Record of Consensus Agreement
No Action Decision
Site 4 – North End Landfill

Naval Air Station
Joint Reserve Base
Willow Grove, Pennsylvania

Naval Facilities Engineering Command
Mid-Atlantic

Contract No. N62467-04-D-0055
Contract Task Order 412

January 2009

TETRA TECH

Naval Air Station Joint Reserve Base (NAS JRB) Willow Grove Installation Restoration Program Site Screening Process Record of Consensus Agreement No Action Decision for Site 4 – North End Landfill

AGREEMENT SUMMARY:

Based on the results of the Site Screening Process (SSP) performed in accordance with the Federal Facilities Agreement (FFA) among EPA, PADEP and the Navy for the Installation Restoration (IR) program at NAS JRB Willow Grove, Horsham Township, Pennsylvania, the undersigned have reached consensus agreement that no action or further investigation is required at the Site Screening Area (SSA) known as Site 4 – North End Landfill.

Details of the SSP results are attached to this record of agreement document.

SIGNATURES:

1/23/09

Lisa Cunningham Date
USEPA Region 3 RPM

11/21/09

Robert Lewandowski, P.E. Date
Navy BRAC Environmental Coordinator

11/21/09

Charles Clark Date
PADEP Project Officer

NAS JRB WILLOW GROVE
NO ACTION DECISION FOR SITE 4 – NORTH END LANDFILL
SITE SCREENING PROCESS
CONSENSUS AGREEMENT

TOPIC:

No action concurrence for site screening area (SSA) known as Site 4 – North End Landfill, NAS JRB Willow Grove, Horsham Township, Pennsylvania.

PURPOSE:

The results of the Site Screening Process (SSP) at NAS JRB Willow Grove indicate that Site 4 – North End Landfill should be removed from further study under the Federal Facilities Agreement (FFA) for NAS JRB Willow Grove.

BASIS AND DETAILS OF AGREEMENT:

Introduction

The SSP is the mechanism defined in the FFA for NAS JRB Willow Grove for determining whether there have been releases of hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents to the environment from the identified SSAs, as discussed in the FFA. The SSP enables the Navy and the regulators to determine whether an SSA should proceed through the Remedial Investigation/Feasibility Study (RI/FS) process or whether the SSA should be removed from further study under the FFA. The SSP has generated sufficient data to support a No Action decision for Site 4 – North End Landfill.

Site 4 – North End Landfill is located between the northern end of Runway 15/33 and Perimeter Road (see Attachment I). The site extends to the west into a marsh, where the runway storm drainage system outfalls. Site 4 consists of an approximately 3.5 acre former landfill known as the North End Landfill. The landfill was reportedly used from approximately 1967 to 1969 and received wastes not accepted in the regular trash. Disposed waste materials included bulk items, oil and grease, overflow from the Privet Road Compound, and sludge from the wastewater treatment plant and the industrial pre-treatment plant. A summary of waste reportedly disposed at this site is presented in Attachment II. Wastes were deposited in an irregular area extending

north from a steep berm at the northern end of the runway. During the site's operation, it is reported that wastes were regularly covered by Base personnel.

Site Screening Process Results

The following sections detail the results of the SSP activities for Site 4.

Initial Assessment Study

In 1986, the Navy Energy and Environmental Support Activity (NEESA) performed an Initial Assessment Study (IAS) on nine potentially contaminated sites at NAS JRB Willow Grove, including Site 4 (NEESA, 1986). The IAS consisted of a records search, air photo interpretations, site reconnaissance, and personnel interviews.

During the site reconnaissance, plastic, broken dishes, rags, and metal scrap were observed at the ground surface. A pool of black tarry waste measuring approximately 50 square feet was also observed on the ground surface near the base of the runway embankment adjacent to the marsh. The IAS report recommended Site 4 for confirmation study due to the potential for contamination, contaminant migration, and human and ecological health risks.

Site Inspection

In 1989, EA Engineering performed a Site Inspection (SI) on ten sites at NAS JRB Willow Grove, including Site 4 (EA Engineering, 1990). The SI consisted of a site reconnaissance, the installation of three monitoring wells, and sampling of groundwater, surface water, sediment, and soil. The samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, total cyanide, and total petroleum hydrocarbons (TPH). The analytical results are included in Attachment II.

Surface Soil

Two soil samples were collected from the area of tarry waste in the northwest section of the site. The samples were collected from the same location at depths of 0 - 0.5 feet (NELS-1A) and 2 - 2.5 feet (NELS-1B). NELS-1A contained xylene (4700 µg/kg), ethylbenzene (560 µg/kg) and toluene (500 µg/kg); several SVOCs, including chrysene (22,000 ug/kg) and pyrene (16,000J µg/kg); and cadmium (1.9 mg/kg). (A “J” qualifier indicates that the reported concentration is estimated.) NELS-1B contained several SVOCs at trace levels and cadmium at 3.5 mg/kg. Total petroleum hydrocarbons (TPH) levels were 211,000 mg/kg in NELS-1A and 2240 mg/kg in NELS-1B.

Groundwater

Three overburden/bedrock monitoring wells were installed: NELW-1 (29 feet deep), NELW-2 (29 feet deep), and NELW-3 (27 feet deep). The wells were sampled in June, September, and December 1989. Methylene chloride was detected in all three wells in September and December at concentrations ranging from 9.8 µg/l to 18.96 µg/l. Dieldrin was detected in NELW-3 (0.05J µg/l) in June. Dissolved lead was detected in NELW-1 (1.7J µg/l) and NELW-3 (28.8J µg/l) in June, and in NELW-1 (2J µg/l) in September.

Surface Water

Surface water samples were collected from the outfall (SWS/1), the marsh (SWS/2), and the associated stream (SWS/3) that borders the site to the west. Two sampling rounds, in June and September 1989, were conducted. No VOCs were detected. Dieldrin was detected in all three surface water samples collected in June at levels below the laboratory contract reporting limit (RL) ranging from 0.061 µg/l to 0.081 µg/l. Dieldrin was not detected during the September sampling round. No metals exceeding state ambient water quality standards at that time were detected in the surface water samples.

Sediment

Sediment samples were collected from the marsh (SS/1) and the stream (SS/2). Two sampling rounds, in June and September 1989, were conducted. A trace level of toluene (2J µg/kg) was detected in SS/1 in June; trace levels of polycyclic aromatic hydrocarbons (PAHs) were detected during both rounds of sampling; dieldrin was detected in SS/1 (140 µg/kg) and SS/2 (230 µg/kg) in June but not September; DDT was detected in SS/1 (66 µg/kg) in September; Aroclor 1260 was detected at levels below the RL in SS/1 (230J µg/kg) and SS/2 (260 µg/kg) in the September; TPH was detected at levels ranging from 65 to 634 mg/kg in both sampling rounds.

The SI report recommended no further investigations for the site.

Additional Investigations

In 2008, based on discussions with EPA Region III and PADEP, the Navy determined that the tarry waste area warranted further investigation. The Navy contracted Tetra Tech to investigate the nature and extent of the tarry waste in the northwest section of the site. A soil boring investigation was performed on May 2, 2008. A total of six soil samples plus one field duplicate sample were collected from five of the borings. Two soil samples were collected from boring location S4-SS01 (SI soil boring location NELB-1), from depths of 0 to 1 foot (S4-SS01-

0.01.0) and 2 to 2.5 feet (S4-SB01-2.02.5). Sample S4-SS01-0.01.0 consisted of black tarry waste, and sample S4-SB01-2.02.5 consisted of brownish gray clay. Samples S4-SS02, S4-SS03, and S4-SS04 were collected 10 feet to the south, east, and north, respectively, of S4-SS01, from a depth of 0 to 2 feet. Sample S4-SS05 was collected 28 feet west of S4-SS01 from a depth of 0 to 1 foot. All of the samples were analyzed for Target Compound List (TCL) VOCs and SVOCs, and TPH.

The analytical results were compared to EPA Region 3 Risk Based Concentrations (RBCs) for residential soil and Pennsylvania Department of Environmental Protection (PADEP) Medium Specific Concentrations (MSCs) for residential soil. The SVOCs benz(a)anthracene and benzo(a)pyrene were identified at concentrations above these screening levels. Benz(a)anthracene was detected above screening levels in samples S4-SS01-0.01.0 (7,310 µg/kg) and S4-SB01-2.02.5/DUP-01 (220 µg/kg). Benzo(a)pyrene was detected above screening levels in samples S4-SB01-2.02.5/DUP-01 (137 µg/kg), S4-SS02-0.02.0 (82J µg/kg), S4-SS03-0.02.0 (27J µg/kg), S4-SS04-0.02.0 (95 µg/kg), and S5-SS05-0.01.0 (25J µg/kg). VOC concentrations were all well below the corresponding screening levels. TPH concentrations ranged from 14,000J mg/kg in S4-SS-1-0.01.0 to 323 mg/kg in S4-SS05-0.01.0. A data summary of positive analytical results is presented in Attachment III.

In September 2008, as part of a Base housekeeping effort, the tarry waste was excavated and transported off-Base for proper disposal following a work plan produced for the Navy by Tetra Tech (Tetra Tech, July 2008). The excavation encompassed the tarry waste exposed at the ground surface at NELB-1 as well as scattered, discrete pockets of tarry waste in the shallow subsurface soil surrounding NELB-1 (Tetra Tech, December 2008). The excavation measured approximately 30 feet long by 45 feet wide and 2 to 3 feet deep. Approximately 97 tons of soil and tarry waste were excavated and disposed off Base. Four post-excavation soil samples (two bottom samples and two sidewall samples) were collected and analyzed for TCL SVOCs and TPH diesel range organics (DRO). The analytical results revealed PAH concentrations ranging from non detect (ND) to 164 ug/kg and TPH DRO concentrations ranging from 14.1 mg/kg to 1220 mg/kg. No compounds were detected at concentrations exceeding PADEP MSCs for residential soil. The pre-excavation composite analytical data and post-excavation soil sample analytical results are included in Attachment III.

Current Status

The Pennsylvania Department of Environmental Protection (PADEP) concurred with the Navy recommendation for No Further Action at Site 4 (PADEP, October 31, 2005) (Attachment IV).

At the December 19, 2006 Navy Willow Grove Installation Restoration Program (IRP) Partnering Team Meeting, the Navy provided a summary discussion of review documentation and presented a status update for Site 4. All available past investigation results, correspondence and notes were summarized and recommendations for future actions were presented for discussion among the team. Based on a March 10, 1999 email message from a previous EPA Remedial Project Manager (RPM), Lori Baker, it was decided to arrange for a site visit by EPA's Biological Technical Assistance Group (BTAG) to assess the ecological impact of the Site.

On March 28, 2007, BTAG personnel visited Site 4 to review site conditions. BTAG concluded that there was no significant risk to ecological systems and did not recommend further investigation or action at Site 4.

Based on discussion at the NAS JRB Willow Grove partnering meeting held at EPA Region 3 in June 2007 between the Navy, EPA and PADEP, the Navy agreed to prepare and present this consensus agreement document for No Action at Site 4 for signatures by EPA, PADEP, and the Navy.

The post-excavation sample results from the September 2008 housekeeping effort at the site to remove the reported 'tarry waste' support a "No Further Action" determination for Site 4.

REFERENCES:

Baker, Lori, USEPA, to Mr. James Colter, Navy, Naval Facilities Engineering Command. March 10, 1999. Correspondence (email).

EA Engineering, Science, and Technology, Inc. May 1990. Site Inspection Studies at NAS Willow Grove, Horsham Township, Pennsylvania.

Flipse, April, PADEP, to Mr. James R. Edmond, Navy, NAS JRB Willow Grove. October 31 2005. Correspondence.

Naval Energy and Environmental Support Activity. February 1986. Initial Assessment of Naval Air Station, Willow Grove, Pennsylvania.

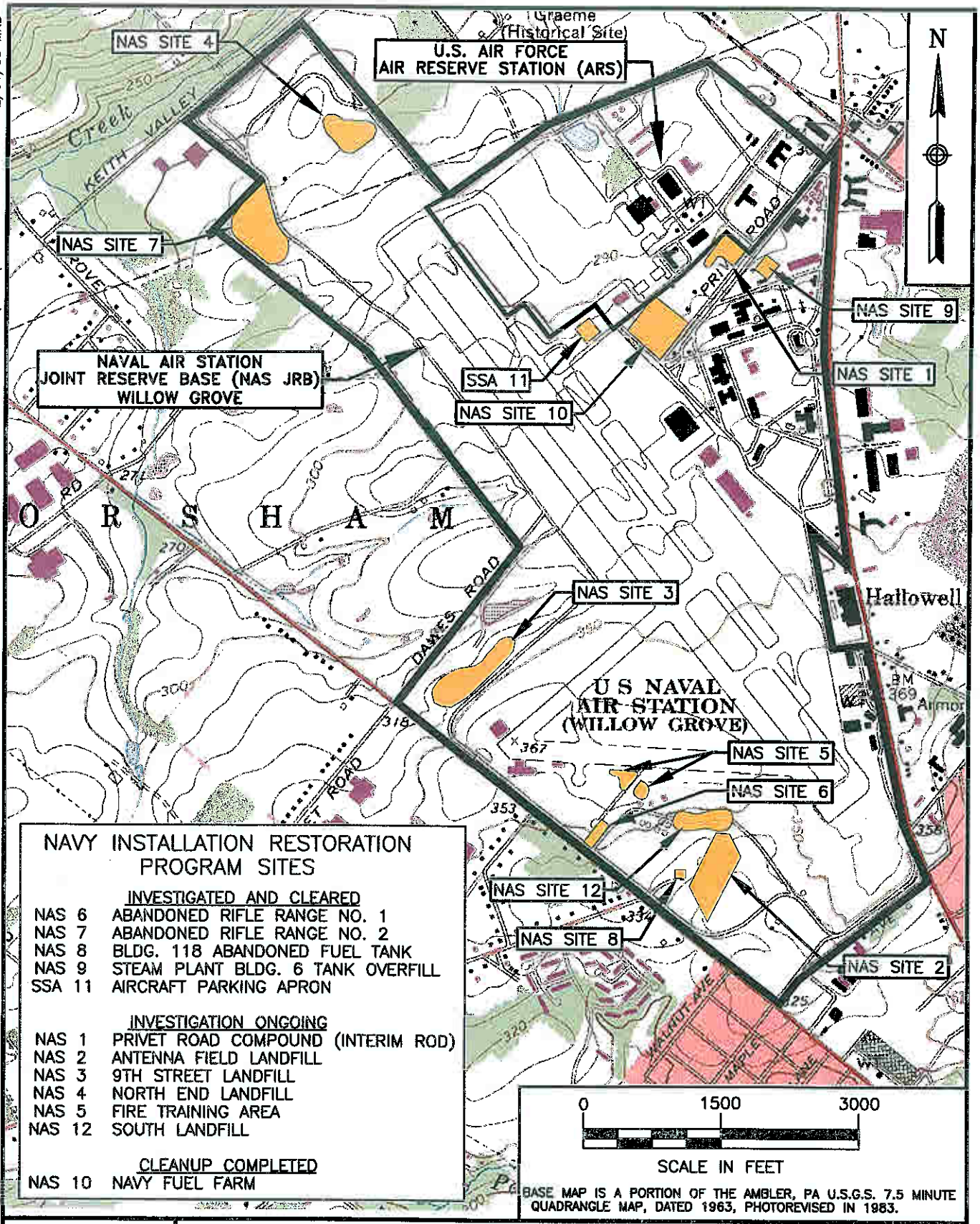
Tetra Tech NUS, Incorporated. July 2008. Work Plan for Test Pit Investigation Site 4 North End Landfill, NAS JRB Willow Grove, Pennsylvania.

Tetra Tech NUS, Incorporated. December 2008. Test Pit Investigation Site Screening Area (SSA) 4, NAS JRB Willow Grove, Pennsylvania.

ACRONYMS:

µg	Micrograms
µg/kg	Micrograms per kilogram
µg/l	Micrograms per liter
BRAC	Base Realignment and Closure
BTAG	Biological Technical Assistance Group
DDT	DIchloro-Diphenyl-Trichloroethane
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
FFA	Federal Facilities Agreement
IAS	Initial Assessment Study
IRP	Installation Restoration Program
mg	Milligrams
mg/kg	Milligrams per kilogram
MSCs	Medium Specific Concentrations
NAS JRB	Naval Air Station Joint Reserve Base
ND	Non-detect
NFESC	Naval Facilities Engineering Service Center
NEESA	Naval Energy and Environmental Support Activity
NFA	No Further Action
PADEP	Pennsylvania Department of Environmental Protection
PAHs	Polyaromatic hydrocarbons
PCBs	Polychlorinated biphenyls
RBCs	Risk Based Concentrations
RL	Reporting Limit
RPM	Remedial Project Manager
SI	Site Inspection
SSA	Site screening areas
SSP	Site screening process
SVOCs	Semivolatile organic compounds
RI/FS	Remedial Investigation/Feasibility Study
TAL	Target Analyte List
TCL	Target Compound List
TPH	Total petroleum hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency
VOCs	Volatile organic compounds

ATTACHMENT I



NAVY INSTALLATION RESTORATION PROGRAM SITES

INVESTIGATED AND CLEARED

NAS 6	ABANDONED RIFLE RANGE NO. 1
NAS 7	ABANDONED RIFLE RANGE NO. 2
NAS 8	BLDG. 118 ABANDONED FUEL TANK
NAS 9	STEAM PLANT BLDG. 6 TANK OVERFILL
SSA 11	AIRCRAFT PARKING APRON

INVESTIGATION ONGOING

NAS 1	PRIVET ROAD COMPOUND (INTERIM ROD)
NAS 2	ANTENNA FIELD LANDFILL
NAS 3	9TH STREET LANDFILL
NAS 4	NORTH END LANDFILL
NAS 5	FIRE TRAINING AREA
NAS 12	SOUTH LANDFILL

CLEANUP COMPLETED

NAS 10	NAVY FUEL FARM

BASE MAP IS A PORTION OF THE AMBLER, PA U.S.G.S. 7.5 MINUTE QUADRANGLE MAP, DATED 1963, PHOTOREVISED IN 1983.

TETRA TECH NUS, INC.

SITE LOCATION MAP
NAS JRB WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA

SCALE	AS NOTED
FILE	112G00845CM01
REV	0
DATE	12/31/08
FIGURE NUMBER	FIGURE 1

112G00845\0533\112G00845CM01.DWG 12/31/08 MKB

ATTACHMENT II

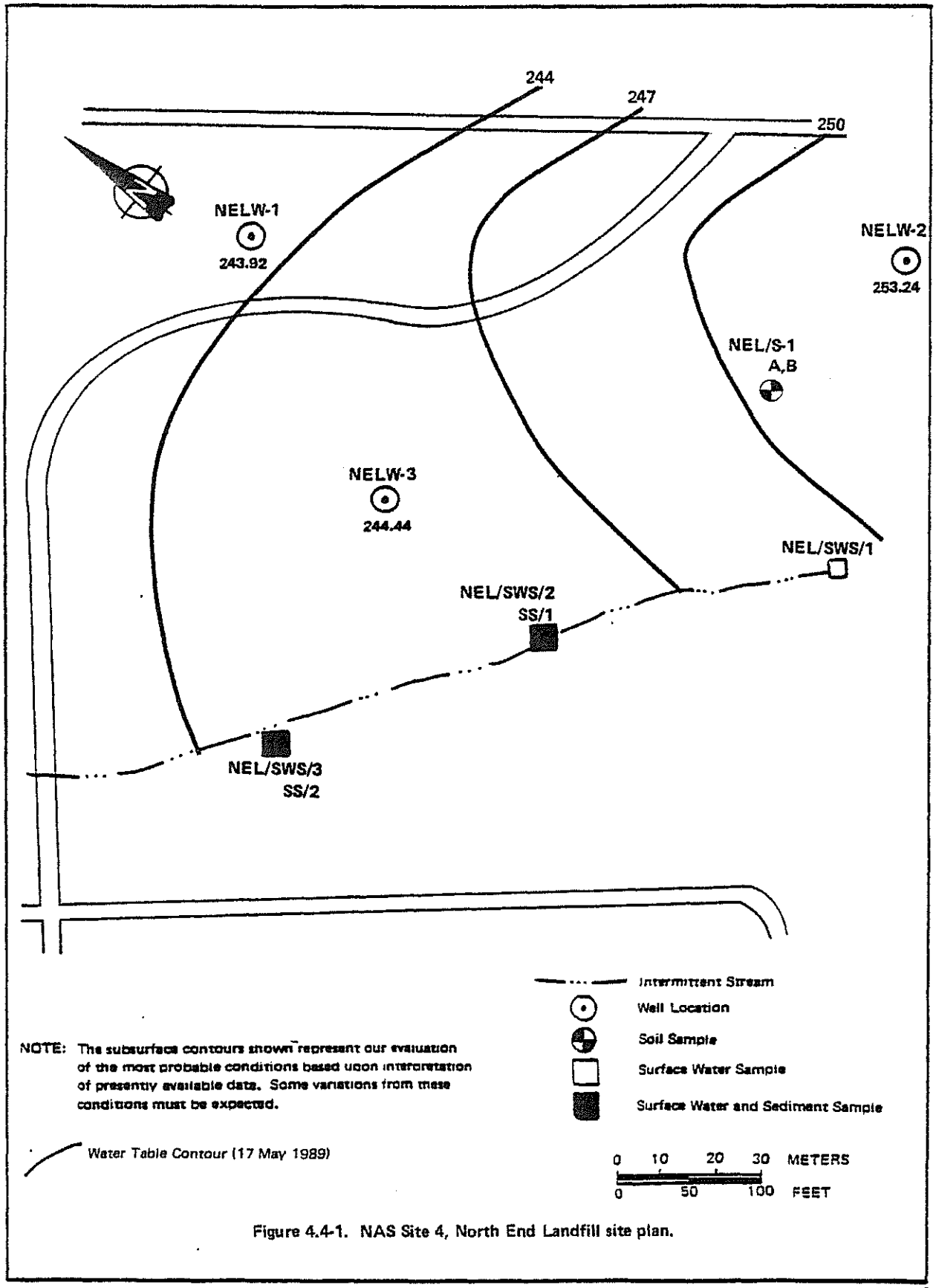


Figure 4.4-1. NAS Site 4, North End Landfill site plan.

TABLE 4.4-1 WASTES DISPOSED AT THE NORTH END LANDFILL, 1967-1969

Waste Type	Total Estimated Quantity
Paint wastes	350 gal
Paint stripper (methylene chloride)	6 gal
Xylene and toluene	6 gal
Isopropyl and methyl alcohol, acetone, MEK	4 gal
Freon	3 gal
Trichloroethylene (TCE)	43 gal
Asbestos	260 lb
General refuse (includes shingles and wood)	3,600,000 lb
Sewage sludge	8,000 lb
Industrial pretreatment plant sludge	6,000 lb
Petroleum, oils, and lubricants (POL)	130 gal
Oil and grease emulsion (separators)(a)	8,700 gal
Lead (sewage sludge)	20 lb
Silver (sewage sludge)	60 lb
Mercury (dental amalgam)	4 lb
Chromium (sewage sludge)	4 lb

(a) Assume 10 percent POL.

Source: Initial Assessment Study,
NAS Willow Grove, February 1986.

TABLE 4.4-2 NAS SITE 4. NORTH END LANDFILL -- SUMMARY ANALYTICAL RESULTS -- GROUND WATER SAMPLES TAKEN JUNE 5-15, 1989

PARAMETER	UNITS	NELW-1	NELW-2	NELW-3
INDICATOR PARAMETERS	MG/L			
Total organic carbon		2	2.6	2.9
TOTAL METALS	UG/L			
Aluminum		178 J	3500 J	6130 J
Arsenic				1.5
Barium		99.6	447	282
Beryllium		0.37	1.5	1.5
Cadmium		8.8		
Calcium		10700	10400	13900
Chromium			3.4	8.5
Cobalt			11.9	14.1
Copper		15.5	41.1	27.8
Iron		205 J	3780 J	11300 J
Lead		1.6 J	10.7 J	11.2 J
Magnesium		3570	3350	6040
Manganese		46.8	504	682
Nickel		11.7	19.1	17.4
Potassium		1310	1390	1960
Selenium		4	2.7	
Sodium		6930	9090	7400
Vanadium		2.5	8.3	12.7
Zinc		57.4 R	78.9 R	82.2 R
DISSOLVED METALS	UG/L			
Aluminum		32.6 J	32.4 J	45.4 J
Arsenic				21.8
Barium		85.6	166	71.6
Beryllium		0.37	0.75	0.37
Cadmium				2.2
Calcium		10900	8520	14200
Cobalt		4.2		
Copper			2.8	13.7
Iron		40 J	27.7 J	46.1 J
Lead		1.7 J		28.8 J
Magnesium		3550	2560	5150
Manganese		8.1	35	13
Nickel				7
Potassium				1700
Selenium		3.1	2.3	3.6
Sodium		6650	9510	7650
Thallium				2
Vanadium		2.1	2.1	
Zinc		46.3 R	32.1 R	74.1 R

TABLE 4.4-2 (CONT.)

PARAMETER	UNITS	NELW-1	NELW-2	NELW-3
VOLATILE ORGANIC COMPOUNDS				
SEMIVOLATILE ORGANIC COMPOUNDS				
TENTATIVELY IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS	UG/L			
N-Butylbenzenesulfonamide				20
PESTICIDES/PCB	UG/L			
Dieldrin				0.05 J

TABLE 4.4-3 NAS SITE 4. NORTH END LANDFILL -- SUMMARY ANALYTICAL DATA -- GROUND WATER SAMPLES TAKEN SEPTEMBER 18-22, 1989

PARAMETER	UNITS	MELW-1	MELW-2	MELW-3
INDICATOR PARAMETERS	MG/L			
Total cyanide				0.04
Total organic carbon		0.6	1	1.4
TOTAL METALS	UG/L			
Aluminum		822	8030	4560
Antimony			40 J	
Arsenic			2.8 J	
Barium		260	333	1360
Calcium		1050 J	1930 J	1660 J
Chromium		11.4	10.8	11.9
Copper			40.3	
Iron		1010	10700	6200
Lead		2.3 J	7.6	3.9 J
Magnesium		4590 J	3960 J	5940
Manganese		88.8	358	255
Mercury			0.28	
Potassium		1050 J	1930 J	1660 J
Sodium		7360 J	10100 J	7630 J
Zinc		32.7	22.1	48.8
DISSOLVED METALS	UG/L			
Barium		106 J	183 J	79 J
Calcium		11400	8140	13200
Chromium		9.6 J		
Iron		58 J	137	1040
Lead		2 J		
Magnesium		4120 J	2660 J	5030
Manganese			110	6 J
Nickel		28.6 J		30.2 J
Potasssium		713 J	960 J	787 J
Sodium		8600	11000	8360
Vanadium		14.5 J	12.7 J	
Zinc		36.6	14.6 J	37.3
VOLATILE ORGANIC COMOUNDS	UG/L			
Methylene Chloride		13.38	18.96	17.52
SEMIVOLATILE ORGANIC COMPOUNDS				
PESTICIDES/PCB				

TABLE 4.4-4 NAS SITE 4. NORTH END LANDFILL -- SUMMARY ANALYTICAL DATA -- GROUND WATER SAMPLES TAKEN DECEMBER 11-15, 1989

PARAMETER	UNITS	NELW-1		NELW-2		NELW-3	
INDICATOR PARAMETERS	MG/L						
Total organic carbon		0.73		0.89		0.89	
TOTAL METALS	UG/L						
Aluminum		3960	JR	3870	JR	5270	R
Barium		196	J	176	J	190	J
Calcium		8110	J	5570	J	13200	J
Chromium		7.1	J	5.1	J	8.1	J
Copper		3.8	J	25.5		5.2	J
Iron		7980	J	5980	J	9500	J
Magnesium		5550		2230	J	6330	
Manganese		274		118		331	
Nickel		59.5	J	5.6	J	10.8	J
Potassium		1980	J	1090	J	1420	J
Sodium		5840		4560	J	5680	
Zinc		24.9				21.4	
DISSOLVED METALS	UG/L						
Antimony				16.2	JR		
Arsenic		3.4	J	2.6	J	3.8	J
Barium		103	J	180	J	63.1	J
Calcium		13900		8240		12900	
Copper		9.9	J	6.8	J	6	J
Iron		29	J	55.9	J	40.2	J
Magnesium		4430	J	2680	J	5350	J
Manganese		6.3	J	32.2			
Nickel				103	J	24.8	J
Potassium		697	J	706	J	739	J
Sodium		5850	J	7630	J	5810	J
Zinc		15.5	J	11	J	10.6	J
VOLATILE ORGANIC COMPOUNDS	UG/L						
Methylene Chloride		11.62		10.16		9.8	
SEMIVOLATILE ORGANIC COMPOUNDS	UG/L						
Bis(2-Ethylhexyl)Phthalate		4	J	5	J		
TENTATIVELY IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS	UG/L						
Unknown						56	J
PESTICIDES/PCB							

TABLE 4.4-5 NAS SITE 4. NORTH END LANDFILL -- SUMMARY ANALYTICAL DATA -- SURFACE WATER SAMPLES TAKEN JUNE 5-15, 1989

PARAMETER	UNITS	NEL/SWS/1		NEL/SWS/2		NEL/SWS/3	
INDICATOR PARAMETERS	MG/L						
Total organic carbon		3.7		5.1		4.1	
TOTAL METALS	UG/L						
Aluminum		44.3	J	236	J	130	J
Antimony		56.4		51.1			
Arsenic		1.5					
Barium		55.3		46.5		45	
Beryllium		0.37		0.4		0.37	
Calcium		21600		28700		30300	
Cobalt				4.9			
Copper		9.5		8.4		9.1	
Iron		116	J	448	J	309	J
Lead		4.7	J	4.4	J	4.2	J
Magnesium		8410		11100		12000	
Manganese		7.4		115		58.9	
Nickel		11.7		7.4			
Potassium		2780		2120		2350	
Selenium		3.1		3.1		3.6	
Sodium		10800		7390		7690	
Vanadium		4.9		8		4.8	
Zinc		69	R	102	R	50.3	R
VOLATILE ORGANIC COMPOUNDS							
TENTATIVELY IDENTIFIED VOLATILE ORGANIC COMPOUNDS							
SEMIVOLATILE ORGANIC COMPOUNDS							
PESTICIDES/PCB	UG/L						
Dieldrin		0.07	J	0.08	J	0.06	J

TABLE 4.4-6 NAS SITE 4. NORTH END LANDFILL -- SUMMARY ANALYTICAL DATA -- SURFACE WATER SAMPLES TAKEN SEPTEMBER 18-22, 1989

PARAMETER	UNITS	NEL/SWS/1	NEL/SWS/2	NEL/SWS/3
INDICATOR PARAMETERS	MG/L			
Total cyanide		0.03		
Total organic carbon		2	6	
Total petroleum hydrocarbons		1		
TOTAL METALS	UG/L			
Aluminum			4150	
Antimony		58.4 J		
Arsenic			2.7 J	
Barium		26 J	86 J	46 J
Calcium		24300	23800	22900
Chromium			15.3	
Copper			17 J	
Iron			7370	141
Lead			26.1	4.7 J
Magnesium		7810	9710	8740
Manganese		19.3	275	62
Mercury			0.27	0.24
Nickel		23.3	45.3	15.3 J
Potassium		3510 J	3520 J	3330 J
Selenium		1 J		
Silver			6.7 J	5.1 J
Sodium		10100 J	6110	7090
Vanadium		16.7 J	16.9 J	
Zinc		62.8	133	46.9
TENTATIVELY IDENTIFIED VOLATILE ORGANIC COMPOUNDS	UG/L			
Hexane, 2,2,5,5-tetramethyl-			15 J	
SEMIVOLATILE ORGANIC COMOPUNDS	UG/L			
bis(2-Ethylhexyl)phthalate			3 J	
TENTATIVELY IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS	UG/L			
2,4-Pentanediol, 2-methyl- (8CI9CI)				300 J
Unknown				(5) 186 J

( ) Numbers in parenthesis indicate numbers of compounds detected; concentration value is the sum of the compound concentrations detected

TABLE 4.4-7 NAS SITE 4. NORTH END LANDFILL -- SUMMARY ANALYTICAL DATA -- SEDIMENT SAMPLES TAKEN JUNE 5-15, 1989

PARAMETER	UNITS	NEL/SS/1		NEL/SS/2	
INDICATOR PARAMETERS	MG/KG				
Total organic carbon		15400		24300	
Total petroleum hydrocarbons		69		65	
TOTAL METALS	MG/KG				
Aluminum		16600		12200	
Arsenic		4	J	2.1	J
Barium		113		87	
Beryllium		1.5		0.93	
Cadmium		1.7		3.3	
Calcium		2230		2180	
Chromium		24.3		20.7	
Cobalt		8.7		6.7	
Copper		32.9		28.5	
Iron		19500		16300	
Lead		58.4		100	
Magnesium		2070		1980	
Manganese		234		153	
Nickel		16.5		15.7	
Potassium		808		762	
Selenium		1.2	J	1.2	J
Silver		3.5			
Sodium		155		145	
Thallium		0.79	J		
Vanadium		41.8		32.3	
Zinc		169		203	
VOLATILE ORGANIC COMPOUNDS	UG/KG				
Toluene		2	J		
SEMIVOLATILE ORGANIC COMPOUNDS	UG/KG				
4-Methylphenol		110	J		
Benzo(a)Anthracene				79	J
Benzo(b)Fluoranthene		76	J	170	J
Butylbenzylphthalate		78	J		
Chrysene		84	J	110	J
Fluoranthene		120	J	140	J
Phenanthrene				81	J
Pyrene		140	J	160	J
bis(2-Ethylhexyl)Phthalate		350	J	80	J

TABLE 4.4-7 (CONT.)

PARAMETER	UNITS	NEL/SS/1	NEL/SS/2
TENTATIVELY IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS	UG/KG		
Alkane		(10) 22600	(9) 24000
Benzaldehyde			900
Unknown		(11) 14400	(2) 1200
PESTICIDES/PCB	UG/KG		
Dieldrin		140	230

( ) Numbers in parethesis indicate numbers of compounds detected; concentration value is the sum of the compound concentrations detected

TABLE 4.4-8 NAS SITE 4. NORTH END LANDFILL -- SUMMARY ANALYTICAL DATA -- SEDIMENT SAMPLES TAKEN SEPTEMBER 18-22, 1989

PARAMETER	UNITS	NEL/SS/1		NEL/SS/2	
INDICATOR PARAMETERS	MG/KG				
Total cyanide		0.21		0.65	
Total organic carbon		24900		69400	
Total petroleum hydrocarbons		634		586	
TOTAL METALS	MG/KG				
Aluminum		22300		34400	
Antimony		9.4	J	7	J
Arsenic		16.9	R	23	R
Barium		120		166	
Beryllium		1.1		1.7	
Cadmium		4.1		5	
Calcium		2070		2570	
Chromium		26.3		30.2	
Cobalt		8.3	J	9.4	
Copper		30.5		34.7	
Iron		35200	J	42700	J
Lead		82.8		102	
Magnesium		2800		3170	
Manganese		325	R	717	R
Mercury				0.18	
Nickel		15.2		20.4	
Potassium		1380		1850	
Sodium		82	J	518	J
Thallium		0.2	J	0.3	J
Vanadium		34.3		49	
Zinc		202		179	
VOLATILE ORGANIC COMPOUNDS	UG/KG				
Acetone		58.16		62.06	
Methylene Chloride		89.47		30.7	
SEMIVOLATILE ORGANIC COMPOUNDS	UG/KG				
Fluoranthene				91.17	J
Pyrene				114.41	J

TABLE 4.4-8 (CONT.)

PARAMETER	UNITS	MEL/SS/1		MEL/SS/2	
TENTATIVELY IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS	UG/KG				
9-Hexadecenoic acid (8CI9CI)				547890	J
Butanoic acid, 3-hydroxy-, met		94307	J		
Hexadecanoic acid (9CI)				173020	J
Hexatriacontane (8CI9CI)				102370	J
Pentatriacontane (8CI9CI)				95159	J
Unknown				(5) 1107311	J
Unknown aldehyde				92276	J
Unknown alkane		88677	J	(2) 403700	J
PESTICIDES/PCB	UG/KG				
4,4'-DDE		7.4	J		
4,4'-DDT		66			
Aroclor-1260		230	J	260	J

( ) Numbers in parenthesis indicate numbers of compounds detected; concentration value is the sum of the compound concentrations detected

TABLE 4.4-9 NAS SITE 4. NORTH END LANDFILL -- SUMMARY ANALYTICAL DATA -- SOIL SAMPLES

PARAMETER	UNITS	NELS-1A		NELS-1B
INDICATOR PARAMETERS	MG/KG			
Total petroleum hydrocarbons		211000		2240
Total organic carbon				4650
TOTAL METALS	MG/KG			
Aluminum		7790		12900
Arsenic				3.8
Barium		62.7		246
Beryllium		3.7		1.4
Cadmium		1.9		3.5
Calcium		838		1120
Chromium		11.1		9.7
Copper		12.9		68.9
Iron		14800		19700
Lead		35.8		9.5
Magnesium		1100		2300
Manganese		216		1920
Mercury		0.11		
Nickel		81.5		17.9
Potassium		698		1770
Selenium		0.12		
Sodium		88.7		108
Thallium		36.2		
Vanadium		561		11.9
Zinc		38.4		53.2
VOLATILE ORGANIC COMPOUNDS	UG/KG			
Ethylbenzene		560	J	
Toluene		500	J	
Xylene (total)		4700		
TENTATIVELY IDENTIFIED VOLATILE ORGANIC COMPOUNDS	UG/KG			
(1-Methylethyl)-benzene		5900	J	
1,1,3-Trimethylcyclohexane		3900	J	
1,3,5-Trimethylcyclohexane		960	J	
2-Methyl-1-pentene		1200	J	
Fluorobenzene		1100	J	
Unknown C10H20		2200	J	
Unknown C9H12		3600	J	
Unknown hydrocarbon		(4) 6400	J	
trans-Cyclohexane, 1-ethyl-4-methyl		1400	J	

( ) Numbers in parenthesis indicate numbers of compounds detected; concentration value is the sum of the comopund concentrations detected

TABLE 4.4-9 (CONT.)

PARAMETER	UNITS	MELS-1A		MELS-1B	
SEMIVOLATILE ORGANIC COMOUNDS	UG/KG				
2-Methylnaphthalene		3100	J	510	J
4-Methylphenol		1500	J		
Chrysene		22000	J	180	J
Naphthalene		1400	J	220	J
Phenanthrene		3500	J	350	J
Pyrene		16000	J		
TENTATIVELY IDENTIFIED SEMIVOLATILE ORGANIC COMPOUNDS	UG/KG				
1H-Indene, octahydro		15000	J		
Cyclohexane Octyl		34000	J		
Cyclohexane Undecyl		49000	J		
Pentadecane		81000	J		
Pentadecane,2,6,10,14-tetramet		330000	J		
Unidentified				(5) 19080	J
Unidentified Alkane				(15) 44200	J
Unknown		(2) 145000	J		
Unknown Alkane		(9) 705000	J		
Unknown Cyclohexane		(4) 116000	J		

ATTACHMENT III

TABLE 1
DATA SUMMARY OF POSITIVE ANALYTICAL RESULTS
SITE 4 TARRY WASTE INVESTIGATION
NASJRB WILLOW GROVE, PENNSYLVANIA

Sample ID:	REGION 3 SOIL RBCs - RESIDENTIAL	PADEP MSCs RESIDENTIAL	S4-SS01-0.01.0		S4-SB01-2.02.5		S4-SS02-0.02.0		S4-SS03-0.02.0		S4-SS04-0.02.0		S4-SS05-0.01.0		DUP-01	
Sample Date:			5/2/2008		5/2/2008		5/2/2008		5/2/2008		5/2/2008		5/2/2008		5/2/2008	
Sample Depth:			0 to 1 ft.		2 to 2.5 ft.		0 to 2 ft.		0 to 2 ft.		0 to 2 ft.		0 to 1 ft.		2 to 2.5 ft.	
Dup Of:					DUP-01										S4-SB01-2.02.5	
SEMIVOLATILES	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
Acenaphthene	4.69E+06	1.30E+07	2600		147										53	J
Acenaphthylene	4.7E+06	1.30E+07	1210		74	J					26	J			27	J
Anthracene	2.35E+07	6.60E+07	2480		132						27	J			45	J
Benz(a)anthracene	2.20E+02	2.50E+04	7310		334						77	J			105	
Benzo(a)pyrene	2.20E+01	2.50E+03			273		82	J	27	J	95		25	J		
Benzo(b)fluoranthene	2.20E+02	2.50E+04			220		121		41	J	125		29	J		
Benzo(g,h,i)perylene	NA	1.30E+07			72	J	39	J			27	J			25	J
Benzo(k)fluoranthene	2.20E+03	2.50E+05					101		26	J	110		29	J		
Bis(2-ethylhexyl)phthalate	4.56E+04	1.30E+06			59	J	55	J	55	J						
Carbazole	3.19E+04	9.00E+05			37	J										
Chrysene	2.20E+04	2.50E+06	21400		873		148		35	J	96		25	J	309	
mp-cresol	NA	NA	511	J												
dibenzofuran	7.80E+04	NA	1330		68	J									28	J
dimethylphthalate	NA	NA	341	J												
Fluoranthene	3.13E+06	8.80E+06	2190		223				52	J	203		59	J	127	
Fluorene	3.13E+06	8.80E+06	5080		312										108	
Indeno(1,2,3-cd)pyrene	2.20E+02	2.50E+04			24	J										
2-methylnaphthalene	3.10E+05	4.40E+06	21600		1650						55	J			497	
naphthalene	1.60E+06	4.40E+06	8730		553						29	J			154	
4-Nitrophenol	NA	1.80E+06			105	J										
Phenanthrene	NA	6.60E+07	18000		1200		44	J	28	J	94		24	J	428	
Pyrene	2.35E+06	6.60E+06	28000		1480		157		37	J	158		39	J	494	
VOLATILES	**ug/kg**	**ug/kg**	**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**		**ug/kg**	
2-Butanone	4.69E+07	1.00E+07			3.5	J	14.5		15.3		11.3	J	7.9	J		
Acetone	7.04E+07	1.00E+07	294	J	55.6		322		412		276		157		67.3	
Carbon disulfide	7.8E+06	1.00E+07													0.38	J
Toluene	6.3E+06	7.6E+06	28.3	J												
Total xylenes	1.60E+07	8.00E+06	77.3	J												
o-Xylene	NA	NA	41.3	J												
mp-Xylene	NA	NA	36.1	J												
PETROLEUM HYDROCARBO	**mg/kg**	**mg/kg**	**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**		**mg/kg**	
TPH-DRO C10-C44	NA	NA	14000	J	7700		10300		2190		3130		323		6640	

Shaded cells indicate exceedances.

TABLE 2
DATA SUMMARY OF POSITIVE ANALYTICAL RESULTS
SITE 4 TEST PIT SOIL SAMPLES
NAS JRB WILLOW GROVE, WILLOW GROVE, PENNSYLVANIA

Sample ID:	PADEP MSCs - RESIDENTIAL	S4-TP01-01		S4-FD-01		S4-TP01-02		S4-TP01-03		S4-TP01-04	
Sample Date:		09/24/08		09/24/08		09/24/08		09/24/08		09/24/08	
Duplicate:				S4-TP01-01							
MISCELLANEOUS PARAMETERS		%		%		%		%		%	
Total Solids	NA	85.2		86.3		85.6		82.2		84.1	
PETROLEUM HYDROCARBONS	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
TPH-DRO C10-C44	NA	14.1		23.7		48.8		516		1220	
SEMIVOLATILES	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
2-Methylnaphthalene	4.40E+06	79	U	81	U	79	U	26	J	81	U
Acenaphthylene	1.30E+07	79	U	81	U	79	U	85	U	30	J
Benz(a)anthracene	2.50E+04	79	U	81	U	79	U	53	J	62	J
Benzo(a)pyrene	2.50E+03	79	U	81	U	79	U	78	J	93	
Benzo(b)fluoranthene	2.50E+04	79	U	81	U	79	U	96		128	
Benzo(g,h,i)perylene	1.30E+07	79	U	81	U	79	U	38	J	43	J
Benzo(k)fluoranthene	2.50E+05	79	U	81	U	79	U	95		91	
Chrysene	2.50E+06	79	U	81	U	79	U	71	J	126	
Fluoranthene	8.80E+06	79	U	81	U	79	U	123		164	
Indeno(1,2,3-cd)pyrene	2.50E+04	79	U	81	U	79	U	32	J	28	J
Phenanthrene	6.60E+07	79	U	81	U	79	U	41	J	54	J
Pyrene	6.60E+06	79	U	81	U	79	U	75	J	116	

Data Qualifiers:

J -- Value indicates that the analyte is present but is considered estimated because result is less than the laboratory quantitation limit.

U -- Value indicates that the analyte is not detected. The associated number indicates the approximate sample concentration necessary to be reliably measured.

Lancaster Laboratories

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Analysis Report

ANALYTICAL RESULTS

Prepared for:

Berner Construction
1101 Quarry Road
Gap PA 17527-9043

717-442-3110

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 1096061. Samples arrived at the laboratory on Friday, June 13, 2008.

Client Description	Lancaster Labs Number
NAS-SITE-4-Composite Soil Sample	5389539
NAS-SITE-4-Composite Soil Sample	5389540
NAS-SITE-4-Composite Soil Sample	5389541

1 COPY TO	Berner Construction	Attn: James Irey
ELECTRONIC COPY TO	Berner Construction	Attn: Rosanne Cooke

Questions? Contact your Client Services Representative
Loran A Carter at (717) 656-2300

Respectfully Submitted.

Chad A. Molino
Group Leader

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. SW5389539 Group No. 1096061

NAS-SITE-4-Composite Soil Sample
Willow Grove

Collected:06/13/2008 11:00 by FA

Account Number: 12334

Submitted: 06/13/2008 13:00
Reported: 06/23/2008 at 14:16
Discard: 07/08/2008

Berner Construction
1101 Quarry Road
Gap PA 17527-9043

ASASR

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
00111	Moisture	n.a.	17.7	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
00394	pH	n.a.	6.81	0.0100	Std. Units	1
00496	Corrosivity	n.a.	See Below			1
	Corrosivity: The pH of the sample is 6.81 indicating that the waste is not corrosive. A waste is corrosive if it exhibits a pH equal to or less than 2 or equal to or greater than 12.5.					
00542	Ignitability	n.a.	See Below			1
	The sample did not spontaneously ignite when exposed to air or water. The sample did not ignite by friction. The sample vapors did not ignite when exposed to a flame using a closed cup apparatus.					
01121	Reactivity	n.a.	See Below		see below	1
	Reactivity: This sample was extracted and analyzed by the interim method described in SW-846 Revision 3, December 1996 - Chapter 7.3. The Interim Guidance for Reactive Cyanide and Reactive Sulfide (SW-846 Sections 7.3.3 and 7.3.4 of Chapter 7 - December 1996) identifies a reactive material as generating more than 250 mg/kg of hydrogen cyanide or 500 mg/kg of hydrogen sulfide. This waste is not considered hazardous due to reactivity based on that standard. These results do not reflect total cyanide or total sulfide. In July 14, 2005, EPA published a rule in the Federal Register that removed the Interim Guidance and the method referenced above. At this time there is no specific guidance or a method to be used to evaluate "Reactivity".					
01122	Sulfide (Reactivity)	n.a.	N.D.	53.6	mg/kg	1
01123	Cyanide (Reactivity)	n.a.	N.D.	16.7	mg/kg	1
01216	PCBs in Solids					
01495	PCB-1016	12674-11-2	N.D.	80.	ug/kg	20
01496	PCB-1221	11104-28-2	N.D.	130.	ug/kg	20
01497	PCB-1232	11141-16-5	N.D.	80.	ug/kg	20
01498	PCB-1242	53469-21-9	1,100.	80.	ug/kg	20
01499	PCB-1248	12672-29-6	N.D.	80.	ug/kg	20
01500	PCB-1254	11097-69-1	N.D.	80.	ug/kg	20
01501	PCB-1260	11096-82-5	N.D.	80.	ug/kg	20

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Analysis Report

Lancaster Laboratories Sample No. SW5389539 Group No. 1096061

NAS-SITE-4-Composite Soil Sample
Willow Grove

Collected:06/13/2008 11:00 by FA

Account Number: 12334

Submitted: 06/13/2008 13:00
Reported: 06/23/2008 at 14:16
Discard: 07/08/2008

Berner Construction
1101 Quarry Road
Gap PA 17527-9043

ASASR

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/09

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM20 2540 G	1	06/16/2008 15:33	Scott W Freisher	1
00394	pH	SW-846 9045C modified	1	06/17/2008 21:00	Luz M Groff	1
00496	Corrosivity	SW-846 Chapter 7	1	06/17/2008 21:00	Luz M Groff	1
00542	Ignitability	40 CFR 261.21	1	06/17/2008 04:00	Daniel S Smith	1
01121	Reactivity	SW-846 Chapter 7.3	1	06/19/2008 09:20	Susan E Hibner	1
01122	Sulfide (Reactivity)	SW-846 9034	1	06/19/2008 09:20	Susan E Hibner	1
01123	Cyanide (Reactivity)	SW-846 9012A modified	1	06/20/2008 09:26	William L Hamaker Jr	1
01216	PCBs in Solids	SW-846 8082	1	06/16/2008 11:42	Jamie L Brillhart	20
00819	Solid Sample Pesticide Extract	SW-846 3550B	1	06/15/2008 09:00	Olivia I Santiago	1

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. TL5389540 Group No. 1096061

NAS-SITE-4-Composite Soil Sample
TCLP NON-VOLATILE EXTRACTION
Willow Grove
Collected:06/13/2008 11:00 by FA

Account Number: 12334

Submitted: 06/13/2008 13:00
Reported: 06/23/2008 at 14:16
Discard: 07/08/2008

Berner Construction
1101 Quarry Road
Gap PA 17527-9043

ASNVE

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.000056	mg/l	1
07035	Arsenic	7440-38-2	N.D.	0.0102	mg/l	1
07036	Selenium	7782-49-2	N.D.	0.0107	mg/l	1
07046	Barium	7440-39-3	0.419	0.00060	mg/l	1
07049	Cadmium	7440-43-9	0.0024 J	0.0020	mg/l	1
07051	Chromium	7440-47-3	N.D.	0.0030	mg/l	1
07053	Copper	7440-50-8	0.0057 J	0.0027	mg/l	1
07055	Lead	7439-92-1	0.0150	0.0069	mg/l	1
07061	Nickel	7440-02-0	0.0504	0.0056	mg/l	1
07066	Silver	7440-22-4	N.D.	0.0022	mg/l	1
07072	Zinc	7440-66-6	0.0684	0.0081	mg/l	1
00950	TCLP Pesticides					
01972	Gamma BHC - Lindane	58-89-9	N.D.	0.000010	mg/l	1
01973	Heptachlor	76-44-8	N.D.	0.000015	mg/l	1
01974	Heptachlor Epoxide	1024-57-3	N.D.	0.000015	mg/l	1
01975	Methoxychlor	72-43-5	N.D.	0.00015	mg/l	1
01976	Endrin	72-20-8	N.D.	0.000020	mg/l	1
01977	Chlordane	57-74-9	N.D.	0.00035	mg/l	1
01978	Toxaphene	8001-35-2	N.D.	0.0050	mg/l	1
00952	TCLP Herbicides					
01979	2,4-D	94-75-7	N.D.	0.0020	mg/l	1
01980	2,4,5-TP	93-72-1	N.D.	0.00020	mg/l	1
00949	TCLP Acid Base/Neutrals					
03324	Pyridine	110-86-1	N.D.	0.010	mg/l	1
03325	1,4-Dichlorobenzene	106-46-7	N.D.	0.005	mg/l	1
03326	2-Methylphenol	95-48-7	N.D.	0.005	mg/l	1
03327	4-Methylphenol	106-44-5	N.D.	0.010	mg/l	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
03328	Hexachloroethane	67-72-1	N.D.	0.005	mg/l	1
03329	Nitrobenzene	98-95-3	N.D.	0.005	mg/l	1
03330	Hexachlorobutadiene	87-68-3	N.D.	0.005	mg/l	1
03331	2,4,6-Trichlorophenol	88-06-2	N.D.	0.005	mg/l	1
03332	2,4,5-Trichlorophenol	95-95-4	N.D.	0.005	mg/l	1
03333	2,4-Dinitrotoluene	121-14-2	N.D.	0.005	mg/l	1

Lancaster Laboratories Sample No. TL5389540 Group No. 1096061

NAS-SITE-4-Composite Soil Sample
TCLP NON-VOLATILE EXTRACTION
Willow Grove
Collected:06/13/2008 11:00 by PA

Account Number: 12334

Berner Construction
1101 Quarry Road
Gap PA 17527-9043

Submitted: 06/13/2008 13:00
Reported: 06/23/2008 at 14:16
Discard: 07/08/2008

ASNVE

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03334	Hexachlorobenzene	118-74-1	N.D.	0.005	mg/l	1
03335	Pentachlorophenol	87-86-5	N D.	0.015	mg/l	1

The QC limits for 2,4,5-trichlorophenol and 2,4,6-trichlorophenol are advisory only until sufficient data points can be obtained to calculate statistical limits.

The LCS recovery is outside the stated QC window but within the marginal exceedance allowance of -/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: pentachlorophenol

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/09

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	06/18/2008 07:34	Damary Valentin	1
07035	Arsenic	SW-846 6010B	1	06/19/2008 04:35	Choon Y Tian	1
07036	Selenium	SW-846 6010B	1	06/19/2008 04:35	Choon Y Tian	1
07046	Barium	SW-846 6010B	1	06/21/2008 16:19	John P Hook	1
07049	Cadmium	SW-846 6010B	1	06/19/2008 04:35	Choon Y Tian	1
07051	Chromium	SW-846 6010B	1	06/19/2008 04:35	Choon Y Tian	1
07053	Copper	SW-846 6010B	1	06/23/2008 03:30	Tara L Snyder	1
07055	Lead	SW-846 6010B	1	06/19/2008 04:35	Choon Y Tian	1
07061	Nickel	SW-846 6010B	1	06/19/2008 04:35	Choon Y Tian	1
07066	Silver	SW-846 6010B	1	06/19/2008 04:35	Choon Y Tian	1
07072	Zinc	SW-846 6010B	1	06/21/2008 16:19	John P Hook	1
00950	TCLP Pesticides	SW-846 8081A	1	06/18/2008 14:27	Lindsey K Lafferty	1
00952	TCLP Herbicides	SW-846 8151A	1	06/18/2008 18:29	John W Perkins	1
00949	TCLP Acid Base/Neutrals	SW-846 8270C	1	06/18/2008 04:33	Linda M Hartenstine	1
10816	Water Sample Herbicide Extract	SW-846 8151A	1	06/18/2008 08:00	Deborah M Zimmerman	1
10817	Water Sample Pest. Extraction	SW-846 3510C	1	06/18/2008 01:16	Roman Kurcpatkin	1

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. TL5389541 Group No. 1096061

NAS-SITE-4-Composite Soil Sample
TCLP ZERO HEADSPACE EXTRACTION
Willow Grove
Collected:06/13/2008 11:00 by FA

Account Number: 12334

Submitted: 06/13/2008 13:00
Reported: 06/23/2008 at 14:16
Discard: 07/08/2008

Berner Construction
1101 Quarry Road
Gap PA 17527-9043

ASZHE

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
03636	TCLP by 8260					
05386	Vinyl Chloride	75-01-4	N.D.	0.020	mg/l	20
05390	1,1-Dichloroethene	75-35-4	N.D.	0.016	mg/l	20
05396	Chloroform	67-66-3	N.D.	0.016	mg/l	20
05399	Carbon Tetrachloride	56-23-5	N.D.	0.020	mg/l	20
05401	Benzene	71-43-2	N.D.	0.010	mg/l	20
05402	1,2-Dichloroethane	107-06-2	N.D.	0.020	mg/l	20
05403	Trichloroethene	79-01-6	N.D.	0.020	mg/l	20
05409	Tetrachloroethene	127-18-4	N.D.	0.016	mg/l	20
05413	Chlorobenzene	108-90-7	N.D.	0.016	mg/l	20
06305	2-Butanone	78-93-3	N.D.	0.060	mg/l	20

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/09

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
03636	TCLP by 8260	SW-846 8260B	1	06/19/2008 19:53	Chelsea B Eastep	20
01946	TCLP Zero Headspace Extraction	SW-846 1311	1	06/16/2008 17:00	James J McCaw	n.a.
01163	GC/MS VOA Water Prep	SW-846 5030B	1	06/19/2008 19:53	Chelsea B Eastep	20

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. TL5389540 Group No. 1096061

NAS-SITE-4-Composite Soil Sample
TCLP NON-VOLATILE EXTRACTION
Willow Grove
Collected:06/13/2008 11:00 by FA

Account Number: 12334

Submitted: 06/13/2008 13:00
Reported: 06/23/2008 at 14:16
Discard: 07/08/2008

Berner Construction
1101 Quarry Road
Gap PA 17527-9043

ASNVE						
00947	TCLP Non-volatile Extraction	SW-846 1311	1	06/16/2008 11:05	Jeremy L Weaver	n.a.
04731	TCLP Leachate Extraction	SW-846 3510C	1	06/17/2008 14:30	Kevin P Love	1
05705	WW/TL SW 846 ICP Digest (tot)	SW-846 3010A	1	06/17/2008 19:42	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	06/17/2008 18:40	Nelli S Markaryan	1

Lancaster Laboratories

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Analysis Report

Quality Control Summary

Client Name: Berner Construction
Reported: 06/23/08 at 02:16 PM

Group Number: 1096061

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 081660005A	Sample number(s): 5389539							
PCB-1016	N.D.	3.3	ug/kg	91		72-120		
PCB-1221	N.D.	5.2	ug/kg					
PCB-1232	N.D.	3.3	ug/kg					
PCB-1242	N.D.	3.3	ug/kg					
PCB-1248	N.D.	3.3	ug/kg					
PCB-1254	N.D.	3.3	ug/kg					
PCB-1260	N.D.	3.3	ug/kg	99		66-137		
Batch number: 081688200028	Sample number(s): 5389539							
Moisture				100	100	99-101	0	1
Batch number: 081690012A	Sample number(s): 5389540							
Gamma BHC - Lindane	N.D.	0.00001 9	mg/l	98		66-144		
Heptachlor	N.D.	0.00001 5	mg/l	96		65-123		
Heptachlor Epoxide	N.D.	0.00001 5	mg/l	93		73-141		
Methoxychlor	N.D.	0.00015	mg/l	90		70-133		
Endrin	N.D.	0.00002 0	mg/l	84		69-120		
Chlordane	N.D.	0.00035	mg/l					
Toxaphene	N.D.	0.0050	mg/l					
Batch number: 081690016A	Sample number(s): 5389540							
2,4-D	N.D.	0.0020	mg/l	110		52-140		
2,4,5-TP	N.D.	0.00020	mg/l	91		61-124		
Batch number: 081690394014	Sample number(s): 5389539							
pH				100		99-101		
Corrosivity				100		99-102		
Batch number: 081695705001	Sample number(s): 5389540							
Arsenic	N.D.	0.0102	mg/l	104		80-119		
Selenium	N.D.	0.0107	mg/l	98		80-120		
Barium	0.0010 J	0.00060	mg/l	101		80-110		
Cadmium	N.D.	0.0020	mg/l	107		80-112		
Chromium	N.D.	0.0030	mg/l	105		80-110		
Copper	N.D.	0.0027	mg/l	101		80-112		
Lead	N.D.	0.0069	mg/l	103		80-113		
Nickel	N.D.	0.0056	mg/l	105		80-111		
Silver	N.D.	0.0022	mg/l	98		80-119		
Zinc	N.D.	0.0081	mg/l	103		80-111		
Batch number: 081695713001	Sample number(s): 5389540							
Mercury	N.D.	0.00005	mg/l	108		80-120		

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Berner Construction
Reported: 06/23/08 at 02:16 PM

Group Number: 1096061

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 08169WAB026	Sample number(s): 5389540							
Pyridine	N.D.	0.010	mg/l	63		27-79		
1,4-Dichlorobenzene	N.D.	0.005	mg/l	85		65-113		
2-Methylphenol	N.D.	0.005	mg/l	85		44-101		
4-Methylphenol	N.D.	0.010	mg/l	71		61-103		
Hexachloroethane	N.D.	0.005	mg/l	80		52-113		
Nitrobenzene	N.D.	0.005	mg/l	87		76-209		
Hexachlorobutadiene	N.D.	0.005	mg/l	103		87-124		
2,4,6-Trichlorophenol	N.D.	0.005	mg/l	77*		81-113		
2,4,5-Trichlorophenol	N.D.	0.005	mg/l	73*		79-107		
2,4-Dinitrotoluene	N.D.	0.005	mg/l	91		81-115		
Hexachlorobenzene	N.D.	0.005	mg/l	100		81-118		
Pentachlorophenol	N.D.	0.015	mg/l	44*		53-110		
Batch number: 08171112101A	Sample number(s): 5389539							
Sulfide (Reactivity)	N.D.	53.6	mg/kg	74		70-102		
Batch number: 08172104201A	Sample number(s): 5389539							
Cyanide (Reactivity)	N.D.	19.9	mg/kg	98		83-109		
Batch number: N081682AF	Sample number(s): 5389541							
Vinyl Chloride	N.D.	0.020	mg/l	104		84-123		
1,1-Dichloroethene	N.D.	0.016	mg/l	100		76-122		
Chloroform	N.D.	0.016	mg/l	93		77-125		
Carbon Tetrachloride	N.D.	0.020	mg/l	96		77-130		
Benzene	N.D.	0.010	mg/l	102		78-119		
1,2-Dichloroethane	N.D.	0.020	mg/l	89		69-135		
Trichloroethene	N.D.	0.020	mg/l	93		87-117		
Tetrachloroethene	N.D.	0.016	mg/l	87		76-118		
Chlorobenzene	N.D.	0.016	mg/l	96		85-115		
2-Butanone	N.D.	0.060	mg/l	82		63-157		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 081660005A	Sample number(s): 5389539 UNSPK: P389753								
PCB-1016	93	88	45-130	6	50				
PCB-1260	91	95	39-149	5	50				
Batch number: 08168820002B	Sample number(s): 5389539 BKG: 5389539					17.7	16.7	6	15
Moisture									
Batch number: 081690012A	Sample number(s): 5389540 UNSPK: 5389540								
Gamma BHC - Lindane	84	84	59-130	0	30				
Heptachlor	76	78	30-142	3	30				
Heptachlor Epoxide	88	84	33-130	5	30				
Methoxychlor	95	95	55-131	0	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Berner Construction
Group Number: 1096061
Reported: 06/23/08 at 02:16 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Endrin	84	88	66-124	5	30				
Batch number: 081690016A	Sample number(s): 5389540 UNSPK: 5389540								
2,4-D	110	110	38-176	0	30				
2,4,5-TP	89	96	44-161	3	30				
Batch number: 08169030401A	Sample number(s): 5389539 BKG: P387094								
pH						8.35	8.38	0	1
Corrosivity						8.4	8.4	0	2
Batch number: 081695705001	Sample number(s): 5389540 UNSPK: P390287 BKG: P390287								
Arsenic	112	109	75-125	3	20	N.D.	N.D.	0 (1)	20
Selenium	102	104	75-125	2	20	N.D.	N.D.	0 (1)	20
Barium	102	103	78-118	1	20	0.664	0.687	3	20
Cadmium	114	110	83-116	3	20	N.D.	N.D.	0 (1)	20
Chromium	108	107	81-120	1	20	N.D.	N.D.	0 (1)	20
Copper	101	103	86-122	2	20	0.0035 J	0.0039 J	9 (1)	20
Lead	117	115	75-125	2	20	N.D.	N.D.	0 (1)	20
Nickel	109	107	86-115	1	20	0.0099 J	0.0098 J	1 (1)	20
Silver	106	104	75-125	2	20	N.D.	N.D.	0 (1)	20
Zinc	103	104	75-125	1	20	0.0147 J	0.0136 J	8 (1)	20
Batch number: 081695713001	Sample number(s): 5389540 UNSPK: 5389540 BKG: 5389540								
Mercury	109	82	80-120	29*	20	N.D.	N.D.	0 (1)	20
Batch number: 08163WAB026	Sample number(s): 5389540 UNSPK: 5389540								
Pyridine	66	53	15-89	21	30				
1,4-Dichlorobenzene	90	79	54-126	14	30				
2-Methylphenol	75	72	1-146	6	30				
4-Methylphenol	69	67	2-147	4	30				
Hexachloroethane	85	74	37-141	14	30				
Nitrobenzene	95	88	41-142	7	30				
Hexachlorobutadiene	107	98	53-131	6	30				
2,4,6-Trichlorophenol	76	77	3-159	2	30				
2,4,5-Trichlorophenol	74	75	5-155	1	30				
2,4-Dinitrotoluene	94	89	51-140	5	30				
Hexachlorobenzene	112	101	77-122	10	30				
Pentachlorophenol	43	38	4-137	11	30				
Batch number: 08171112101A	Sample number(s): 5389539 UNSPK: P391379								
Sulfide (Reactivity)	16	19	10-133	20	27				
Batch number: 08172104201A	Sample number(s): 5389539 UNSPK: P391379								
Cyanide (Reactivity)	2	4	0-5	60*	16				
Batch number: N081682AF	Sample number(s): 5389541 UNSPK: P394512								
Vinyl Chloride	106	106	59-143	0	30				
1,1-Dichloroethene	102	102	67-145	0	30				
Chloroform	95	96	83-139	1	30				
Carbon Tetrachloride	89	90	82-149	1	30				
Benzene	105	105	83-128	1	30				
1,2-Dichloroethane	92	90	70-143	1	30				
Trichloroethene	98	99	83-136	2	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Berner Construction
Reported: 06/23/08 at 02:16 PM

Group Number: 1096061

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Tetrachloroethene	147*	143*	78-133	3	30				
Chlorobenzene	98	98	83-120	1	30				
2-Butanone	109	110	57-137	1	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PCBs in Solids
Batch number: 081660005A

	Tetrachloro-m-xylene	Decachlorobiphenyl
5389539	84	122
Blank	109	103
LCS	110	100
MS	104	95
MSD	108	99
Limits:	53-139	83-142

Analysis Name: TCLP Pesticides
Batch number: 081690012A

	Tetrachloro-m-xylene	Decachlorobiphenyl
5389540	87	98
Blank	109	104
LCS	104	103
MS	86	98
MSD	87	97
Limits:	55-130	44-146

Analysis Name: TCLP Herbicides
Batch number: 081690016A

	2,4-Dichlorophenylacetic acid
5389540	74
Blank	73
LCS	80
MS	86
MSD	79
Limits:	41-148

Analysis Name: TCLP Acid Base/Neutrals
Batch number: 08169WAB026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d6

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Berner Construction
Reported: 06/23/08 at 02:16 PM

Group Number: 1096061

Surrogate Quality Control

5389540	92	83	91	91
Blank	95	94	92	98
LCS	92	94	93	94
MS	89	88	94	89
MSD	90	82	88	86
Limits:	44-127	63-114	44-127	10-70

	2-Fluorophenol	2,4,6-Tribromophenol
5389540	60	88
Blank	61	97
LCS	65	96
MS	61	95
MSD	57	91
Limits:	10-97	26-153

Analysis Name: TCLP by 8260
Batch number: N091692AF

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5389541	88	92	91	94
Blank	88	93	90	94
LCS	89	93	96	94
MS	90	92	97	93
MSD	90	92	97	92
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 12334 Group# 1096061 Sample # 5389539-41

COC # 0168174

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC:
SCR#: 53501

(1) Client: BERGER CONSTRUCTION, INC. Accl. #:
Project Name/#: PWSID #:
Project Manager: JIM IKEN P.O.#:
Sampler: E. ALSER Quote #:
Name of state where samples were collected: PA

(2) (3) (4) (5) Preservation Codes

Sample Identification	Date Collected	Time Collected	Composite	Grab	# of containers	IGNITIBICTY	REACTIVITY	REACTIVE CYANIDE & SULFIDE	PCBs	TOTAL METALS AS, Ba, Cd, Cr, Pb, Se, Ag, Zn, Hg	Ni	TCLP VOA & SVOA	PESTICIDES/HERBICIDES	MOISTURE	Remarks
LAS-SITE-4-Composite	12/11/08	1100		X	X		4	X	X	X	X	X	X	X	X	5 DAY TURNAROUND

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Remarks

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

Relinquished by:	Date	Time	Received by:	Date	Time
	12/8/08	14:15		12/8/08	07:00
Relinquished by:	Date	Time	Received by:	Date	Time
	12/11/08	1300			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
				12/13/08	1300

(9)

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102.03

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

< less than – The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quatitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

ATTACHMENT IV

Pennsylvania Department of Environmental Protection

2 East Main Street
Norristown, PA 19401

October 31, 2005

Southeast Regional Office

Phone: 484-250-5960
Fax: 484-250-5961

Mr. James R. Edmond
Department of the Navy
Naval Air Station/Joint Reserve Base
Box 21
Willow Grove, PA 19090-5021

Re: NASJRB Willow Grove
No Further Action Site

Dear Mr. Edmond:

Site Inspections were conducted on several sites at NASJRB, Willow Grove. In 1990, the results of these inspections were presented in the Site Inspection Studies Report (EA Engineering, 1990) and the Plan of Action for Extended Site Inspections and Remedial Investigations (EA Engineering, 1991). No further action (NFA) was recommended for each of the following sites: Site 4, North End Landfill; Site 6, Abandoned Rifle Range No. 1; Site 8, Building 118 Abandoned Fuel Tank, Site 7, Rifle Range 2 and Site 9, Steam Plant Building 6 Tank Overfill. DEP concurred with the NFA recommendations. These findings are repeated in the Federal Facilities Agreement that was signed in May and June 2005 by the Department of Defense, the Environmental Protection Agency and the Pennsylvania Department of Environmental Protection.

If you have any questions concerning these sites please feel free to contact me at 484-250-5721

Sincerely,

April M. Flipse
Project Officer
Environmental Cleanup

cc: Mr. Horvat
Mr. Sheehan
Mr. Hartzell
Re 30 (RW05ECP) 304