4/3/02-00963

CH2MHILL TRANSMITTAL

To: LANDTDIV
Atlantic Division, Code EV22WJ
Naval Facilities Engineering Command
1510 Gilbert St.
Norfolk, VA 23511-2699

From: CH2M HILL
Ben Francisco
5700 Thurston Ave., Ste. 120
Virginia Beach, VA 23455

Attn: Winoma Johnson

Date: April 3, 2002

Re: Monkey Bottom Borrow Area Technical Memorandum

We Are Sending You:

☑	Attached	Under separate cover via	
	Shop Drawings	Documents	Tracings
	Prints	Specifications	Catalogs
	Copy of letter	Other:	

Quantity	Description
4	Technical Memorandum, Soil Test Results from the Monkey Bottom Borrow Area

If material received is not as listed, please notify us at once

Remarks: Please call Ben Francisco at 757-460-3734, x20 or John Tomik at x13 with any questions or comments.

Soil Test Results from the Monkey Bottom Borrow Area

PREPARED FOR: Winoma Johnson

PREPARED BY: Ben Francisco

DATE: February 6, 2002

In December, 2001, five soil samples and one duplicate sample were collected at the Monkey Bottom Borrow Area. The samples were tested for TCLP VOCs, TCLP SVOCs, TCLP Pesticides/PCBs, TCLP Herbicides, TCLP Metals, TOX, TPH, and BTEX. The attached tables show the validated analytical results of compounds detected at the site. The duplicate sample is indicated as NBS01-MB-SB02-P.

The analytical results show that no TCLP VOCs, TCLP SVOCs, TCLP Pesticides/PCBs, TOX, TPH, and BTEX were detected in any of the five samples. Only one of the five samples demonstrated a TCLP herbicide detect, with a 2.1 ug/L concentration of 2,4-D. This level is well below the TCLP limit of 10000 ug/L and below the EPA Region III tapwater risk-based concentration of 370 ug/L. In addition, mercury was detected at a concentration of 1.4 ug/L in one TCLP metals sample. This level is well below the TCLP limit of 200 ug/L. Further, these detected concentrations are J-flagged, indicating that the reported values are estimated levels that were detected below the detection limits. Based upon the analytical results, the soil collected from the borrow area does not appear to contain any significant levels of contaminants and should be suitable to be used as cover material for the Camp Allen Salvage Yard.

Naval Station Norfolk
CTO 199
Raw Data Table

Station ID	NBS01-MB-SB01		NBS01-MB-SB02		NBS01-MB-SB02		NBS01-MB-SB03		NBS01-MB-SB04		NBS01-MB-SB05	
Sample ID	NBS01-MB-SB01		NBS01-MB-SB02		NBS01-MB-SB02-P		NBS01-MB-SB03		NBS01-MB-SB04		NBS01-MB-SB05	
Sample Date	12/20/01		12/20/01		12/20/01		12/20/01		12/20/01		12/20/01	
Chemical Name												
TCLP Volatile Organic Compounds (MG/L)												
1,1-Dichloroethene	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
1,2-Dichloroethane	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
2-Butanone	0.063	U	0.063	U	0.063	U	0.063	U	0.063	U	0.063	U
Benzene	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
Carbon tetrachloride	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
Chlorobenzene	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
Chloroform	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
Tetrachloroethene	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
Trichloroethene	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
Vinyl chloride	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
TCLP Semi-volatile Organic Compounds (MG/L)												
1,4-Dichlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
2,4,5-Trichlorophenol	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
2,4,6-Trichlorophenol	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
2,4-Dinitrotoluene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
2-Methylphenol	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
3-Methylphenol	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4-Methylphenol	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Hexachlorobutadiene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Hexachloroethane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Nitrobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Pentachlorophenol	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Pyridine	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
TCLP Pesticides/PCBs (MG/L)												
Endrin	1.00E-03	U	1.00E-03	U	1.00E-03	U	1.00E-03	U	1.00E-03	U	1.00E-03	U
Heptachlor	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U
Heptachlor epoxide	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U
Methoxychlor	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U
Toxaphene	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U

NA - Not analyzed
B - Analyte not detected above associated blank
J - Reported value is estimated
U - Analyte not detected

Naval Station Norfolk
CTO 199
Raw Data Table

Station ID	NBS01-MB-SB01		NBS01-MB-SB02		NBS01-MB-SB02		NBS01-MB-SB03		NBS01-MB-SB04		NBS01-MB-SB05	
Sample ID	NBS01-MB-SB01		NBS01-MB-SB02		NBS01-MB-SB02-P		NBS01-MB-SB03		NBS01-MB-SB04		NBS01-MB-SB05	
Sample Date	12/20/01		12/20/01		12/20/01		12/20/01		12/20/01		12/20/01	
Chemical Name												
gamma-BHC (Lindane)	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U	2.50E-04	U
gamma-Chlordane	0.008	U	0.008	U	0.008	U	0.008	U	0.008	U	0.008	U
TCLP Herbicides (MG/L)												
2,4,5-TP (Silvex)	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U	0.0025	U
2,4-D	0.0075	U	0.0075	U	0.0075	U	0.0021	J	0.0075	U	0.0075	U
TCLP Metals (MG/L)												
Arsenic	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Barium	0.0945	B	0.0728	B	0.0741	B	0.0682	B	0.265	B	0.0758	B
Cadmium	4.00E-04	U	4.00E-04	U	4.00E-04	U	4.00E-04	U	4.00E-04	U	4.00E-04	U
Chromium	0.0059	B	0.0012	B	0.0011	B	9.80E-04	B	9.10E-04	B	0.0012	B
Lead	0.0051	B	0.0036	B	0.0035	B	0.0033	B	0.0029	B	0.0025	B
Mercury	1.00E-04	U	1.00E-04	U	2.60E-04	B	5.70E-04	B	0.0014	J	1.40E-04	B
Selenium	0.0136	B	0.0174	B	0.016	B	0.0175	B	0.0164	B	0.0152	B
Silver	1.00E-03	U	1.00E-03	U	1.00E-03	U	1.00E-03	U	1.00E-03	U	1.00E-03	U

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Station ID	NBS01-MB-SB01		NBS01-MB-SB02		NBS01-MB-SB02		NBS01-MB-SB03		NBS01-MB-SB04		NBS01-MB-SB05	
Sample ID	NBS01-MB-SB01		NBS01-MB-SB02		NBS01-MB-SB02-P		NBS01-MB-SB03		NBS01-MB-SB04		NBS01-MB-SB05	
Sample Date	12/20/01		12/20/01		12/20/01		12/20/01		12/20/01		12/20/01	
Chemical Name												
Volatile Organic Compounds (UG/KG)												
Benzene	6	U	5	U	5	U	6	U	6	U	6	U
Ethylbenzene	6	U	5	U	5	U	6	U	6	U	6	U
Toluene	6	U	5	U	5	U	6	U	6	U	6	U
Xylene, total	18	U	16	U	16	U	17	U	19	U	17	U
Pesticide/Polychlorinated Biphenyls (UG/KG)												
Aroclor-1016	39	U	36	U	36	U	37	U	41	U	36	U
Aroclor-1221	79	U	74	U	73	U	74	U	83	U	74	U
Aroclor-1232	39	U	36	U	36	U	37	U	41	U	36	U
Aroclor-1242	39	U	36	U	36	U	37	U	41	U	36	U
Aroclor-1248	39	U	36	U	36	U	37	U	41	U	36	U
Aroclor-1254	39	U	36	U	36	U	37	U	41	U	36	U
Aroclor-1260	39	U	36	U	36	U	37	U	41	U	36	U
Wet Chemistry (MG/KG)												
Organic halogens, total	25	U	25	U	25	U	25	U	25	U	25	U
Total Petroleum Hydrocarbons (MG/KG)												
Total petroleum hydrocarbons (TPH)	171	KB	110	U	110	U	112	U	123	U	111	U

NA - Not analyzed
KB
U - Analyte not detected