVIRONMENTAL BRANCH SOUTHDIV	743 0602
JOHN COLLINS	PROJECT MANAGER (SDIV)	743-0740
Construction For the commander LTJG Dan Currence	Staff Civil Engr, Naval Supply Center	743-6685
CHRIS BARTKU	ENVIRONMENTAL BRANCH / SOUTHDIV	743-0722
[illegible]	Mgr. Assessment & Development Section SCDHEC / GWPD	734-5324

South Carolina Department of Health and Environmental Control

File

2600 Bull Street
Columbia, S.C. 29201

Commissioner
Michael D. Jarrett

Board
Toney Graham, Jr., M.D., Chairman
Henry S. Jordan, M.D., Vice-Chairman
John B. Pate, M.D., Secretary
William E. Applegate
Oren L. Brady, Jr.
John Hay Burriss
Euta M. Colvin, M.D.

July 31, 1989

Mr. Reese Batten
Southern Division
2155 Eagle Drive
P.O. Box 10068
Charleston, SC 29411-0068

Re: Charleston Naval Shipyard (CNS)
Soil Removal, NSC Tank Farm
Charleston County

Dear Mr. Batten:

The purpose of this letter is to clarify our phone conversation of July 27, 1989, and the Department's position on soil removal at the referenced site.

The proposed remedial action at tanks 3900-G and 3900-H is as follows:

1) Remove all soils <u>above</u> the water table showing visible evidence of hydrocarbon contamination and/or exhibits a head space reading ≥5 ppm on an organic vapor analyzer (OVA).

2) Backfill the excavation with clean fill.

3) Properly dispose of the contaminated soils at an approved waste disposal facility.

Based upon analytical results, the maximum estimated volume of soil to be removed is 14,740 cubic yards. As discussed, you intend to aerate the soils to obtain an acceptable TPH level for disposal at a landfill. This TPH level will be set by the Bureau of Solid and Hazardous Waste Management (Harold Seabrook).

The Ground-Water Protection Division (GWPD) has the following comments on the proposed activities:

1) To determine the concentrations of hydrocarbons that may be left in place, several composite soil samples should be taken from the bottom of the excavations and analyzed for total petroleum hydrocarbons (TPH).

2) Ground-water quality data should be obtained (per my letter dated July 24, 1989) before soil removal to obtain current data, and to help evaluate the effect of the removal of the contaminated soil on shallow ground-water quality.

3) The proposed activities do not address the documented soil contamination at tank 39J and the adjacent drainage ditch. An additional 890 cubic yards of contaminated soil (per the ESE report dated April, 1988) should be removed. The GWPD recommends that this area be included in the scheduled remedial activities. If this area cannot currently be included, an implementation schedule for remedial action at tank 39-J should be submitted.

4) Once the contaminated soil has been removed, and analytical data (both soil and ground-water) have been reviewed, a decision on the need for further assessment/remediation can be made.

Per your consultant's recommendation and our phone conversations, the facility may wish to pursue a ground-water mixing zone for this site.

If you have any questions, or if the Department's understanding of the proposed activities is incorrect, please call me at 734-5329.

Sincerely

David Baize, Hydrogeologist
Assessment and Development Section
Ground-Water Protection Division

DB/dwb
SD.TXT

cc: Victor Weeks
U.S. EPA Region IV

Harold Seabrook
BSHWM

Christine Sanford
Trident District EQC

Joe Bowers
BSHWM

South Carolina Department of Health and Environmental Control

2600 Bull Street
Columbia, S.C. 29201

Commissioner
Michael D. Jarrett

Board
Harry M. Hallman, Jr., Chairman
Toney Graham, Jr. M.D., Vice-Chairman
John B. Pate, M.D., Secretary
Oren L. Brady, Jr.
Moses H. Clarkson, Jr.
Euta M. Colvin, M.D.
Henry S. Jordan, M.D.

MEMORANDUM

TO: Rick Oldham, Hydrologist
Ground-water Protection Division

FROM: Paul L. Bristol, Hydrologist
Central Midlands District

DATE: October 6, 1988

RE: Charleston Naval Shipyard
SCD 170 022 560
Charleston County
Base Tank Farm

RECEIVED
OCT 11 1988
GROUND WATER
PROTECTION DIVISION

The Naval Supply Center Base Tank Farm (BTF) at the Charleston Naval Shipyard is one of two principal storage sites for petroleum, oil, and lubricant products (POL) at the referenced facility. Five (5) above ground steel storage tanks, identified as 39-A, 39-D, 3900-E, 3900-F, 3901-A, are currently utilized for bulk storage of diesel fuel, navy special fuel oil (NSFO), and waste oil. Three (3) other tanks, identified as 39-J, 3900-G, 3900-H were disassembled and removed during February 1986 due to leakage. During the removal of these tanks petroleum product was discovered in the soils surrounding the tank foundations. The facility initiated a characterization study in late July 1986 in an effort to determine the nature and extent of environmental degradation associated with leakage from the former storage tanks.

A RCRA Facility Assessment (RFA) was conducted July 22-24, 1987 at the referenced facility. RFA's provide information concerning Solid Waste Management Units (SWMU) at RCRA facilities, evaluate the potential for release to the environment, and determine the need for further investigations. The draft Interim RFA (August 1987) did not identify the three abandoned storage tank sites as a SWMU.

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
2155 EAGLE DR., P. O. BOX 10068
CHARLESTON, S. C. 29411-0068

PLEASE ADDRESS REPLY TO THE COMMANDING OFFICER, NOT TO THE SIGNER OF THIS LETTER. REFER TO:

5090
Code 11431/11

25 APR 1988

Mr. D. A. Duncan
Groundwater Protection Division
S.C. Department of Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: BASE TANK FARM CHARACTERIZATION STUDY, NAVAL BASE, CHARLESTON, SC

Dear Mr. Duncan:

Enclosed for your review and comment are copies of the Final Characterization Study for the subject project. This was discussed between your Mr. Jim Hess and our Mr. Reece Batten (Code 11431) on 19 April 1988.

A SCDHEC letter of approval is requested to allow a S.C. disposal contractor to accept soil disposal from the site. The subject study site will also be the site of two new 100,000 bbl diesel fuel storage tanks. The proposed corrective action will be by soil removal and is to be incorporated into the construction contract for the new tanks.

In order to maintain the current design schedule and implement the proposed corrective action for this project, we request your response by 13 May 1988. If you have no comments, please provide a letter so stating.

Please contact Mr. Reece Batten at (803) 743-0578 if you have any questions.

Sincerely,

G. C. BRADLEY, P. E.
ENVIRONMENTAL BRANCH

Encl:
(1) Final Characterization Study

Copy to:
SCDHEC, Trident Area (Mr. Rick Richter)
ESE, Tampa, FL (Mr. Chuck Hendry) (w/o encl)

RECEIVED
APR 26 1988
GROUND-WATER
PROTECTION DIVISION

111-181-820

2/6/88 Mr. Leonard Carter 904 332 3318
Environmental Science & Technology ESE
Referred to Tom Knight by Harold Seabrook
Requested information on what ~~analytical~~ analyses and ~~what~~ at what levels would the Department allow fuel oil to be disposed in a subtitle B. Landfill?

Charleston Navy Base
Fuel oil similar to #2 but Navys own special blend
Above ground tank removal, found to be leaking
ESE did a complete ~~ass~~ assessment inc. soil boring, monitoring wells & sampling
Report was repaired & submitted to Navy
~~to~~.
ESE Retained to determine remedial action alternatives
Considering removal 16,000 cubic yards soil & dispose at a Hazardous waste facility or subtitle B (local) landfill
Soil still in place - Analysis completed to date are Total Petroleum hydrocarbons (EPA 418.1), EPA 602 (BTEX), EPA 610 (Total Polynuclear Aromatic hydrocarbons). Hi TRPH & Polynuclear Aromatics.
Res. State has no standards known of about what can be allowed in landfill & it does not test as a hazardous waste (acid wouldn't)
Harold Requested EP Toxicity. The writer stated that the Department would probably request EPA 625 (acid & base neutral extractables) - PCBs - Pesticides
Would have to discuss & call back.

Tom Knight

MEMORANDUM

TO: Robert E. Malpass, Chief
Bureau of Solid and Hazardous Waste Management

THRU: Donald A. Duncan, Director
Ground-Water Protection Division

THRU: James M. Ferguson, Manager
Surveillance and Data Management Section

FROM: Suzanne M. Werlman, Geologist
Ground-Water Protection Division

RE: Studies Regarding Potential Impact on Environment
at Naval Shipyard, Charleston, South Carolina
Charleston County

DATE: November 7, 1983

Both the Initial Assessment Study of Naval Base Charleston, [illegible] South Carolina (IAS) NEESA Report No. 13-007 dated May 1983 by the [illegible] Environmental Support Activity and the Assessment of Potential [illegible] Waste Contamination of Soil and Ground Water, Naval Shipyard, [illegible] Carolina, A Confirmation Study, dated October 29, 1982 by [illegible] Inc., have been reviewed as requested. The purpose of the IAS is "to identify [illegible] sites posing a potential threat to human health or the environment due to contamination from past hazardous materials operations." The IAS determined eight sites that warranted further investigation to determine the presence and extent of contamination (if any). The Confirmation Study addresses the findings of the additional studies conducted at the selected eight sites.

Regarding the IAS, the writer concurs with the selection of the eight sites which warranted further study. These sites apparently received large quantities of hazardous materials for treatment/storage. However, based on the [illegible] (Section 6) of other activities at the Naval Shipyard, it is suggested that additional sites such as the Electrical Shop (Building 88) and the Machine Shop 12, warrant further study and should be inspected by the Department.

General comments and recommendations regarding the Confirmation Study are as follows:

1) The sampling methodology used to obtain the ground-water samples was not discussed. Documentation of the sampling, filtration, and preservation

procedures utilized would facilitate analyses evaluation and should be requested.

2) The Study based its conclusions regarding ground-water contamination on a single sampling round. A meaningful investigation should include at least two, if not more, sampling rounds. Therefore, it is recommended that replicate ground-water samples be collected and analyzed.

3) Considering the several wells installed at the site, the inclusion of a piezometric map would facilitate geohydrologic evaluation of the site.

Specific comments and recommendations for each of the sites are as follows:

1) The caustic pond site appears to be slightly impacting ground-water quality. Further monitoring should be scheduled if no remedial action is planned for the site. However, due to the potential safety problem presented in the area, it is recommended that alternative 3, dewatering of pond and removal of calcium hydroxide, (p. 65 of the Confirmation Study) be implemented.

2) The chemical-disposal area is impacting the shallow ground-water quality, as indicated by the presence of several volatile organic compounds (particularly methylene chloride) and an increased pH value. The Confirmation Study states that "the concentrations of methylene chloride,..., suggest that some methylene chloride waste materials have been deposited in the area...." Based on the evidenced impact on the environment and on the fact that the boundaries and the contents of the waste at the site have not been accurately defined, it is recommended that alternative 2, removal of contents (p. 67) be implemented. A monitoring schedule to determine the effectiveness of the removal/close out is also requested.

3) Excessive concentrations of TOC, specific conductivity, and volatile organic compounds were detected in the shallow ground water at the landfill area. Also, concentrations of barium and arsenic, exceeding the primary drinking water standards, were detected. Surface-water impact was not assessed, as recommended in the IAS, p. 4-4, where probable entry points of landfill leachate were expected. The recommendations for no action to mitigate the potential effects of this leachate is not satisfactory. The landfill area is a threat to the surface and ground-water quality in the area. Therefore, this Division recommends further study to determine the extent, severity, and fate of the ground-water contamination. Also, a clay confining cap should be installed on top of the landfill as soon as possible.

4) The two monitoring wells installed at the pesticide-mixing area did not detect any indication of ground-water contamination. However, the wells