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CNC CHARLESTON
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CORRECTIVE ACTION REPORT FOR SITE 18 BUILDING 123 AND SITE 19 ABOVE
GROUND STORAGE TANK 3909 (AST 3909) ZONE G CNC CHARLESTON SC
08/01/2004
CH2M HILL

Mr. Darryl F. Gates
CH2M-Jones
1330 Kilo Street
North Charleston, SC 29405

August 10, 2004

Mr. Michael A. Bishop
SCDHEC
2600 Bull Street
Columbia, SC 29201-1708

Subject: Remediation Monitoring Report
Building 3909, Site 118/119
Site ID. Nos. 16763 and 01093
Charleston Naval Complex

Dear Mr. Bishop:

CH2M-Jones has completed an Aggressive Fluid Vapor Recovery (AFVR) event at the above-referenced site. The enclosed Remediation Action Report documents the results of the AFVR along with product recovery activities prior to and following the AFVR event. Product levels have been recorded within the impacted monitoring wells since March, 2002. Although the AFVR attributed to the overall reduction of free product at the site, measurable free product is still present within monitoring wells FDSGW01A and CNC19MW001.

CH2M-Jones recommends that free product recovery efforts continue within monitoring wells FDSGW01A and CNC19MW001 using oil-only absorbent socks. Additionally, groundwater samples should be collected from monitoring wells U19GW009, CNC19-MW02, CNC19-MW03, CNC-MW04, FDSGW01C, FDSGW01D, CNC18-MW02, CNC19-MW-3, CNC18-MW03 and FDSGW01F to determine the extent dissolved phase impacts, if any, at the site. A groundwater monitoring and free product status report will be prepared and submitted to SCDHEC following receipt of groundwater results. If you have any questions, please feel free to call. I may be reached at 850-565-0121.

Sincerely,

CH2M HILL



Darryl F Gates
Environmental Scientist

RECEIVED

AUG 12 2004

Water Monitoring, Assessment &
Protection Division

Corrective Action Report
Site 18, Building 123 and Site 19, AST 3909, Zone G
Charleston Naval Complex
North Charleston, South Carolina
SCDHEC Site ID Nos. 16763 and 01093

Prepared by:

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Prepared for:

Southern Division Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, South Carolina 29419-9010

August 2004

Table of Contents
Site 18, Building 123 and Site 19, AST 3909, Zone G
Charleston Naval Complex
North Charleston, South Carolina

Section	Title	Page #
<u>1.0</u>	<u>Introduction</u>	<u>1</u>
1.1	Background	1
1.2	General Site Description	1
<u>2.0</u>	<u>Free Product Removal Activities</u>	<u>2</u>
3.1	Free Product Recovery (Bailing)	2
3.2	Aggressive Fluid Vapor Recovery (AFVR)	2
3.3	Free Product Recovery (Absorbent Socks)	2
<u>3.0</u>	<u>Conclusions and Recommendations</u>	<u>3</u>

1.0 Introduction

1.1 Background

In 1993, Naval Base (NAVBASE) Charleston was added to the list of bases scheduled for closure as part of the Defense Base Realignment and Closure Act, which regulates closure and transition of property to the community. The Charleston Naval Complex (CNC) was formed as a result of the dis-establishment of the Charleston Naval Shipyard and NAVBASE on April 1, 1996. Corrective Action (CA) activities for Site 18, Building 123, Zone G and Site 19, AST 3909, Zone G are being conducted in accordance with the Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC).

1.2 General Site Description

The CNC is located in the City of North Charleston, on the east and west bank of the Cooper River in Charleston County and Berkley County, South Carolina as shown in **Figure 1**. This installation consists of two major areas: an undeveloped dredge materials area on the east bank of the Cooper River on Daniel Island in Berkley County, and a developed area on the west bank of the Cooper River. The developed portion of the base is on the peninsula bounded on the west by the Ashley River and on the east by the Cooper River. This site is located within the developed portion of the base.

Site 18 contains the location of a former petroleum Underground Storage Tank (UST) system used to store waste oil from the oil/water separator from the boiler systems at the Boiler House building. Site 19 contains the location of a former Aboveground Storage Tank (AST) system used to supply fuel oil for the boilers. The South Carolina Department of Health and Environmental Control (SCDHEC) has designated Site 18 with Identification Number 16763 and Site 19 with Identification Number 01093, **Figure 2**.

Building 123 is the former Boiler House, constructed in 1997, which supplied steam to ships and parts of the base at CNC. There was one UST and one AST associated with Boiler House systems. The UST was used to store waste oil from the boiler systems oil/water separator. The Site 18 UST was a 1,000-gallon steel tank installed in 1997 on the north side of Building 123 (**Figure 3**). The AST was used to store the fuel oil supply for the boiler systems. The Site 19 AST was a 200,000 gallon steel tank installed in 1964 on a concrete foundation. The AST is located approximately 160 feet east of building 123, **Figure 2**.

The UST and AST tank removals and closures were completed on June 20, 1996 and February 6, 1998, respectively. Petroleum-contaminated soil and groundwater was identified during the removal activities based upon soil sampling results. Excavated soil was returned to the original tank basins. A SCDHEC UST Assessment Report and AST Assessment report were completed by SPORTENVDETHASN in 1996 and 1998, respectively. Strong petroleum odors were observed in the excavations. Groundwater with a sheen was encountered in the UST excavation.

The site lies within the Resource Conservation Recovery Act (RCRA) designated Solid Waste Management Unit (SWMU) 178, which has been identified because of

Polychlorinated Biphenyls (PCBs). No PCBs were detected in soil samples in the tank closure activities (SPORTENVDETCNASN, 1997).

From April 1999 through April 2000, TtNUS completed a Rapid Assessment (RA) for Sites 18 and 19. The Rapid Assessment Report was approved by SCDHEC on May 19, 2000. CH2M-Jones prepared a Corrective Action Plan (CAP), dated April 2001, which was approved by SCDHEC on July 19, 2001. The plan proposed the installation of passive-floating intake skimmers to recover product from site monitoring wells followed by semi-annual groundwater monitoring. On March 11, 2003, SCDHEC approved a Corrective Action Plan Addendum submitted by CH2M-Jones, which specified an Aggressive Fluid-Vapor Recovery (AFVR) event to be conducted on monitoring wells CNC19MW001 and FDSGW01A in-lieu of the passive-floating intake skimmers. The following section details free product recovery activities conducted to date.

2.0 Free Product Remedial Activities

2.1 Free Product Recovery (Bailing)

Free product was gauged and recovered using a disposable bailer within monitoring wells FDSGW01A and CNC19-MW01. The recovery efforts were performed periodically from March 12, 2001, through March 27, 2002. Refer to Table 1 for free product thickness, recovery dates and quantities. Approximately 1.25 gallons of free product were recovered from monitoring well FDSGW01A and 0.20 gallons from CNC19-MW01 during bailing activities. Recovered free product was containerized in a DOT-approved drum and stored within a locked compound at building 1824 on CNC.

2.2 Aggressive Fluid Vapor Recovery (AFVR)

On June 17, 2003, CH2M-Jones completed an AFVR event performed on monitoring wells FDSGW01A and CNC19-MW01. EQ Industrial Services of Atlanta, GA, pumped approximately 290 gallons of oily water from the two monitoring wells using a vacuum truck. The oily water was consolidated with AFVR fluid extracted from SCDHEC Site Nos. 01311 and 00944 and containerized in a 3,000-gallon truck-mounted tank. The consolidated AFVR fluid from each site totaled approximately 760 gallons. The fluid was manifested as non-hazardous oily water and transported off site for proper disposal. A copy of the disposal manifest is provide in Appendix A.

2.3 Free Product Recovery (Absorbent Socks)

Following the AFVR, on July 28, 2003, monitoring wells FDSGW01A and CNC19-MW01 were gauged for the presence of free product, which was detected and measured within each well, Table 1. Oil-only absorbent socks with the capacity to absorb approximately 0.25 gallon of free product each were installed within each well and replaced periodically. To date, approximately 1.0 gallon of free product has been recovered from each monitoring well using the absorbent socks.

3.0 Conclusions and Recommendations

Measurable thickness of free product remains within monitoring wells FDSGW01A and CNC19-MW01. The on-going exchange of oil-only absorbent socks in the affected monitoring wells appears to be reducing the volume of free product at the site. CH2M-Jones recommends that free product recovery activities continue. Groundwater samples should also be collected from monitoring wells U19GW009, CNC19-MW02, CNC19-MW03, CNC19-MW04, FDSGW01C, FDSGW01D, CNC18-MW02, CNC19-MW05, CNC18-MW03 and FDSGW01F and analyzed for VOCs and SVOCs. A groundwater monitoring report should be prepared characterizing the extent of the dissolved-phase plume, aquifer characteristics and free product recovery progress.

Figures

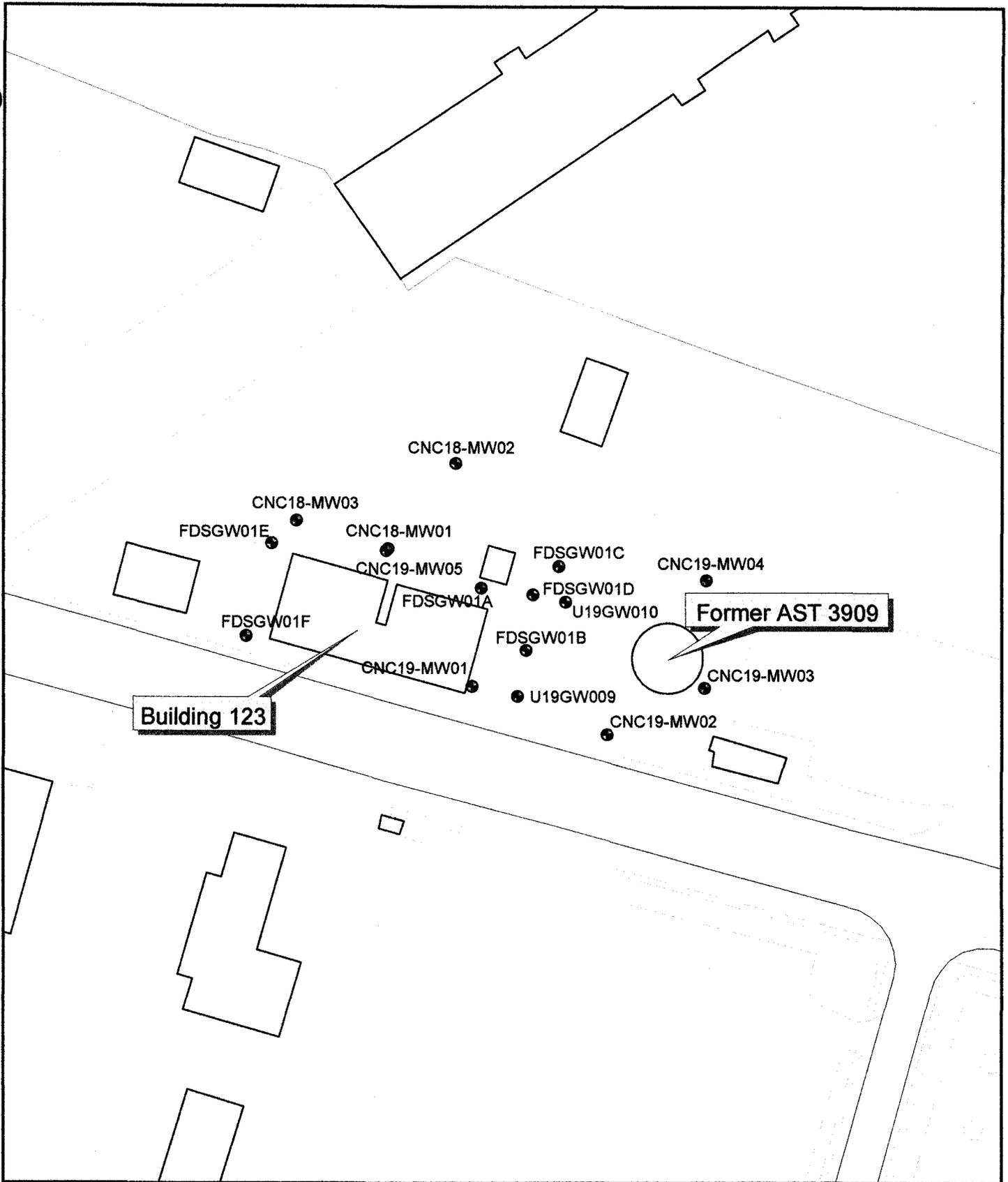


- Railroads
- Roads - Lines
- Shoreline
- Buildings
- Surrounding Area



1 inch = 3000 feet

Figure 1
 Site Location Map
 Site 18/19, Zone G
 Charleston Naval Complex



- Active
- Railroads
- Roads - Lines
- Pavement
- Sidewalk

- Shoreline
- Buildings

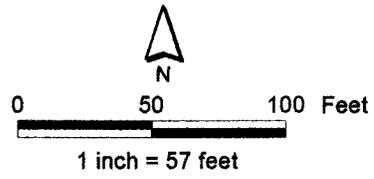


Figure 2
 Site Map
 Site 118/119, Zone G
 Charleston Naval Complex

Tables

Table 1
Free Product Measurement and Collection Quantities

Well No.	Date	Product	DTW	FP column (ft)	Comments
FD SGW01A	03/12/2001	6.5	8.45	1.95	0.25 gallon bailed
	03/26/2001	5.52	7.49	1.97	0.25 gallon bailed
	03/27/2001	5.65	7.67	2.02	0.25 gallon bailed
	04/30/2001	7.02	7.15	0.13	0.25 gallon bailed
	07/09/2001	not obtained	not obtained	not obtained	0.25 gallon bailed
	08/29/2001	not obtained	not obtained	beads	No product recovered
	09/10/2001	not obtained	not obtained	beads	No product recovered
	09/14/2001	5.78	5.84	0.06	No product recovered
	03/27/2002	7	7.3	0.3	No product recovered
	06/17/2003	not obtained	not obtained	not obtained	Performed AFVR
	07/28/2003	5.87	5.93	0.06	No product recovered
	10/03/2003	6.87	6.94	0.07	Initiate absorbent socks
	12/12/2003	7.24	8.15	0.91	Replace absorbent sock
	02/12/2004	7.75	8.55	0.8	Replace absorbent sock
	05/28/2004	7.77	7.98	0.21	Replace absorbent sock
	07/21/2004	6.8	6.9	0.1	Replace absorbent sock
CNC19-MW01	09/14/2001	5.75	5.8	0.05	0.1 gallon bailed
	03/27/2002	6.76	6.8	0.04	0.1 gallon bailed
	06/17/2003	nm	nm	nm	Performed AFVR
	07/28/2003	4.64	4.95	0.31	No product recovered
	10/03/2003	5.65	5.83	0.18	Initiate absorbent socks
	12/12/2003	6.54	6.54	nm	Replace absorbent sock
	02/12/2004	beads	5.55	nm	Replace absorbent sock
	05/28/2004	sheen	6.87	nm	Replace absorbent sock
	07/21/2004	sheen	nm	nm	Replace absorbent sock

Appendix I
Waste Disposal Manifest

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. SC0170022560	Manifest Document No. 61703	2. Page 1 of 1
3. Generator's Name and Mailing Address US NAVY- CHARLESTON NAVAL SHIPYARD 1849 AVE F N. CHARLESTON, SC 29405				
4. Generator's Phone () 843 921-5525				
5. Transporter 1 Company Name EQ Industrial Services	6. US EPA ID Number M10 000 131 292	A. State Transporter's ID		
7. Transporter 2 Company Name	8. US EPA ID Number	B. Transporter 1 Phone 800 275 6629		
9. Designated Facility Name and Site Address EQ INDUSTRIAL SERVICES OF ATLANTA 5600 FULTON INDUSTRIAL, SW ATLANTA, GA 30335		C. State Transporter's ID		
10. US EPA ID Number		D. Transporter 2 Phone		
		E. State Facility's ID		
		F. Facility's Phone 404-494-3520		

11. WASTE DESCRIPTION	12. Containers		13. Total Quantity	14. Unit Wt./Vol.
	No.	Type		
a. <input type="checkbox"/> NON-REGULATED MATERIAL NON-HAZARDOUS (OILY WATER)	1	TT	760	G
b. <input type="checkbox"/>				
c. <input type="checkbox"/>				
d. <input type="checkbox"/>				

G. Additional Descriptions for Materials Listed Above 11a: Approval # ATL4824ALV-1 11b:	H. Handling Codes for Wastes Listed Above
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15. Special Handling Instructions and Emergency Contact
**IN CASE OF EMERGENCY CONTACT
EQIS 1-800-275-8629**

#311
#66411

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name Jed Heames	Signature <i>[Signature]</i>	Date Month Day Year 6/17/03
17. Transporter 1 Acknowledgement of Receipt of Materials	Signature <i>[Signature]</i>	Date Month Day Year 06/17/03
Printed/Typed Name Willie Rucker	Signature <i>[Signature]</i>	Date
18. Transporter 2 Acknowledgement of Receipt of Materials	Signature	Date
Printed/Typed Name		

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.		Date Month Day Year 06/18/03
Printed/Typed Name Danielle Washe	Signature <i>[Signature]</i>	

NON-HAZARDOUS WASTE GENERATOR TRANSPORTER FACILITY

