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CORRECTIVE ACTION REPORT FOR BUILDING 640 AND SITE 4 ZONE H CNC
CHARLESTON SC
06/01/2005
CH2M HILL

**Corrective Action Report
Building 640 and Site 4, Zone H
Charleston Naval Complex
North Charleston, South Carolina
SCDHEC Site ID No. 00955**

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**Water Monitoring, Assessment &
Protection Division**

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Charleston Naval Complex
North Charleston, South Carolina

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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 4, Building 640, Zone H 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 and Background

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.

Building 640 was the former Chief Petty Officer Club and Mess. Two petroleum systems, UST 640B and AST 640, were used to supply heating oil to the building. UST 640B was a 3,000 gallon steel tank reportedly installed in 1963. The tank was located approximately 10 feet north of the northwestern corner of Building 640. AST 640 was a 1,000-gallon steel tank reportedly installed more than 25 years ago to replace UST 640B. The tank was located approximately 15 feet west of the northwestern corner of Building 640. Tank locations are shown in **Figure 2**. SCDHEC has designated Building 640, Site 4 with Identification Number 00955.

In January and February 1997, SPORTENVDETHASN excavated and removed tanks AST 640 and UST 640B. An Assessment Report for Building 640 was completed by SPORTENVDETHASN following tank removal activities. During tank closure activities,

Polynuclear aromatic hydrocarbons (PAHs) were identified in soil samples, no groundwater was encountered in any excavations, and mild petroleum odors were observed during excavation activities.

From December 1998 through March 1999, Tetra Tech, NUS (TTNUS) completed a Rapid Assessment (RA) for Sites 4. In SCDHEC's response letter to the RA, dated September 27, 1999, the department recommended a corrective action plan be developed in order to define and remediate the hydrocarbon contamination. CH2M-Jones prepared a Corrective Action Plan (CAP), dated December 2000, which was approved by SCDHEC on January 2, 2001. The plan proposed the installation of passive-floating intake skimmers to recover product from site monitoring wells followed by semi-annual groundwater monitoring.

CH2M-Jones initiated free product recovery on January 17, 2001. Bailers were used to recover the free product in-lieu of a passive floating intake skimmers. Product recovery was completed on July 9, 2001. Approximately one-half gallon of oily-water was recovered using bailers. Please refer to Table 1 for product thickness and recovery quantities.

Between August 2, 2001 and July 31, 2002, CH2M-Jones submitted four quarterly monitoring reports all of which indicated that hydrocarbon contamination remained below RBSLs in all wells. On May 21, 2002, a No Further Action (NFA) was requested by CH2M-Jones. In SCDHEC's response letter dated, June 14, 2002, the department requested the installation of two additional wells in the vicinity of CNC04-M01 to verify that all free product had been remediated. The monitoring wells were installed on July 2, 2002, as proposed by SCDHEC. Monitoring wells U04GW001 (Alias: CNC04-M01, H640G04W1), U04GW012, and U04GW013 were sampled on July 2 and 3, 2002. On July 31, 2002, CH2M-Jones submitted a monitoring report in which a NFA was requested. On August 19, 2002, SCDHEC accepted the NFA request, closing out the site.

During well abandonment activities performed on September 12, 2002, free product was detected within monitoring wells U04GW001 and CNC04-MW12 and they were not abandoned. The remaining wells onsite were abandoned in accordance with South Carolina

Well Standards and Regulations R. 61-71. Free product recovery activities continue within monitoring wells UO4GW001 and CNC04-MW12 using oil-only absorbent socks. (Table 1)

2.0 Conclusions and Recommendations

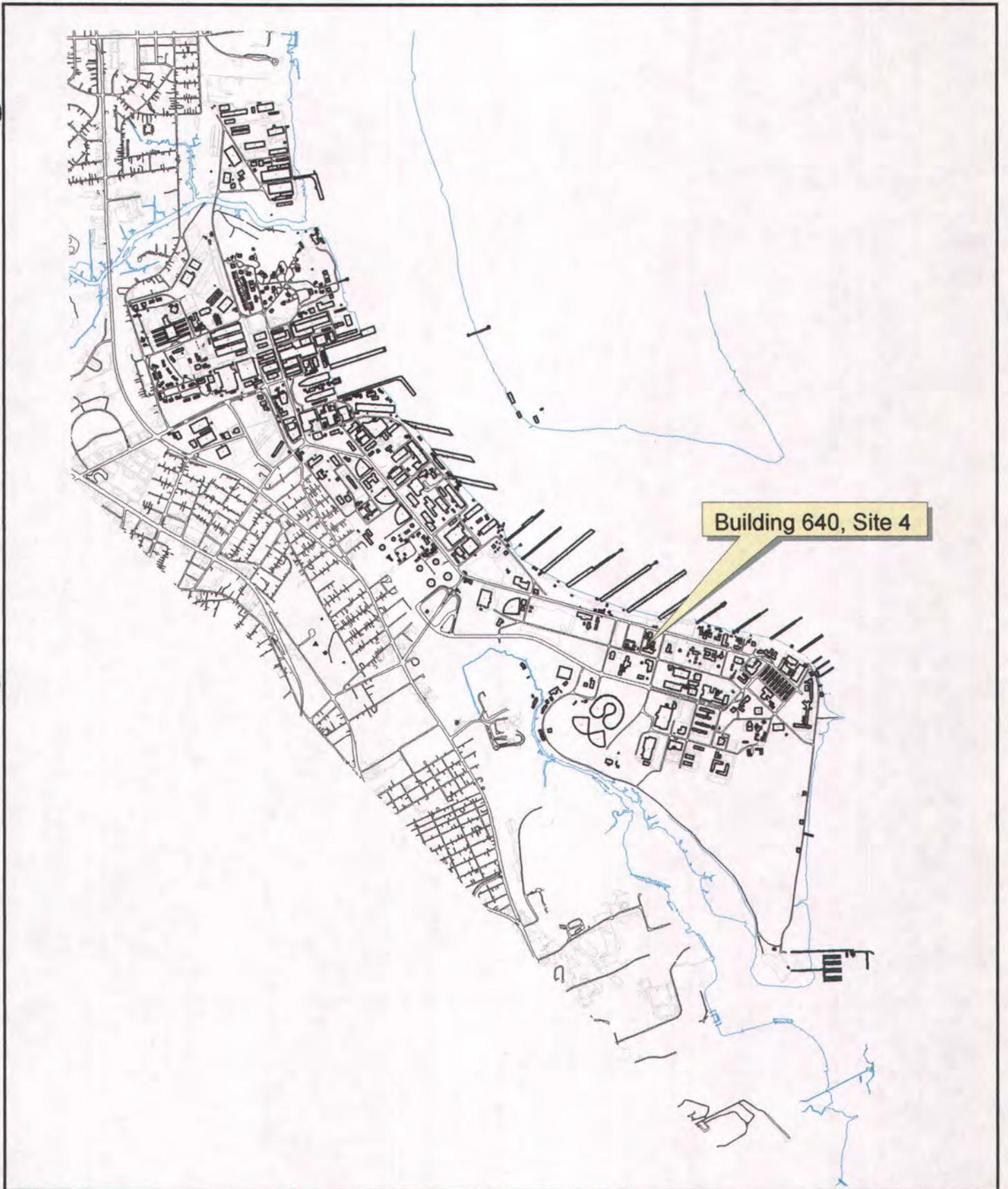
Free Product remains in monitoring wells CNC04-MW01 and CNC04-MW12. The on-going exchange of oil-only absorbent socks in the affected monitoring wells appears to be reducing the volume of free product at the site. To date, a sheen of free product has been measured and free product droplets is still being found in the absorbent socks. CH2M-Jones recommends that free product recovery activities continue. Once free product has been removed, a groundwater monitoring program should be implemented utilizing the existing wells.

Tables

Table 1
Free Product Measurement and Collection Quantities

Well No.	Date	DTP	DTW	FP Column (ft)	Comments
CNC04M01	01/17/2001	6.46	not obtained	not obtained	.01 gallons bailed
	02/15/2001	6.33	6.42	0.09	.01 gallons bailed
	03/05/2001	not obtained	not obtained	not obtained	.01 gallons bailed
	03/26/2001	5.84	5.84	0.0	.01 gallons bailed
	04/30/2001	6.65	6.70	0.05	.01 gallons bailed
	07/09/2001	not obtained	not obtained	n/m	.01 gallons bailed
	07/10/2001	6.34	6.35	0.01	No product removed
	05/01/2003	5.10	5.17	0.07	Installed absorbent sock
	05/15/2003	not obtained	not obtained	not obtained	Replace absorbent sock
	10/03/2003	no product present	5.49	0.0	Replace absorbent sock
	12/12/2003	no product present	5.51	0.0	Replace absorbent sock
	01/12/2004	no product present	6.22	0.0	Replace absorbent sock
	02/12/2004	no product present	5.31	0.0	Sock 1/2 full
	05/28/2004	no product present	5.71	0.0	Replace absorbent sock
	07/14/2004	no product present	3.88	0.0	Sock 1/4 full
	08/20/2004	4.59	4.61	0.02	Replace absorbent sock
	10/25/2004	no product present	5.84	0.0	Replace absorbent sock
	02/07/2005	no product present	5.04	0.00	Replace absorbent sock
	05/04/2005	sheen	5.25	0.0	Replace absorbent sock
	06/10/2005	4.8	4.8	0.0	Replace absorbent sock
CNC04M12	05/01/2003	5.55	5.55	0.0	Installed absorbent sock
	05/15/2003	not obtained	not obtained	not obtained	Replace absorbent sock
	10/03/2003	no product present	5.87	0.0	Replace absorbent sock
	12/12/2003	no product present	5.97	0.0	Replace absorbent sock
	01/12/2004	no product present	6.65	0.0	Replace absorbent sock
	02/12/2004	no product present	5.79	0.0	Sock 1/3 full
	05/28/2004	no product present	6.10	0.0	Sock 1/3 full
	07/14/2004	no product present	4.20	0.0	Replace absorbent sock
	08/20/2004	Beads of FP Present	5.3	0.0	Replace absorbent sock
	10/25/2004	no product present	5.87	0.0	Replace absorbent sock
	02/07/2005	no product present	5.45	0.0	Replace absorbent sock
	05/04/2005	sheen	6.25	0.0	Replace absorbent sock
	06/10/2005	5.65	5.65	0	Replace absorbent sock

Figures



Building 640, Site 4

-  Fence
-  Roads - Lines
-  Pavement
-  Buildings

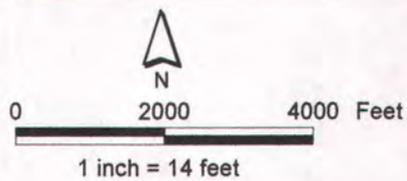
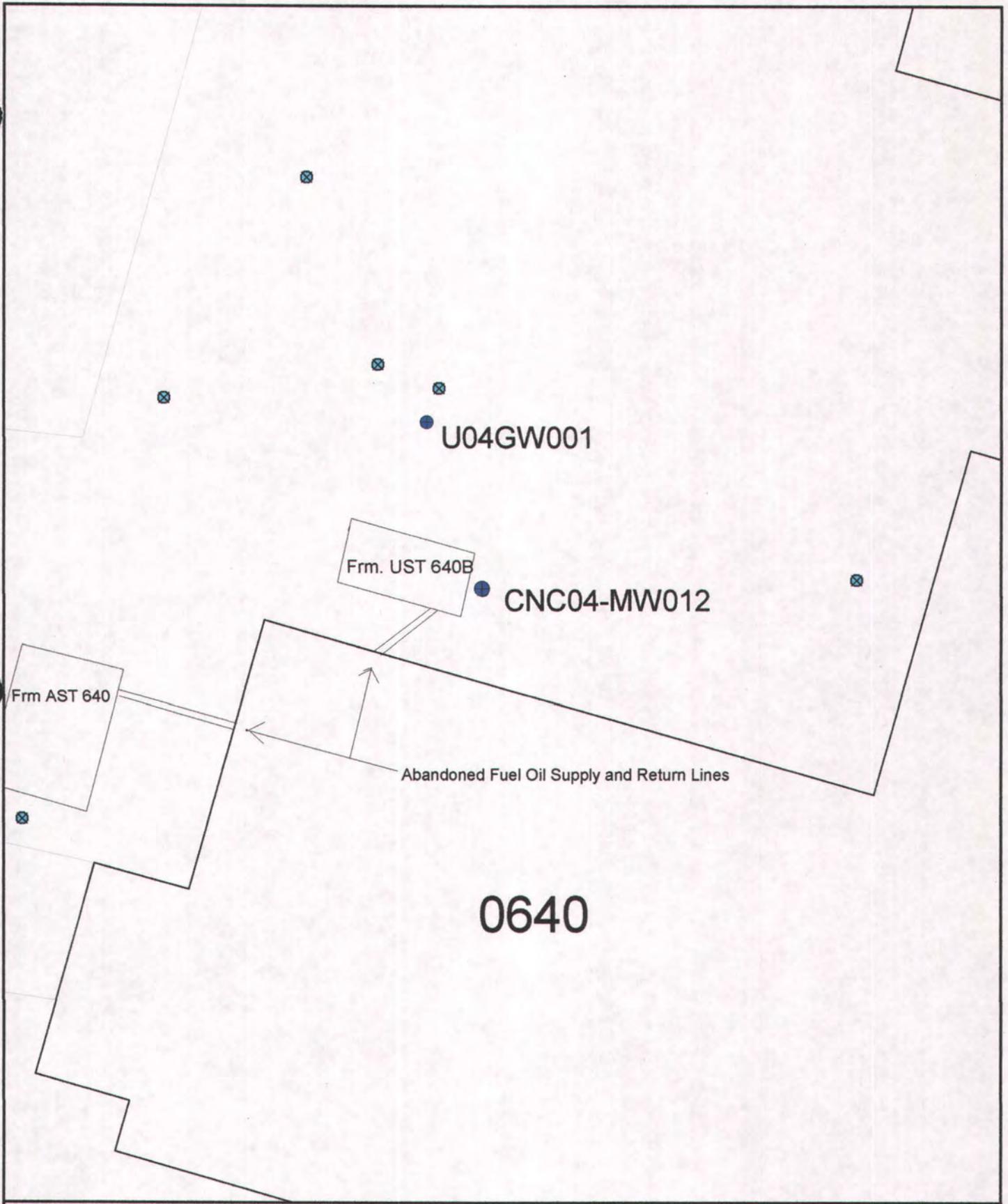


Figure 1
 Location Map
 Building 640, site 4, ZONE H
 Charleston Naval Complex



- Abandoned
- Active
- Fence
- Roads - Lines
- Pavement
- Buildings

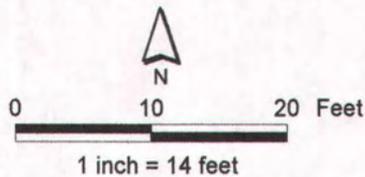


Figure 2
 Site Map
 Building 640, site 4, ZONE H
 Charleston Naval Complex