

12/1/97-01448

**NAVAL BASE, NORFOLK
NORFOLK, VIRGINIA**

Close-out Report

**Site 18
Former NM HW Storage Area**

December 1997



SITE NAME AND LOCATION

Site 18
Former NM HW Storage Area
Naval Base, Norfolk
Norfolk, Virginia

STATEMENT OF BASIS

This No Further Response Action Plan (NFRAP) decision is based on the results of previous investigations the Initial Assessment Study (IAS) (NEESA, 1983), the Relative Risk Ranking Data Collection Sampling and Analysis Report (Baker, January 1996), and the Site Management Plan Naval Base, Norfolk (CH2MHill, March 1997).

DECLARATION

Based on the information and results provided, it has been determined that no significant risk or threat to public health or the environment exists. No further action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, is required.

In the event contamination posing an unacceptable risk to human health or the environment is discovered after execution of this site close-out document, the Partnership agrees that additional investigation to characterize this contamination will be undertaken and further agrees to remediate the contamination if deemed necessary.

We the undersigned hereby acknowledge our approval and acceptance of the above declaration on this 3rd day of December, 1997.

Harry Harbold
Michael Zelen
Devin Hams
Lynette A. Fusler
Randy Jackson

DECISION SUMMARY

1.0 INTRODUCTION

This Close-out Report supports the No Further Response Action Plan (NFRAP) decision at the Former NM HW Storage Area, Site 18. The purpose of this report is to summarize the existing information and data for the site and describe the Naval Base Partnering Team's rationale for determining this site as requiring no further action.

1.1 Site History.

The Department of the Navy (DON) initiated the Navy Assessment and Control of Installation Pollutants (NACIP) Program in 1981. The NACIP Program utilized a three-phased approach to site study and cleanup. The program encompassed an Initial Assessment Study (IAS), Confirmation and Characterization Studies and Remedial Measures. The 1983 IAS, was to identify and assess sites posing a potential threat to human health or the environment due to contamination from past hazardous materials operations. The Former NM HW Storage Area was one of the 18 possible areas of concern identified during this study.

1.2 Site Description.

The NM hazardous waste storage area, Figures 1 and 2, was used from 1975 until 1979 to store drums of hazardous waste, consisting mainly of waste oil, metal plating solutions and sludge, various chlorinated organic solvents, acids, and paint stripping solutions. Considerable leakage and spillage of waste oil and hazardous wastes onto the ground surface occurred in this area, and a significant spill occurred in July 1979. Consequently, a pit was excavated, and an existing drainage ditch was enlarged to carry waste oil and contaminated stormwater runoff to the unlined pit. Waste oil and contaminated runoff were periodically pumped from the pit into a tank truck, which transported it to the industrial wastewater treatment plant (IWTP) for treatment.

Sampling and analysis of the soil in the spill area indicated that it was contaminated with metals, primarily chromium and cadmium. However, a sample of the soil was subjected to EP toxicity testing and was found to be non-hazardous. The contaminated soil was then excavated and placed in piles near the spill area.

A landfill permit was obtained from the Virginia State Department of Health in October 1980 for the one-time disposal of the contaminated soil at this site by grading and seeding it to establish a vegetative cover. In addition, the permit required a continuing monitoring program to determine the possibility of contaminant migration. Monthly monitoring of the standing water from the pit from February 1980 through April 1982 indicated that the Virginia groundwater standards for cadmium, chromium, cyanide, and phenols were slightly exceeded on a sporadic basis. Monthly monitoring of the creek for the same period indicated sporadic contamination with low levels of cadmium, chromium, cyanide, and phenols. This suggested that contaminant migration to the creek via shallow groundwater inflow may be occurring.

In the IAS, no further action was recommended for this site since on-going monitoring was occurring, and the disposal of the contaminated soil was permitted by the State. Monitoring of the former NM hazardous waste storage area has ceased because the former discharge point has been removed by regrading operations and it is no longer part of the NPDES monitoring program for the Base. In addition, the Virginia Department of Environmental Quality (VDEQ) inspected the site in September 1995 and determined that no further action or inspection of the site is warranted, Attachment A.

2.0 FIELD INVESTIGATION ACTIVITIES

The Former NM HW Storage Area was investigated as part of the Relative Risk Ranking System Data Collection Sampling and Analysis Report (Baker, January 1996). This report was conducted to determine the potential risk at Naval Base, Norfolk (NBN) sites and establish a ranking of these sites using the Naval Facilities Engineering Command, Atlantic Division (LANTDIV) Relative Risk Ranking (RRR) System. The objects of this field investigation were to:

- Gather contaminant, pathway and receptor information to be used in the Navy's RRR system.
- Collect samples for laboratory analysis where no data was available for use in the RRR system.

2.1 Sample Collection.

Sample location and selection of analyte parameters were determined during site reconnaissance performed prior to the field sampling event. Site reconnaissance was performed by Baker Environmental, LANTDIV, and NBN personnel. Sample locations and depths were based on the history and information available for the site and best engineering judgment.

Two surface soil samples were collected for analysis at the site, Figure 2. The samples were analyzed for the parameters identified in Table 1.

RRR Site ID	Sample Type	Sample ID	Analytical Parameters			
			VOC	SVOC	Metals	Pesticide PCB
NB07	Surface Soil	NB07S1	X	X	X	X
	Surface Soil	NB07S2	X	X	X	X

2.2 Analytical Results.

The maximum concentration of the detected compounds in the surface soil samples are summarized and compared to the EPA's Risk Based Concentrations (RBCs) in Table 2. Table 3 contains all compounds detected in both of the samples. Site 18 is located in an area of NBN designated for Moral, Welfare, and Recreation (MWR) and/or Open Space in the Master Land Use Plan. The current and future land use for this site is providing a buffer zone to the weapons area on the Naval Base. Accordingly, both industrial and residential RBCs were considered in assessing potential future actions.

No volatile organic compounds were detected at the site at levels that exceeded either the industrial or residential soil ingestion RBCs. One semi-volatile organic compound exceeded the residential RBC screening values for soil. Pesticides and PCBs were not detected at levels that exceeded any corresponding RBC values. Arsenic, ubiquitous in this geographic region, was the only inorganic compound detected above industrial or residential RBCs.

3.0 RISK CHARACTERIZATION

3.1 Human Health Risk Assessment.

A qualitative assessment for human health indicates the site is not expected to pose an unacceptable risk to human health due to the low level of contamination and limited exposure pathways.

3.2 Ecological Risk Assessment.

A qualitative assessment for ecological risk indicates the site is not expected to pose an unacceptable ecological risk due to the low level of contamination and limited pathways by which receptors may be exposed. Several receptor species may exist at the Naval Base outside of industrialized areas that provide a potential exposure pathway, including rodents, small animals, and birds. The potential exists for exposure through incidental ingestion of contaminated surface soil. However, due to the low contaminants levels and grass and shrubby, the potential for direct exposure is limited. The migration of contamination to sediments or surface water through ground water or runoff would be very slow and is not likely to occur.

4.0 CONCLUSION AND RECOMMENDATION

Based on this evaluation, no further action is recommended for this site.

Notes

1. Sample number designation: Base-RRR Site Number-Media-Sample Number

Base - NB (Naval Base)

Site Number - ## (i.e. 01, Inert Chemical Landfill)

Media -

S - Surface Soil

D - Subsurface Soil

H - Sediment

C - Concrete

W - Groundwater

2. Sample Analysis

VOC - Volatile organic compound, analyzed by Method SW846-8240.

SVOC - Semivolatile organic compound, analyzed by Method SW846-8270.

Metals analyzed by Method SW846-6010 (various) and 7471.

Cn - Cyanide, analyzed by Method SW846-9012.

PCB - Polychlorinated Biphenyl. PCBs and pesticide analyzed by Method SW846-8080.

Asbestos - Analyzed by 40 CFR, Part 73, Subpart F, Appendix A.

3. Qualifiers

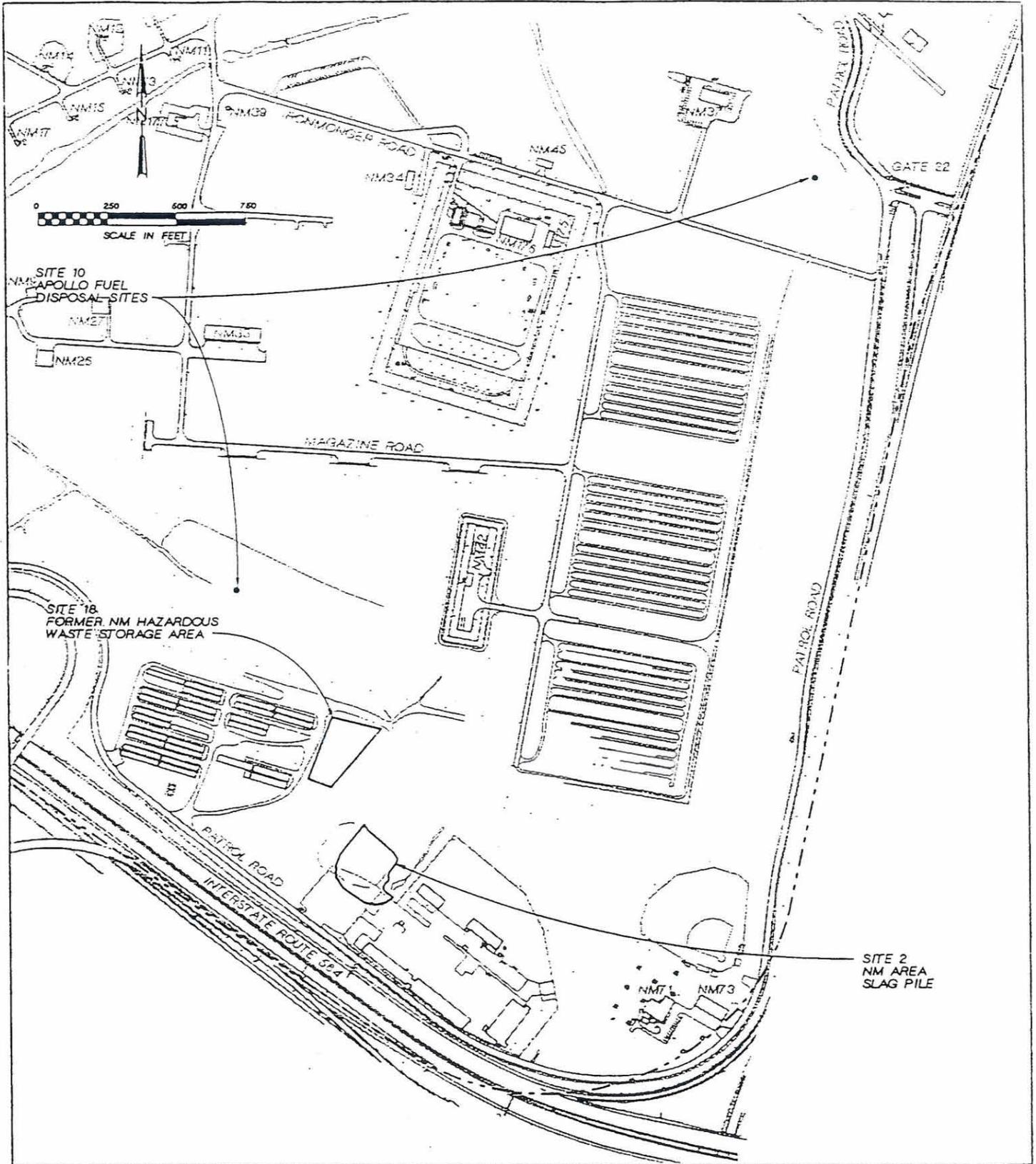
B - Detected in Blank

J - Estimated Value

4. RBC Basis

C - carcinogenic effects

N - noncarcinogenic effects



LEGEND

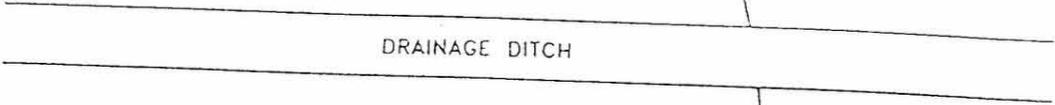
----- PROPERTY BOUNDARY - NORFOLK NAVAL BASE

FIGURE 1: SITE 18, FORMER NM HW STORAGE AREA

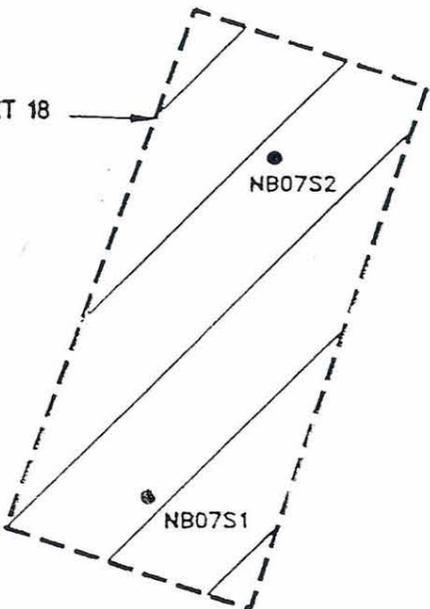
WEAPONS STATION AREA



DRAINAGE DITCH



DSERT 18



NB07S2

NB07S1

FORMER TAUSSIG CANS AREA

WOODED AREA

DRAWING NOT TO SCALE



LEGEND

- NB07S1
● - SURFACE SOIL SAMPLING POINT
- ▭ - ESTIMATED EXTENT OF SOLID WASTE MANAGEMENT UNIT

SOURCE: LANTDIV, 1994.

FIGURE 2: FORMER NM HW STORAGE AREA SAMPLING LOCATIONS

NAVAL BASE NORFOLK
NORFOLK, VIRGINIA

TABLE 2: Maximum Concentration of Detected Compounds, Site 18 - Former NM Hazardous Waste Storage Area

SAMPLE_NO	PARAMETER	RESULT (mg/kg)	QUALIFIER	Frequency	Industrial		Exceed		Exceed	
					RBC (mg/kg)	Basis	Industrial RBC	Residential RBC (mg/kg)	Basis	Residential RBC
NB07S2	2-butanone	1.60E-02		1/2	1.00E+06	N	NO	4.70E+04	N	NO
NB07S2	Acetone	7.40E-02		1/2	2.00E+05	N	NO	7.80E+03	N	NO
NB07S1	Anthracene	5.20E-02 J		1/2	6.10E+05	N	NO	2.30E+04	N	NO
NB07S1	Benzo(a)anthracene	3.20E-01 J		1/2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
NB07S1	Benzo(a)pyrene	3.80E-01		1/2	7.80E-01	C	NO	8.80E-02	C	YES
NB07S1	Benzo(b)fluoranthene	5.30E-01		1/2	7.80E+00	C	NO	8.80E-01	C	NO
NB07S1	Benzo(g,h,i)perylene	1.10E-01 J		1/2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
NB07S1	Benzo(k)fluoranthene	2.80E-01 J		1/2	7.80E+01	C	NO	8.80E+00	C	NO
NB07S1	Chrysene	3.90E-01		1/2	7.80E+02	C	NO	8.80E+01	C	NO
NB07S1	Fluoranthene	6.40E-01		1/2	8.20E+04	N	NO	3.10E+03	N	NO
NB07S1	Indeno(1,2,3-cd)pyrene	1.30E-01 J		1/2	7.80E+00	C	NO	8.80E-01	C	NO
NB07S1	Phenanthrene	2.00E-01 J		1/2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
NB07S1	Pyrene	4.00E-01		1/2	6.10E+04	N	NO	2.30E+03	N	NO
NB07S1	DDE	6.70E-02		1/2	1.70E+01	C	NO	1.90E+00	C	NO
NB07S1	DDT	4.70E-02		2/2	1.70E+01	C	NO	1.90E+00	C	NO
NB07S1	Aluminum	2.52E+03		2/2	1.00E+06	N	NO	7.80E+04	N	NO
NB07S1	Arsenic	2.00E+01		2/2	3.80E+00	C	YES	4.30E-01	C	YES
NB07S1	Cadmium	1.00E+00		1/2	1.00E+03	N	NO	3.90E+01	N	NO
NB07S1	Calcium	3.74E+04		1/2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
NB07S1	Chromium	7.00E+00		2/2	1.00E+04	N	NO	3.90E+02	N	NO
NB07S1	Copper	9.00E+00		1/2	8.20E+04	N	NO	3.10E+03	N	NO
NB07S1	Iron	5.40E+03		2/2	6.10E+05	N	NO	2.30E+04	N	NO
NB07S1	Lead	4.00E+01		2/2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
NB07S1	Magnesium	5.67E+02		1/2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
NB07S1	Manganese	6.70E+01		2/2	4.70E+04	N	NO	1.80E+03	N	NO
NB07S1	Mercury	1.00E+00		2/2	6.10E+02	N	NO	2.30E+01	N	NO
NB07S1	Nickel	5.00E+00		1/2	4.10E+04	N	NO	1.60E+03	N	NO
NB07S1	Vanadium	9.00E+00		1/2	1.40E+04	N	NO	5.50E+02	N	NO
NB07S1	Zinc	4.00E+01		2/2	6.10E+05	N	NO	2.30E+04	N	NO

TABLE 3: Detected Compounds, Site 18 - Former NM Hazardous Waste Storage Area

SAMPLE_NO	PARAMETER	RESULT (mg/kg)	QUALIFIER
NB07S2	2-butanone	1.60E-02	
NB07S2	Acetone	7.40E-02	
NB07S1	Anthracene	5.20E-02	J
NB07S1	Benzo(a)anthracene	3.20E-01	J
NB07S1	Benzo(a)pyrene	3.80E-01	
NB07S1	Benzo(b)fluoranthene	5.30E-01	
NB07S1	Benzo(g,h,i)perylene	1.10E-01	J
NB07S1	Benzo(k)fluoranthene	2.80E-01	J
NB07S1	Chrysene	3.90E-01	
NB07S1	Fluoranthene	6.40E-01	
NB07S1	Indeno(1,2,3-cd)pyrene	1.30E-01	J
NB07S1	Phenanthrene	2.00E-01	J
NB07S1	Pyrene	4.00E-01	
NB07S1	DDE	6.70E-02	
NB07S1	DDT	4.70E-02	
NB07S2	DDT	4.00E-03	*
NB07S1	Aluminum	2.52E+03	
NB07S2	Aluminum	2.48E+03	
NB07S1	Arsenic	2.00E+01	
NB07S2	Arsenic	1.00E+00	
NB07S1	Cadmium	1.00E+00	
NB07S1	Calcium	3.74E+04	
NB07S1	Chromium	7.00E+00	
NB07S2	Chromium	3.00E+00	
NB07S1	Copper	9.00E+00	
NB07S1	Iron	5.40E+03	
NB07S2	Iron	1.98E+03	
NB07S1	Lead	4.00E+01	
NB07S2	Lead	6.00E+00	
NB07S1	Magnesium	5.67E+02	
NB07S1	Manganese	6.70E+01	
NB07S2	Manganese	1.50E+01	
NB07S1	Mercury	1.00E+00	
NB07S2	Mercury	0.00E+00	
NB07S1	Nickel	5.00E+00	
NB07S1	Vanadium	9.00E+00	
NB07S1	Zinc	4.00E+01	
NB07S2	Zinc	7.00E+00	



copy to DB
copy to 12/15

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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September 20, 1995

Commander, Naval Base Norfolk
1530 Gilbert Street
Suite 200
Norfolk, Virginia 23511-2797
Attn: Ms. Sharon Waligora

Re: Naval Base Norfolk Naval Magazine Area Landfill, Permit No. 311

Dear Ms. Waligora:

I conducted an inspection of the referenced facility on September 7, 1995. The purpose of the inspection was to observe that the facility had indeed been used only for the one time application of soil generated from site remediation activity in 1985. During the inspection, no signs of adverse impacts or threats to human health or the environment were observed, therefore, this facility will no longer be subject to regular inspection by this office.

Your assistance, as well as that of Diane Bailey, is greatly appreciated. Should you have any questions, or wish to discuss this matter further, please contact me at (804) 552-1251.

Sincerely,

Thomas L. Kowalski
Environmental Inspector, Sr.

TK:llk