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NSWC WHITE OAK
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SITE SCREENING REPORT FOR SITES 1, 5, 6, 12, 13, 28, 29, 31, 32, 33 NSWC WHITE OAK MD

12/1/1998

TETRA TECH

029807/P

SITE SCREENING REPORT
for
IRP SITES 1, 5, 6, 12, 13, 28, 29, 31, 32, AND 33
EBS AOC 100

former
NAVAL SURFACE WARFARE CENTER
WHITE OAK
SILVER SPRING, MARYLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
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Environmental Branch Code 18
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ACRONYMS

AOC	Area of Concern
AWQC	Ambient Water Quality Criteria
bgs	below ground surface
BTAG	Biological Technical Assessment Group
BRAC	Base Realignment and Closure
CBC	Chillum-Beltsville-Croom
CLEAN	Comprehensive Long-Term Environmental Action Navy
CTO	Contract Task Order
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
EBS	Environmental Baseline Study
EE/CA	engineering evaluation/cost analysis
EFACHES	Engineering Field Activity – Chesapeake
EPA	United States Environmental Protection Agency
ERA	ecological risk assessment
GMC	Glenelg-Manor-Chester
GSA	General Services Administration
gpd	gallons per day
HQ	hazard quotient
HSA	hollow-stem auger
IAS	Initial Assessment Study
ID	inside diameter
IRP	Installation Restoration Program
MCL	maximum contaminant level
msl	mean sea level
MS/MSD	matrix spike/matrix spike duplicate
NAVFAC	Naval Facilities Engineering Command
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NSWC	Naval Surface Warfare Center
NTU	nephelometric turbidity units
PAH	polycyclic aromatic hydrocarbons

PCB	polychlorinated biphenyls
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SDWA	Safe Drinking Water Act
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TAL	Target Analyte List
TCL	Target Compound List
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TtNUS	Tetra Tech NUS
USDA	United States Department of Agriculture
USFW	United States Fish and Wildlife Service
UXO	unexploded ordnance
VOC	volatile organic compound

EXECUTIVE SUMMARY

This report documents the results of the site inspections and preliminary risk evaluation completed by Tetra Tech NUS, Inc. (formerly Brown & Root Environmental) for 11 sites within the former Naval Surface Warfare Center - White Oak (NSWC-White Oak) property located in Silver Spring, Maryland. The study was conducted as part of the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract, Contract Task Order (CTO) No. 273.

The 11 sites included within the scope of this investigation are

- Site 1/Solid Waste Management Unit (SWMU) 3 - Parking Lot Landfill
- Site 5/SWMU 32 - Open Burn Areas
- Site 6/SWMU 6 - Sludge Composting Area
- Site 12/SWMU 21 - Industrial Wastewater Area "200"
- Site 13/SWMU 7 - Oil Sludge Disposal Area
- Site 28/SWMU 88 - Building T-14 Scrapyard
- Site 29/SWMU 74 - Building 76 Plastics Laboratory Waste Area
- Site 31/SWMU 72 - Building 25, Outside Drum Storage Area
- Site 32/ Area of Concern (AOC) O - NPDES Outfall #0009
- Site 33/SWMU 39 - Building 25, Plating Shop Sump
- Environmental Baseline Survey (EBS) AOC 100 - Indoor Underground Pistol Range

Field activities were conducted at these sites between October 10, 1997 and November 21, 1997. Field activities included collecting and analyzing soil (surface and subsurface), groundwater, sediment, and surface water samples at 10 sites and collecting wipe samples at EBS AOC 100. Samples were collected by hand or by using hollow stem auger drilling techniques and through the installation of either temporary or permanent groundwater monitoring wells.

The samples were analyzed for site-specific parameter lists consisting primarily of Target Compound List (TCL) volatile organic compounds (VOC) and semivolatile organic compounds (SVOC), TCL pesticides and polychlorinated biphenyls (PCBs), Target Analyte List (TAL) inorganics and cyanide, and explosives-related compounds. Laboratory analyses were conducted at a fixed-based analytical laboratory, and all data were validated.

The collected data have been compared to applicable guidance and screening criteria to evaluate the presence or absence of contamination at each site. Soil and sediment concentrations were compared to

United States Environmental Protection Agency (EPA) Region III residential risk-based concentrations (RBCs) where available, and groundwater data were compared to Federal maximum contaminant levels (MCLs), Maryland MCLs, and Region III tap water RBCs. Surface water concentrations were compared to Federal Ambient Surface Water Quality Criteria (AWQC) for human health.

For Site 1, Parking Lot Landfill, maximum concentrations of several SVOCs, pesticides/PCBs, and inorganics were detected above the screening criteria in both surface soil and groundwater. Based upon the detected concentrations, the further characterization of the site and site contaminants is recommended. An Engineering/Evaluation/Cost Analysis (EE/CA) should be completed to evaluate the potential for excavation and off-site disposal of landfill materials.

For Site 5, Open Burn Area, maximum concentrations of several SVOCs, PCBs, and inorganics were detected above the screening criteria in surface soil, subsurface soil, and groundwater. VOCs were also detected in the permanent groundwater monitoring wells installed downgradient of the site. Based upon a review of the analytical data, an ecological risk assessment (ERA) should be performed at the site. The ERA should be coordinated with the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) ERA for the adjacent Sites 3 and 4. An EE/CA should be completed to evaluate the potential for remediation of site surface soils.

For Site 6, Sludge Composting Area, only inorganics were detected above the screening criteria in surface and subsurface soil. Based upon a review of the data, no further action is recommended for this site.

At Site 12, Industrial Wastewater Disposal Area 200, only inorganics were detected above the screening criteria in the surface soil. Several pesticides and inorganics were detected in the groundwater in the temporary wells placed at the site. Based upon a review of the collected data, no further characterization of the site is warranted. Additional investigation at the site may be warranted if chemicals are present in Paint Branch near or downgradient of the site if evidenced by RFI data.

At Site 13, Oil Sludge Disposal Area, maximum concentrations of several SVOCs and inorganics were detected above the screening criteria in surface soil, subsurface soil, and groundwater. VOCs were also detected in the permanent groundwater monitoring wells installed downgradient of the site. Based upon a review of the analytical data, an ERA should be performed at the site. The ERA should be coordinated with the RFI ERA for the adjacent sites 3 and 4. An EE/CA should be completed to evaluate the potential for remediation of site surface soils.

Within and adjacent to Site 28/SWMU 88, Building T-14 Scrapyard, elevated concentrations of several SVOCs and inorganics were detected in the surface and subsurface soils. PCBs were also present within both the surface and subsurface soil. Based upon the detected concentrations, the further characterization of the site and site contaminants is recommended. An EE/CA should be completed to evaluate the potential for excavation and off-site disposal of the contaminants identified.

For samples collected at Site 29/SWMU 74, Building 76 Plastics Laboratory Waste Area, only one SVOC was detected in the surface soil in excess of its screening level. No other contaminants were identified in concentrations exceeding the screening criteria within the samples collected. Based upon a review of the data, no further action is recommended for this site.

At Site 31/SWMU 72, Building 25, Outside Drum Storage Area, only inorganic constituents were detected in excess of the screening criteria in the surface and subsurface soil samples. Based upon a review of the data, no further action is recommended for this site.

Surface water and sediment samples were collected at Site 32/AOC O, NPDES Outfall #0009, during the field investigation. Only inorganic compounds were detected above the screening criteria in the surface water. Several SVOCs, inorganics, and one PCB (Aroclor 1260) were detected in excess of the screening criteria in site sediment. The further characterization of this drainageway should be completed as part of the ongoing RFI at the adjacent Site 2.

Samples collected at Site 33/SWMU 39, Building 25, Plating Shop Sump, were analyzed only for inorganic constituents, several of which were identified in excess of the screening criteria in both the surface and subsurface soil. Based upon a review of the data, no further site characterization is recommended for this site. The removal of the tank and its content, as proposed under an EE/CA for Site 33, should completed.

Screening activities at EBS AOC 100, Indoor Underground Pistol Range, consisted of collecting wipe samples along the walls, floors, and ceiling of the unit. These samples were analyzed for the presence of lead. Additional sampling is needed in a portion of the site. The data from this additional investigation should be provided to the General Services Administration (GSA) for its use during future property development. No additional work is required at this site.

1.0 INTRODUCTION

1.1 PROJECT SCOPE

This Site Screening Report identifies the rationale behind the investigation of 11 waste management sites at the former NSWC-White Oak, located in Silver Spring, Maryland. The report has been completed under CTO 0273 as part of the CLEAN Contract N62472-90-D1298. The CLEAN Contract is part of the Navy's Installation Restoration Program (IRP), which is designed to identify contamination at Navy and Marine Corps facilities resulting from past operations and to institute corrective measures as needed. CTO 0273 is being administered by the Naval Facilities Engineering Command, Northern Division (NAVFAC), through Engineering Field Activity - Chesapeake (EFACHES).

The further characterization of the IRP sites, SWMUs, and an AOC is necessitated by the closure of the base, transfer of the property, and the potential for future reuse of the property.

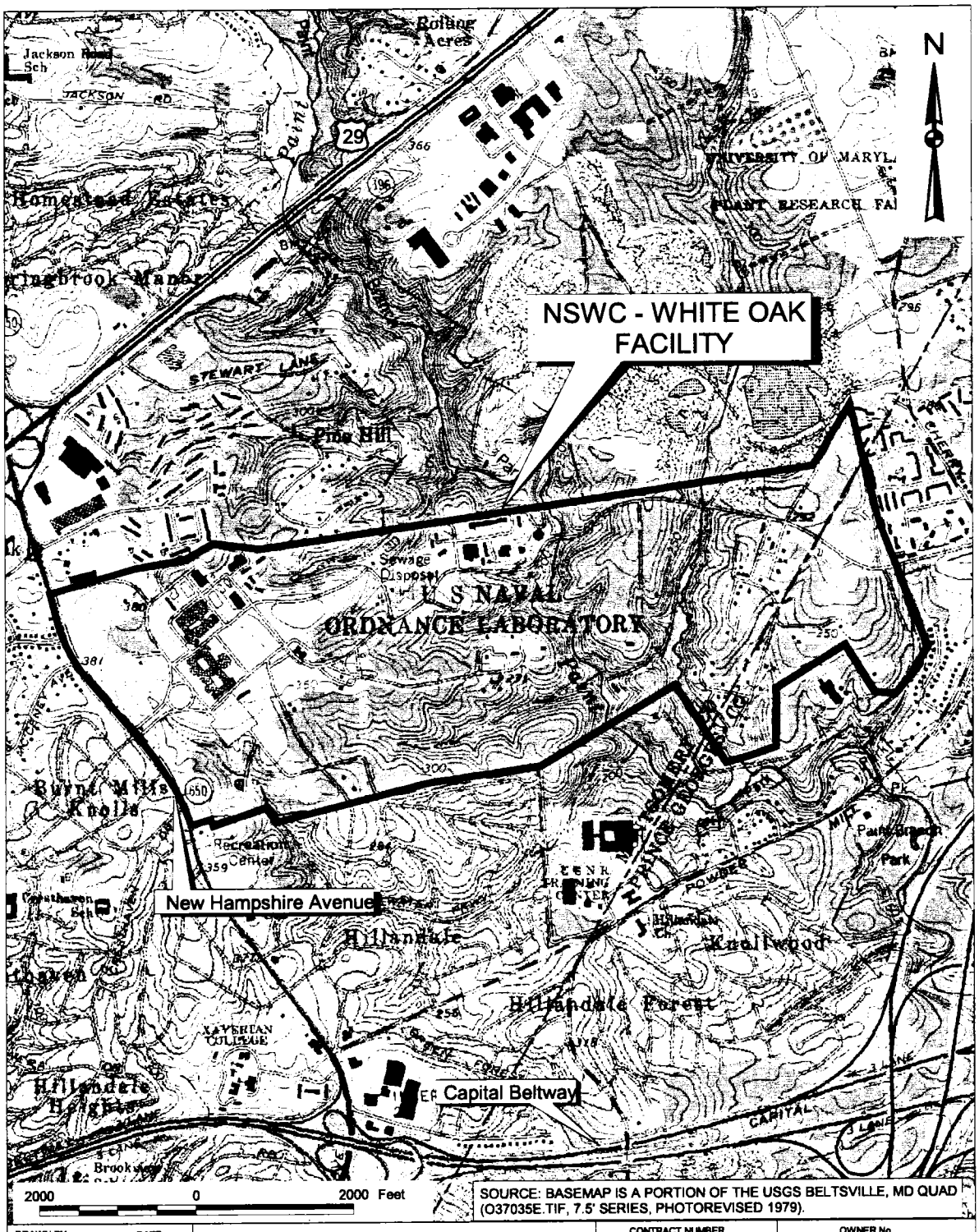
1.2 FACILITY BACKGROUND

NSWC-White Oak was a Navy-owned and -operated laboratory for naval surface warfare research, located approximately 5 miles north of Washington, D.C., off New Hampshire Avenue in Silver Spring, Maryland (see Figure 1-1). The facility is located in both Prince George's and Montgomery Counties. NSWC-White Oak is bordered by the Adelphi Laboratory Center and the United States Naval Reserve Training Center, along with a mixture of residential, park, and commercial properties. The Navy conducted research activities at this facility between 1944 and 1997.

NSWC-White Oak was listed on the Base Realignment and Closure (BRAC) list in the fall of 1995. The facility has now closed, and the research activities have been transferred to other naval facilities. The NSWC-White Oak property was transferred to GSA and the U.S. Army Adelphi Research Laboratory.

1.3 WASTE MANAGEMENT SITES

The 11 sites included in this Site Screening Report were used to manage and/or dispose wastes or waste-containing materials. Due to the potential reuse/development of these sites, they were investigated to characterize the potential risks, if any, to future tenants. Their relative locations are identified on Figure 1-2.



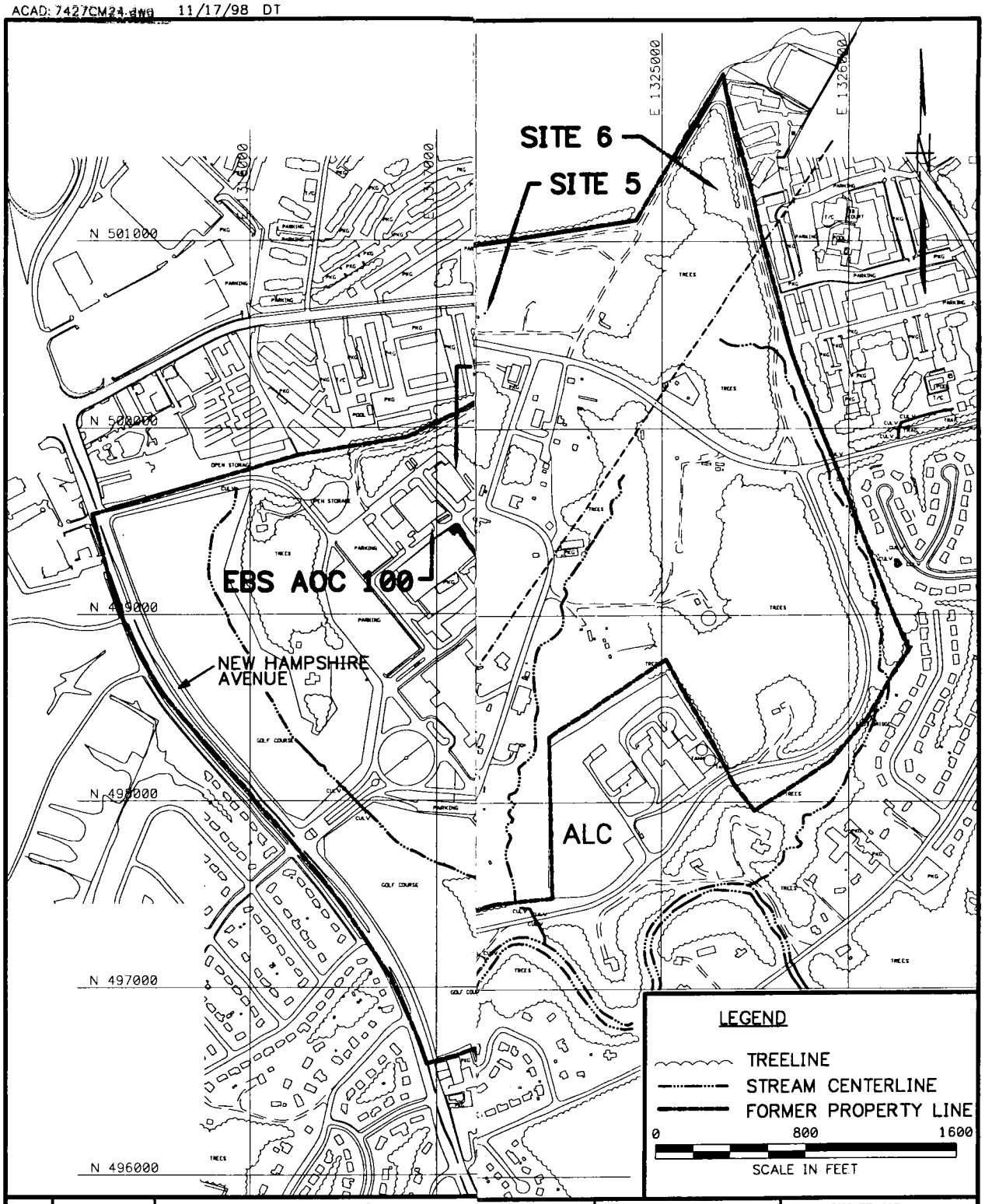
SOURCE: BASEMAP IS A PORTION OF THE USGS BELTSVILLE, MD QUAD (O37035E.TIF, 7.5' SERIES, PHOTOREVISED 1979).

DRAWN BY D. PERRY	DATE 10-DEC-98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER No. 1000
CHECKED BY	DATE	SITE VICINITY MAP NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING No. FIGURE 1-1 / REV 0

P:\GIS\WHITEOAK\74271000.APR 10-DEC-98 DNP LOCATION MAP LAYOUT

CTO 0273

ACAD: 7427CM24.dwg 11/17/98 DT



NO.	DATE	REVISIONS

ARYLAND

CONTRACT NO. 7427	OWNER NO. 0301
APPROVED BY SN	DATE 12/1
APPROVED BY	DATE
DRAWING NO. FIGURE 1-2	REV. 0

FORM CADD NO. SOUTH_BH.DGN - REV 0 - 02/11/97

1.3.1 IRP Sites

The IRP sites were identified during the Navy's Initial Assessment Study (IAS) of past hazardous waste disposal methods at the base. The IAS involved a records search, on-site survey, and site ranking. The IAS identified 14 sites where hazardous waste was previously managed. Of these 14 sites, seven were identified as having sufficient evidence to indicate the presence of contamination and that the contamination posed a potential threat to human health or to the environment. These seven sites were investigated during previous studies to further characterize the potential threats identified:

- Site 2 - Apple Orchard Landfill
- Site 3 - Pistol Range Landfill
- Site 4 - Chemical Burial Area
- Site 7 - Ordnance Burn Area
- Site 8 - Abandoned Chemical Disposal Pit
- Site 9 - Industrial Wastewater Disposal "300 Area"
- Site 11 - Industrial Wastewater Disposal "100 Area"

The seven sites that were not investigated were removed from the IRP and no further action was undertaken to characterize potential site contamination. Of these sites, two will be investigated as part of another contract and have been determined to require no further action. The remaining five sites are included within the scope of this investigation:

- Site 1/SWMU 3 - Parking Lot Landfill
- Site 5/SWMU 32 - Open Burn Areas
- Site 6/SWMU 6 - Sludge Composting Area
- Site 12/SWMU 21 - Industrial Wastewater Area "200"
- Site 13/SWMU 7 - Oil Sludge Disposal Area

The five IRP sites identified were also been identified as SWMUs under the Resource Conservation and Recovery Act (RCRA). The SWMU designation number has also been provided above.

1.3.2 SWMUs

In addition, five other SWMUs and one EBS AOC have been included in the scope of the field investigation:

- Site 28/SWMU 88 - Building T-14 Scrapyard
- Site 29/SWMU 74 - Building 76 Plastics Laboratory Waste Area
- Site 31/SWMU 72 - Building 25, Outside Drum Storage Area
- Site 32/AOC O - NPDES Outfall #0009
- Site 33/SWMU 39 - Building 25, Plating Shop Sump
- EBS AOC 100 - Indoor Underground Pistol Range

Potential contamination at these sites may have also resulted from past waste management activities.

1.4 ENVIRONMENTAL SETTING

1.4.1 Physiography

NSWC-White Oak is located northeast of Washington, D.C. near the boundary between the Piedmont and Coastal Plain Physiographic Provinces. The facility lies in gently rolling terrain. The topographic expression of the area is typical of a deeply incised, dendritic stream channel pattern. Local drainage patterns are dominated by Paint Branch and its tributaries.

The highest elevation at the base is approximately 398 feet above mean sea level (msl). The lowest elevation is roughly 145 feet msl. The terrain of the western portion of the base slopes generally eastward toward Paint Branch at an approximately 3.5 percent grade. Similar grades are encountered in the eastern portion of the facility, but slopes are generally more southward or are locally influenced by proximity to Paint Branch and its tributary drainages. Ground slopes increase to as much as 65 percent near stream channels.

1.4.2 Climate

Summers at NSWC-White Oak are warm and humid, and winters are mild. Seasonal temperature variation is about 43°F. The warmest weather occurs in July, with daily temperatures typically ranging from 69°F to 88°F. The coldest weather occurs in late January and early February, with daily temperatures typically ranging from 28° to 44°F.

The average annual precipitation is approximately 44 inches. Seasonal variation in precipitation is not pronounced, gradually fluctuating between a typical minimum of 3 inches in February to a typical maximum of 5 inches in August. Snowfall accumulations of more than 10 inches are rare, with the greatest snowfalls occurring in January and February.

The mean annual wind speed varies between 8 miles per hour in August and 11 miles per hour in March. The prevailing direction is from the south most of the year, except for northwesterly winds that occur during December, January, and March.

1.4.3 Surface Drainage

NSWC-White Oak lies entirely within the drainage basin of Paint Branch, a 12-mile long tributary to the Northeast Branch of the Anacostia River. Like other streams in the region, Paint Branch is a gaining stream; perennially supported by groundwater discharge from small springs and seeps along its length. One other unnamed perennial stream flows through the facility east of Paint Branch. It originates approximately 1 mile to the north and joins Paint Branch just south of the property line.

In addition to perennial streams, the facility is traversed by eight intermittent streams, all of which discharge to Paint Branch either on the property or nearby. Several of these streams are very small and are not mapped by the USGS.

1.4.4 Soils

The facility soils, with the exception of streambed soils, tend to be moderately to excessively well drained and moderately to severely eroded. The soils generally fall within one of two major associations present in the vicinity: the Glenelg-Manor-Chester (GMC) association and the Chillum-Beltsville-Croom (CBC) association. The GMC association is developed in materials weathered from Piedmont metamorphic rocks, and the CBC association is derived from Coastal Plain materials. Soils at the facility tend to be moderately acidic, with a pH range ranging from 4 to 6 Standard Units (SUs). This may be due to the presence of hydroxyl, humic, and fulvic acids derived from the decay of organic matter.

1.4.5 Geology and Hydrogeology

NSWC-White Oak lies near the boundary between the Piedmont and Coastal Plain Physiographic Provinces. The boundary, known as the Fall Line, runs generally southwest to northeast and is roughly parallel to the Montgomery-Prince George's County line in the While Oak area. Physically, the Fall Line represents the contact where older Piedmont rocks, exposed to the northwest, dip beneath Coastal Plain sediments that increase in thickness to the southeast.

At the facility, Coastal Plain sediments are only a few tens of feet thick and in many places have been entirely eroded away. They are primarily unconsolidated sand and gravel deposits. The underlying or exposed Piedmont bedrock is the Wissahickon Formation, a metamorphic gneiss of late Precambrian age. The upper 50 to 70 feet of the Wissahickon gneiss has been highly weathered to a clayey saprolite

material that retains the character of the parent material but is unconsolidated. This saprolite is considered a separate lithologic unit. The Wissahickon gneiss and saprolite together account for at least 50 percent of the exposed formations at NSWC-White Oak. The gneiss tends only to crop out in or near the Paint Branch channel where overlying sediments have been removed by erosion.

1.5 FIELD OPERATIONS

1.5.1 Surface Soil Sampling

Surface soil samples were collected at the investigated sites using standard field sampling methods. All surface soil samples were collected between the ground surface and a maximum depth of 6 inches.

Samples were analyzed for some or all of the following EPA TCL/TAL constituents: VOC, SVOC, pesticides, PCBs, metals, cyanide, and EPA SW846-8330 explosives. During sample extraction, the air space immediately above all surface soil samples was monitored for concentrations of VOCs using a photoionization detector (PID). To minimize volatilization, soil samples collected for VOC analysis received minor homogenization and were densely packed into 4-ounce glass jars. Additional portions of each sample, to be analyzed for the remaining parameters such as SVOCs and pesticides, were thoroughly homogenized in the mixing bowl and cleaned of any twigs or other debris prior to introduction into additional glass jars.

1.5.2 Soil Borings and Subsurface Soil Sampling

Subsurface soil borings were drilled using a mobile, hollow-stem auger (HSA) unit and either a 2-inch or 3-inch split spoon. The 3-inch split spoon was used in order to collect enough sample volume to fill all jars necessary for the analytical parameters, when conditions required.

Subsurface soil samples were collected along continuous 2-foot intervals to the maximum boring depth. A geologist visually classified and logged all split-spoon samples collected from each boring location. At the time of extraction, each split-spoon sample was also scanned for VOCs using the PID.

To minimize possible cross contamination between the drilling and sampling of each boring, the augers and all downhole sampling tools were cleaned with a high-pressure steam cleaner. In addition, the split-spoon samplers were cleaned between sample intervals at a particular boring using non-phosphate detergent and a clean water wash and rinse.

Due to the possible presence of unexploded ordnance (UXO), some boring locations in areas of suspected ordnance testing were examined by a UXO specialist using a magnetometer before and during

drilling. After the samples were collected, soil borings that were not used to install a temporary well point/monitoring well were abandoned by filling the borehole with grout.

1.5.3 Temporary Well Point Construction/Monitoring Well Installation

Temporary well points were installed by advancing the borehole into the underlying aquifer. A mobile, HSA drill rig with minimum 6-inch inside diameter (ID) augers was used to perform the drilling. The total drilling depth was determined by the on-site TtNUS geologist.

After the boring was completed, the 2-inch-diameter, flush-joint threaded, Schedule 40 polyvinyl chloride (PVC) well screen and riser pipe were positioned in the borehole by inserting the casing through the center of the HSA. Well screens were factory slotted with 0.010-inch screen slot size. A sand filter pack was installed between the outside of the well screen and the borehole wall. In most cases, filter sand was added to approximately 3 feet above the top of the 10-foot well screen. A 3-foot-thick bentonite pellet seal was then added above the top of the sand pack and allowed to hydrate to seal the well from surface infiltration of water.

Temporary well points were developed after a minimum elapsed time of 48 hours after well point installation. All temporary well points were developed by pumping. Development continued until temperature, pH, and specific conductivity had stabilized to within 10 percent for three consecutive measurements.

After groundwater sampling was completed, the boreholes were filled with grout to the ground surface.

For all permanent monitoring wells, a 6-inch ID, lockable steel protective casing was placed over the top of the PVC riser and sealed in the grout. The casing was extended a few inches above the top of the riser to allow room for sampling. Approximately 48 hours after the protective casing had been set in the grout, an external concrete protective pad was placed. The protective pads were 4 inches thick and 3 feet square. The base of the protective casing was set 1.5 feet below the natural ground surface. Four protective bumper post steel pipes were set in concrete-backfilled holes around the perimeter of the concrete pad. The steel posts, which were filled with concrete, were set at least 2 feet into the ground and extended 3 feet above the ground surface. The posts were painted bright orange for high visibility.

The state of Maryland well reports for all permanent groundwater monitoring wells are provided in Appendix A.

1.5.4 Groundwater Sampling

Groundwater samples were collected after a minimum of three well volumes were purged from the temporary wells/permanent monitoring wells. The pump and its associated cables were lowered slowly into the well to at least 2 feet above the bottom of the well to minimize agitation. Samples were collected using a low-flow purge process, which minimized agitation and aeration of the water column. Between each purge volume, a representative groundwater sample was analyzed for pH, temperature, and specific conductivity to evaluate the efficiency of the purging process. The depth from the top of the well casing to the water level, to the nearest 0.01 foot, was measured and recorded between each purge volume.

Any required VOC samples were collected first by low-flow transfer directly into pre-preserved sample containers. All the other parameters were sampled by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence.

1.5.5 Surface Water Sampling

Surface water samples were collected by slowly immersing the glass collection vial into the water body and allowing the water to gently drain along the inner wall of the vial. Vials were then filled; there was no air space which was accomplished by filling the vial cap with sample water and slowly pouring it into the vial until the vial was completely full.

1.5.6 Quality Control Samples

Quality control (QC) samples, including duplicate samples, matrix spike samples, and matrix spike duplicate samples, were collected during the field sampling. QC samples were collected in conjunction with the combined efforts for all sites under investigation. As a result, a QC sample may not have been collected at all sites.

1.5.7 Site Surveying

The horizontal coordinates and vertical coordinates, where applicable, of all soil, sediment, and groundwater sample locations were determined by a licensed Maryland land surveyor. Horizontal coordinates for sample locations were identified to 0.5 foot, using the Maryland State Plane Coordinate System. Vertical coordinates for sample locations were identified to 0.01 foot using the National Geodetic Vertical Datum of 1929. Survey accuracy was at least Third Order, Class I. The survey data are presented in Appendix B.

1.6 DATA EVALUATION METHODOLOGIES

1.6.1 Data Validation

Validation of data generated for all samples collected during this site screening investigation was completed via the EPA CLP methods. The validation process included consideration of the following: data completeness, holding time compliance, mass calibrations, field QC and laboratory-generated blanks, internal standards, surrogate spikes, blank spikes, field duplicate precision, chemical interferences, quantitation, detection limits, and system performance.

Evaluation of laboratory and field QC blank analyses aided in the elimination of false positive results, which were identified as laboratory artifacts. The overall determination of data utility or reliability was based upon laboratory compliance with specified methods and adherence to quality control requirements. The noncompliance observed during the validation process resulted in qualification of analytical data. The qualifiers alert the data user to imprecise or estimated results, and, in the worst case, unreliable and unusable data.

The net results of the validation process were summarized in sample-delivery-group-specific technical reports consisting of a memorandum, a section of qualified analytical results, results as reported by the laboratory, and a supporting documentation section that provided the rationale for changes and/or qualification of the data. These memoranda provided a detailed explanation of the results of the data validation review. These memoranda are not included in this report due to the volume of supporting material. All data validation documentation is currently retained on file by TtNUS. Complete analytical results including applicable data qualifiers are presented in Appendix F.

1.6.1.1 Data Validation Qualifiers

As mentioned previously, the qualification of analytical data during the validation process (i.e., application of B, J, K, L, UJ, UL, UR, and R qualifiers) was conducted as required by the EPA Functional Guidelines. The attachment of the data qualifiers to analytical results signifies the occurrence of quality control noncompliance that have been noted during the course of data validation. The various data qualifiers are defined as follows:

- B – This qualifier is added to a positive result (reported by the laboratory without qualification or with a "B") if the detected concentration is determined to be attributable to contamination introduced during field sampling or laboratory analysis.

- J – Indicates that the chemical was detected but is considered to be estimated based on problems encountered during laboratory analysis. Generally, this qualifier applies to reported concentrations that are below the Contract Required Quantitation Limit or Contract Required Detection Limit. The associated numerical detection limit is regarded as inaccurate or imprecise and no bias can be determined.

- K – Indicates that the chemical was detected but is considered to be estimated based on problems encountered during laboratory analysis. The associated numerical detection limit is regarded as inaccurate or imprecise and is biased high.

- L – Indicates that the chemical was detected but is considered to be estimated based on problems encountered during laboratory analysis. The associated numerical detection limit is regarded as inaccurate or imprecise and is biased low.

- UJ – Indicates that the chemical was not detected. However, the detection limit (quantitation limit) is considered to be estimated based on problems encountered during laboratory analysis. The associated numerical detection limit is regarded as inaccurate or imprecise and no bias can be determined.

- UL – Indicates that the chemical was not detected. However, the detection limit (quantitation limit) is considered to be estimated based on problems encountered during laboratory analysis. The associated numerical detection limit is regarded as inaccurate or imprecise and biased low.

- UR – Indicates that the chemical may or may not be present. The nondetected analytical result reported by the laboratory is considered to be unreliable and unusable. This qualifier is applied in cases of gross technical deficiencies (i.e., holding times missed by a factor of two times the specified time limit, severe calibration noncompliance, and extremely low quality control recoveries). Results qualified UR are considered to be biased low.

- R – Indicates that the chemical may or may not be present. The positive analytical result reported by the laboratory is considered to be unreliable and unusable. This qualifier is applied in cases of gross technical deficiencies.

The preceding data qualifiers may be categorized as indicative of major problems and minor problems. Major problems are defined as issues that result in the rejection of data, qualified with UR and R data validation qualifiers. These data are considered invalid and are not used for risk screening and decision making. Minor problems are defined as issues resulting in the estimation of data, qualified with the B, J,

K, L, UL, and UJ data validation qualifiers. Estimated analytical results are considered to be suitable for risk screening and decision-making purposes.

1.6.2 Data Evaluation

1.6.2.1 Contamination Assessment

A contamination assessment was performed for each site. The horizontal and vertical extent of constituents suspected of being released from each site was discussed at a scale relevant to the quantity and quality of chemical data. Probable transport pathways and environmental fate information were then addressed, and the overall impact to the surrounding environment was determined.

Site physical characteristics, chemical characteristics, potential source characteristics, and distribution of releases for each site are evaluated. Data that were utilized to determine site physical characteristics include physical descriptions of each site, geophysical survey results, soils classifications, soil porosity, and hydrogeological characterization. Potential sources and source areas were identified by geophysical surveys, site walk-overs, historical information, and subsequent sampling and analysis. The distribution of chemicals among the environmental media is a key indicator for evaluating fate and transport processes, release mechanism, migration pathways, and identifying the potential source areas.

Within the contamination assessment, sample results for soils, surface water, and sediments are compared to basewide background concentrations. This allows a determination to be made as to whether detected compounds are site related, are present area wide, or are related to another source.

1.6.2.2 Human Health Risk-Based Screening Evaluation

Human health screening levels for groundwater were selected from EPA Region III RBCs for tap water use (October 1998), EPA MCLs, and state of Maryland MCLs. The list of screening levels was developed by comparing these three sets of criteria and choosing the lowest value for the site screening level. If the MCL for a constituent was not available, the EPA Region III RBC for tap water was the value chosen for screening. In these cases, the screening level for carcinogenic constituents was the Region III level, as published. For noncarcinogens, the screening value used was the Region III tap water RBC divided by 10, in accordance with USEPA guidance. This adjustment accounts for cumulative effects.

A summary of the groundwater screening levels is presented in Table 1-1.

TABLE 1-1

CRITERIA USED TO EVALUATE CHEMICALS DETECTED IN GROUNDWATER
HUMAN HEALTH RISKS
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Parameter	Screening Level	Source
Explosives (ug/L)		
2,4,6-TRINITROTOLUENE	2.2	Tap RBC
HMX	180	Tap RBC
RDX	0.61	Tap RBC
Volatile Organics (ug/L)		
1,1,1-TRICHLOROETHANE	200	MCL
1,1,2,2-TETRACHLOROETHANE	0.053	Tap RBC
1,1,2-TRICHLOROETHANE	0.19	Tap RBC
1,1-DICHLOROETHANE	80	Tap RBC
1,2-DICHLOROETHANE	0.12	Tap RBC
CHLOROBENZENE	35	Tap RBC
CHLOROFORM	0.15	Tap RBC
CIS-1,2-DICHLOROETHENE	61	Tap RBC
METHYLENE CHLORIDE	4.1	Tap RBC
TETRACHLOROETHENE	1.1	Tap RBC
TRANS-1,2-DICHLOROETHENE	100	MCL
TRICHLOROETHENE	1.6	Tap RBC
VINYL CHLORIDE	0.019	Tap RBC
XYLENES, TOTAL	10,000	MCL
Semivolatile Organics (ug/L)		
BIS(2-ETHYLHEXYL)PHTHALATE	4.8	Tap RBC
DIETHYL PHTHALATE	2,900	Tap RBC
DI-N-BUTYL PHTHALATE	370	Tap RBC
Pesticides/PCBs (ug/L)		
4,4'-DDD	0.28	Tap RBC
ALDRIN	0.0039	Tap RBC
DIELDRIN	0.0042	Tap RBC
HEPTACHLOR EPOXIDE	0.0012	Tap RBC

TABLE 1-1

CRITERIA USED TO EVALUATE CHEMICALS DETECTED IN GROUNDWATER
HUMAN HEALTH RISKS
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Parameter	Screening Level	Source
Inorganics (ug/L)		
ALUMINUM	50	MCL
ANTIMONY	6	MCL
ARSENIC	0.045	Tap RBC
BARIUM	2,000	MCL
BERYLLIUM	4	MCL
CADMIUM	5	MCL
CALCIUM	NA	NA
CHROMIUM III	100	MCL
COBALT	220	Tap RBC
COPPER	150	Tap RBC
CYANIDE	200	MCL
HEXAVALENT CHROMIUM	18	Tap RBC
IRON	300	MCL
LEAD	15	MCL
MAGNESIUM	NA	NA
MANGANESE	50	MCL
MERCURY	2	MCL
NICKEL	100	MCL
POTASSIUM	NA	NA
SELENIUM	50	MCL
SILVER	18	Tap RBC
SODIUM	NA	NA
THALLIUM	2	MCL
VANADIUM	26	Tap RBC
ZINC	1,100	Tap RBC
Miscellaneous		
PH (SU)	6.5 to 8.5	MCL
TOTAL DISSOLVED SOLIDS (mg/L)	500	NA

NA - Not Available
MCL - Federal Maximum Contaminant Level
Tap RBC - EPA Region III Risk-Based Concentration for tap water

Human health screening levels for soil and sediment were selected from EPA Region III RBCs for residential soil ingestion. For carcinogenic constituents, the screening level was the Region III value, as published. For noncarcinogens, the screening value was the Region III RBC for soil ingestion divided by 10, as per EPA screening guidance.

A summary of the soil screening levels is presented in Table 1-2.

1.6.2.3 Ecological Risk-Based Screening

An RFI is planned for seven sites at NSWC-White Oak (Tetra Tech NUS, 1998a). As part of the RFI, ERAs will be performed for the sites, as well as an overall watershed ERA for the base. The scope of these ERAs is presented in the RFI work plan for the sites and has been discussed with Region III Biological Technical Assistance Group (BTAG). The completion of the ERAs undertaken at the site screening sites discussed in this report consisted of a comparison of the environmental data collected for the various site media with ecological risk screening criteria developed specifically for the former NSWC-White Oak. Those criteria were developed through discussions with the Region III BTAG. The ecological risk screening criteria for surface soil, sediment, and surface water and groundwater are provided in Tables 1-3, 1-4, and 1-5, respectively.

The objectives of the ecological risk screening, as presented in this report, are as follows:

- To determine if any of the sites that are located near the original sites should be included in the RFI ERA.

- To determine if any of these new sites do not have any ecological component. An ERA should not be performed if this is the case.

- For sites that do have an ecological component, perform a qualitative comparison of existing site data to NSWC White Oak ecological screening levels. The purpose of this initial screening is to determine if any of the sites are innocuous from an ecological standpoint.

These objectives should not be construed as premature risk management activities. Rather, the purpose of this report is to determine if the formal ecological risk assessment process should be initiated at any of the sites. This step allows all interested parties to focus on those sites that could reasonably pose potential risks to NSWC-White Oak ecological receptors. The elimination of non-ecological sites from the ERA process early in the RFI or RI process is common practice at federal facilities.

TABLE 1-2

CRITERIA USED TO EVALUATE CHEMICALS DETECTED IN SOIL
HUMAN HEALTH RISKS
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Parameter	Region III Risk-Based Concentration Residential Soil
Explosives (mg/kg)	
2,4,6-TRINITROTOLUENE	21
2-AMINO-4,6-DINITROTOLUENE	4.7
HMX	390
RDX	5.8
Volatile Organics (mg/kg)	
2-BUTANONE	4,700
ACETONE	780
CHLOROBENZENE	160
METHYLENE CHLORIDE	85
TETRACHLOROETHENE	12
TOLUENE	1,600
Semivolatile Organics (mg/kg)	
1,2,4-TRICHLOROBENZENE	78
1,2-DICHLOROBENZENE	700
1,3-DICHLOROBENZENE	230
1,4-DICHLOROBENZENE	27
2,4-DIMETHYLPHENOL	160
2-METHYLNAPHTHALENE	310
2-METHYLPHENOL	390
4-METHYLPHENOL	39
ACENAPHTHENE	470
ANTHRACENE	2,300
BENZO(A)ANTHRACENE	0.87
BENZO(A)PYRENE	0.087
BENZO(B)FLUORANTHENE	0.87
BENZO(G,H,I)PERYLENE	310
BENZO(K)FLUORANTHENE	8.7
BIS(2-ETHYLHEXYL)PHTHALATE	46
CARBAZOLE	32
CHRYSENE	87
DIBENZO(A,H)ANTHRACENE	0.087
DIBENZOFURAN	31
DIETHYL PHTHALATE	6,300
DI-N-BUTYL PHTHALATE	780
FLUORANTHENE	310
FLUORENE	310
INDENO(1,2,3-CD)PYRENE	0.87
NAPHTHALENE	310
PHENANTHRENE	310
PHENOL	4,700
PYRENE	230

TABLE 1-2

CRITERIA USED TO EVALUATE CHEMICALS DETECTED IN SOIL
HUMAN HEALTH RISKS
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Parameter	Region III Risk-Based Concentration Residential Soil
Pesticides/PCBs (mg/kg)	
4,4'-DDD	2.7
4,4'-DDE	1.9
4,4'-DDT	1.9
ALPHA-BHC	0.1
ALPHA-CHLORDANE	1.8
AROCLOR-1248	0.32
AROCLOR-1260	0.32
DELTA-BHC	0.35
DIELDRIN	0.04
ENDOSULFAN I	47
ENDOSULFAN II	47
ENDRIN KETONE	2.3
GAMMA-CHLORDANE	1.8
HEPTACHLOR	0.14
HEPTACHLOR EPOXIDE	0.07
Inorganics (mg/kg)	
ALUMINUM	7,800
ANTIMONY	3.1
ARSENIC	0.43
BARIUM	550
BERYLLIUM	16
CADMIUM	3.9
CALCIUM	NA
CHROMIUM III	7,800
COBALT	470
COPPER	310
CYANIDE	160
HEXAVALENT CHROMIUM	23
IRON	2,300
LEAD (1)	400
MAGNESIUM	NA
MANGANESE	160
MERCURY	2.3
MOLYBDENUM	39
NICKEL	160
POTASSIUM	NA
SELENIUM	39
SILVER	39
SODIUM	NA
THALLIUM	0.55
VANADIUM	55
ZINC	2,300

NA - Not Available

(1) - An RBC is not available for lead. A value of 400 mg/kg has been used for screening purposes (Office of Solid Waste and Emergency Directive #9355.4-12)

TABLE 1-3

PROPOSED SURFACE SOIL GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (MG/KG)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes*
Volatile Organic Compounds			
1,1-Dichloroethane	NA		
1,2-Dichloroethene (total)	NA		
2-Butanone	NA		
Acetone	NA		
Benzene	0.05	MHSP&E, 1994	Dutch Target Value
Carbon Disulfide	NA		
Chloroform	NA		
Ethylbenzene	0.05	MHSP&E, 1994	Dutch Target Value
Methylene Chloride	NA		
Styrene	300	Efroymson et al., 1997b	ORNL plant screening level
Tetrachloroethene	0.01	MHSP&E, 1994	Dutch Target Value
Toluene	200	Efroymson et al., 1997b	ORNL plant screening level
Trichloroethane	NA		
Trichloroethene	0.001	MHSP&E, 1994	Dutch Target Value
Xylenes, Total	0.05	MHSP&E, 1994	Dutch Target Value
Semivolatile Organic Compounds			
2,4-Dinitrotoluene	NA		
2-Methylnaphthalene	NA		
4-Methylphenol	NA		
Acenaphthene	20	Efroymson et al., 1997b	ORNL plant screening level
Acenaphthylene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Anthracene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Benzo(a)anthracene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Benzo(a)pyrene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Benzo(b)fluoranthene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Benzo(g,h,i)perylene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Benzo(k)fluoranthene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Bis(2-Ethylhexyl)phthalate	0.1	MHSP&E, 1994	Dutch Target Value for combined phthalates; proposed for use for each phthalate
Butylbenzyl Phthalate	0.1	MHSP&E, 1994	Dutch Target Value for combined phthalates; proposed for use for each phthalate

TABLE 1-3

PROPOSED SURFACE SOIL GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (MG/KG)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes*
Carbazole	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Chrysene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Di-n-butyl phthalate	100	Efroymson et al., 1997b	ORNL plant screening level
Di-n-octyl phthalate	0.1	MHSP&E, 1994	Dutch Target Value for combined phthalates; proposed for use for each phthalate
Dibenzo(a,h)anthracene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Dibenzofuran	600	Efroymson et al., 1997b	ORNL plant screening level for furan
Diethyl Phthalate	100	Efroymson et al., 1997b	ORNL plant screening level
Fluoranthene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Fluorene	30	Efroymson et al., 1997a	ORNL earthworm screening level
Hexachlorocyclopentadiene	10	Efroymson et al., 1997b	ORNL plant screening level
Indeno(1,2,3-cd)pyrene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
N-Nitrosodiphenylamine	20	Efroymson et al., 1997a	ORNL earthworm screening level
Naphthalene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Pentachlorophenol	3	Efroymson et al., 1997b	ORNL plant screening level
Phenanthrene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Pyrene	1	MHSP&E, 1994	Dutch Target Value for combined PAHs proposed for use for each PAH
Miscellaneous Compounds			
Phenols	30	Efroymson et al., 1997a	ORNL earthworm screening level
Pesticides and PCBs			
4,4'-DDD	0.0025	MHSP&E, 1994	Dutch Target Value
4,4'-DDE	0.0025	MHSP&E, 1994	Dutch Target Value
4,4'-DDT	0.0025	MHSP&E, 1994	Dutch Target Value
Aldrin	0.0025	MHSP&E, 1994	Dutch Target Value
Aroclor-1254	0.02	MHSP&E, 1994	Dutch Target Value for Total PCBs; proposed for use for each PCB mixture
Aroclor-1260	0.02	MHSP&E, 1994	Dutch Target Value for Total PCBs; proposed for use for each PCB mixture
BHC,alpha	0.0025	MHSP&E, 1994	Dutch Target Value
BHC,beta	0.001	MHSP&E, 1994	Dutch Target Value
BHC,gamma (Lindane)	0.05	MHSP&E, 1994	Dutch Target Value
Chlordane,alpha	NA		
Chlordane,gamma	NA		

TABLE 1-3

PROPOSED SURFACE SOIL GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (MG/KG)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes*
Dieldrin	0.0005	MHSP&E, 1994	Dutch Target Value
Endosulfan II	NA		
Endosulfan Sulfate	NA		
Endrin	0.001	MHSP&E, 1994	Dutch Target Value
Endrin Aldehyde	0.001	MHSP&E, 1994	Surrogate for endrin
Endrin Ketone	0.001	MHSP&E, 1994	Surrogate for endrin
Fenuron Tca	NA		
Heptachlor	NA		
Heptachlor Epoxide	NA		
Methoxychlor	NA		
Monuron	NA		
Metals and Inorganic Compounds			
Aluminum	50	Efroymson et al., 1997b	ORNL plant screening level
Antimony	5	Efroymson et al., 1997b	ORNL plant screening level
Arsenic	10	Efroymson et al., 1997b	ORNL plant screening level
Barium	500	Efroymson et al., 1997b	ORNL plant screening level
Beryllium	10	Efroymson et al., 1997b	ORNL plant screening level
Boron	0.5	Efroymson et al., 1997b	ORNL plant screening level
Cadmium	4	Efroymson et al., 1997b	ORNL plant screening level
Calcium	NA		Essential Nutrient
Chromium	1	Efroymson et al., 1997b	ORNL plant screening level
Cobalt	20	Efroymson et al., 1997b	ORNL plant screening level
Copper	50	Efroymson et al., 1997a	ORNL earthworm screening level
Cyanide	1	MHSP&E, 1994	Dutch Target Value
Iron	200	Efroymson et al., 1997a	ORNL soil microbe screening level
Lead	50	Efroymson et al., 1997b	ORNL plant screening level
Magnesium	NA		Essential Nutrient
Manganese	500	Efroymson et al., 1997b	ORNL plant screening level
Mercury	0.1	MHSP&E, 1994	Dutch Target Value
Molybdenum	2	Efroymson et al., 1997b	ORNL plant screening level

TABLE 1-3

PROPOSED SURFACE SOIL GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (MG/KG)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes*
Nickel	30	Efroymson et al., 1997b	ORNL plant screening level
Potassium	NA		Essential Nutrient
Selenium	1	Efroymson et al., 1997b	ORNL plant screening level
Silver	2	Efroymson et al., 1997b	ORNL plant screening level
Sodium	NA		Essential Nutrient
Thallium	0.2	Efroymson et al., 1997b	ORNL plant screening level
Vanadium	2	Efroymson et al., 1997b	ORNL plant screening level
Zinc	50	Efroymson et al., 1997b	ORNL plant screening level

* Order of preference = most conservative of ORNL earthworm or plant values/Dutch Target Values/ORNL microbe
NA = Not Available or Not Applicable

Efroymson, R.A., M. E. Will, and G. W. Suter. 1997a. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Soil Litter Invertebrates and Heterotrophic Processes, 1997 Revision, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
Efroymson, R.A., M. E. Will, and G. W. Suter. 199b7. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants, 1997 Revision, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
Department of Soil Protection, The Hague, The Netherlands.
MHSP&E (Ministry of Housing, Spatial Planning and Environment). 1994. Intervention values and target values – soil quality standards.

TABLE 1-4

PROPOSED SEDIMENT GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (MG/KG)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes
1,1-Dichloroethane	NA		
1,2-Dichloroethene (total)	NA		
2-Butanone	NA		
Acetone	NA		
Benzene	0.057	EPA, 1996	EPA Sediment Quality Benchmark
Carbon Disulfide	NA		
Chloroform	NA		
Ethylbenzene	0.01	ORNL	Apparent Effects Threshold
Methylene Chloride	NA		
Styrene	NA		
Tetrachloroethene	0.53	EPA, 1996	EPA Sediment Quality Benchmark
Toluene	0.67	EPA, 1996	EPA Sediment Quality Benchmark
Trichloroethane	0.17	EPA, 1996	EPA Sediment Quality Benchmark
Trichloroethene	1.6	EPA, 1996	EPA Sediment Quality Benchmark
Xylenes, Total	0.04	ORNL	Apparent Effects Threshold
Semivolatile Organic Compounds			
2,4-Dinitrotoluene	NA		
2-Methylnaphthalene	0.07	Jones et al., 1996	Effects-Range Low
4-Methylphenol	NA		
Acenaphthene	0.016	Jones et al., 1996	Effects-Range Low
Acenaphthylene	0.044	Jones et al., 1996	Effects-Range Low
Anthracene	0.0853	Jones et al., 1996	Effects-Range Low
Benzo(a)anthracene	0.261	Jones et al., 1996	Effects-Range Low
Benzo(a)pyrene	0.43	Jones et al., 1996	Effects-Range Low
Benzo(b)fluoranthene	0.43	Jones et al., 1996	Surrogate for Benzo(a)pyrene
Benzo(g,h,i)perylene	0.43	Jones et al., 1996	Surrogate for Benzo(a)pyrene
Benzo(k)fluoranthene	0.43	Jones et al., 1996	Surrogate for Benzo(a)pyrene
Bis(2-Ethylhexyl)phthalate	1.3	ORNL	Apparent Effects Threshold
Butylbenzyl Phthalate	11	EPA, 1996	EPA Sediment Quality Benchmark
Carbazole	NA		
Chrysene	0.384	Jones et al., 1996	Effects-Range Low
Di-n-butyl phthalate	0.182	Jones et al., 1996	Surrogate for Bis(2-ethylhexyl)phthalate
Di-n-octyl phthalate	0.182	Jones et al., 1996	Surrogate for Bis(2-ethylhexyl)phthalate
Dibenzo(a,h)anthracene	0.063	Jones et al., 1996	Surrogate for Benzo(a)pyrene
Dibenzofuran	0.54	ORNL	Apparent Effects Threshold
Diethyl Phthalate	0.182	Jones et al., 1996	Surrogate for Bis(2-ethylhexyl)phthalate
Fluoranthene	0.6	Jones et al., 1996	Effects-Range Low
Fluorene	0.019	Jones et al., 1996	Effects-Range Low
Hexachlorocyclopentadiene	NA		
Indeno(1,2,3-cd)pyrene	0.43	Jones et al., 1996	Surrogate for Benzo(a)pyrene
N-Nitrosodiphenylamine	NA		
Naphthalene	0.16	Jones et al., 1996	Effects-Range Low
Pentachlorophenol	0.36	ORNL	Apparent Effects Threshold
Phenanthrene	0.24	Jones et al., 1996	Effects-Range Low
Pyrene	0.665	Jones et al., 1996	Effects-Range Low

TABLE 1-4

PROPOSED SEDIMENT GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (MG/KG)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes
Miscellaneous Compounds			
Phenols	0.42	Jones et al., 1996	Washington State Dept. of Ecology
Pesticides and PCBs			
4,4'-DDD	0.002	Jones et al., 1996	Effects-Range Low
4,4'-DDE	0.0022	Jones et al., 1996	Effects-Range Low
4,4'-DDT	0.00158	Jones et al., 1996	Effects-Range Low
Aldrin	0.002	Jones et al., 1996	Lowest Effects Level
Aroclor-1254	0.06	Jones et al., 1996	Lowest Effects Level
Aroclor-1260	0.005	Jones et al., 1996	Lowest Effects Level
BHC,alpha	0.006	Jones et al., 1996	Lowest Effects Level
BHC,beta	0.005	Jones et al., 1996	Lowest Effects Level
BHC,gamma (Lindane)	0.003	Jones et al., 1996	Lowest Effects Level
Chlordane,alpha	0.0005	Jones et al., 1996	Effects-Range Low
Chlordane,gamma	0.0005	Jones et al., 1996	Effects-Range Low
Dieldrin	0.00002	Jones et al., 1996	Effects-Range Low
Endosulfan II	0.014	EPA, 1996	EPA Sediment Quality Benchmark
Endosulfan Sulfate	0.014	EPA, 1996	EPA Sediment Quality Benchmark for E
Endrin	0.00002	Jones et al., 1996	Effects-Range Low
Endrin Aldehyde	0.00002	Jones et al., 1996	Effects-Range Low for Endrin
Endrin Ketone	0.00002	Jones et al., 1996	Effects-Range Low for Endrin
Fenuron Tca	NA		
Heptachlor	0.005	Jones et al., 1996	Lowest Effects Level for Heptachlor Ep
Heptachlor Epoxide	0.005	Jones et al., 1996	Lowest Effects Level
Methoxychlor	0.019	EPA, 1996	EPA Sediment Quality Benchmark
Monuron	NA		
Metals and Inorganic Compounds			
Aluminum	NA		
Antimony	2	Jones et al., 1996	Effects-Range Low
Arsenic	8.2	Jones et al., 1996	Effects-Range Low
Barium	NA		
Beryllium	NA		
Boron	NA		
Cadmium	1.2	Jones et al., 1996	Effects-Range Low
Calcium	NA		
Chromium	81	Jones et al., 1996	Effects-Range Low
Cobalt	NA		
Copper	34	Jones et al., 1996	Effects-Range Low
Cyanide	NA		
Iron	20,000	Jones et al., 1996	Lowest Effects Level
Lead	46.7	Jones et al., 1996	Effects-Range Low
Magnesium	NA		
Manganese	460	Jones et al., 1996	Lowest Effects Level
Mercury	0.15	Jones et al., 1996	Effects-Range Low
Nickel	20.9	Jones et al., 1996	Effects-Range Low
Potassium	NA		

TABLE 1-4

PROPOSED SEDIMENT GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (MG/KG)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes
Selenium	NA		
Silver	1	Jones et al., 1996	Effects-Range Low
Sodium	NA		
Thallium	NA		
Vanadium	NA		
Zinc	150	Jones et al., 1996	Effects-Range Low

NA = Not Available or Not Applicable

Jones, D.S., R.N. Hull, and G. W. Suter II. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1996 Revision. ES/ER/TM-95/R2. Risk Assessment Program, Health Sciences Division, Oak Ridge, TN.
EPA. 1996. ECO Update: Ecotox Thresholds. Volume 3, Number 2.

TABLE 1-5

PROPOSED SURFACE WATER GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (UG/L)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes*
Volatile Organic Compounds			
1,1-Dichloroethane	47	Suter and Tsao, 1996	EPA Tier II value
1,2-Dichloroethene (total)	303	Suter and Tsao, 1996	EPA Region 4
2-Butanone	NA		
Acetone	NA		
Benzene	46	Suter and Tsao, 1996	EPA Tier II value
Carbon Disulfide	NA		
Chloroform	289	Suter and Tsao, 1996	EPA Region 4
Ethylbenzene	290	Suter and Tsao, 1996	EPA Tier II value
Methylene Chloride	1930	Suter and Tsao, 1996	EPA Region 4
Styrene	NA		
Tetrachloroethene	120	Suter and Tsao, 1996	EPA Tier II value
Toluene	130	Suter and Tsao, 1996	EPA Tier II value
Trichloroethane	62	Suter and Tsao, 1996	EPA Region 4
Trichloroethene	350	Suter and Tsao, 1996	EPA Tier II value
Xylenes, Total	1.8	Suter and Tsao, 1996	EPA Tier II value
Semivolatile Organic Compounds			
2,4-Dinitrotoluene	310	Suter and Tsao, 1996	EPA Region 4
2-Methylnaphthalene	24	Suter and Tsao, 1996	Surrogate value for LMW PAHs
4-Methylphenol	NA		
Acenaphthene	23	Suter and Tsao, 1996	EPA AWQC
Acenaphthylene	24	Suter and Tsao, 1996	Surrogate value for LMW PAHs
Anthracene	24	Suter and Tsao, 1996	Surrogate value for LMW PAHs
Benzo(a)anthracene	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs
Benzo(a)pyrene	0.014	Suter and Tsao, 1996	EPA Tier II value
Benzo(b)fluoranthene	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs
Benzo(g,h,i)perylene	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs
Benzo(k)fluoranthene	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs
Bis(2-Ethylhexyl)phthalate	32	Suter and Tsao, 1996	EPA Tier II value
Butylbenzyl Phthalate	19	Suter and Tsao, 1996	EPA Tier II value
Carbazole	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs
Chrysene	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs
Di-n-butyl phthalate	33	Suter and Tsao, 1996	EPA Tier II value
Di-n-octyl phthalate	33	Suter and Tsao, 1996	Surrogate value for Di-n-butylphthalate
Dibenzo(a,h)anthracene	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs
Dibenzofuran	20	Suter and Tsao, 1996	EPA Tier II value
Diethyl Phthalate	220	Suter and Tsao, 1996	EPA Tier II value
Fluoranthene	8.1	Suter and Tsao, 1996	EPA AWQC
Fluorene	3.9	Suter and Tsao, 1996	EPA Tier II value
Hexachlorocyclopentadiene	0.07	Suter and Tsao, 1996	EPA Region 4
Indeno(1,2,3-cd)pyrene	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs
N-Nitrosodiphenylamine	58.5	Suter and Tsao, 1996	EPA Region 4
Naphthalene	24	Suter and Tsao, 1996	EPA Region 4
Pentachlorophenol	13	Suter and Tsao, 1996	EPA AWQC
Phenanthrene	6.3	Suter and Tsao, 1996	EPA AWQC
Pyrene	0.014	Suter and Tsao, 1996	Surrogate value for HMW PAHs

TABLE 1-5

PROPOSED SURFACE WATER GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (UG/L)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes*
Miscellaneous Compounds			
Phenols	256	Suter and Tsao, 1996	Region 4 EPA
Pesticides and PCBs			
4,4'-DDD	0.013	Suter and Tsao, 1996	Surrogate value for 4,4'-DDT
4,4'-DDE	0.013	Suter and Tsao, 1996	Surrogate value for 4,4'-DDT
4,4'-DDT	0.013	Suter and Tsao, 1996	EPA Tier II value
Aldrin	0.3	Suter and Tsao, 1996	EPA Region 4
Aroclor-1254	0.014	Suter and Tsao, 1996	EPA Region 4
Aroclor-1260	0.014	Suter and Tsao, 1996	EPA Region 4
BHC,alpha	0.08	Suter and Tsao, 1996	EPA AWQC for Gamma-BHC
BHC,beta	0.08	Suter and Tsao, 1996	EPA AWQC for Gamma-BHC
BHC,gamma (Lindane)	0.08	Suter and Tsao, 1996	EPA AWQC
Chlordane,alpha	0.0043	Suter and Tsao, 1996	EPA Region 4
Chlordane,gamma	0.0043	Suter and Tsao, 1996	EPA Region 4
Dieldrin	0.062	Suter and Tsao, 1996	EPA AWQC
Endosulfan II	0.051	Suter and Tsao, 1996	EPA Tier II value
Endosulfan Sulfate	0.051	Suter and Tsao, 1996	Surrogate value for Endsulfan II
Endrin	0.061	Suter and Tsao, 1996	EPA AWQC
Endrin Aldehyde	0.061	Suter and Tsao, 1996	Surrogate value for endrin
Endrin Ketone	0.061	Suter and Tsao, 1996	Surrogate value for endrin
Fenuron Tca	NA		
Heptachlor	0.0069	Suter and Tsao, 1996	EPA Tier II value
Heptachlor Epoxide	0.0038	Suter and Tsao, 1996	EPA Region 4
Methoxychlor	0.019	Suter and Tsao, 1996	EPA Tier II value
Monuron	NA		
Metals and Inorganic Compounds			
Aluminum	87	Suter and Tsao, 1996	Region 4 EPA
Antimony	160	Suter and Tsao, 1996	Region 4 EPA
Arsenic	8.1	Suter and Tsao, 1996	EPA Tier 2 value, Arsenic V
Barium	3.9	Suter and Tsao, 1996	EPA Tier 2 value
Beryllium	5.1	Suter and Tsao, 1996	EPA Tier 2 value
Boron	750	Suter and Tsao, 1996	Region 4 EPA
Cadmium	1	Suter and Tsao, 1996	EPA AWQC, hardness dep.
Calcium	NA		Essential Nutrient
Chromium	10	Suter and Tsao, 1996	EPA AWQC, Chromium VI, hardness dep.
Cobalt	3	Suter and Tsao, 1996	EPA Tier 2 value
Copper	11	Suter and Tsao, 1996	EPA AWQC, hardness dep.
Cyanide	5.2	Suter and Tsao, 1996	EPA AWQC
Iron	1000	Suter and Tsao, 1996	EPA AWQC
Lead	2.5	Suter and Tsao, 1996	EPA AWQC
Magnesium	NA		Essential Nutrient
Manganese	80	Suter and Tsao, 1996	EPA Tier 2 value
Mercury	0.003	Suter and Tsao, 1996	EPA Tier 2 value, Methyl Mercury
Nickel	160	Suter and Tsao, 1996	EPA AWQC, hardness dep.
Potassium	NA		Essential Nutrient
Selenium	5	Suter and Tsao, 1996	EPA AWQC
Silver	0.012	Suter and Tsao, 1996	Region 4 EPA, harndess dep.

TABLE 1-5

PROPOSED SURFACE WATER GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT (UG/L)
SITE SCREENING REPORT
FORMER NSWC WHITE OAK

Chemical	Guideline	Source	Notes*
Sodium	NA		Essential Nutrient
Thallium	4	Suter and Tsao, 1996	Region 4 EPA
Vanadium	19	Suter and Tsao, 1996	EPA Tier 2 value
Zinc	100	Suter and Tsao, 1996	EPA AWQC, hardness dep.

NA = Not Available or Not Applicable

* value for Benzo(a)pyrene was used as a surrogate for high molecular weight PAHs, naphthalene was used as a surrogate for low molecular weight PAHs

Site-specific guidelines will be calculated for hardness dependent inorganics when hardness data are available.

Suter, G.W. and C.L. Tsao. 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on
Aquatic Biota: 1996 Revision. Oak Ridge National Laboratory, Oak Ridge, TN.

2.0 SITE 1/SWMU 3 - PARKING LOT LANDFILL

2.1 BACKGROUND

The Parking Lot Landfill was used as an open disposal site and landfill between 1948 and 1953. The site is located east of Building 101A and is adjacent to the Apple Orchard Landfill (IRP Site 2) and Site 32 (Figure 2-1). The wastes supposedly disposed within this landfill include lubricating oil, battery acid, metal plating wastes, and metal scrap. It has been reported that approximately 60 automobile batteries were disposed at the site over its operating life. The site is now used as a parking lot and is paved with asphalt; however, visible wastes from the landfill including tires, glass, and old metal equipment have been observed on the southern and eastern slopes beyond the edge of the parking lot

2.2 ENVIRONMENTAL SETTING

2.2.1 Topography

The Parking Lot Landfill is a slightly sloping paved area. Runoff from the paved area is directed toward the southwestern corner. The eastern and southern faces of the landfill, outside the boundaries of the paved area, are both steeply sloped into drainage swales.

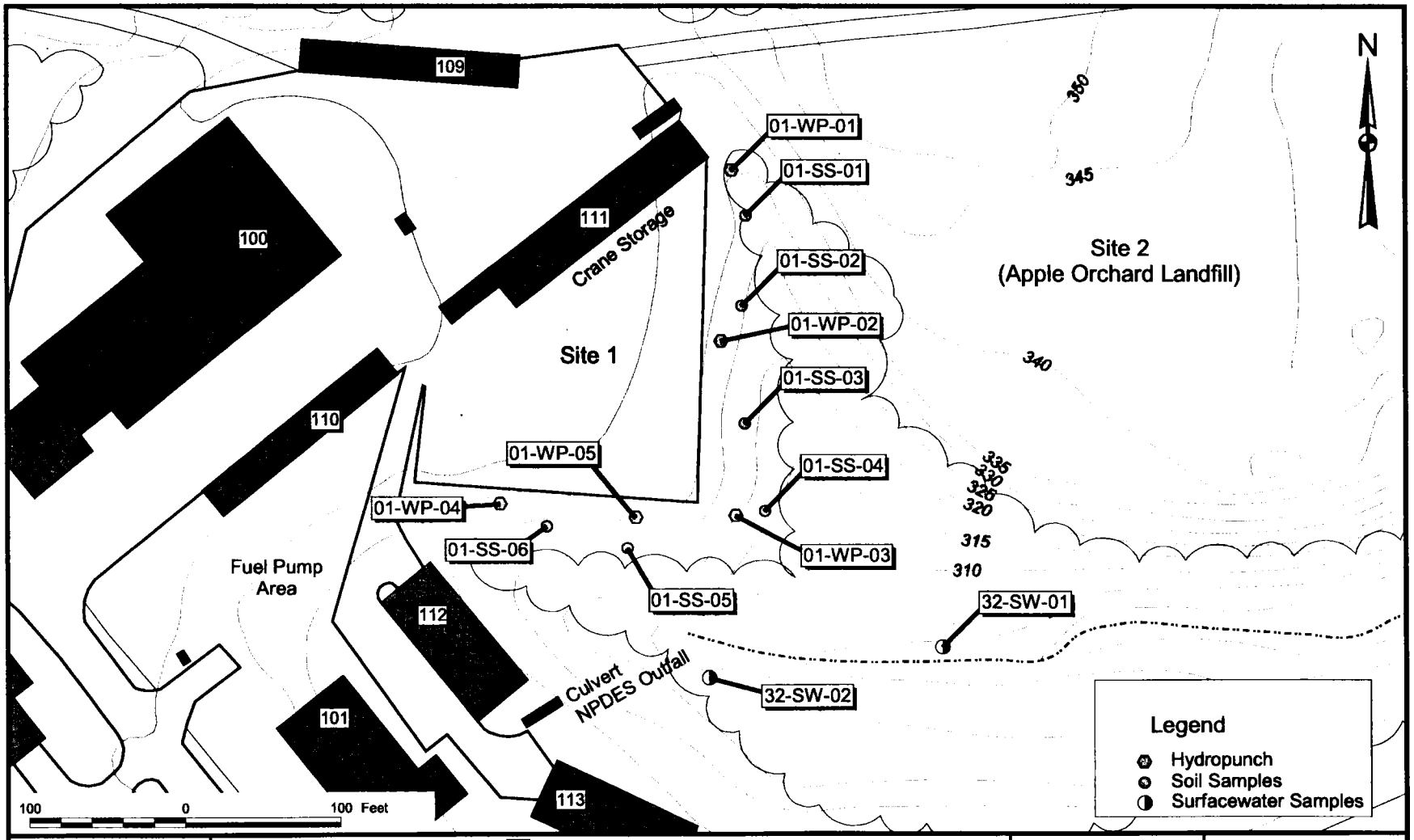
2.2.2 Surface Water

Surface water from the paved portion of the landfill is collected in a bermed area located in the southwestern corner or into adjacent swales. The bermed area has been constructed with a tap water spigot and a drain that directs the runoff to a secondary containment vault.

An intermittent stream flows southward in the drainage swale located parallel to the eastern edge of the landfill. A stream fed by the NPDES Outfall No. 009 flows eastward along the southern edge of the landfill. The two swales join near the southeastern corner of the landfill, and the combined flow is directed east to west to Paint Branch, along the toe of IRP Site 2, Apple Orchard Landfill.

2.2.3 Geology

As evidenced by observations made during temporary well placement, the Parking Lot Landfill consists mostly of fill comprised of sandy clay with a silty component and some gravel. Solid wastes, including wood, metal scraps, used equipment, tires, glass, and automotive batteries, are buried within the landfill.



DRAWN BY MJJ — DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	SAMPLE LOCATION MAP SITE 1 / SWMU 3 - PARKING LOT LANDFILL NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN — DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY — DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 2-1	REV 0

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2.2.4 Hydrogeology

Five temporary well points were installed along the eastern and southern edges of the Parking Lot Landfill (Figure 2-1).

The height of the static water levels measured within these five temporary well points lies between 14 feet and 17 feet bgs. Differences among the static water levels in the five temporary wells, along with the locations of streams along the southern and eastern edges of the site, suggest that groundwater flows through the landfill material in a southeastward direction (Figure 2-2). Groundwater elevation data for these temporary wells are provided in Table 2-1.

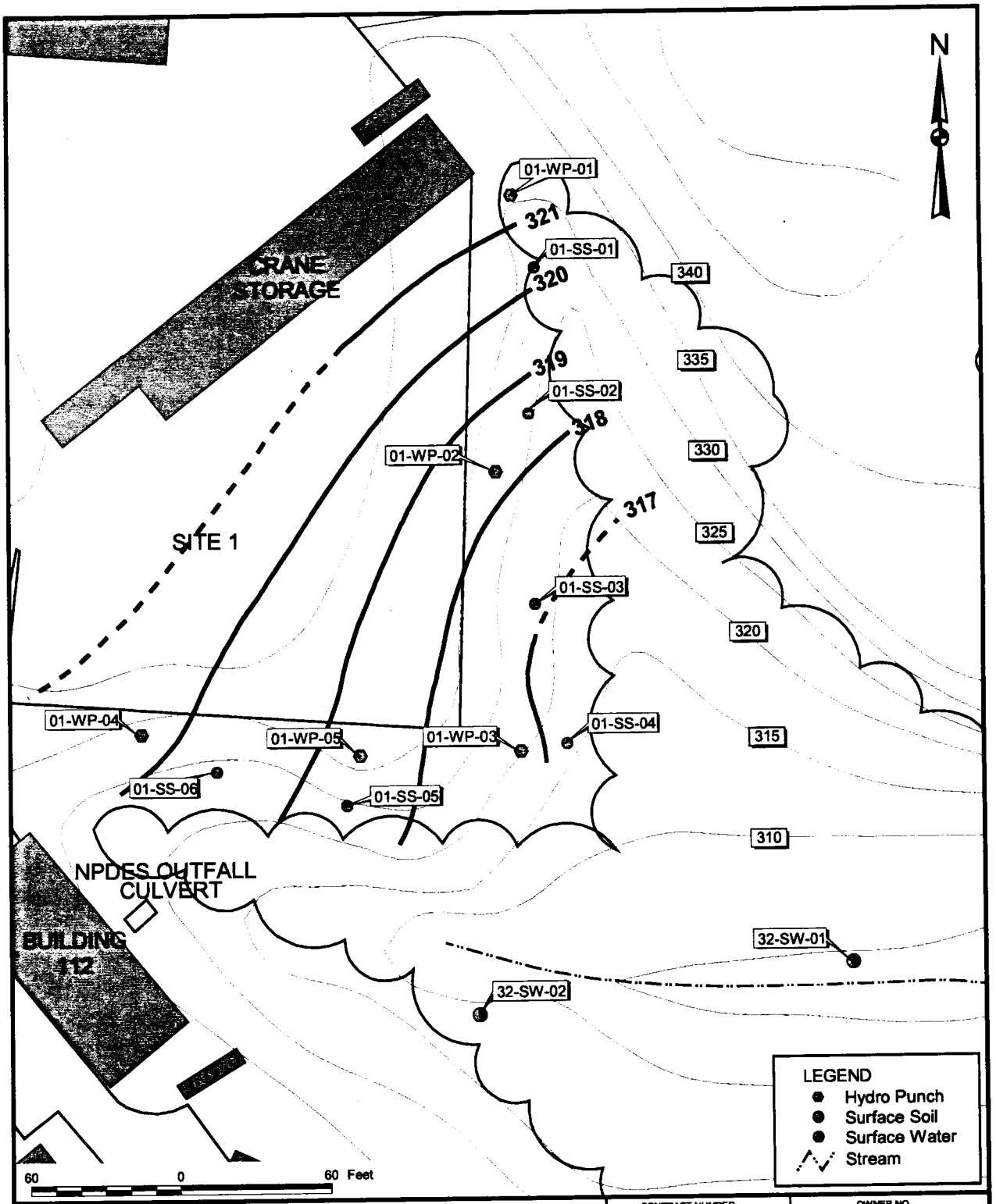
2.3 FIELD INVESTIGATION ACTIVITIES

The objectives of the investigation at Site 1 included delineating the limits of disposal and making a preliminary assessment of the presence or absence of contaminant migration from the landfill to the surrounding environment. A geophysical survey was also conducted at the site to assess the areal extent of the landfill. To assess the impact of the landfill wastes on site groundwater, five groundwater samples were collected. Temporary well points were used to collect the samples at the locations within or downgradient of the site.

2.3.1 Geophysical Investigations

A geophysical investigation was performed at the Parking Lot Landfill in July 1997. The objective of this investigation was to delineate the lateral limits of buried waste within the landfill. The variance in conductivity between waste materials and natural soils enables mapping the conductive anomalies within the landfill.

A reference grid with 10-foot node spacings was constructed over the site, and a terrain conductivity meter (Geonics EM31) was used to generate both terrain conductivity data and magnetic susceptibility data. Terrain conductivity data are used to determine subtle soil moisture content changes associated with disturbed or contaminated soils, fill materials, shallow metallic objects, and metallic pipes and utilities. Magnetic susceptibility data are used to further identify and confirm the presence of buried metallic objects, pipes, and utilities. A digital data logger was used to collect both data streams simultaneously.



DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER	OWNER NO.
S. TABLER	11/19/98		7427	—
CHECKED BY	DATE	GROUNDWATER CONTOURS SITE 1/SWMU3 - PARKING LOT LANDFILL FORMER NSWC WHITEOAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
—	—		APPROVED BY —	DATE —
COST/SCHEDULE-AREA			DRAWING NO. FIGURE 2-2	REV 0
SCALE AS NOTED				

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TABLE 2-1

WELL POINT CONSTRUCTION SUMMARY
FORMER NSWC WHITE OAK
SITE 1 PARKING LOT LANDFILL

Well ID	Ground Elevation (ft)	Approx. PVC Riser Elevation (ft)	Total Depth bgs (ft)	Screened Interval bgs (ft)	Static Water Level bgs (ft)	Groundwater Elevation (ft)
01-WP-01	335.51	337.51	24.0	13.0-23.0	15.60	321.91
01-WP-02	334.78	336.78	23.5	13.0-23.0	18.65	318.13
01-WP-03	333.14	335.14	23.5	13.0-23.0	17.98	317.16
01-WP-04	336.64	338.64	23.5	13.0-23.0	18.10	320.54
01-WP-05	335.53	337.53	23.5	13.0-23.0	18.70	318.83

Static water level - initial level observed prior to well development/sampling

bgs - below ground surface

Upon completion of the geophysical investigation, the following anomalies were observed:

A) A broad area of above-background conductivity stretched across the eastern third of the landfill (with the exception of the northeast corner) into the central third of the landfill. This suggests that contaminated soil or fill is present in this area.

B) Within the boundary of the area described above in Section 2.3.1.A, smaller "pockets" of below-background terrain conductivity and magnetic susceptibility are present. These anomalous areas may indicate the presence of metallic objects.

C) In the central third of the landfill, especially the southern half of this area, below background responses in the terrain conductivity data were detected. Magnetic susceptibility responses were at background levels in this area. The magnetic susceptibility data suggest that buried metals are not present at this location. This may represent the presence of clean sandy fill or other resistive materials such as concrete.

D) The western third of the landfill has below-background responses in terrain conductivity and magnetic susceptibility, especially in the bermed area in the southwestern corner of the site. The presence of the tap water spigot and a fire hydrant indicates the presence of an underground water pipe.

The geophysical investigation results are provided in Appendix C.

2.3.2 Surface Soil Sampling

Six surface soil samples were collected along the eastern and southern edges of the Parking Lot Landfill, in proximity to the five temporary well points (Figure 2-1). These samples were collected to identify any contaminant migration from the site and to measure contaminant concentrations along the site boundary. The surface soil samples were analyzed for TCL VOC, TCL SVOC, TCL pesticides/PCBs, TAL metals, and cyanide.

The initial round of surface soil samples were not analyzed for explosive compounds. A second set of surface soil samples was collected from the same sample locations as the first sample set. This second set of surface soil samples was analyzed for explosive compounds only, using EPA method SW846 - 8330. Sampling logs are provided in Appendix D for the samples collected at Site 1.

2.3.3 Temporary Well Point Construction

Five temporary well points were installed along the eastern and southern edges of the Parking Lot Landfill (Figure 2-1). These well points were installed beyond the assumed limits of landfill wastes in order to evaluate the impact of the landfill waste on groundwater downgradient of the site. These well points were installed to an average depth of 24 feet. Boring logs and well construction forms for the temporary well points are provided in Appendix E.

2.3.4 Groundwater Sampling

Groundwater samples collected from the five temporary wells at Site 1 were analyzed for TCL VOC, TCL SVOCs, TCL pesticides/PCBs, explosives, TAL metals, and cyanide. Low-concentration analysis was performed for VOCs, SVOCs, pesticides, and PCBs. Sampling logs are provided in Appendix D.

2.3.5 Quality Control Samples

A duplicate sample, matrix spike sample, and matrix spike duplicate sample were all collected in conjunction with the surface soil samples.

2.4 DATA AND RISK-SCREENING EVALUATION

Results for the surface soil and groundwater sampling performed at Site 1 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. A summary of positive detections is presented in Table 2-2 and Table 2-3 for surface soil and unfiltered groundwater, respectively.

2.4.1 Human Health Screening

2.4.1.1 Surface Soil

Seven surface soil samples were collected at Site 1 and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, inorganics, and EPA SW846-8330 explosives. Table 2-4 provides a comparison of the constituents identified in the surface soil with the human health risk-screening criteria. Figure 2-3 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 1.

All VOC results were "B" or "U" qualified and are therefore considered nondetected results.

TABLE 2-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-01-AVG	01-SS-100	01-SS-02	01-SS-03	01-SS-04
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:			01-SS-01			
SEMIVOLATILES (µg/kg)						
2-METHYLNAPHTHALENE	350 U	355 U	360 U	370 U	850	8000
ACENAPHTHENE	42 J	42 J	360 U	150 J	2700	24000
ANTHRACENE	82 J	73.5 J	65 J	270 J	7300	48000
BENZO(A)ANTHRACENE	340 J	290 J	240 J	1200	11000	96000
BENZO(A)PYRENE	350 U	355 U	360 U	370 U	9700	85000
BENZO(B)FLUORANTHENE	710	525 J	340 J	370 U	7200	66000
BENZO(G,H,I)PERYLENE	280 J	280 J	280 J	1700	5800 J	47000
BENZO(K)FLUORANTHENE	350 U	200 J	200 J	370 U	9500	47000
BIS(2-ETHYLHEXYL)PHTHALATE	85 J	85.5 J	86 J	93 J	340 J	7500 U
CARBAZOLE	64 J	54.5 J	45 J	190 J	3600 J	31000
CHRYSENE	420	360 J	300 J	1300	12000	96000
DIBENZO(A,H)ANTHRACENE	350 U	355 U	360 U	370 U	2300	19000
DIBENZOFURAN	350 U	355 U	360 U	50 J	1900	16000
FLUORANTHENE	850	720	590	2500	28000	230000
FLUORENE	41 J	41 J	360 U	130 J	3800 J	23000
INDENO(1,2,3-CD)PYRENE	240 J	215 J	190 J	840	5200 J	43000
NAPHTHALENE	350 U	355 U	360 U	370 U	2000	19000
PHENANTHRENE	420	335 J	250 J	1600	26000	20000
PYRENE	610	490	370	2100	20000	180000
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	37	32	27	74	60 J	14 J
4,4'-DDT	110 J	93	76	260	230 J	81 J
ALPHA-CHLORDANE	4.7	4.35	4	450	69 J	1.9 UJ
AROCLOR-1260	530	470	410	980	950 J	630 J
DIELDRIN	6.9 J	10.45 J	14 J	61 J	3.5 UJ	3.8 UJ

TABLE 2-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-01-AVG	01-SS-100	01-SS-02	01-SS-03	01-SS-04
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:			01-SS-01			
PESTICIDES/PCBs (µg/kg)						
GAMMA-CHLORDANE	2.3	1.9 J	1.5 J	450	42 J	1.9 UJ
HEPTACHLOR EPOXIDE	1.8 U	1.8 U	1.8 U	150	1.8 UJ	1.9 UJ
METALS (mg/kg)						
ALUMINUM	5330	5280	5230	6180	5600	5310
ANTIMONY	0.55 UL	0.545 U	0.54 UL	1.4 L	0.64 L	0.59 UL
ARSENIC	2.0	2.1	2.1	4.8	3	2
BARIUM	29.5	34.6	39.6	186	60.5	43.7
BERYLLIUM	0.02 U	0.02 U	0.02 U	0.02 U	0.08	0.02 U
CADMIUM	0.74	0.74	0.74	5.7	2.3	1.7
CALCIUM	2470	2395	2320	19000	8070	6910
CHROMIUM	29.3	25.8	22.3	46.3	40	26
COBALT	2.2	2.1	2.0	7.2	7.8	6.2
COPPER	20.5	22.7	24.9	187	40	45.6
IRON	7530	7500	7470	19600	12900	8330
LEAD	830	813.5	797	1170	135	196
MAGNESIUM	1420	1220	1020	7100	5200	4520
MANGANESE	102	98.1	94.1	345	326	206
MERCURY	0.08	0.085	0.09	0.43	1.7	1.1
NICKEL	16.7 K	14.7 K	12.7 K	70.6 K	47.8 K	59.7 K
POTASSIUM	323	329	335	553	560	393
SELENIUM	1.9 L	2.2 L	2.5 L	0.62 L	1.2 L	0.63 UR
SILVER	0.17 U	0.17 U	0.17 U	5	0.35	0.41
SODIUM	42.3 U	35.2	49.2	134	90.8	225
VANADIUM	19.7	19.4	19.1	37.5	30.7	39.3
ZINC	211	220.5	230	663	132	139

TABLE 2-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-01-AVG	01-SS-100	01-SS-02	01-SS-03	01-SS-04
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:			01-SS-01			
GENERAL CHEMISTRY ()						
PH	7.08	7.065	7.05	7.16	7.96	7.52

TABLE 2-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-05	01-SS-06				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/06/97	10/06/97	/ /	/ /	/ /	/ /
LOCATION:	01-SS-05	01-SS-06				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-METHYLNAPHTHALENE	370 U	400 J				
ACENAPHTHENE	160 J	3500 J				
ANTHRACENE	240 J	6700				
BENZO(A)ANTHRACENE	900	15000				
BENZO(A)PYRENE	730	13000				
BENZO(B)FLUORANTHENE	1100	14000				
BENZO(G,H,I)PERYLENE	550	6200				
BENZO(K)FLUORANTHENE	550	11000				
BIS(2-ETHYLHEXYL)PHTHALATE	93 J	940 J				
CARBAZOLE	180 J	4100				
CHRYSENE	870	16000				
DIBENZO(A,H)ANTHRACENE	220 J	3400 J				
DIBENZOFURAN	72 J	2000 J				
FLUORANTHENE	2200	37000				
FLUORENE	170 J	4600				
INDENO(1,2,3-CD)PYRENE	510	6500				
NAPHTHALENE	370 U	3700 U				
PHENANTHRENE	1300	28000				
PYRENE	1400	28000				
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.7 UJ	3.7 J				
4,4'-DDT	35 J	190 J				
ALPHA-CHLORDANE	1.8 UJ	76 J				
AROCLOR-1260	1400 J	1500 J				
DIELDRIN	99 J	3.7 UJ				

TABLE 2-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-05	01-SS-06				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/06/97	10/06/97	/ /	/ /	/ /	/ /
LOCATION:	01-SS-05	01-SS-06				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
GAMMA-CHLORDANE	1.8 UJ	26 J				
HEPTACHLOR EPOXIDE	1.8 UJ	1.9 UJ				
METALS (mg/kg)						
ALUMINUM	4470	18500				
ANTIMONY	0.56 UL	1 J				
ARSENIC	3.8	7.2				
BARIUM	54.3	68.3				
BERYLLIUM	0.12	1.8				
CADMIUM	2.6	5.3 K				
CALCIUM	3210	1910				
CHROMIUM	33.6	56.6 K				
COBALT	5.7	16.3				
COPPER	159	99.1				
IRON	16100	87000				
LEAD	122	301				
MAGNESIUM	7800	3530				
MANGANESE	170	535				
MERCURY	0.78	0.3				
NICKEL	78.2 K	53.1 K				
POTASSIUM	350	1770				
SELENIUM	0.61 UR	1.8 L				
SILVER	0.17 U	1				
SODIUM	43.4 U	129				
VANADIUM	25.4	87.2				
ZINC	137	356				

TABLE 2-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-05	01-SS-06				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/06/97	10/06/97	/ /	/ /	/ /	/ /
LOCATION:	01-SS-05	01-SS-06				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
GENERAL CHEMISTRY ()						
PH	7.28	7.01				

TABLE 2-3
SUMMARY OF POSITIVE DETECTS - UNFILTERED GROUNDWATER
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	01-WP-01 11/13/97 01-WP-01	01-WP-02 11/14/97 01-WP-02	01-WP-03 11/14/97 01-WP-03	01-WP-04 11/14/97 01-WP-04	01-WP-05 11/14/97 01-WP-05	/ /
VOLATILES (µg/L)						
1,1-DICHLOROETHANE	1 U	1 U	1 U	12	1 U	
1,2-DICHLOROETHANE	1 U	1 U	1 U	13	1 U	
CHLOROBENZENE	2	4	3	1 U	1 U	
CHLOROFORM	1 U	1 U	1 U	2	2	
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	8	1 U	
TRICHLOROETHENE	1 U	1 U	1 U	1	1 U	
SEMIVOLATILES (µg/L)						
BIS(2-ETHYLHEXYL)PHTHALATE	5 U	5 U	5 U	4 J	3 J	
PESTICIDES/PCBs (µg/L)						
4,4'-DDD	0.021 UJ	0.021 U	0.002 J	0.021 U	0.023 UJ	
ALDRIN	0.011 UJ	0.011 U	0.006 J	0.011 U	0.011 UJ	
HEPTACHLOR EPOXIDE	0.002 R	0.003 J	0.002 R	0.002 R	0.011 UJ	
METALS (µg/L)						
ALUMINUM	24000	6960	117 B	126 B	568	
BARIUM	147	207	235	281	259	
CALCIUM	19700	56200	31600	9440 K	14800	
CHROMIUM	73.7	10.4	0.76 B	2.1 B	2.5 B	
COBALT	53.2	20.1	26.3	16.8	3.1 B	
COPPER	66.8	22.7	4.9 B	9.9	3.6 B	
IRON	37000	12300	3600	162 B	593	
MAGNESIUM	7950 K	8330 K	8210 K	7310 K	9520 K	
MANGANESE	2400	3210	6300	1170	844	
NICKEL	158	15	15.6	15.2	17.2	
POTASSIUM	7460 L	7930 L	5150 L	5850 L	3400 L	
SODIUM	43400	104000	57400	45200	34000	
VANADIUM	18.6	8.1 B	1 U	1 U	1 U	
ZINC	94	39.8	18	23.8	31.5	

TABLE 2-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 1 - PARKING LOT LANDFILL
FORMER NSWC WHITE OAK

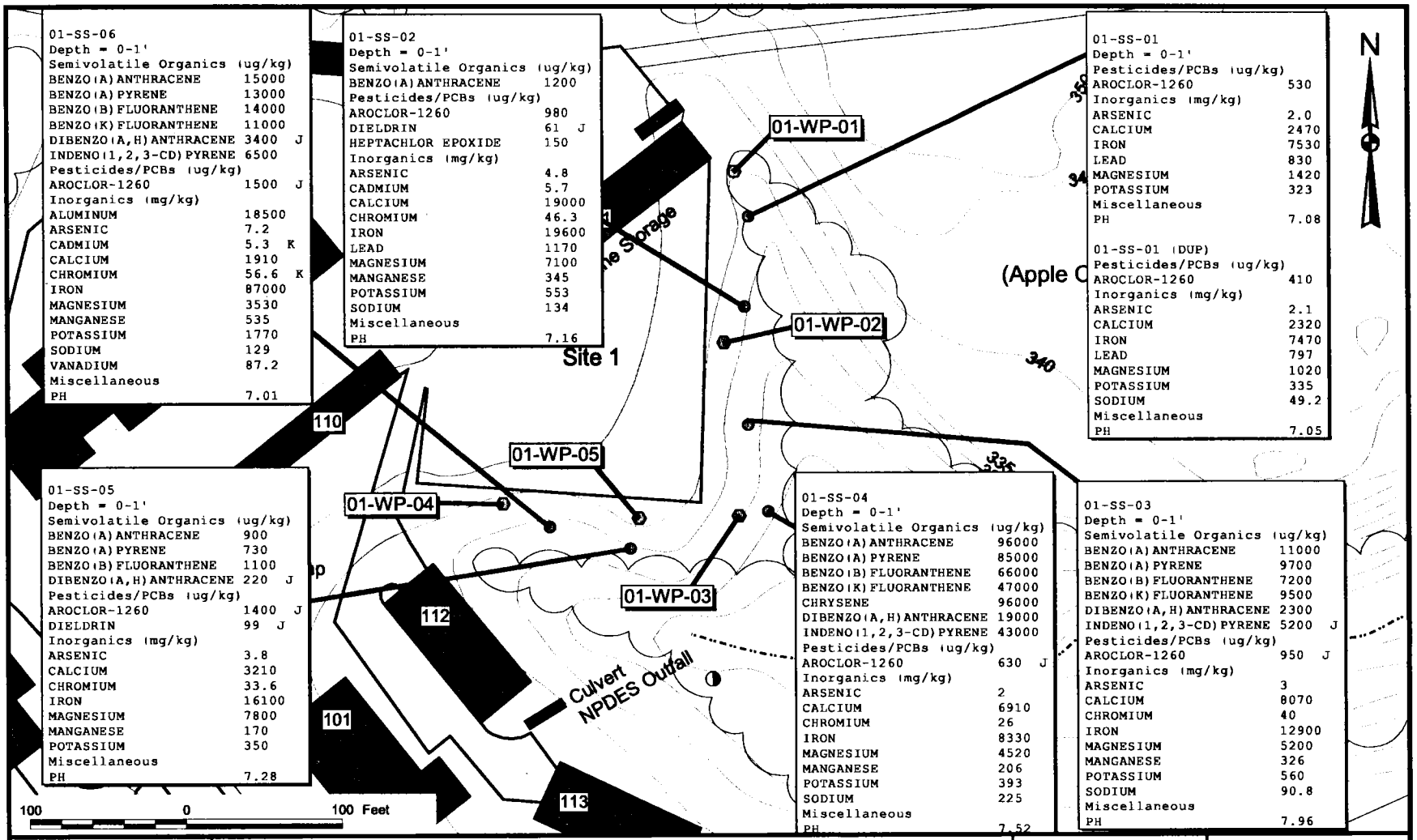
Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
2-METHYLNAPHTHALENE	3/6	0.4 J	8	01-SS-04	3.1	0.35 - 0.37	310	NA
ACENAPHTHENE	6/6	0.042 J	24	01-SS-04	5.092	0.36	470	0.0665
ANTHRACENE	6/6	0.065 J	48	01-SS-04	10.431	NA	2300	0.108
BENZO(A)ANTHRACENE	6/6	0.24 J	96	01-SS-04	20.7	NA	0.87	0.34
BENZO(A)PYRENE	4/6	0.73	85	01-SS-04	27.1	0.35 - 0.37	0.087	0.265
BENZO(B)FLUORANTHENE	5/6	0.34 J	66	01-SS-04	17.8	0.37	0.87	0.275
BENZO(G,H,I)PERYLENE	6/6	0.28 J	47	01-SS-04	10.3	NA	310	0.22
BENZO(K)FLUORANTHENE	5/6	0.2 J	47	01-SS-04	13.7	0.35 - 0.37	8.7	0.335
BIS(2-ETHYLHEXYL)PHTHALATE	5/6	0.085 J	0.94 J	01-SS-06	0.310	7.5	46	NA
CARBAZOLE	6/6	0.045 J	31	01-SS-04	6.52	NA	32	NA
CHRYSENE	6/6	0.3 J	96	01-SS-04	21.1	NA	87	0.4
DIBENZO(A,H)ANTHRACENE	4/6	0.22 J	19	01-SS-04	6.23	0.35 - 0.37	0.087	0.095
DIBENZOFURAN	5/6	0.05 J	16	01-SS-04	4.0	0.35 - 0.36	31	NA
FLUORANTHENE	6/6	0.59	230	01-SS-04	50.1	NA	310	0.8
FLUORENE	6/6	0.041 J	23	01-SS-04	5.29	0.36	310	0.067
INDENO(1,2,3-CD)PYRENE	6/6	0.19 J	43	01-SS-04	9.38	NA	0.87	0.2
NAPHTHALENE	2/6	2	19	01-SS-04	10.5	0.35 - 3.7	310	NA
PHENANTHRENE	6/6	0.25 J	28	01-SS-06	12.87	NA	310	0.57
PYRENE	6/6	0.37	180	01-SS-04	38.67	NA	230	0.63
Pesticide/PCBs (mg/kg)								
4,4'-DDE	5/6	0.0037 J	0.074	01-SS-02	0.037	0.0037	1.9	0.081
4,4'-DDT	6/6	0.035 J	0.26	01-SS-02	0.148	NA	1.9	0.049
ALPHA-CHLORDANE	4/6	0.004	0.45	01-SS-02	0.150	0.0018 - 0.0019	1.8	0.0026
AROCLOR-1260	6/6	0.41	1.5 J	01-SS-06	0.99	NA	0.32	NA
DIELDRIN	3/6	0.0069 J	0.099 J	01-SS-05	0.057	0.0035 - 0.0038	0.04	0.0088
GAMMA-CHLORDANE	4/6	0.0015 J	0.45	01-SS-02	0.13	0.0018 - 0.0019	1.8	0.0015
HEPTACHLOR EPOXIDE	1/6	0.15	0.15	01-SS-02	0.15	0.0018 - 0.0019	0.07	0.0024

TABLE 2-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 1 - PARKING LOT LANDFILL
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	6/6	4470	18500	01-SS-06	7557	NA	7800	14953
ANTIMONY	3/6	0.64 L	1.4 L	01-SS-02	1.01	0.54 - 0.59	3.1	NA
ARSENIC	6/6	2	7.2	01-SS-06	3.81	NA	0.43	5.11
BARIUM	6/6	29.5	186	01-SS-02	74.6	NA	550	59.5
BERYLLIUM	3/6	0.08	1.8	01-SS-06	0.67	0.02	16	0.19
CADMIUM	6/6	0.74	5.7	01-SS-02	3.06	NA	3.9	NA
CALCIUM	6/6	1910	19000	01-SS-02	6916	NA	NA	1040
CHROMIUM	6/6	22.3	56.6 K	01-SS-06	38.1	NA	23	29.35
COBALT	6/6	2	16.3	01-SS-06	7.6	NA	470	11.81
COPPER	6/6	20.5	187	01-SS-02	92.2	NA	310	11.52
IRON	6/6	7470	87000	01-SS-06	25238	NA	2300	18946
LEAD	6/6	122	1170	01-SS-02	456	NA	400	60.2
MAGNESIUM	6/6	1020	7800	01-SS-05	4895	NA	NA	1183
MANGANESE	6/6	94.1	535	01-SS-06	280	NA	160	490
MERCURY	6/6	0.08	1.7	01-SS-03	0.73	NA	2.3	0.142
NICKEL	6/6	12.7 K	78.2 K	01-SS-05	54.0	NA	160	14.56
POTASSIUM	6/6	323	1770	01-SS-06	659	NA	NA	845
SELENIUM	4/4	0.62 L	2.5 L	01-SS-01-D	1.46	NA	39	0.68
SILVER	4/6	0.35	5	01-SS-02	1.69	0.17	39	1.15
SODIUM	5/6	49.2	225	01-SS-04	123	42.3 - 43.4	NA	NA
VANADIUM	6/6	19.1	87.2	01-SS-06	39.9	NA	55	30.08
ZINC	6/6	132	663	01-SS-02	275	NA	2300	30.67
Miscellaneous								
pH (SU)	6/6	7.01	7.96	01-SS-03	7.33	NA	NA	NA

NA - Not Available



DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER	OWNER NUMBER
MJJ	12OCT98		7427	0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SURFACE SOIL SITE 1 / SWMU 3 - PARKING LOT LANDFILL NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-3	REV 0

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Maximum concentrations detected for the following polycyclic aromatic hydrocarbons (PAHs) exceed the screening values used for human health in five of the six samples collected: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, and chrysene. The PAHs may be related to the parking and storage of vehicles at the site during previous operations at NSWC-White Oak. PAHs were also detected in background surface soil samples collected across the former NSWC-White Oak property. However the concentrations detected in the background samples were well below the concentrations detected in the surface soil samples.

Aroclor 1260, dieldrin, and heptachlor epoxide were detected at maximum concentrations exceeding respective soil screening levels. Aroclor 1260 was detected in all the surface soil samples. PCBs, specifically Arcolor 1260, are a contaminant of interest at the adjacent Site 2 and have been detected in sediments and soils on and adjacent to the Apple Orchard Landfill.

Numerous inorganics, including aluminum, arsenic, cadmium, calcium, chromium, iron, lead, magnesium, manganese, potassium, sodium, and vanadium, were detected at maximum concentrations exceeding the soil screening levels. Calcium, magnesium, potassium, and sodium are essential human nutrients and are not present at concentrations that would be a threat to human health. Arsenic was detected at concentrations within the background range for surface soil at NSWC-White Oak.

Explosives were not detected in surface soil samples collected at Site 1.

2.4.1.2 Groundwater

Five groundwater samples were collected at Site 1 and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, inorganics, and EPA SW846-8330 explosives. Table 2-5 provides a comparison of the constituents identified in groundwater with the human health risk-screening criteria. Figure 2-4 provides a graphical depiction of those constituents identified in excess of the screening criteria for groundwater at Site 1.

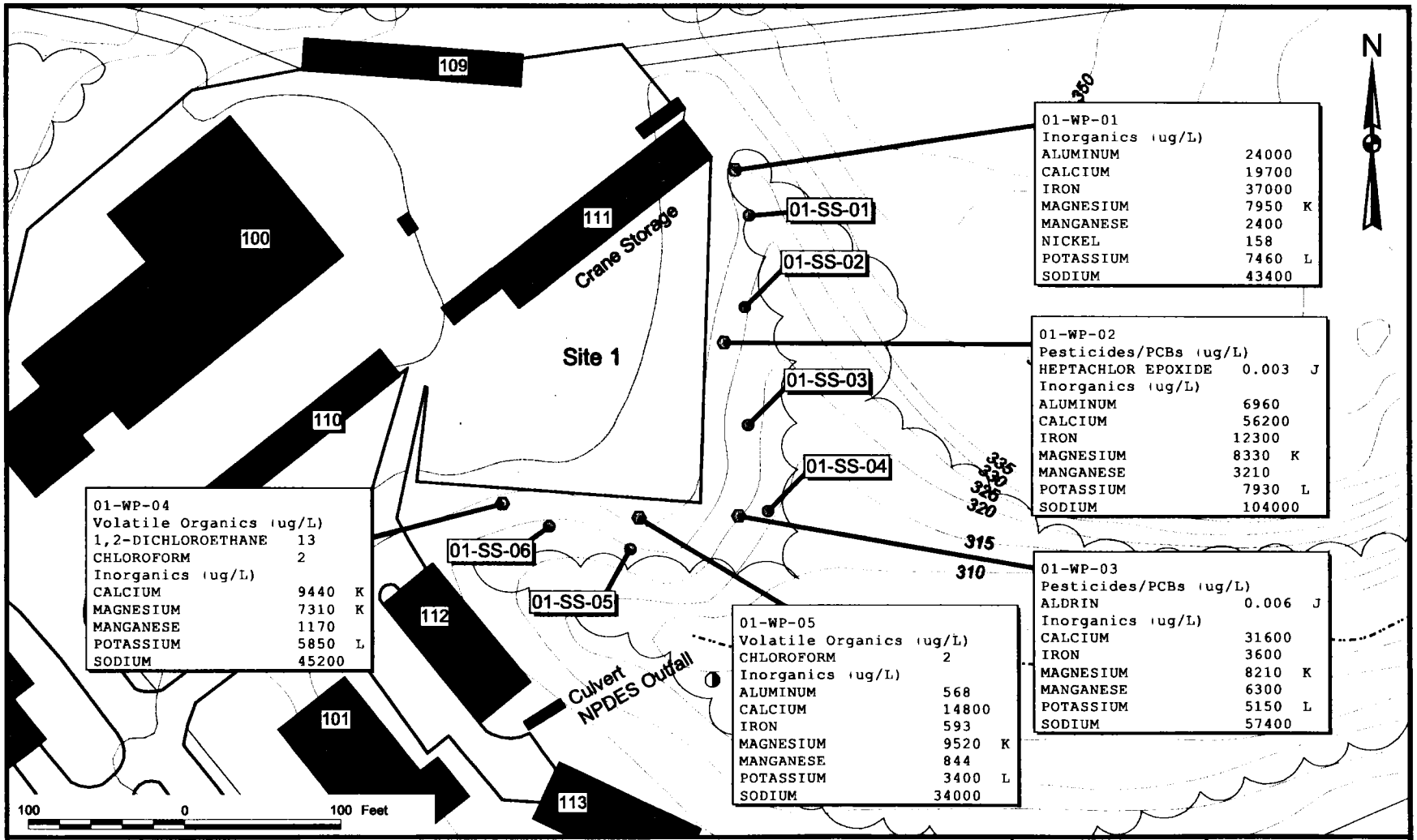
The maximum concentration detected for 1,2-dichloroethane and chloroform exceeded the groundwater screening levels for unfiltered groundwater. All SVOC results were "B" qualified and are therefore considered nondetected results. Aldrin and heptachlor epoxide were detected at a maximum concentration exceeding the screening criteria.

TABLE 2-5

RISK-BASED SCREENING COMPARISON
UNFILTERED GROUNDWATER
SITE 1 - PARKING LOT LANDFILL
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum		Maximum		Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Volatile Organics (ug/L)										
1,2-DICHLOROETHANE	1/5	13		13		01-WP-04	13	1	0.12	NA
CHLOROBENZENE	3/5	2		4		01-WP-02	3	1	35	NA
CHLOROFORM	2/5	2		2		01-WP-04/05	2	1	0.15	NA
TRICHLOROETHENE	1/5	1		1		01-WP-04	1	1	1.6	NA
CIS-1,2-DICHLOROETHENE	1/5	8		8		01-WP-04	8	1	61	NA
Semivolatile Organics (ug/L)										
BIS(2-ETHYLHEXYL)PHTHALATE	2/5	3	J	4	J	01-WP-04	3.5	5	4.8	NA
Pesticides/PCBs (ug/L)										
4,4'-DDD	1/5	0.002	J	0.002	J	01-WP-03	0.002	0.021 - 0.023	0.28	NA
ALDRIN	1/5	0.006	J	0.006	J	01-WP-03	0.006	0.011	0.0039	NA
HEPTACHLOR EPOXIDE	1/2	0.003	J	0.003	J	01-WP-02	0.003	0.011	0.0012	0.015
Inorganics (ug/L)										
ALUMINUM	3/5	568		24000		01-WP-01	10,509	117 - 126	50	4870
BARIUM	5/5	147		281		01-WP-04	226	NA	2,000	75.94
CALCIUM	5/5	9440	K	56200		01-WP-02	26,348	NA	NA	6908
CHROMIUM	2/5	10.4		73.7		01-WP-01	42.05	0.76 - 2.5	100	184
COBALT	4/5	16.8		53.2		01-WP-01	29	3.1	220	24.23
COPPER	3/5	9.9		66.8		01-WP-01	33.1	3.6 - 4.9	1500	11.76
IRON	4/5	593		37000		01-WP-01	13,373	162	300	13700
MAGNESIUM	5/5	7310	K	9520	K	01-WP-05	8,264	NA	NA	11600
MANGANESE	5/5	844		6300		01-WP-03	2,785	NA	50	840
NICKEL	5/5	15		158		01-WP-01	44.2	NA	100	82.43
POTASSIUM	5/5	3400	L	7930	L	01-WP-02	5,958	NA	NA	9850
SODIUM	5/5	34000		104000		01-WP-02	56,800	NA	NA	36500
VANADIUM	1/5	18.6		18.6		01-WP-01	18.6	1 - 8.1	26	10.7
ZINC	5/5	18		94		01-WP-01	41	NA	1,100	211

NA - Not Available



DRAWN BY MJJ — DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	HUMAN HEALTH RISK EXCEEDANCE IN GROUNDWATER SITE 1 / SWMU 3 - PARKING LOT LANDFILL NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN — DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY — DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 2-4	REV 0

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The nature of the VOC contamination identified in groundwater at Site 1 may be related to waste management operations within Area 100 of NSWC-White Oak. The detection of VOCs was limited to the southwestern corner of the site (01-WP-04 and 01-WP-05), downgradient from contaminant areas within Site 11 (Area 100) of NSWC White Oak. The only VOCs detected were chloroform and 1,2-dichloroethane. Chloroform was detected at a maximum concentration of 2 ug/l, slightly in excess of the screening level.

Inorganics including aluminum, calcium, chromium, iron, magnesium, manganese, nickel, potassium and sodium were detected above the screening criteria. The inorganic contamination detected in the site groundwater is suspected to be associated with the particulates within the unfiltered groundwater samples. The inorganics detected in temporary groundwater monitoring wells have historically been detected in unfiltered groundwater samples on the property. In addition, calcium, iron, magnesium, potassium, and sodium are essential human nutrients and are not believed to be present at concentrations that would be a threat to human health and/or the environment.

Explosives were not detected in groundwater samples collected at Site 1.

2.4.2 Ecological Risk-Based Screening

Site 1, the Parking Lot Landfill, is located immediately east of Site 2, Apple Orchard Landfill (Figure 2-5). Site 2 is part of the seven-site RFI. Extensive sampling and an ERA are planned for Site 2 as part of the RFI. Most of Site 1 is a paved parking lot. The eastern and southern portions of the site slope down from the edge of the pavement to a small valley and constitute the landfill toe. The landfill toe and the valley area are heavily vegetated, primarily with mature hardwood trees. A small, intermittent stream located between Sites 1 and 2 empties into an intermittent stream south of Site 2 (which flows from west to east). The origin of the stream south of Site 2 is a stormwater culvert next to Building 112. The culvert is an NPDES outfall (see below).

Groundwater discharge to surface water in the streams near the site is possible but is likely to be minimal due to prevention of infiltration by the pavement. Surface runoff could carry chemicals in landfill toe surface soils to the nearby streams. Ecological receptors could be directly exposed to chemicals in landfill toe soils and indirectly via the foodchain. Hence, surface soil is the main medium of concern ecologically. Table 2-6 presents a comparison of existing data for surface soil chemicals from the landfill toe to ecological screening levels compiled for NWSC White Oak. Several PAHs, pesticides, Aroclor 1260, and inorganics are present at maximum concentrations that exceed screening levels. Hazard quotients (HQs)

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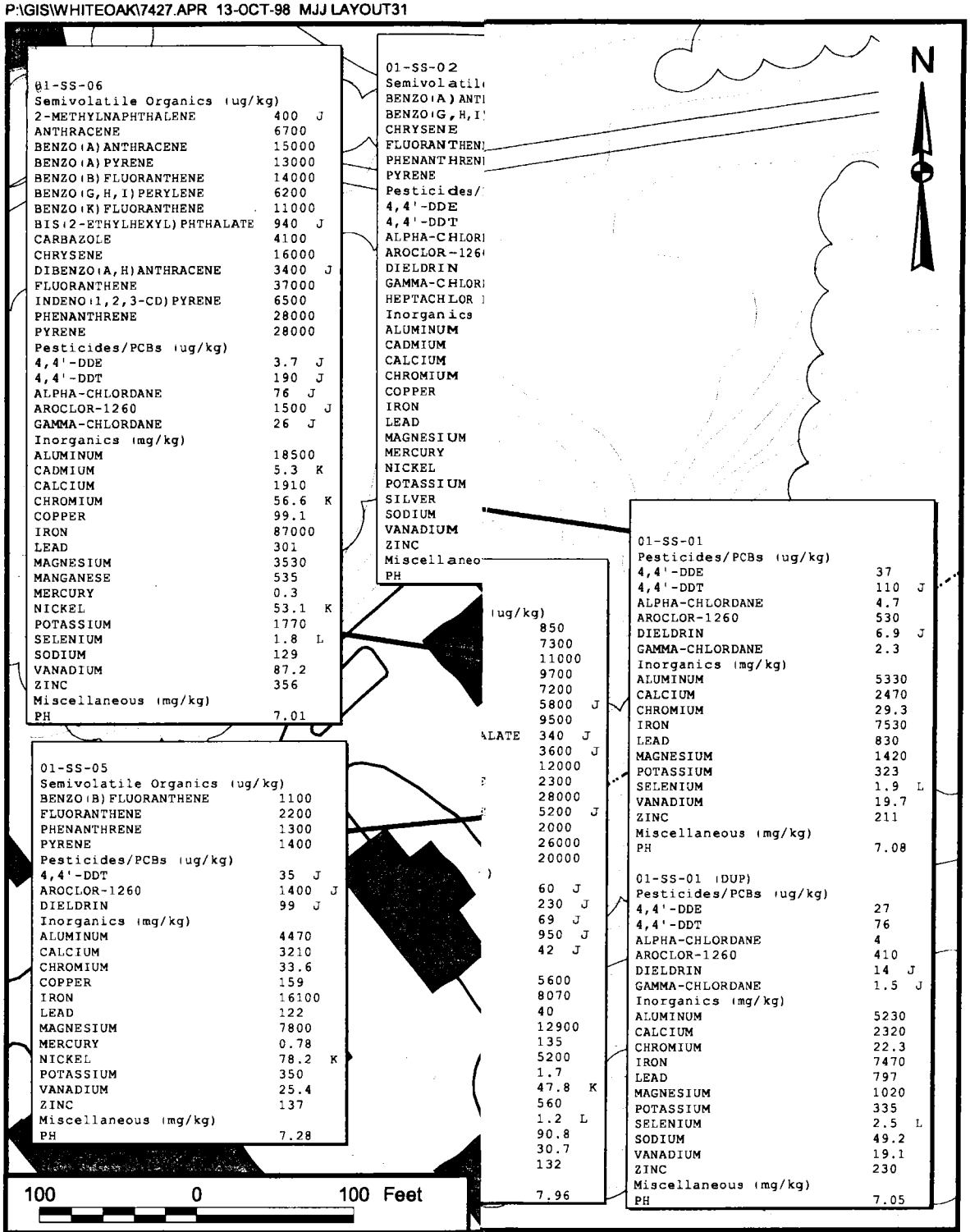

01-SS-06

Semivolatile Organics (ug/kg)		
2-METHYLNAPHTHALENE	400	J
ANTHRACENE	6700	
BENZO(A)ANTHRACENE	15000	
BENZO(A)PYRENE	13000	
BENZO(B)FLUORANTHENE	14000	
BENZO(G,H,I)PERYLENE	6200	
BENZO(K)FLUORANTHENE	11000	
BIS(2-ETHYLHEXYL)PHTHALATE	940	J
CARBAZOLE	4100	
CHRYSENE	16000	
DIBENZO(A,H)ANTHRACENE	3400	J
FLUORANTHENE	37000	
INDENO(1,2,3-CD)PYRENE	6500	
PHENANTHRENE	28000	
PYRENE	28000	
Pesticides/PCBs (ug/kg)		
4,4'-DDE	3.7	J
4,4'-DDT	190	J
ALPHA-CHLORDANE	76	J
AROCLOR-1260	1500	J
GAMMA-CHLORDANE	26	J
Inorganics (mg/kg)		
ALUMINUM	18500	
CADMIUM	5.3	K
CALCIUM	1910	
CHROMIUM	56.6	K
COPPER	99.1	
IRON	87000	
LEAD	301	
MAGNESIUM	3530	
MANGANESE	535	
MERCURY	0.3	
NICKEL	53.1	K
POTASSIUM	1770	
SELENIUM	1.8	L
SODIUM	129	
VANADIUM	87.2	
ZINC	356	
Miscellaneous (mg/kg)		
PH	7.01	

01-SS-05

Semivolatile Organics (ug/kg)		
BENZO(B)FLUORANTHENE	1100	
FLUORANTHENE	2200	
PHENANTHRENE	1300	
PYRENE	1400	
Pesticides/PCBs (ug/kg)		
4,4'-DDT	35	J
AROCLOR-1260	1400	J
DIELDRIN	99	J
Inorganics (mg/kg)		
ALUMINUM	4470	
CALCIUM	3210	
CHROMIUM	33.6	
COPPER	159	
IRON	16100	
LEAD	122	
MAGNESIUM	7800	
MERCURY	0.78	
NICKEL	78.2	K
POTASSIUM	350	
VANADIUM	25.4	
ZINC	137	
Miscellaneous (mg/kg)		
PH	7.28	

01-SS-02

Semivolatil		
BENZO(A)ANT		
BENZO(G,H,I		
CHRYSENE		
FLUORANTHEN		
PHENANTHREN		
PYRENE		
Pesticides/		
4,4'-DDE		
4,4'-DDT		
ALPHA-CHLOR		
AROCLOR-126		
DIELDRIN		
GAMMA-CHLOR		
HEPTACHLOR		
Inorganics		
ALUMINUM		
CADMIUM		
CALCIUM		
CHROMIUM		
COPPER		
IRON		
LEAD		
MAGNESIUM		
MERCURY		
NICKEL		
POTASSIUM		
SILVER		
SODIUM		
VANADIUM		
ZINC		
Miscellaneo		
PH		

(ug/kg)		
	850	
	7300	
	11000	
	9700	
	7200	
	5800	J
	9500	
ALATE	340	J
	3600	J
	12000	
	2300	
	28000	
	5200	J
	2000	
	26000	
	20000	
	60	J
	230	J
	69	J
	950	J
	42	J
	5600	
	8070	
	40	
	12900	
	135	
	5200	
	1.7	
	47.8	K
	560	
	1.2	L
	90.8	
	30.7	
	132	
	7.96	

01-SS-01

Pesticides/PCBs (ug/kg)		
4,4'-DDE	37	
4,4'-DDT	110	J
ALPHA-CHLORDANE	4.7	
AROCLOR-1260	530	
DIELDRIN	6.9	J
GAMMA-CHLORDANE	2.3	
Inorganics (mg/kg)		
ALUMINUM	5330	
CALCIUM	2470	
CHROMIUM	29.3	
IRON	7530	
LEAD	830	
MAGNESIUM	1420	
POTASSIUM	323	
SELENIUM	1.9	L
VANADIUM	19.7	
ZINC	211	
Miscellaneous (mg/kg)		
PH	7.08	

01-SS-01 (DUP)

Pesticides/PCBs (ug/kg)		
4,4'-DDE	27	
4,4'-DDT	76	
ALPHA-CHLORDANE	4	
AROCLOR-1260	410	
DIELDRIN	14	J
GAMMA-CHLORDANE	1.5	J
Inorganics (mg/kg)		
ALUMINUM	5230	
CALCIUM	2320	
CHROMIUM	22.3	
IRON	7470	
LEAD	797	
MAGNESIUM	1020	
POTASSIUM	335	
SELENIUM	2.5	L
SODIUM	49.2	
VANADIUM	19.1	
ZINC	230	
Miscellaneous (mg/kg)		
PH	7.05	

NO.	DATE	REVISIONS

CONTRACT NUMBER 7427	OWNER NUMBER 0101
APPROVED BY SN	DATE 12/1
APPROVED BY	DATE
DRAWING NO. FIGURE 2-5	REV 0

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CTO 0273

TABLE 2-6

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 1 - PARKING LOT LANDFILL
NSWC WHITE OAK, MARYLAND

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Semivolatile Organics (mg/kg)						
2-METHYLNAPHTHALENE	3/6	0.4	8	01-SS-04	NA	--
ACENAPHTHENE	6/6	0.042	24	01-SS-04	20	1.20
ANTHRACENE	6/6	0.065	48	01-SS-04	1	48.00
BENZO(A)ANTHRACENE	6/6	0.24	96	01-SS-04	1	96.00
BENZO(A)PYRENE	4/6	0.73	85	01-SS-04	1	85.00
BENZO(B)FLUORANTHENE	5/6	0.34	66	01-SS-04	1	66.00
BENZO(G,H,I)PERYLENE	6/6	0.28	47	01-SS-04	1	47.00
BENZO(K)FLUORANTHENE	5/6	0.2	47	01-SS-04	1	47.00
BIS(2-ETHYLHEXYL)PHTHALATE	5/6	0.085	0.94	01-SS-06	0.1	9.40
CARBAZOLE	6/6	0.045	31	01-SS-04	1	31.00
CHRYSENE	6/6	0.3	96	01-SS-04	1	96.00
DIBENZO(A,H)ANTHRACENE	4/6	0.22	19	01-SS-04	1	19.00
DIBENZOFURAN	5/6	0.05	16	01-SS-04	600	0.03
FLUORANTHENE	6/6	0.59	230	01-SS-04	1	230.00
FLUORENE	6/6	0.041	23	01-SS-04	30	0.77
INDENO(1,2,3-CD)PYRENE	6/6	0.19	43	01-SS-04	1	43.00
NAPHTHALENE	2/6	2	19	01-SS-04	1	19.00
PHENANTHRENE	6/6	0.25	28	01-SS-06	1	28.00
PYRENE	6/6	0.37	180	01-SS-04	1	180.00
Pesticide/PCBs (mg/kg)						
4,4'-DDE	5/6	0.0037	0.074	01-SS-02	0.0025	29.60
4,4'-DDT	6/6	0.035	0.26	01-SS-02	0.0025	104.00
ALPHA-CHLORDANE	4/6	0.004	0.45	01-SS-02	NA	--
AROCLOR-1260	6/6	0.41	1.5	01-SS-06	0.02	75.00
DIELDRIN	3/6	0.0069	0.099	01-SS-05	0.0005	198.00
GAMMA-CHLORDANE	4/6	0.0015	0.45	01-SS-02	NA	--
HEPTACHLOR EPOXIDE	1/6	0.15	0.15	01-SS-02	NA	--

TABLE 2-6

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 1 - PARKING LOT LANDFILL
NSWC WHITE OAK, MARYLAND

PAGE 2 OF 2

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Inorganics (mg/kg)						
ALUMINUM	6/6	4470	18500	01-SS-06	50	370.00
ANTIMONY	3/6	0.64	1.4	01-SS-02	5	0.28
ARSENIC	6/6	2	7.2	01-SS-06	10	0.72
BARIUM	6/6	29.5	186	01-SS-02	500	0.37
BERYLLIUM	3/6	0.08	1.8	01-SS-06	10	0.18
CADMIUM	6/6	0.74	5.7	01-SS-02	4	1.43
CHROMIUM	6/6	22.3	56.6	01-SS-06	1	56.60
COBALT	6/6	2	16.3	01-SS-06	20	0.82
COPPER	6/6	20.5	187	01-SS-02	50	3.74
IRON	6/6	7470	87000	01-SS-06	200	435.00
LEAD	6/6	122	1170	01-SS-02	50	23.40
MANGANESE	6/6	94.1	535	01-SS-06	500	1.07
MERCURY	6/6	0.08	1.7	01-SS-03	0.1	17.00
NICKEL	6/6	12.7	78.2	01-SS-05	30	2.61
SELENIUM	4/4	0.62	2.5	01-SS-01-D	1	2.50
SILVER	4/6	0.35	5	01-SS-02	2	2.50
VANADIUM	6/6	19.1	87.2	01-SS-06	2	43.60
ZINC	6/6	132	663	01-SS-02	50	13.26

NA = Not Available

for a multitude of chemicals range into the hundreds. Figure 2-5 identifies those constituents detected at concentrations in excess of the ecological screening criteria.

The data indicate that concentrations of chemicals in Site 1 surface soils could pose significant risks to ecological receptors. Site 1 could be incorporated into the Site 2 RFI investigation, given its proximity to Site 2. However, an EE/CA is planned to evaluate the potential for excavation and off-site disposal of landfill materials. Given the high concentrations of several chemicals in Site 1 surface soils and potential imminent risks, a removal action may be preferable to the formal ERA process. A removal action of subsurface soils from the landfill toe may also reduce the chance of infiltration of chemicals to groundwater.

2.5 CONCLUSIONS AND RECOMMENDATIONS

2.5.1 Conclusions

Based on the results of the risk screening evaluation, SVOCs, inorganics and PCBs are the primary contaminants of concern for Site 1. Both surface soil and groundwater appear to have been impacted by waste management activities.

2.5.2 Recommendations

Based on the conclusions of the contamination assessment and the screening evaluation, completion of an EE/CA that addresses a removal action is recommended for Site 1. A removal action may be appropriate because contaminant distribution is localized and confined to the surficial media. The extent of the removal action can be easily determined through additional site characterization. The following areas should be addressed during the removal action.

- Address the extent of surficial soil contamination beyond the physical limit of waste disposal. Appropriate clean-up criteria should be established to be protective of human health and ecologic receptors.

- Delineate the extent of waste disposal to facilitate the evaluation of waste removal or landfill capping alternatives.

3.0 SITE 5/SWMU 32 - OPEN BURN AREAS

3.1 BACKGROUND

Site 5 (Open Burn Area) was identified in the IAS (IRP Site 5) and the RFA (SWMU 32), but has not been included in any previous field investigations. This site consists of three adjacent open burn areas formed from bermed, compacted soil (Figure 3-1). The first bermed area was used from the late 1940s until 1970 as a burn site for paper, cardboard, wood, and other bulky ignitable materials, as well as small quantities of hazardous wastes. In 1969-70, materials were ignited in Berm Area 1 using pyrotechnic devices. It has also been reported that this site may have been used as a fire training area and that explosives may have been tested here as well. Bermed Area 2, located east of Berm Area 1, was reportedly used for research operations. Berm Area 3 is located north of the other two bermed areas.

3.2 ENVIRONMENTAL SETTING

3.2.1 Topography

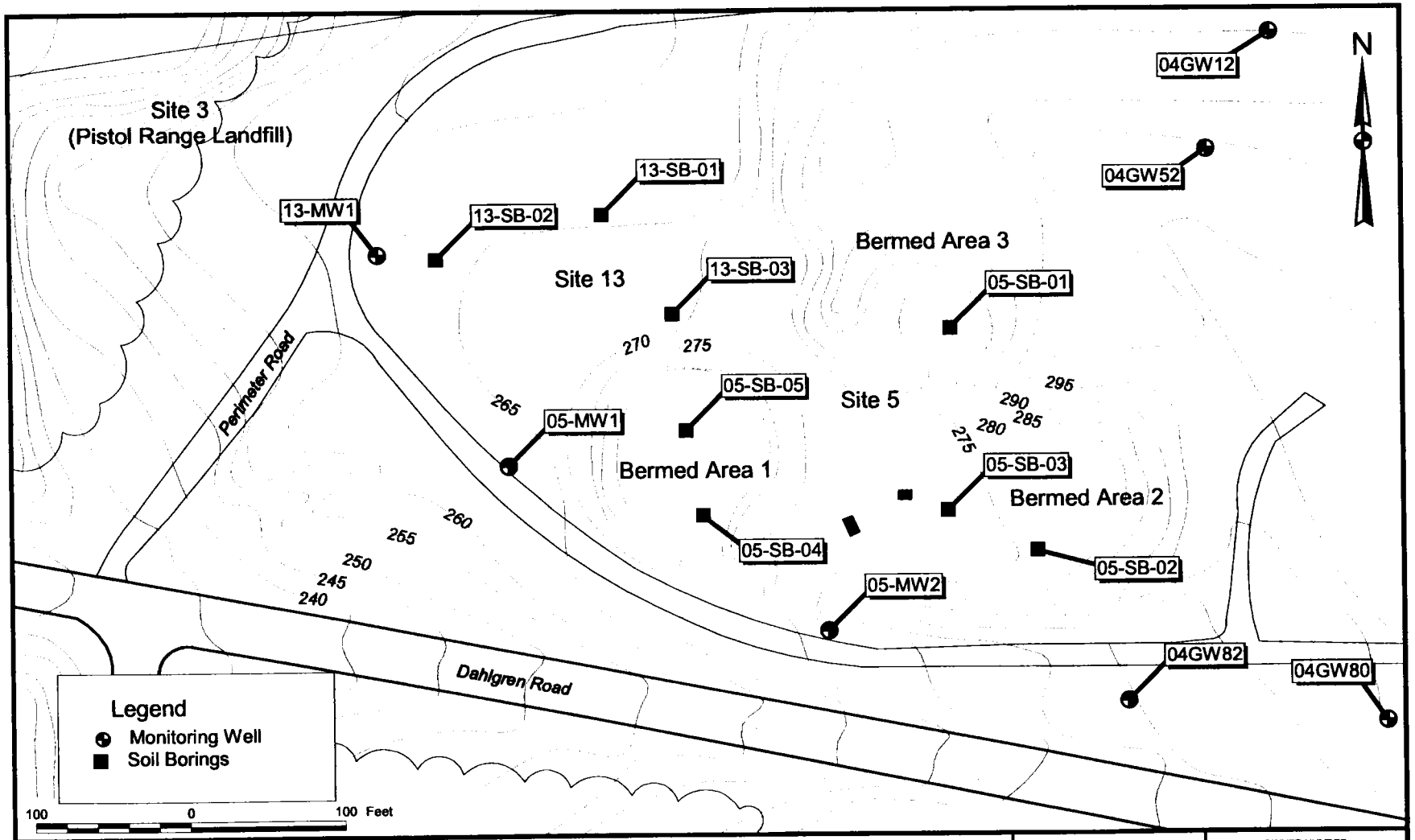
As illustrated in Figure 3-1, Site 5 generally slopes to the south. The maximum difference in elevation on the site is approximately 30 feet. The man-made bermed areas comprise the most distinct topographical features of the site.

3.2.2 Surface Water

There are no surface water bodies at Site 5. All of NSWC-White Oak is drained by Paint Branch and its tributaries. The nearest surface water body to Site 5 is a small, southward flowing tributary (Westfarm Branch) of Paint Branch located approximately 420 feet west of Berm Area 1. The stream flows southward and empties into Paint Branch. During a rain event, surface water infiltrates into the surface soil or runs off site and drains into the stream.

3.2.3 Geology

Logs from soil borings and monitoring wells (Appendix E) installed at the site indicate that shallow geologic conditions consist of a surficial veneer of Coastal Plain deposits of the Potomac Group, that contain varying mixtures of gravel, cobbles, silt, and clay to a depth of approximately 20 to 25 feet. The



DRAWN BY MJJ	DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	SAMPLE LOCATION MAP SITE 5 / SWMU 32 - OPEN BURN AREAS NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SJ / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-1 / REV 0

P:\GIS\WHITEOAK\7427.APR 28-SEPT-98 MJJ LAYOUT2

upland Coastal Plain deposits on this site overlie a saprolitic and weathered bedrock layer of varying thickness. The major soils on this site are those of the Chillum-Croom-Beltsville Association. These soils are very deep and moderately to well drained.

In Bermed Area 1, subsurface soil logs from 05-SB-05 indicate that a black, cobbly, sandy silt layer with distinct petroleum odor was observed between depths of 2 feet and 12 feet. Split-spoon sample recovery at this depth interval was generally poor, and drill cuttings indicated the presence of fill materials including pieces of automobile rubber and tires, burnt wood chips, wire and various metal fragments, broken glass, plastic, and cardboard. In addition, the cuttings were moist, with a distinct petroleum odor. PID readings at depths of 2, 4, and 6 feet showed levels of 556.0, 21.7, and 8.6 ppm, respectively. No split-spoon recoveries were obtained between depths of 8 and 10 feet because of void spaces. A similar lithology was observed in 05-SB-04, except that the depth of the fill material was not observed to exceed 6 feet. Beneath the fill layer, a brownish, poorly sorted, coarse gravel in a rust-stained sandy silt matrix was observed at a depth interval of approximately 18 to 20 feet. A saprolite layer was observed at a depth interval of 18 to 20 feet in Bermed Area 1.

Subsurface soil boring logs from Bermed Area 2 (05-SB-02 and 05-SB-03) indicated that a gravelly, sandy silt layer was present at a depth of approximately 25 feet below ground surface (bgs). This layer has poorly sorted, coarse gravel in a brownish, sandy, silt matrix that is more prevalent at approximately 12 to 25 feet. No fill materials were recovered from Bermed Area 2.

Boring logs for Bermed Area 3 (05-SB-01) indicate a sandy, silt gravelly layer to a depth of approximately 14 feet and a rusty-colored light brown layer of silty sand with no gravel at a depth of 14 to 24 feet. No PID readings were noted during the investigations in Bermed Areas 2 and 3. Spoon and auger refusal were encountered at approximately 20 feet. The drill cuttings at that depth revealed broken and blocky pieces of bedrock gneiss. Complete geologic logs for Site 5 are provided in Appendix E.

The observed surficial geology at Site 5 is typically that of the Patuxent Formation of the Potomac Group in the Lower Cretaceous Series. The Patuxent Formation contains large amounts of sand commonly mixed with gravel, kaolin, mica, large well rounded pebbles and cobbles, and lenses of varicolored clay. The Patuxent is the basal formation of the Coastal Plain that lies on the crystalline basement and was probably deposited as outwash from the Piedmont. Bedrock was observed at very shallow depths at Site 5 (30 to 35 feet).

3.2.4 Hydrogeology

Two permanent groundwater monitoring wells (05-MW1 and 05-MW2) were installed south and west of Site 5 during the field investigation. In addition, a monitoring well was installed in association with the field investigations at Site 13 (13-MW1), an adjacent IRP site.

Well construction information related to these wells is provided in Table 3-1. Static water level data collected at these wells and wells adjacent to Site 5 does not suggest a definitive groundwater flow path; however, additional data (static water level measurements) will be collected to further evaluate groundwater flow.

3.3 FIELD INVESTIGATION ACTIVITIES

To evaluate the potential presence or absence of contaminants at the site, surface and subsurface soil sampling was performed. In addition, two groundwater monitoring wells were installed in the assumed downgradient direction from the site.

3.3.1 Surface Soil Sampling

Five surface soil samples were collected at Site 5. Sample locations are shown in Figure 3-1. The surface soil samples were collected from the same locations as the subsurface soil samples. The surface soil samples at Site 5 were analyzed for TAL metals, cyanide, TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and EPA SW846-8330 explosives.

3.3.2 Soil Borings and Subsurface Soil Sampling

Five soil borings were completed at Site 5. The two subsurface soil sample locations in Bermed Area 1 were 05-SB-04 and 05-SB-05; the two locations in Bermed Area 2 were 05-SB-02 and 05-SB-03. The only subsurface soil sample location in Bermed Area 3 was 05-SB-01. Split-spoon samples were collected along 2-foot intervals to a maximum depth of 25 feet bgs.

Due to the possible presence of UXO, each boring location at Site 5 was examined by a UXO specialist using a magnetometer before and during drilling. Subsurface soil samples were collected and analyzed for the following parameters: TAL metals, cyanide, TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and EPA SW846-8330 explosives. Sample log sheets are provided in Appendix D.

TABLE 3-1

GROUNDWATER MONITORING WELL CONSTRUCTION SUMMARY
FORMER NSWC WHITE OAK
SITE 5 OPEN BURN AREA/SITE 13 OIL SLUDGE DISPOSAL AREA

Well ID	Ground Elevation (ft)	PVC Riser Elevation (ft)	Total Depth bgs (ft)	Screened Interval bgs (ft)	Depth to Groundwater (12/23/97)	Groundwater Elevation (ft)
05-MW1	261.26	264.38	29.0	16.0-26.0	13.97	250.41
05-MW2	268.57	271.05	28.0	15.0-25.0	23.70	247.35
13-MW1	259.66	262.56	28.0	14.0-24.0	16.15	246.41

bgs - below ground surface

3.3.3 Monitoring Well Installation

Two monitoring wells (05-MW-01 and 05-MW-02) were installed along the western and southern boundaries of Site 5 (Figure 3-1). The borehole of 05-MW-01 was drilled to a maximum depth of 29 feet, with the bottom of the 11-foot well screen located at a depth of 27 feet. The borehole for 05-MW-02 was drilled to a maximum depth of 28 feet, with the bottom of the 10-foot well screen located at 25 feet. Complete well installation log sheets are contained in Appendix E.

3.3.4 Groundwater Sampling

Groundwater samples were collected from 05-MW-01 and 05-MW-02 and analyzed for TAL metals, cyanide, TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and EPA SW846-8330 explosives. Sample log sheets are provided in Appendix D.

3.3.5 Quality Control Samples

An MS/MSD sample was collected from soil boring sample 05-SB-04 (20 feet), and blind duplicate samples were collected from 05-SB-01 (24 feet) and 05-SB-02 (10 feet).

3.4 DATA AND RISK-SCREEING EVALUATION

Results from the soil and groundwater sampling performed at Site 5 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. A summary of positive detections is presented in Table 3-2, 3-3, and 3-4 for surface soil, subsurface soil, and groundwater, respectively.

3.4.1 Human Health Risk Screening

3.4.1.1 Surface Soil

Five surface soil samples were collected at Site 5 and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, inorganics, and EPA SW846-8330 explosives. Table 3-5 provides a comparison of the constituents identified in the surface soil with the human health risk-screening criteria. Figure 3-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 5 for surface soil.

TABLE 3-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
ACENAPHTHENE	44 J	360 U	370 U	83 J	3000 J	
ANTHRACENE	98 J	360 U	370 U	400 J	5000	
BENZO(A)ANTHRACENE	390 J	360 U	370 U	2300	13000	
BENZO(A)PYRENE	420	360 U	370 U	2400	11000	
BENZO(B)FLUORANTHENE	350 J	360 U	52 J	2800	13000	
BENZO(G,H,I)PERYLENE	360 J	360 U	370 U	1700	7100	
BENZO(K)FLUORANTHENE	290 J	360 U	370 U	1800	7300	
BIS(2-ETHYLHEXYL)PHTHALATE	390 U	360 U	44 J	690 U	3500 U	
CARBAZOLE	48 J	360 U	370 U	240 J	3300 J	
CHRYSENE	400	360 U	370 U	2600	14000	
DIBENZO(A,H)ANTHRACENE	130 J	360 U	370 U	730	3400 J	
DIBENZOFURAN	390 U	360 U	370 U	690 U	1200 J	
FLUORANTHENE	860	360 U	67 J	5000	34000	
FLUORENE	44 J	360 U	370 U	110 J	1900 J	
INDENO(1,2,3-CD)PYRENE	300 J	360 U	370 U	1700	6700	
NAPHTHALENE	390 U	360 U	370 U	690 U	430 J	
PHENANTHRENE	460	360 U	370 U	2200	20000	
PYRENE	590	360 U	54 J	3200	19000	
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.9 U	3.6 U	3.7 U	3.4 U	630 J	
4,4'-DDE	1.6 J	1.2 J	2.3 J	3.4 U	230 J	
4,4'-DDT	3.9 U	3.6 U	3.7 U	3.4 U	190 J	
ALPHA-BHC	2 U	1.8 U	1.8 U	1.7 U	5.1 J	
ALPHA-CHLORDANE	8.9	0.5 J	1.8 U	4.9 J	250 J	
AROCLOR-1260	470	30 J	140	80	1600 J	

TABLE 3-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
DIELDRIN	3.9 U	1 J	3.7 U	3.4 U	3.5 UJ	
GAMMA-CHLORDANE	7.4	0.2 J	1.8 U	4.9 J	280 J	
METALS (mg/kg)						
ALUMINUM	9080	7320	6440	2310	4110	
ARSENIC	2.8	2.9	2.6	2.2	1.8	
BARIUM	37.4	26.6	18.4	18.5	37.9	
BERYLLIUM	0.02 U	0.02 U	0.02 U	0.36	0.02 U	
CADMIUM	0.31	0.14	0.13	0.4	2.1	
CALCIUM	3060	182 K	397 K	4520	33900	
CHROMIUM	24.7	12.9	12.9	16.1	25.4	
COBALT	4.9	2.4	1.3	2.1	3	
COPPER	30.2	12.1	19.4	55	116	
IRON	12900	8720	7720	10000	6710	
LEAD	34.5	11.1	10.5	23.3	155	
MAGNESIUM	3240	580 K	331 K	1130	4140	
MANGANESE	143	55.8	33.9	66.9	143	
MERCURY	0.12	0.04	0.09	0.07	0.04	
NICKEL	35.9 K	23.8 K	43.3 K	16.4 K	26 K	
POTASSIUM	601	300	189	250	238	
SELENIUM	3.8 L	2.6 L	3.5 L	0.57 UR	0.58 UR	
SILVER	0.29	0.17 U	0.18 U	0.16 U	2	
SODIUM	57.5	43 U	44 U	391	225	
VANADIUM	27.1	20.1	18.6	9.1	12.6	
ZINC	42	16.3	12.2	79.8	159	

TABLE 3-2
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
GENERAL CHEMISTRY ()						
PH	6.45	5.19	6.45	8.55	8.33	

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-101	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)	05-SB-04(20)	05-SB-04(6)
DEPTH (feet):	10 - 12'	22 - 24'	12 - 14'	25 - 27'	20 - 22'	6 - 8'
SAMPLE DATE:	10/22/97	10/22/97	10/21/97	10/22/97	10/21/97	10/21/97
LOCATION:	05-SB-101	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)	05-SB-04(20)	05-SB-04(6)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-02(10)					
VOLATILES (µg/kg)						
ACETONE	11 U	11 U	12 U	11 U	12 U	86
TOLUENE	11 U	11 U	12 U	11 U	12 U	12 UJ
SEMIVOLATILES (µg/kg)						
ANTHRACENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	68 J
BENZO(A)ANTHRACENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	240 J
BENZO(A)PYRENE	250 J	62 J	390 UJ	370 UJ	400 UJ	220 J
BENZO(B)FLUORANTHENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	290 J
BENZO(G,H,I)PERYLENE	510 J	550 J	390 UJ	370 UJ	400 UJ	140 J
BENZO(K)FLUORANTHENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	120 J
BIS(2-ETHYLHEXYL)PHTHALATE	51 J	380 UJ	58 J	370 UJ	400 UJ	230 J
CARBAZOLE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	390 UJ
CHRYSENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	210 J
DI-N-BUTYL PHTHALATE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	39 J
DIBENZO(A,H)ANTHRACENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	43 J
FLUORANTHENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	350 J
FLUORENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	390 UJ
INDENO(1,2,3-CD)PYRENE	140 J	380 UJ	390 UJ	370 UJ	400 UJ	140 J
NAPHTHALENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	55 J
PHENANTHRENE	370 UJ	380 UJ	390 UJ	370 UJ	400 UJ	280 J
PYRENE	160 J	380 UJ	390 UJ	370 UJ	400 UJ	350 J
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.8 UJ	3.8 UJ	3.9 UJ	3.7 UJ	4 UJ	4.2 J
ALPHA-CHLORDANE	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ	2 UJ	94 J
AROCLOR-1260	38 UJ	38 UJ	39 UJ	37 UJ	40 UJ	460 J
DELTA-BHC	1.9 UJ	0.22 J	1.9 UJ	1.8 UJ	2 UJ	1.9 UJ

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-101	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)	05-SB-04(20)	05-SB-04(6)
DEPTH (feet):	10 - 12'	22 - 24'	12 - 14'	25 - 27'	20 - 22'	6 - 8'
SAMPLE DATE:	10/22/97	10/22/97	10/21/97	10/22/97	10/21/97	10/21/97
LOCATION:	05-SB-101	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)	05-SB-04(20)	05-SB-04(6)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-02(10)					
PESTICIDES/PCBs (µg/kg)						
DIELDRIN	3.8 UJ	3.8 UJ	3.9 UJ	3.7 UJ	4 UJ	6.8 J
ENDOSULFAN II	3.8 UJ	3.8 UJ	3.9 UJ	3.7 UJ	4 UJ	3.9 UJ
ENDRIN KETONE	3.8 UJ	3.8 UJ	3.9 UJ	3.7 UJ	4 UJ	3.9 UJ
GAMMA-CHLORDANE	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ	2 UJ	100 J
HEPTACHLOR	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ	2 UJ	5.7 J
HEPTACHLOR EPOXIDE	0.23 J	0.25 J	1.9 UJ	0.17 J	2 UJ	1.9 UJ
ENERGETICS (µg/kg)						
2,4,6-TRINITROTOLUENE	35.6 U	35.6 U	35.6 U	35.6 U	35.6 U	35.6 UJ
2-AMINO-4,6-DINITROTOLUENE	46.7 U	46.7 U	46.7 U	46.7 U	46.7 U	46.7 UJ
HMX	70.5 U	70.5 U	70.5 U	70.5 U	73 U	73 UJ
RDX	50.9 U	50.9 U	50.9 U	50.9 U	50.9 U	50.9 UJ
METALS (mg/kg)						
ALUMINUM	4360 J	2160 J	8410 J	3060 J	8370	9990
ANTIMONY	0.63 UL	0.63 UL	0.65 UL	0.6 UL	2.3 L	2.5 L
ARSENIC	3 B	2 B	6.6 J	0.81 B	3.4 L	5
BARIUM	6.5	4.2	57.2	3.2	253	119
CADMIUM	0.07 U	0.08 B	0.07 U	0.06 U	2 K	3.2 K
CALCIUM	45 B	63 B	92.4 B	41.2 B	34400	12000
CHROMIUM	10.4 J	9.9 J	35 J	4.6 J	29.1 J	37.3 J
COBALT	0.3 B	0.14 UJ	0.59 B	0.13 B	3.4 J	5.5 J
COPPER	51.9	31.4	29.9	3.8	511	313
CYANIDE	0.24 U	0.28 U	0.21 U	0.22 U	0.24 U	0.24 U
IRON	9550 J	6140 J	16300 J	2610 J	18000	24900
LEAD	2.7 J	2.5 J	5.3 J	1.3 J	147 K	687 K
MAGNESIUM	123 K	63.8 B	192 K	72.4 K	2440 J	3190 J

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-101	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)	05-SB-04(20)	05-SB-04(6)
DEPTH (feet):	10 - 12'	22 - 24'	12 - 14'	25 - 27'	20 - 22'	6 - 8'
SAMPLE DATE:	10/22/97	10/22/97	10/21/97	10/22/97	10/21/97	10/21/97
LOCATION:	05-SB-101	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)	05-SB-04(20)	05-SB-04(6)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-02(10)					
METALS (mg/kg)						
MANGANESE	5.1 J	3.6 J	12.6 J	3.7 J	186 J	253 J
MERCURY	0.05	0.07	0.07	0.03	0.02	2.3
NICKEL	1.2 B	0.28 B	2.1 K	0.4 B	24.6	52
POTASSIUM	178	138	328	91.7	556	599
SELENIUM	49.6 J	25.6 J	17.5 J	1.4 J	4.2 J	2.9 J
SILVER	0.2 U	0.2 U	0.21 U	0.19 U	14.2	7.6
SODIUM	29 UL	48.2 B	61.3 B	27.8 UL	666 J	787 J
VANADIUM	18	15	44.8	7.4	39.1	17.1
ZINC	2.9 J	1.7 J	5.6 J	1.7 J	519 J	509 J
GENERAL CHEMISTRY ()						
PH	5.15	5.49	5.35	4.99	7.85	7.87

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-05(2)	05-SB-05(25)				
DEPTH (feet):	2 - 4'	25 - 27'				
SAMPLE DATE:	10/20/97	10/22/97	/ /	/ /	/ /	/ /
LOCATION:	05-SB-05(2)	05-SB-05(25)				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
ACETONE	130	15 U				
TOLUENE	92	15 U				
SEMIVOLATILES (µg/kg)						
ANTHRACENE	140 J	56 J				
BENZO(A)ANTHRACENE	550 J	230 J				
BENZO(A)PYRENE	500 J	180 J				
BENZO(B)FLUORANTHENE	630 J	220 J				
BENZO(G,H,I)PERYLENE	300 J	100 J				
BENZO(K)FLUORANTHENE	290 J	130 J				
BIS(2-ETHYLHEXYL)PHTHALATE	190 J	210 J				
CARBAZOLE	78 J	510 UJ				
CHRYSENE	490 J	200 J				
DI-N-BUTYL PHTHALATE	490 UJ	510 UJ				
DIBENZO(A,H)ANTHRACENE	120 J	510 UJ				
FLUORANTHENE	960 J	370 J				
FLUORENE	66 J	510 UJ				
INDENO(1,2,3-CD)PYRENE	330 J	110 J				
NAPHTHALENE	97 J	510 UJ				
PHENANTHRENE	600 J	270 J				
PYRENE	880 J	400 J				
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	22 J	5 UJ				
ALPHA-CHLORDANE	160 J	2.5 UJ				
AROCLOR-1260	1200 J	50 UJ				
DELTA-BHC	2.5 UJ	2.5 UJ				

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-05(2)	05-SB-05(25)				
DEPTH (feet):	2 - 4'	25 - 27'				
SAMPLE DATE:	10/20/97	10/22/97	/ /	/ /	/ /	/ /
LOCATION:	05-SB-05(2)	05-SB-05(25)				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
DIELDRIN	53 J	5 UJ				
ENDOSULFAN II	4.9 UJ	0.86 J				
ENDRIN KETONE	11 NJ	2.6 NJ				
GAMMA-CHLORDANE	140 J	2.5 UJ				
HEPTACHLOR	2.5 UJ	2.5 UJ				
HEPTACHLOR EPOXIDE	2.5 UJ	2.5 UJ				
ENERGETICS (µg/kg)						
2,4,6-TRINITROTOLUENE	9820 J	92 U				
2-AMINO-4,6-DINITROTOLUENE	1070 J	46.7 U				
HMX	5480 J	73 U				
RDX	30800 J	50.9 U				
METALS (mg/kg)						
ALUMINUM	10300	2380				
ANTIMONY	3.1 L	0.79 UL				
ARSENIC	4 L	1 U				
BARIUM	312	30.6				
CADMIUM	2.5 K	0.31 B				
CALCIUM	42400	1150 K				
CHROMIUM	35.7 J	14.3 J				
COBALT	4.3 J	0.12				
COPPER	630	46.7				
CYANIDE	0.35	0.34				
IRON	22200	12400				
LEAD	181 K	16.6 K				
MAGNESIUM	3010 J	250 J				

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	05-SB-05(2) 2 - 4' 10/20/97 05-SB-05(2) GRAB	05-SB-05(25) 25 - 27' 10/22/97 05-SB-05(25) GRAB	/ /	/ /	/ /	/ /
METALS (mg/kg)						
MANGANESE	229 J	32.9 J				
MERCURY	1.8	0.03				
NICKEL	30	1.6 K				
POTASSIUM	689	316				
SELENIUM	4.5 J	0.85 UJ				
SILVER	17.8	0.24				
SODIUM	837 J	159 B				
VANADIUM	48.5	13.4				
ZINC	641 J	11.6 J				
GENERAL CHEMISTRY ()						
PH	8.39	8.36				

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(24)-AVG	05-SB-100	05-SB-01(8)	05-SB-02(10)	05-SB-02(10)-AVG
DEPTH (feet):	24 - 26'	24 - 26'	24 - 26'	8 - 10'	10 - 12'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/21/97	10/21/97	10/22/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(24)	05-SB-100	05-SB-01(8)	05-SB-02(10)	05-SB-02(10)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-01(24)		05-SB-101	
VOLATILES (µg/kg)						
ACETONE	13 U	12 U	11 U	11 U	11 U	11 U
TOLUENE	13 U	12 U	11 U	11 U	11 U	11 U
SEMIVOLATILES (µg/kg)						
ANTHRACENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
BENZO(A)ANTHRACENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
BENZO(A)PYRENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	250 J
BENZO(B)FLUORANTHENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
BENZO(G,H,I)PERYLENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	347.5 J
BENZO(K)FLUORANTHENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
BIS(2-ETHYLHEXYL)PHTHALATE	380 UJ	59 J	59 J	370 UJ	51 J	51 J
CARBAZOLE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
CHRYSENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
DI-N-BUTYL PHTHALATE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
DIBENZO(A,H)ANTHRACENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
FLUORANTHENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
FLUORENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
INDENO(1,2,3-CD)PYRENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	140 J
NAPHTHALENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
PHENANTHRENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	370 U
PYRENE	380 UJ	370 U	360 UJ	370 UJ	370 UJ	160 J
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.8 UJ	3.7 U	3.6 UJ	3.7 UJ	3.7 UJ	3.75 U
ALPHA-CHLORDANE	1.9 UJ	1.85 U	1.8 UJ	1.8 UJ	1.9 UJ	1.9 U
AROCLOR-1260	38 UJ	37 U	36 UJ	37 UJ	37 UJ	37.5 U
DELTA-BHC	1.9 UJ	1.85 U	1.8 UJ	1.8 UJ	0.3 J	0.3 J

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(24)-AVG	05-SB-100	05-SB-01(8)	05-SB-02(10)	05-SB-02(10)-AVG
DEPTH (feet):	24 - 26'	24 - 26'	24 - 26'	8 - 10'	10 - 12'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/21/97	10/21/97	10/22/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(24)	05-SB-100	05-SB-01(8)	05-SB-02(10)	05-SB-02(10)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-01(24)		05-SB-101	
PESTICIDES/PCBs (µg/kg)						
DIELDRIN	3.8 UJ	3.7 U	3.6 UJ	3.7 UJ	3.7 UJ	3.75 U
ENDOSULFAN II	3.8 UJ	3.7 U	3.6 UJ	3.7 UJ	3.7 UJ	3.75 U
ENDRIN KETONE	3.8 UJ	3.7 U	3.6 UJ	3.7 UJ	3.7 UJ	3.75 U
GAMMA-CHLORDANE	1.9 UJ	1.85 U	1.8 UJ	1.8 UJ	1.9 UJ	1.9 U
HEPTACHLOR	1.9 UJ	1.85 U	1.8 UJ	1.8 UJ	1.9 UJ	1.9 U
HEPTACHLOR EPOXIDE	1.9 UJ	1.85 U	1.8 UJ	1.8 UJ	0.27 J	0.25 J
ENERGETICS (µg/kg)						
2,4,6-TRINITROTOLUENE	35.6 U	35.6 U	35.6 U	35.6 U	35.6 U	35.6 U
2-AMINO-4,6-DINITROTOLUENE	46.7 U	46.7 U	46.7 U	46.7 U	46.7 U	46.7 U
HMX	73 U	73 U	73 U	73 U	70.5 U	70.5 U
RDX	50.9 U	50.9 U	50.9 U	50.9 U	50.9 U	50.9 U
METALS (mg/kg)						
ALUMINUM	2920	2330	1740	2070	3490 J	3925 J
ANTIMONY	0.59 UL	0.575 U	0.56 UL	0.57 UL	0.62 UL	0.625 U
ARSENIC	3.3 L	1.8275	0.71 UL	2.4 L	1.2 B	2.1 B
BARIUM	6	6.05	6.1	5.2	5.4	5.95
CADMIUM	0.07 U	0.07 U	0.07 B	0.07 U	0.07 U	0.07 U
CALCIUM	48.5 B	48.05 B	47.6 B	40.4 B	51.2 B	48.1 B
CHROMIUM	12.4 J	8.7 J	5 J	13.1 J	5.7 J	8.05 J
COBALT	0.26 B	0.2 B	0.14 B	0.1 B	0.26 B	0.28 B
COPPER	20.2	11.4	2.6	28.5	4.3	28.1
CYANIDE	0.24 U	0.235 U	0.23 U	0.19 U	0.22 U	0.23 U
IRON	6980	4555	2130	5580	3450 J	6500 J
LEAD	3.2 K	2.55 K	1.9 K	3.1 K	1.7 J	2.2 J
MAGNESIUM	93.7 J	59.07	48.9 B	58.2 B	101 K	112 K

TABLE 3-3
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(24)-AVG	05-SB-100	05-SB-01(8)	05-SB-02(10)	05-SB-02(10)-AVG
DEPTH (feet):	24 - 26'	24 - 26'	24 - 26'	8 - 10'	10 - 12'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/21/97	10/21/97	10/22/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(24)	05-SB-100	05-SB-01(8)	05-SB-02(10)	05-SB-02(10)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-01(24)		05-SB-101	
METALS (mg/kg)						
MANGANESE	6 J	5.25 J	4.5 J	4.3 J	3.7 J	4.4 J
MERCURY	0.1	0.06	0.02	0.06	0.1	0.075
NICKEL	0.87 K	0.82 K	0.77 K	0.42 K	0.87 B	1.035 B
POTASSIUM	166	150.5	135	160	171	174.5
SELENIUM	15.1 J	7.7	0.6 UJ	18.2 J	1.1 J	25.35 J
SILVER	0.18 U	0.175 U	0.17 U	0.18 U	0.2 U	0.2 U
SODIUM	45.1 UJ	55.6 U	66.1 B	43.9 UJ	44.4 B	36.7 U
VANADIUM	37	21.5	6	28.2	9.3	13.65
ZINC	2.3 B	2.15 B	2 B	1.8 B	2 J	2.45 J
GENERAL CHEMISTRY ()						
PH	4.73	4.855	4.98	4.66	5.08	5.115

TABLE 3-4
SUMMARY OF POSITIVE DETECTS - UNFILTERED GROUNDWATER
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	05-GW-01 11/20/97 05-GW-01	05-GW-02 11/20/97 05-GW-02	/ /	/ /	/ /	/ /
VOLATILES (µg/L)						
CHLOROFORM	1 U	4				
CIS-1,2-DICHLOROETHENE	6	1 U				
TETRACHLOROETHENE	17	1 U				
TRICHLOROETHENE	12	3				
VINYL CHLORIDE	1	1 U				
ENERGETICS (µg/L)						
HMX	8.9 J	1.3 U				
RDX	18.8 J	1.3 U				
INORGANICS (µg/L)						
ALUMINUM	1650 K	97.1 B				
BARIUM	96.3	140				
BERYLLIUM	1.1	0.18 B				
CALCIUM	18600	9290 K				
CHROMIUM	37.3	19.4				
COBALT	77	37.6				
COPPER	15.5	3.2 B				
IRON	5720	6880				
MAGNESIUM	14500	9710 J				
MANGANESE	2830	1860				
NICKEL	124	45.4				
POTASSIUM	12000	4170				
SELENIUM	61.8	2.3 UJ				
SODIUM	256000	38900				
VANADIUM	5.9	1 U				
ZINC	472	257				

TABLE 3-5

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 5 - OPEN BURN AREAS
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
ACENAPHTHENE	3/5	0.044 J	3 J	05-SS-05	1.042	0.36 - 0.37	470	0.0665
ANTHRACENE	3/5	0.098 J	5	05-SS-05	1.833	0.36 - 0.37	2300	0.108
BENZO(A)ANTHRACENE	3/5	0.39 J	13	05-SS-05	5.23	0.36 - 0.37	0.87	0.34
BENZO(A)PYRENE	3/5	0.42	11	05-SS-05	4.6	0.36 - 0.37	0.087	0.265
BENZO(B)FLUORANTHENE	4/5	0.052 J	13	05-SS-05	4.051	0.36	0.87	0.275
BENZO(G,H,I)PERYLENE	3/5	0.36 J	7.1	05-SS-05	3.05	0.36 - 0.37	310	0.22
BENZO(K)FLUORANTHENE	3/5	0.29 J	7.3	05-SS-05	3.13	0.36 - 0.37	8.7	0.335
BIS(2-ETHYLHEXYL)PHTHALATE	1/5	0.044 J	0.044 J	05-SS-03	0.044	0.36 - 3.5	46	NA
CARBAZOLE	3/5	0.048 J	3.3 J	05-SS-05	1.196	0.36 - 0.37	32	NA
CHRYSENE	3/5	0.4	14	05-SS-05	5.7	0.36 - 0.37	87	0.4
DIBENZO(A,H)ANTHRACENE	3/5	0.13 J	3.4 J	05-SS-05	1.4	0.36 - 0.37	0.087	0.095
DIBENZOFURAN	1/5	1.2 J	1.2 J	05-SS-05	1.2	0.36 - 0.69	31	NA
FLUORANTHENE	4/5	0.067 J	34	05-SS-05	9.982	0.36	310	0.8
FLUORENE	3/5	0.044 J	1.9 J	05-SS-05	0.685	0.36 - 0.37	310	0.067
INDENO(1,2,3-CD)PYRENE	3/5	0.3 J	6.7	05-SS-05	2.9	0.36 - 0.37	0.87	0.2
NAPHTHALENE	1/5	0.43 J	0.43 J	05-SS-05	0.43	0.36 - 0.69	310	NA
PHENANTHRENE	3/5	0.46	20	05-SS-05	7.55	0.36 - 0.37	310	0.57
PYRENE	4/5	0.054 J	19	05-SS-05	5.71	0.36	230	0.63
Pesticide/PCBs (mg/kg)								
4,4'-DDD	1/5	0.63 J	0.63 J	05-SS-05	0.63	0.0034 - 0.0039	2.7	0.0092
4,4'-DDE	4/5	0.0012 J	0.23 J	05-SS-05	0.0588	0.0034	1.9	0.081
4,4'-DDT	1/5	0.19 J	0.19 J	05-SS-05	0.19	0.0034 - 0.0039	1.9	0.049
ALPHA-CHLORDANE	4/5	0.0005 J	0.25 J	05-SS-05	0.066	0.0018	1.8	0.0026
AROCLOR-1260	5/5	0.03 J	1.6 J	05-SS-05	0.46	NA	0.32	NA
DIELDRIN	1/5	0.001 J	0.001 J	05-SS-02	0.001	0.0034 - 0.0039	0.04	0.0088
GAMMA-CHLORDANE	4/5	0.0002 J	0.28 J	05-SS-05	0.073	0.0018	1.8	0.0015
ALPHA-BHC	1/5	0.0051 J	0.0051 J	05-SS-05	0.0051	0.0017 - 0.002	0.1	NA

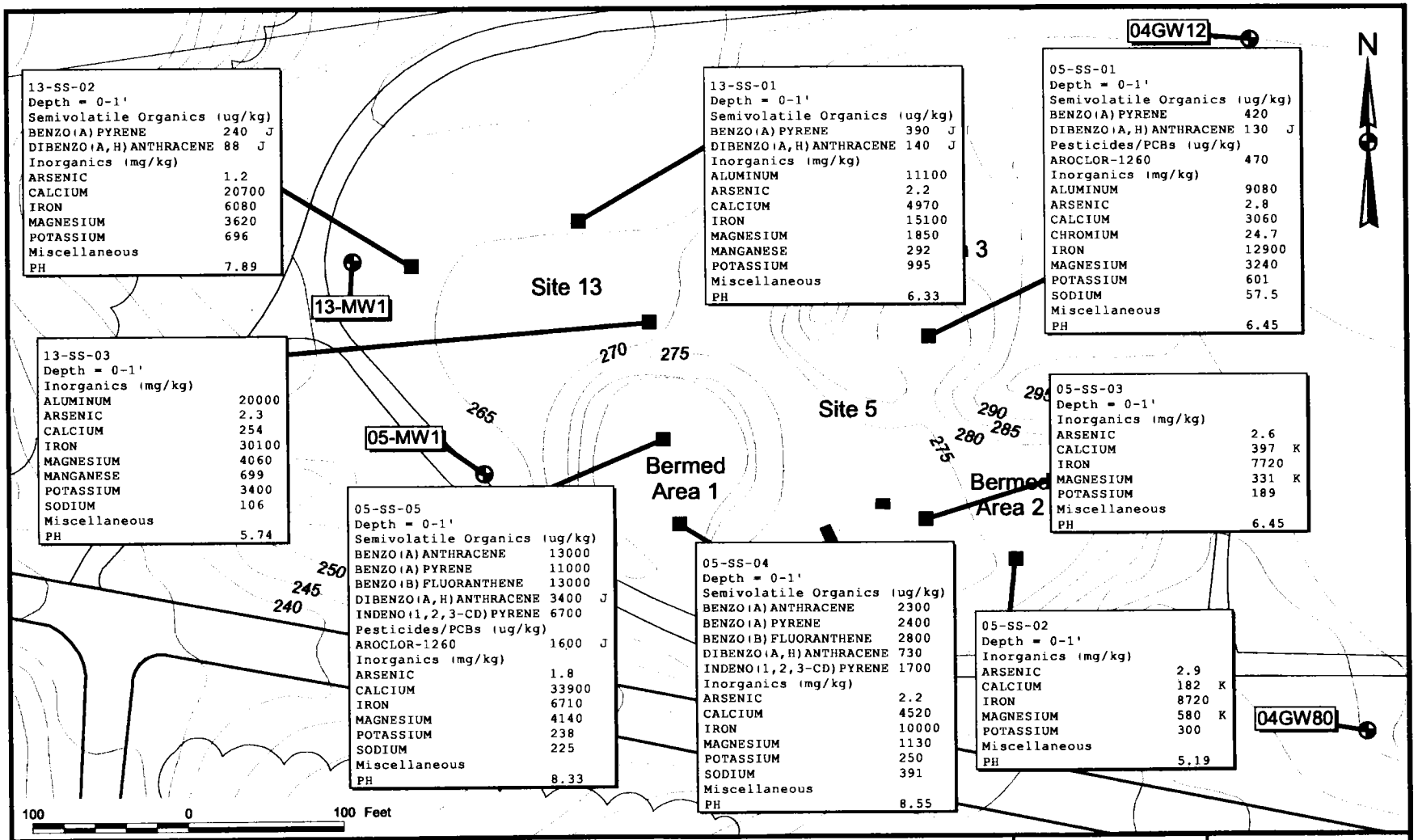
TABLE 3-5

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 5 - OPEN BURN AREAS
FORMER NSWC WHITE OAK

PAGE 2 OF 2

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	5/5	2310	9080	05-SS-01	5852	NA	7800	14953
ARSENIC	5/5	1.8	2.9	05-SS-02	2.5	NA	0.43	5.11
BARIUM	5/5	18.4	37.9	05-SS-05	27.8	NA	550	59.5
BERYLLIUM	1/5	0.36	0.36	05-SS-04	0.36	0.02	16	0.019
CADMIUM	5/5	0.13	2.1	05-SS-05	0.62	NA	3.9	NA
CALCIUM	5/5	182 K	33900	05-SS-05	8412	NA	NA	1040
CHROMIUM	5/5	12.9	25.4	05-SS-05	18.4	NA	23	29.35
COBALT	5/5	1.3	4.9	05-SS-01	2.7	NA	470	11.81
COPPER	5/5	12.1	116	05-SS-05	46.5	NA	310	11.52
IRON	5/5	6710	12900	05-SS-01	9210	NA	2300	18946
LEAD	5/5	10.5	155	05-SS-05	46.9	NA	400	60.2
MAGNESIUM	5/5	331 K	4140	05-SS-05	1884	NA	NA	1183
MANGANESE	5/5	33.9	143	05-SS-01/05	88.5	NA	160	490
MERCURY	5/5	0.04	0.12	05-SS-01	0.072	NA	2.3	0.142
NICKEL	5/5	16.4 K	43.3 K	05-SS-03	29.1	NA	160	14.56
POTASSIUM	5/5	189	601	05-SS-01	316	NA	NA	845
SELENIUM	3/3	2.6 L	3.8 L	05-SS-01	3.3	NA	39	0.68
SILVER	2/5	0.29	2	05-SS-05	1.15	0.16 - 0.18	39	1.15
SODIUM	3/5	57.5	391	05-SS-04	225	43 - 44	NA	NA
VANADIUM	5/5	9.1	27.1	05-SS-01	17.5	NA	55	30.08
ZINC	5/5	12.2	159	05-SS-05	61.9	NA	2300	30.67
Miscellaneous								
pH (SU)	5/5	5.19	8.55	05-SS-04	6.99	NA	NA	NA

NA - Not Available



DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER	OWNER NUMBER
MJJ	12OCT98		7427	0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SURFACE SOIL SITE 5 / SWMU 32 - OPEN BURN AREAS NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO FIGURE 3-2	REV 0

P:\GIS\WHITEOAK\7427 APR 12-OCT-98 MJJ LAYOUT17

All VOC results were "B" qualified and are therefore considered nondetected results.

Maximum concentrations detected for the following PAHs exceed the screening levels for the protection of human health: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The presence of PAHs at Site 5 is consistent with the burning of waste and waste oils at the site. The highest concentrations of PAHs were detected within Bermed Area 1.

Aroclor 1260 was the only PCB detected at a maximum concentration exceeding the human health screening level. Aroclor 1260 was detected in two of the five samples collected, at a maximum concentration of 1.6 mg/kg.

Inorganics detected in excess of the screening levels included aluminum, arsenic, calcium, chromium, iron, magnesium, potassium, and sodium. The maximum concentrations of aluminum, arsenic, chromium, and iron are less than the White-Oak-specific background values. Calcium, magnesium, potassium, and sodium are essential human nutrients and are not present at concentrations that would pose a human health risk.

No pesticides or explosives were detected in surface soil samples collected at Site 5.

3.4.1.2 Subsurface Soil

Twelve subsurface soil samples were collected at Site 5 and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, inorganics, and EPA SW846-8330 explosives. Table 3-6 provides a comparison of the constituents identified in the subsurface soil with the human health risk-screening criteria. Figure 3-3 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 5 in subsurface soil.

All VOCs were detected at concentrations less than the screening values.

Benzo(a)pyrene and dibenzo(a,h)anthracene were the only SVOCs detected at a maximum concentration exceeding the screening levels. These constituents were detected primarily in Bermed Area 1, similar to the surface soil findings. However, the concentrations were significantly less than those identified in the surface soil.

TABLE 3-6

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 5 - OPEN BURN AREAS
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Volatile Organics (mg/kg)								
ACETONE	2/10	0.086	0.13	05-SB-05(2)	0.108	0.011 - 0.015	780	NA
TOLUENE	1/10	0.092	0.092	05-SB-05(2)	0.092	0.011 - 0.015	1600	NA
Semivolatile Organics (mg/kg)								
ANTHRACENE	3/10	0.056 J	0.14 J	05-SB-05(2)	0.088	0.36 - 0.4	2300	NA
BENZO(A)ANTHRACENE	3/10	0.23 J	0.55 J	05-SB-05(2)	0.34	0.36 - 0.4	0.87	NA
BENZO(A)PYRENE	5/10	0.062 J	0.5 J	05-SB-05(2)	0.2424	0.36 - 0.4	0.087	NA
BENZO(B)FLUORANTHENE	3/10	0.22 J	0.63 J	05-SB-05(2)	0.38	0.36 - 0.4	0.87	NA
BENZO(G,H,I)PERYLENE	5/10	0.1 J	0.55 J	05-SB-02(22)	0.2875	0.36 - 0.4	310	NA
BENZO(K)FLUORANTHENE	3/10	0.12 J	0.29 J	05-SB-05(2)	0.18	0.36 - 0.4	8.7	NA
BIS(2-ETHYLHEXYL)PHTHALATE	6/10	0.051 J	0.23 J	05-SB-04(6)	0.133	0.37 - 0.4	46	NA
CARBAZOLE	1/10	0.078 J	0.078 J	05-SB-05(2)	0.078	0.36 - 0.51	32	NA
CHRYSENE	3/10	0.2 J	0.49 J	05-SB-05(2)	0.3	0.36 - 0.4	87	NA
DI-N-BUTYL PHTHALATE	1/10	0.039 J	0.039 J	05-SB-04(6)	0.039	0.36 - 0.51	780	NA
DIBENZO(A,H)ANTHRACENE	2/10	0.043 J	0.12 J	05-SB-05(2)	0.082	0.36 - 0.51	0.087	NA
FLUORANTHENE	3/10	0.35 J	0.96 J	05-SB-05(2)	0.56	0.36 - 0.4	310	NA
FLUORENE	1/10	0.066 J	0.066 J	05-SB-05(2)	0.066	0.36 - 0.51	310	NA
INDENO(1,2,3-CD)PYRENE	4/10	0.11 J	0.33 J	05-SB-05(2)	0.18	0.36 - 0.4	0.87	NA
NAPHTHALENE	2/10	0.055 J	0.097 J	05-SB-05(2)	0.076	0.36 - 0.51	310	NA
PHENANTHRENE	3/10	0.27 J	0.6 J	05-SB-05(2)	0.38	0.36 - 0.4	310	NA
PYRENE	4/10	0.16 J	0.88 J	05-SB-05(2)	0.45	0.36 - 0.4	230	NA

TABLE 3-6

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 5 - OPEN BURN AREAS
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Pesticide/PCBs (mg/kg)								
4,4'-DDE	2/10	0.0042 J	0.022 J	05-SB-05(2)	0.013	0.0036 - 0.005	1.9	NA
ALPHA-CHLORDANE	2/10	0.094 J	0.16 J	05-SB-05(2)	0.127	0.0018 - 0.0025	1.8	NA
AROCLOR-1260	2/10	0.46 J	1.2 J	05-SB-05(2)	0.83	0.036 - 0.05	0.32	NA
DIELDRIN	2/10	0.0068 J	0.053 J	05-SB-05(2)	0.030	0.0036 - 0.005	0.04	NA
ENDOSULFAN II	1/10	0.0009 J	0.0009 J	05-SB-05(25)	0.0009	0.0036 - 0.0049	47	NA
ENDRIN KETONE	2/10	0.0026 NJ	0.011 NJ	05-SB-05(2)	0.0068	0.0036 - 0.004	2.3	NA
GAMMA-CHLORDANE	2/10	0.1 J	0.14 J	05-SB-05(2)	0.12	0.0018 - 0.0025	1.8	NA
HEPTACHLOR	1/10	0.0057 J	0.0057 J	05-SB-04(6)	0.0057	0.0018 - 0.0025	0.14	NA
HEPTACHLOR EPOXIDE	3/10	0.0002 J	0.0003 J	05-SB-02(10)	0.0002	0.0018 - 0.0025	0.07	NA
DELTA-BHC	2/10	0.0002 J	0.0003 J	05-SB-02(10)	0.0003	0.0018 - 0.0025	0.35	NA
Explosives (mg/kg)								
2,4,6-TRINITROTOLUENE	1/10	9.82 J	9.82 J	05-SB-05(2)	9.82	0.0356 - 0.092	21	NA
2-AMINO-4,6-DINITROTOLUENE	1/10	1.07 J	1.07 J	05-SB-05(2)	1.07	0.0467	4.7	NA
HMX	1/10	5.48 J	5.48 J	05-SB-05(2)	5.48	0.0705 - 0.073	390	NA
RDX	1/10	30.8 J	30.8 J	05-SB-05(2)	30.8	0.0509	5.8	NA

TABLE 3-6

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 5 - OPEN BURN AREAS
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	10/10	1740	10300	05-SB-05(2)	5,300	NA	7,800	20961
ANTIMONY	3/10	2.3 L	3.1 L	05-SB-05(2)	2.6	0.56 - 0.79	3.1	0.42
ARSENIC	6/10	2.4 L	6.6 J	05-SB-03(12)	3.9	0.71 - 3	0.43	12.15
BARIUM	10/10	3.2	312	05-SB-05(2)	79.6	NA	550	40.09
CADMIUM	3/10	2 K	3.2 K	05-SB-04(6)	2.57	0.06 - 0.31	3.9	0.179
CALCIUM	4/10	1150 K	42400	05-SB-05(2)	22,488	40.4 - 92.4	NA	247
CHROMIUM	10/10	4.6 J	37.3 J	05-SB-04(6)	19.6	NA	23	41.05
COBALT	4/10	0.12	5.5 J	05-SB-04(6)	3.33	0.1 - 0.59	470	16.6
COPPER	10/10	2.6	630	05-SB-05(2)	163	NA	310	21.62
CYANIDE	2/10	0.34	0.35	05-SB-05(2)	0.345	0.19 - 0.28	160	NA
IRON	10/10	2130	24900	05-SB-04(6)	11,919	NA	2,300	28681
LEAD	10/10	1.3 J	687 K	05-SB-04(6)	105	NA	400	21.23
MAGNESIUM	8/10	72.4 K	3190 J	05-SB-04(6)	1,166	48.9 - 63.8	NA	2987
MANGANESE	10/10	3.6 J	253 J	05-SB-04(6)	73	NA	160	503
MERCURY	10/10	0.02	2.3	05-SB-04(6)	0.45	NA	2.3	0.051
NICKEL	7/10	0.42 K	52	05-SB-04(6)	15.9	0.28 - 1.2	160	13.84
POTASSIUM	10/10	91.7	689	05-SB-05(2)	320.3	NA	NA	2792
SELENIUM	9/10	1.1 J	49.6 J	05-SB-02(10)-D	11.9	0.6 - 0.85	39	2.73
SILVER	4/10	0.24	17.8	05-SB-05(2)	9.96	0.17 - 0.21	39	0.096
SODIUM	3/10	666 J	837 J	05-SB-05(2)	763	27.8 - 159	NA	69.4
VANADIUM	10/10	6	48.5	05-SB-05(2)	24.9	NA	55	44.31
ZINC	8/10	1.7 J	641 J	05-SB-05(2)	212	1.8 - 2.3	2,300	84.2
Miscellaneous								
pH (SU)	10/10	4.66	8.39	05-SB-05(2)	6.293	NA	NA	NA

NA - Not Available

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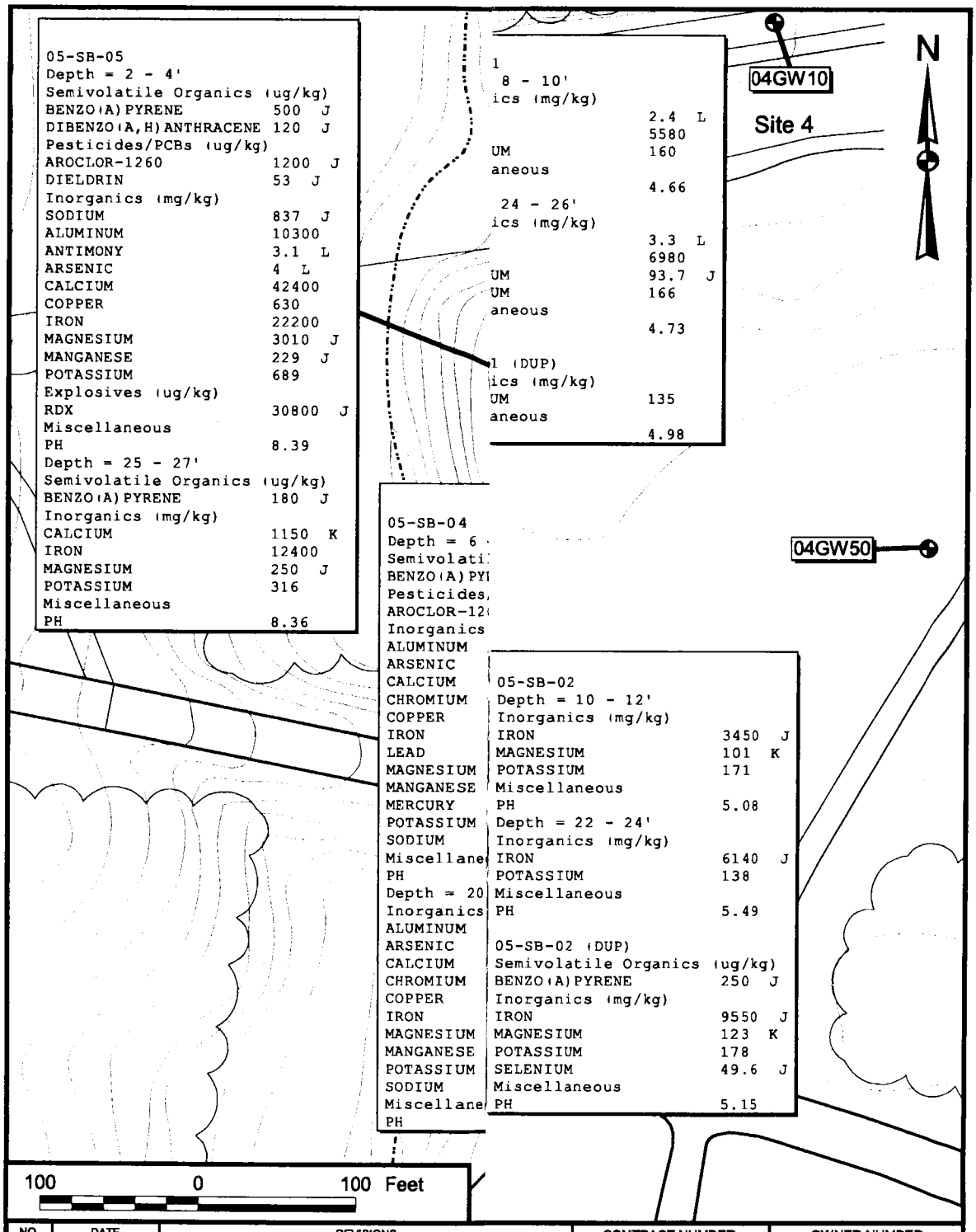


05-SB-05
Depth = 2 - 4'
Semivolatile Organics (ug/kg)
BENZO(A)PYRENE 500 J
DIBENZO(A,H)ANTHRACENE 120 J
Pesticides/PCBs (ug/kg)
AROCLOR-1260 1200 J
DIELDRIN 53 J
Inorganics (mg/kg)
SODIUM 837 J
ALUMINUM 10300
ANTIMONY 3.1 L
ARSENIC 4 L
CALCIUM 42400
COPPER 630
IRON 22200
MAGNESIUM 3010 J
MANGANESE 229 J
POTASSIUM 689
Explosives (ug/kg)
RDX 30800 J
Miscellaneous
PH 8.39
Depth = 25 - 27'
Semivolatile Organics (ug/kg)
BENZO(A)PYRENE 180 J
Inorganics (mg/kg)
CALCIUM 1150 K
IRON 12400
MAGNESIUM 250 J
POTASSIUM 316
Miscellaneous
PH 8.36

1
8 - 10'
ics (mg/kg)
2.4 L
5580
UM 160
aneous
4.66
24 - 26'
ics (mg/kg)
3.3 L
6980
UM 93.7 J
UM 166
aneous
4.73
1 (DUP)
ics (mg/kg)
UM 135
aneous
4.98

05-SB-04
Depth = 6
Semivolati
BENZO(A)PY
Pesticides,
AROCLOR-12
Inorganics
ALUMINUM
ARSENIC
CALCIUM
CHROMIUM
COPPER
IRON
LEAD
MAGNESIUM
MANGANESE
MERCURY
POTASSIUM
SODIUM
Miscellane
PH
Depth = 20
Inorganics
ALUMINUM
ARSENIC
CALCIUM
CHROMIUM
COPPER
IRON
MAGNESIUM
MANGANESE
POTASSIUM
SODIUM
Miscellane
PH

05-SB-02
Depth = 10 - 12'
Inorganics (mg/kg)
IRON 3450 J
MAGNESIUM 101 K
POTASSIUM 171
Miscellaneous
PH 5.08
Depth = 22 - 24'
Inorganics (mg/kg)
IRON 6140 J
POTASSIUM 138
Miscellaneous
PH 5.49

05-SB-02 (DUP)
Semivolatile Organics (ug/kg)
BENZO(A)PYRENE 250 J
Inorganics (mg/kg)
IRON 9550 J
MAGNESIUM 123 K
POTASSIUM 178
SELENIUM 49.6 J
Miscellaneous
PH 5.15

NO.	DATE	REVISIONS		CONTRACT NUMBER 7427	OWNER NUMBER 0101
			ACE SOIL	APPROVED BY SN	DATE 12/1
				APPROVED BY	DATE
				DRAWING NO. FIGURE 3-3	REV 0

029807/P

CTO 0273

Aroclor 1260 and dieldrin were detected at maximum concentrations exceeding the screening levels. The maximum Aroclor 1260 concentration was 1.2 mg/kg and was identified at a depth between 2 and 4 bgs. Dieldrin was detected in one sample at a concentration slightly in excess of the screening criteria.

Inorganics detected in excess of or equal to the screening levels included aluminum, antimony, arsenic, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, potassium, selenium, and sodium. Calcium, magnesium, potassium, and sodium are essential human nutrients and are not present at concentrations that would be a threat to human health. Aluminum, arsenic, chromium, iron, and manganese were detected at concentrations within the background range for subsurface soil at NSWC-White Oak. The maximum concentrations of antimony and mercury equaled their respective screening criteria and therefore are not considered significant. The average concentration of copper, lead, and selenium within the subsurface soil are well below the screening criteria and are also not considered significant.

One explosive compound, RDX, was detected above the screening level within sample 05-SB-05, at a depth between 2 and 4 feet bgs. Three additional explosives were detected within that sample, but at concentrations less than their respective screening levels.

3.4.1.3 Groundwater

Two unfiltered groundwater samples were collected at Site 5 and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, inorganics, and EPA SW846-8330 explosives. Table 3-7 provides a comparison of the detected constituents with risk based screening criteria. Figure 3-4 identifies those constituents identified in excess of the human health risk-based screening criteria.

Tetrachloroethene, trichloroethene, vinyl chloride, and chloroform were detected at maximum concentrations exceeding the human health risk-based screening levels.

Inorganics detected in the unfiltered groundwater samples in excess of the screening levels included aluminum, calcium, chromium, iron, magnesium, manganese, nickel, potassium, selenium, and sodium.

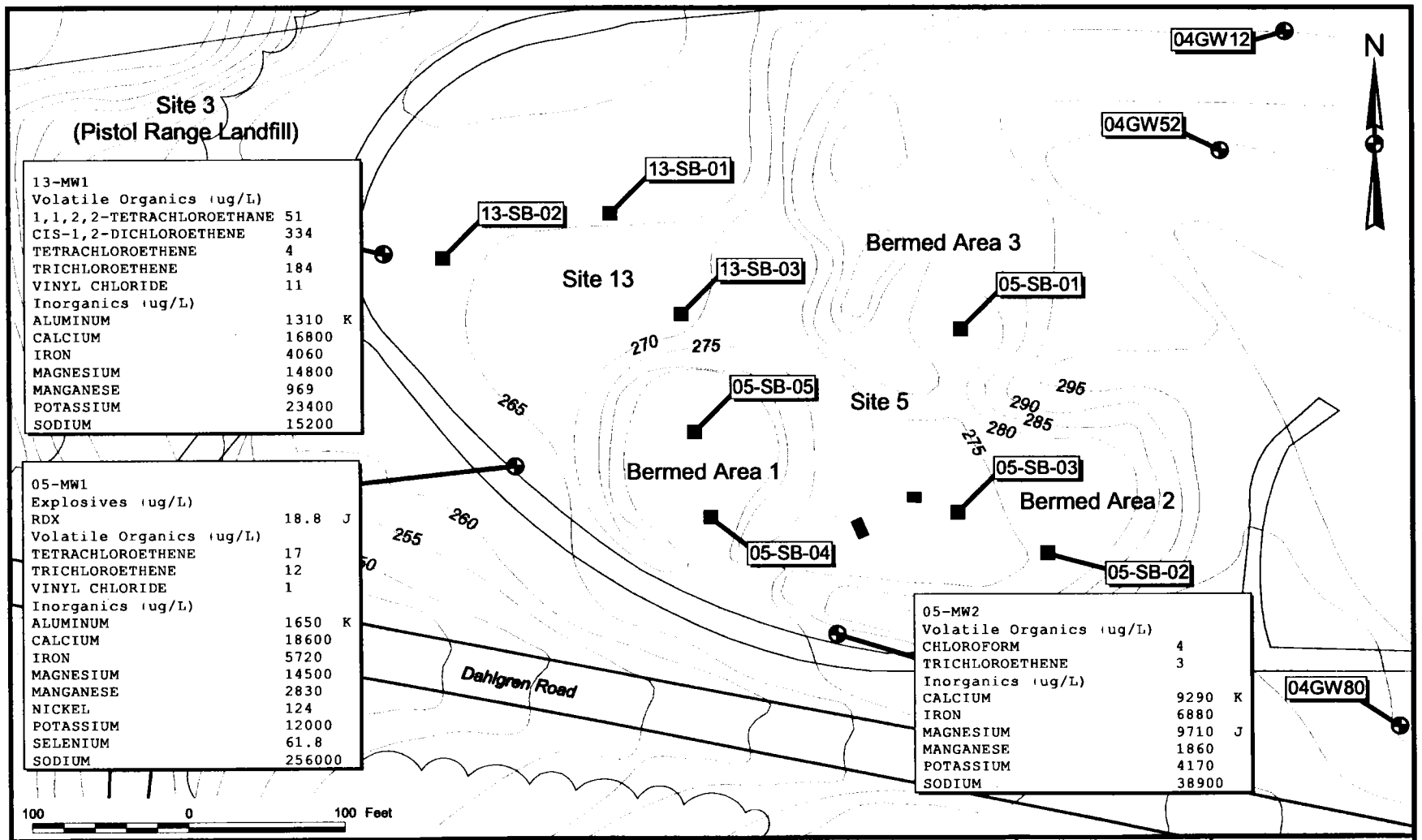
All pesticides/PCBs were either not detected or detected at concentrations less than their respective groundwater criteria. RDX was detected at monitoring well 05-MW1 at 18.8 µg/L, in excess of the groundwater screening level.

TABLE 3-7

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
UNFILTERED GROUNDWATER
SITE 5 - OPEN BURN AREAS
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Volatile Organics (ug/L)								
CHLOROFORM	1/2	4	4	05-GW-02	4	1	0.15	NA
TETRACHLOROETHENE	1/2	17	17	05-GW-01	17	1	1.1	NA
TRICHLOROETHENE	2/2	3	12	05-GW-01	7.5	NA	1.6	NA
VINYL CHLORIDE	1/2	1	1	05-GW-01	1	1	0.019	NA
CIS-1,2-DICHLOROETHENE	1/2	6	6	05-GW-01	6	1	61	NA
Inorganics (ug/L)								
ALUMINUM	1/2	1650 K	1650 K	05-GW-01	1,650	97.1	50	4870
BARIUM	2/2	96.3	140	05-GW-02	118	NA	2000	75.94
BERYLLIUM	1/2	1.1	1.1	05-GW-01	1.1	0.18	4	0.62
CALCIUM	2/2	9290 K	18600	05-GW-01	13,945	NA	NA	6908
CHROMIUM	2/2	19.4	37.3	05-GW-01	28.4	NA	100	184
COBALT	2/2	37.6	77	05-GW-01	57.3	NA	220	24.23
COPPER	1/2	15.5	15.5	05-GW-01	15.5	3.2	150	11.76
IRON	2/2	5720	6880	05-GW-02	6,300	NA	300	13700
MAGNESIUM	2/2	9710 J	14500	05-GW-01	12,105	NA	NA	11600
MANGANESE	2/2	1860	2830	05-GW-01	2345	NA	50	840
NICKEL	2/2	45.4	124	05-GW-01	84.7	NA	100	82.43
POTASSIUM	2/2	4170	12000	05-GW-01	8,085	NA	NA	9850
SELENIUM	1/2	61.8	61.8	05-GW-01	61.8	2.3	50	5.8
SODIUM	2/2	38900	256000	05-GW-01	147,450	NA	NA	36500
VANADIUM	1/2	5.9	5.9	05-GW-01	5.9	1	26	10.7
ZINC	2/2	257	472	05-GW-01	364.5	NA	1,100	211
Explosives (ug/L)								
HMX	1/2	8.9 J	8.9 J	05-GW-01	8.9	1.3	180	NA
RDX	1/2	18.8 J	18.8 J	05-GW-01	18.8	1.3	0.61	NA

NA - Not Available



DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
MJJ	12OCT98			
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN GROUNDWATER SITE 5 / SWMU 32 - OPEN BURN AREAS NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY	DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-4	REV 0

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Table 3-7 presents the risk-based screening comparison and statistics for the detected constituents for unfiltered groundwater at Site 5.

3.4.2 Ecological Screening

Site 5, the Open Burn Area, is located east of Site 3, Pistol Range Landfill, and southwest of Site 4, Chemical Disposal Area (Figure 3-5). Sites 3 and 4 will be investigated as part of the seven-site RFI. Site 5 consists of three open, bermed areas surrounded by wooded areas. The berms are approximately 7 to 10 feet high. Site 4 is located on the other side of a small hill. Site 3 is located across Perimeter Road. Site 4 is primarily open and covered with dense brush and grassy vegetation.

No surface water is located on or near Site 5. The closest surface water is Westfarm Branch, a stream located west of Site 4. Groundwater to surface water discharge of chemicals is of concern at Site 5, but surface soil is the primary medium of ecological interest. Ecological receptors could be directly exposed to chemicals in surface soils and indirectly via the foodchain. Chemicals in surface soil could migrate to off-site areas in surface runoff. Table 3-8 presents a comparison of existing data for surface soil chemicals to ecological screening levels compiled for NSWC-White Oak. Several PAHs, pesticides, Aroclor 1260, and a few inorganics are present as maximum concentrations that exceed screening levels. HQs for a multitude of chemicals range into the tens and hundreds. Since the site provides terrestrial habitat and has elevated concentrations of contaminants, an ERA appears to be warranted.

Groundwater contamination at the site will be addressed as part of the RFI Site 4 investigation. This is appropriate given the nature of the hydrogeology of the area. Nevertheless, given the local physiography of the area, it appears to be most appropriate to incorporate Site 5 into the ERA for Site 3 in the RFI.

3.5 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the risk screening evaluation, VOCs, SVOCs, and inorganics are the primary concern for Site 5. Both surface soil and groundwater appear to have been impacted by waste management activities at Site 5. The surface soil contamination appears to be limited in extent and depth and appears to be confined to the limits of the waste management unit.

The groundwater contamination identified downgradient of Site 5 may be a result of waste management activities at Site 4 or may be related to known waste disposal in areas upgradient of the site.

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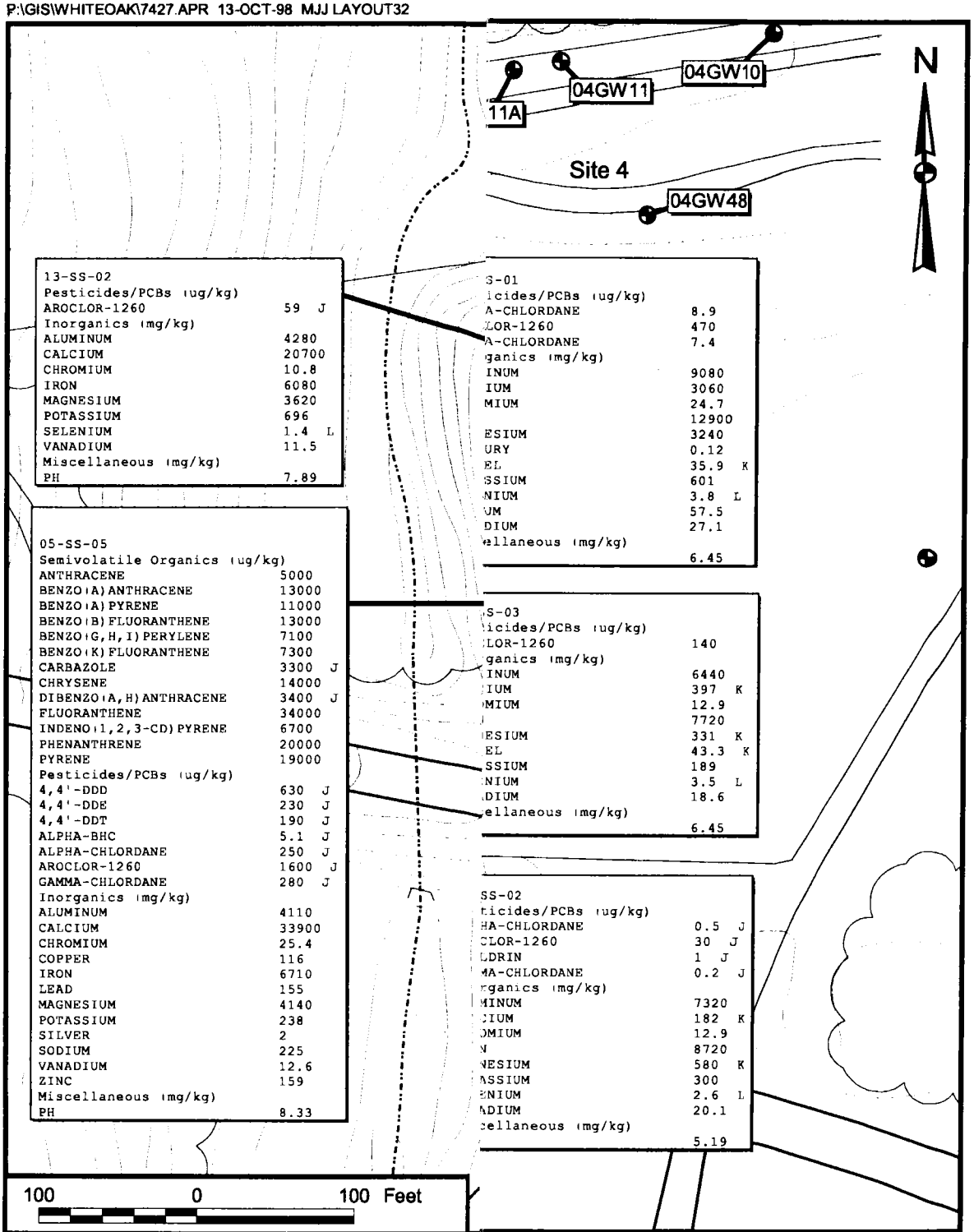


13-SS-02

Pesticides/PCBs (ug/kg)		
AROCLOR-1260	59	J
Inorganics (mg/kg)		
ALUMINUM	4280	
CALCIUM	20700	
CHROMIUM	10.8	
IRON	6080	
MAGNESIUM	3620	
POTASSIUM	696	
SELENIUM	1.4	L
VANADIUM	11.5	
Miscellaneous (mg/kg)		
PH	7.89	

05-SS-05

Semivolatile Organics (ug/kg)		
ANTHRACENE	5000	
BENZO(A)ANTHRACENE	13000	
BENZO(A)PYRENE	11000	
BENZO(B)FLUORANTHENE	13000	
BENZO(G,H,I)PERYLENE	7100	
BENZO(K)FLUORANTHENE	7300	
CARBAZOLE	3300	J
CHRYSENE	14000	
DIBENZO(A,H)ANTHRACENE	3400	J
FLUORANTHENE	34000	
INDENO(1,2,3-CD)PYRENE	6700	
PHENANTHRENE	20000	
PYRENE	19000	
Pesticides/PCBs (ug/kg)		
4,4'-DDD	630	J
4,4'-DDE	230	J
4,4'-DDT	190	J
ALPHA-BHC	5.1	J
ALPHA-CHLORDANE	250	J
AROCLOR-1260	1600	J
GAMMA-CHLORDANE	280	J
Inorganics (mg/kg)		
ALUMINUM	4110	
CALCIUM	33900	
CHROMIUM	25.4	
COPPER	116	
IRON	6710	
LEAD	155	
MAGNESIUM	4140	
POTASSIUM	238	
SILVER	2	
SODIUM	225	
VANADIUM	12.6	
ZINC	159	
Miscellaneous (mg/kg)		
PH	8.33	

S-01

icides/PCBs (ug/kg)		
A-CHLORDANE	8.9	
LOR-1260	470	
A-CHLORDANE	7.4	
ganics (mg/kg)		
INUM	9080	
IUM	3060	
MIUM	24.7	
	12900	
ESIUM	3240	
URY	0.12	
EL	35.9	K
SSIUM	601	
NIUM	3.8	L
UM	57.5	
DIUM	27.1	
ellaneous (mg/kg)		
	6.45	

S-03

icides/PCBs (ug/kg)		
LOR-1260	140	
ganics (mg/kg)		
INUM	6440	
IUM	397	K
MIUM	12.9	
	7720	
ESIUM	331	K
EL	43.3	K
SSIUM	189	
NIUM	3.5	L
DIUM	18.6	
ellaneous (mg/kg)		
	6.45	

SS-02

icides/PCBs (ug/kg)		
HA-CHLORDANE	0.5	J
CLOR-1260	30	J
LDRIN	1	J
MA-CHLORDANE	0.2	J
rganics (mg/kg)		
MINUM	7320	
CIUM	182	K
OMIUM	12.9	
N	8720	
NESIUM	580	K
ASSIUM	300	
ENIUM	2.6	L
ADIUM	20.1	
cellaneous (mg/kg)		
	5.19	

NO	DATE	REVISIONS

CONTRACT NUMBER 7427	OWNER NUMBER 0101
APPROVED BY SN	DATE 12/1
APPROVED BY	DATE
DRAWING NO. FIGURE 3-5	REV 0

TABLE 3-8

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 5 - OPEN BURN AREA
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Semivolatile Organics (mg/kg)						
ACENAPHTHENE	3/5	0.044	3	05-SS-05	20	0.15
ANTHRACENE	3/5	0.098	5	05-SS-05	1	5.00
BENZO(A)ANTHRACENE	3/5	0.39	13	05-SS-05	1	13.00
BENZO(A)PYRENE	3/5	0.42	11	05-SS-05	1	11.00
BENZO(B)FLUORANTHENE	4/5	0.052	13	05-SS-05	1	13.00
BENZO(G,H,I)PERYLENE	3/5	0.36	7.1	05-SS-05	1	7.10
BENZO(K)FLUORANTHENE	3/5	0.29	7.3	05-SS-05	1	7.30
BIS(2-ETHYLHEXYL)PHTHALATE	1/5	0.044	0.044	05-SS-03	0.1	0.44
CARBAZOLE	3/5	0.048	3.3	05-SS-05	1	3.30
CHRYSENE	3/5	0.4	14	05-SS-05	1	14.00
DIBENZO(A,H)ANTHRACENE	3/5	0.13	3.4	05-SS-05	1	3.40
DIBENZOFURAN	1/5	1.2	1.2	05-SS-05	600	0.00
FLUORANTHENE	4/5	0.067	34	05-SS-05	1	34.00
FLUORENE	3/5	0.044	1.9	05-SS-05	30	0.06
INDENO(1,2,3-CD)PYRENE	3/5	0.3	6.7	05-SS-05	1	6.70
NAPHTHALENE	1/5	0.43	0.43	05-SS-05	1	0.43
PHENANTHRENE	3/5	0.46	20	05-SS-05	1	20.00
PYRENE	4/5	0.054	19	05-SS-05	1	19.00
Pesticide/PCBs (mg/kg)						
4,4'-DDD	1/5	0.63	0.63	05-SS-05	0.0025	252.00
4,4'-DDE	4/5	0.0012	0.23	05-SS-05	0.0025	92.00
4,4'-DDT	1/5	0.19	0.19	05-SS-05	0.0025	76.00
ALPHA-CHLORDANE	4/5	0.0005	0.25	05-SS-05	NA	--
AROCLOR-1260	5/5	0.03	1.6	05-SS-05	0.02	80.00
DIELDRIN	1/5	0.001	0.001	05-SS-02	0.0005	2.00
GAMMA-CHLORDANE	4/5	0.0002	0.28	05-SS-05	NA	--
ALPHA-BHC	1/5	0.0051	0.0051	05-SS-05	0.0025	2.04

TABLE 3-8

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 5 - OPEN BURN AREA
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Inorganics (mg/kg)						
ALUMINUM	5/5	2310	9080	05-SS-01	50	181.60
ARSENIC	5/5	1.8	2.9	05-SS-02	10	0.29
BARIUM	5/5	18.4	37.9	05-SS-05	500	0.08
BERYLLIUM	1/5	0.36	0.36	05-SS-04	10	0.04
CADMIUM	5/5	0.13	2.1	05-SS-05	4	0.53
CHROMIUM	5/5	12.9	25.4	05-SS-05	1	25.40
COBALT	5/5	1.3	4.9	05-SS-01	20	0.25
COPPER	5/5	12.1	116	05-SS-05	50	2.32
IRON	5/5	6710	12900	05-SS-01	200	64.50
LEAD	5/5	10.5	155	05-SS-05	50	3.10
MANGANESE	5/5	33.9	143	05-SS-01/05	500	0.29
MERCURY	5/5	0.04	0.12	05-SS-01	0.1	1.20
NICKEL	5/5	16.4	43.3	05-SS-03	30	1.44
SELENIUM	3/3	2.6	3.8	05-SS-01	1	3.80
SILVER	2/5	0.29	2	05-SS-05	2	1.00
VANADIUM	5/5	9.1	27.1	05-SS-01	2	13.55
ZINC	5/5	12.2	159	05-SS-05	50	3.18

NA = Not Available

3.5.2 Recommendations

Based on the conclusions of the contamination assessment and the screening evaluation, completion of an EE/CA that addresses a removal action is recommended for Site 5. A removal action may be appropriate because contaminant distribution is localized and confined to the surficial media. The extent of the removal action can be easily determined through additional site characterization. Appropriate clean-up criteria should be established to be protective of human health and ecologic receptors.

Further groundwater characterization at Site 5 should be conducted. The characterization should be combined with the investigation of groundwater at adjacent waste management sites, in particular Sites 3, 4, and 13. In addition, it is recommended that Site 5 be assessed as part of the Site 3 and proposed Site 5 ERA.

4.0 SITE6/SWMU 6 - SLUDGE COMPOSTING AREA

4.1 BACKGROUND

Site 6 (Figure 4-1) was used between 1946 and 1982 to manage sludge waste from the sludge drying beds and Imhoff tanks that were located at the Former Wastewater Treatment Plant Site (SWMU 47). Site 6 comprises a 1-acre area of vegetated land. Sewage treatment sludge that may have contained hazardous wastes from plating and laboratory operations, pesticide spraying, and explosive wastes were spread on the ground at this site. Upon application, the sludge was mixed with soil, leaves, sawdust, and other organic materials to accelerate the biodegradation process.

4.2 ENVIRONMENTAL SETTING

4.2.1 Topography

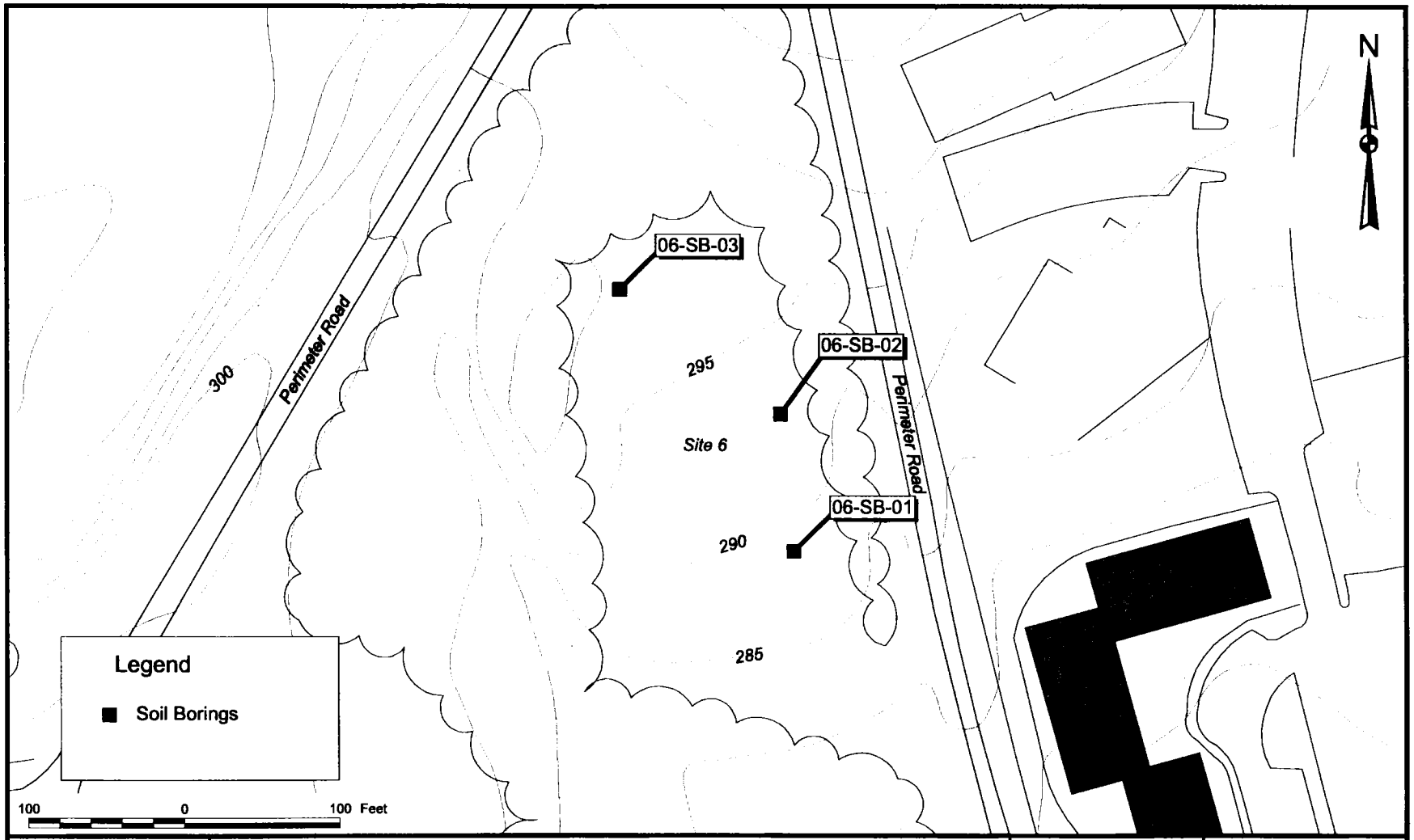
Site 6 consists of an open clearing that gently slopes uniformly from the northwest to the southeast. The clearing is completely vegetated with weeds, grass, and underbrush. The maximum relief of the site is approximately 15 feet, with a range in elevation from 300 feet to 285 feet msl. The clearing is surrounded by forest.

4.2.2 Surface Water

There are no surface water bodies at Site 6. The nearest surface water body is a small southeasterly flowing tributary of Paint Branch located southeast of Site 6. The tributary drains directly into Paint Branch. Because of the gradual slope of Site 6, surface water from a rain event would probably infiltrate into the surface soil with minor site runoff.

4.2.3 Geology

Based on the boring logs recorded for the site, the shallow subsurface soils consist of an orange clay and sand of the Chillum-Croom-Beltsville Association. These soils are described as very deep and moderately well drained and are formed in Coastal Plain deposits on uplands.



DRAWN BY MJJ — DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	SAMPLE LOCATION MAP SITE 6 / SWMU 6 - SLUDGE COMPOSTING AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN — DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY — DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 4-1	REV 0

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No borings were completed below the depth of 10 feet at this site. Soil borings indicate that there is a layer of organic and fill material overlying a layer of dark gray sludge material that overlies an orange layer of sand with some clay. Based on boring logs from nearby sites, bedrock is anticipated to be at very shallow depths at Site 6 (30 to 35 feet).

4.2.4 Hydrogeology

No hydrogeologic investigations have been conducted at this site. However, shallow groundwater flow generally mirrors the surface topography and bedrock surface throughout NSWC White Oak. Therefore, groundwater flow for this site is predicted to flow in a southeastward direction.

4.3 FIELD INVESTIGATION ACTIVITIES

In order to assess the depth and areal extent of the remaining sewage sludge, surface and subsurface soil sampling was performed in conjunction with a site geophysical survey. A high-resolution terrain conductivity survey was used, along with visual observation of the surface and subsurface conditions, during sampling collection.

4.3.1 Geophysical Investigations

An electromagnetic terrain conductivity survey was completed to determine the extent of the sludge layer at Site 6. The EM31 survey indicated the presence of a broad anomaly (Anomaly "A") in the northwestern portion of the site. The location of this anomaly correlates with the historical record for the location of the sludge composting area. Sludge typically contains elevated electrolytes that would result in a net increase of the bulk electrical conductivity of the soil. It appears that Anomaly "A" defines the eastern extent of the sludge composting area. Thick vegetation prohibited survey of the western edge of this anomaly. The results of this survey were used to place soil sample locations. The results of the geophysical survey are provided in Appendix C.

4.3.2 Surface Soil Sampling

Three surface soil samples were collected from Site 6 (Figure 4-1). The surface soil samples were collected from locations used for subsurface soil sampling. All surface soil samples at Site 6 were analyzed for TAL metals, cyanide, molybdenum, TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and explosives. Sample log sheets are provided in Appendix D.

4.3.3 Soil Borings and Subsurface Soil Sampling

Three soil borings were completed at Site 6 at the same locations as the corresponding surface soil samples. Split-spoon samples were collected continuously at 2-foot intervals down to 10 feet bgs. A sample of the sludge layer and a sample of the soil immediately under the sludge layer were collected from each boring. All subsurface soil samples at Site 6 were analyzed for the following parameters: TAL metals, cyanide, molybdenum, TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and EPA SW846-8330 explosives. Sample log sheets are provided in Appendix D.

4.4 DATA AND SCREENING EVALUATION

Results from the soil sampling performed at Site 6 are provided in Appendix F Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. A summary of positive detections is presented in Tables 4-1 and 4-2 for surface soil and subsurface soil, respectively.

4.4.1 Human Health Risk Screening

4.4.1.1 Surface Soil

Three surface soil samples were collected at Site 6 and analyzed for TCL VOCs SVOCs, pesticides/PCBs, inorganics, and EPA SW846-8330 explosives. Table 4-3 provides a comparison of the constituents identified in the surface soil with the human health risk-screening criteria. Figure 4-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 1 for surface soil.

All VOC results were either undetected, rejected, or "B" qualified and therefore considered nondetected results. All SVOCs and pesticides/PCBs were detected at concentrations less than their respective screening values. Explosives were not detected in surface soil samples collected at Site 6.

Inorganics detected in excess of the screening criteria included aluminum, arsenic, calcium, chromium, iron, magnesium, manganese, and potassium. Calcium, magnesium, and potassium are essential human nutrients and are not present at concentrations that would pose a human health risk. The maximum concentrations of aluminum, arsenic, chromium, and iron were detected at levels below their site-specific background values. Manganese was detected slightly in excess of the screening level in two samples. However, the average manganese concentration is well below the White-Oak-specific background concentration. The manganese is not believed to be related to waste management activities.

TABLE 4-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	06-SS-01 0-1' 11/03/97 06-SS-01 GRAB	06-SS-02 0-1' 11/03/97 06-SS-02 GRAB	06-SS-03 0-1' 11/03/97 06-SS-03 GRAB	/ /	/ /	/ /
SEMIVOLATILES (µg/kg)						
BIS(2-ETHYLHEXYL)PHTHALATE	85 J	400 UJ	400 UJ			
DI-N-BUTYL PHTHALATE	340 J	400 UJ	400 UJ			
DIETHYL PHTHALATE	63 J	65 J	69 J			
FLUORANTHENE	46 J	400 UJ	400 UJ			
PYRENE	51 J	400 UJ	400 UJ			
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	4.2 UJ	0.59 J	0.53 J			
ALPHA-CHLORDANE	1.7 J	2 UJ	2 UJ			
AROCLOR-1260	84 J	9.4 J	5.8 J			
DIELDRIN	4.2 UJ	4 UJ	0.16 J			
GAMMA-CHLORDANE	1.2 J	2 UJ	2 UJ			
METALS (mg/kg)						
ALUMINUM	8700	9970	10600			
ARSENIC	2.1 L	4 L	3.1 L			
BARIUM	53.4	30.8	44.3			
BERYLLIUM	0.51	0.02 B	0.02 U			
CADMIUM	0.47	0.29 B	0.3 B			
CALCIUM	903 J	271 J	793 J			
CHROMIUM	15.1 K	16.4 K	14.6 K			
COBALT	10.3	2.5	1.2			
COPPER	13.8	9	8.5			
IRON	17200	14700	11100			
LEAD	16.5 K	10 K	13.5 K			
MAGNESIUM	166 K	701 K	1030 K			
MANGANESE	563 L	60.7 L	175 L			

TABLE 4-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SS-01	06-SS-02	06-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	11/03/97	11/03/97	11/03/97	/ /	/ /	/ /
LOCATION:	06-SS-01	06-SS-02	06-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
METALS (mg/kg)						
MERCURY	0.09	0.04	0.04			
MOLYBDENUM	0.559	0.728	0.464			
NICKEL	20.4	4.9	6.8			
POTASSIUM	1340	435	916			
SELENIUM	1.1 J	0.57 J	0.55 UL			
VANADIUM	21.5	29	25.1			
ZINC	53.8	21.1	28.3			
GENERAL CHEMISTRY ()						
PH	4.92	5.05	5.53			

TABLE 4-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-METHYLNAPHTHALENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	140 J
BIS(2-ETHYLHEXYL)PHTHALATE	64 J	79 J	410 UJ	350 UJ	270 J	380 UJ
PHENANTHRENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	64 J
PESTICIDES/PCBs (µg/kg)						
ALPHA-CHLORDANE	0.1 R	0.18 J	1.8 J	1.7 UJ	2.9 J	60 J
AROCLOR-1260	37 UJ	10 J	14 J	35 UJ	46 J	440 J
GAMMA-CHLORDANE	0.11 J	0.21 J	0.92 J	1.7 UJ	1.9 J	51 J
METALS (mg/kg)						
ALUMINUM	15500	21600	15600	2330	9490	12200
ARSENIC	4.5	5	4.1	0.61 UL	2.8 L	4 L
BARIUM	67.1	52.4	44.2	5.9	44.5	79.8
CALCIUM	585 K	195 K	208 K	51.7 B	347 K	2070
CHROMIUM	18.2	25.4	19.5	2.9	12.3	19
COBALT	3.6	5.1	3.3 B	0.38 B	2.4 B	3.6
COPPER	6.3	14.3	11.8	1.4	6	11.5
IRON	18000	25100	17300	1820	8040	12800
MAGNESIUM	1210 K	2280	865 K	130 K	732 K	988 K
MANGANESE	120	147	66.2	10.8	82.6	219
MOLYBDENUM	0.48	0.45	0.48	0.13 U	0.19	0.39
NICKEL	10.3	12.6	6.5	0.92 B	5.7	9
POTASSIUM	756 L	1130 L	781 L	110 L	512 L	1000 L
SELENIUM	1.3	1.3 L	0.92	0.47 U	1.1	1.2
VANADIUM	29.5	38.9	35.8	4.7	18.2	25
ZINC	23.2 J	35.4 J	20.9 J	2.8	17.4	31.3 J

TABLE 4-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
GENERAL CHEMISTRY ()						
PH	6.3	5.18	5.77	5.16	5.64	7.2

TABLE 4-3

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 6 - SLUDGE COMPOSTING AREA
FORMER NSWC WHITE OAK

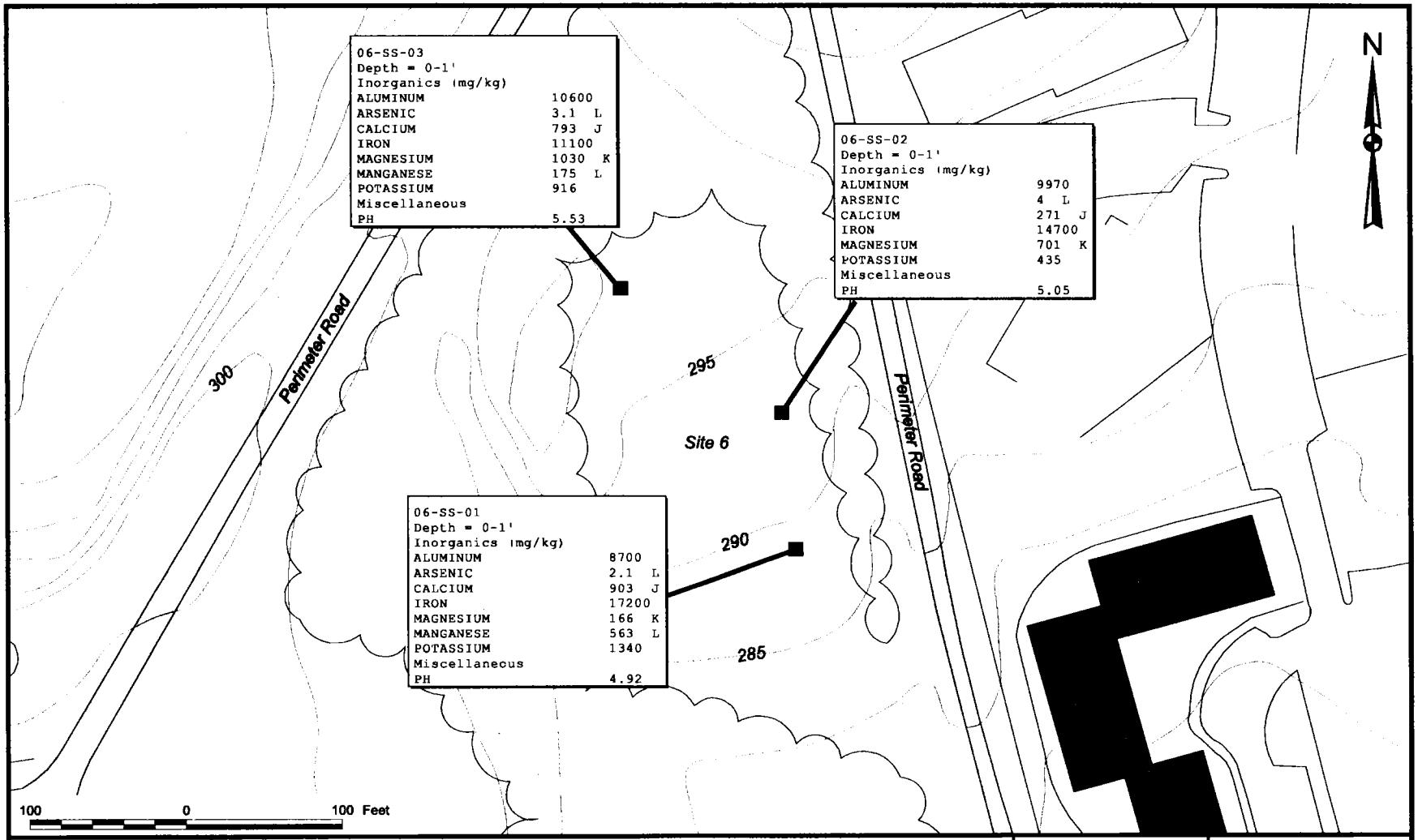
Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
BIS(2-ETHYLHEXYL)PHTHALATE	1/3	0.085 J	0.085 J	06-SS-01	0.085	0.4	46	NA
DI-N-BUTYL PHTHALATE	1/3	0.34 J	0.34 J	06-SS-01	0.34	0.4	780	NA
DIETHYL PHTHALATE	3/3	0.063 J	0.069 J	06-SS-03	0.0657	NA	6,300	NA
FLUORANTHENE	1/3	0.046 J	0.046 J	06-SS-01	0.046	0.4	310	0.800
PYRENE	1/3	0.051 J	0.051 J	06-SS-01	0.051	0.4	230	0.630
Pesticide/PCBs (mg/kg)								
4,4'-DDE	2/3	0.0005 J	0.0006 J	06-SS-02	0.0006	0.0042	1.9	0.081
ALPHA-CHLORDANE	1/3	0.0017 J	0.0017 J	06-SS-01	0.0017	0.002	1.8	0.0026
AROCLOR-1260	3/3	0.0058 J	0.084 J	06-SS-01	0.0331	NA	0.32	NA
DIELDRIN	1/3	0.0002 J	0.0002 J	06-SS-03	0.0002	0.004 - 0.0042	0.04	0.0088
GAMMA-CHLORDANE	1/3	0.0012 J	0.0012 J	06-SS-01	0.0012	0.002	1.8	0.0015
Inorganics (mg/kg)								
ALUMINUM	3/3	8700	10600	06-SS-03	9,757	NA	7,800	14953
ARSENIC	3/3	2.1 L	4 L	06-SS-02	3.1	NA	0.43	5.11
BARIUM	3/3	30.8	53.4	06-SS-01	42.8	NA	550	59.5
BERYLLIUM	1/3	0.51	0.51	06-SS-01	0.51	0.02	16	0.19
CADMIUM	1/3	0.47	0.47	06-SS-01	0.47	0.29 - 0.3	3.9	NA
CALCIUM	3/3	271 J	903 J	06-SS-01	656	NA	NA	1040
CHROMIUM	3/3	14.6 K	16.4 K	06-SS-02	15.4	NA	23	29.35
COBALT	3/3	1.2	10.3	06-SS-01	4.67	NA	470	11.81
COPPER	3/3	8.5	13.8	06-SS-01	10.43	NA	310	11.52
IRON	3/3	11100	17200	06-SS-01	14,333	NA	2,300	18946
LEAD	3/3	10 K	16.5 K	06-SS-01	13.3	NA	400	60.2
MAGNESIUM	3/3	166 K	1030 K	06-SS-03	632	NA	NA	1183
MANGANESE	3/3	60.7 L	563 L	06-SS-01	266	NA	160	490
MERCURY	3/3	0.04	0.09	06-SS-01	0.057	NA	2.3	0.142

TABLE 4-3

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 6 - SLUDGE COMPOSTING AREA
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
MOLYBDENUM	3/3	0.464	0.728	06-SS-02	0.584	NA	39	14.56
NICKEL	3/3	4.9	20.4	06-SS-01	10.7	NA	160	NA
POTASSIUM	3/3	435	1340	06-SS-01	897	NA	NA	845
SELENIUM	2/3	0.57 J	1.1 J	06-SS-01	0.835	0.55	39	0.68
VANADIUM	3/3	21.5	29	06-SS-02	25.2	NA	55	30.08
ZINC	3/3	21.1	53.8	06-SS-01	34.4	NA	2,300	30.67
Miscellaneous								
pH (SU)	3/3	4.92	5.53	06-SS-03	5.17	NA	NA	NA

NA - Not Available



DRAWN BY MJJ — DATE 12OCT96	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	HUMAN HEALTH RISK EXCEEDANCE IN SURFACE SOIL SITE 6 / SWMU 6 - SLUDGE COMPOSTING AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN — DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY — DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 4-2	REV 0

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4.4.1.2 Subsurface Soil

Six subsurface soil samples were collected at Site 6 and analyzed for TCL VOCs SVOCs, pesticides/PCBs, inorganics, and EPA SW846-8330 explosives. Table 4-4 provides a comparison of the constituents identified in the subsurface soil with the human health risk-screening criteria. Figure 4-3 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 6 in subsurface soil.

All VOCs, SVOCs, and pesticides were detected at concentrations less than their respective screening levels. Aroclor 1260 was the only PCB detected slightly in excess of the screening level at one sampling location 06-SB-03(7) at a depth of 7 feet.

Inorganics detected in excess of the screening criteria included aluminum, arsenic, calcium, chromium, iron, magnesium, manganese, and potassium. Calcium, magnesium, and potassium are essential human nutrients and are not present at concentrations that would pose a human health risk. Arsenic, chromium, iron, and manganese were detected at concentrations less than their respective background levels. Aluminum was the only inorganic detected in excess of its background; however, it was detected in only one sample, slightly in excess of the background concentration, and within the background range for aluminum.

Explosives were not detected in subsurface soil samples collected at Site 6.

4.4.2 Ecological Screening

Site 6, the Sludge Composting Area, is located in the extreme northeastern corner of the base. None of the seven RFI sites are located in the immediate vicinity of Site 6 (Figure 4-1). Sites 4 and 7 are located approximately 1,500 and 2,500 feet to the west and south, respectively. Site 6 is an open, brushy area surrounded by woods on all sides. The site slopes gently to the south. No surface water is located near Site 6.

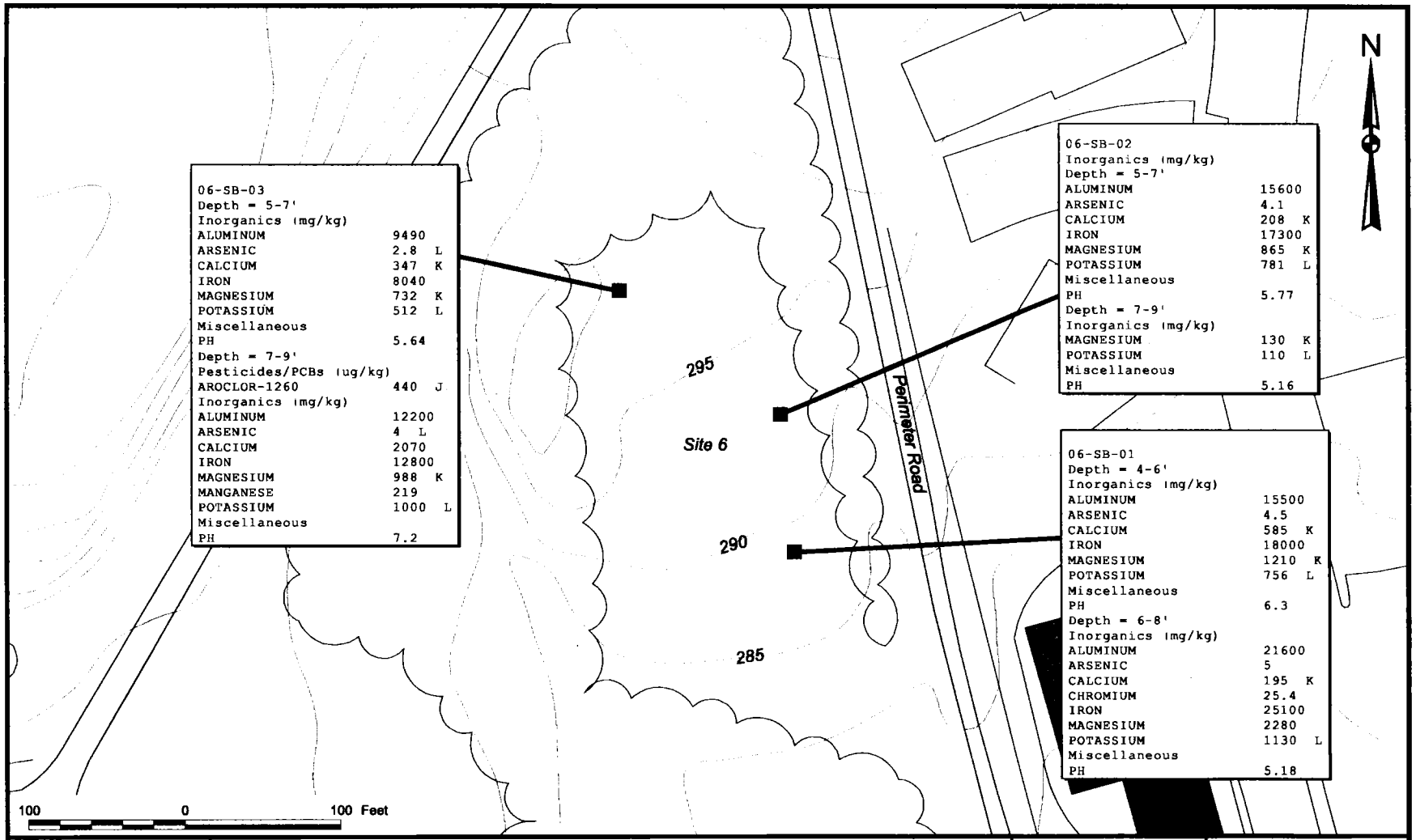
Due to the absence of surface water on or near Site 6, surface soil is the primary medium of ecological concern. Ecological receptors could be directly exposed to chemicals in surface soils and indirectly via the foodchain. Off-site migration of surface soil chemicals is possible but would probably be minimal due to the relatively flat (gently sloping) nature of the site. Table 4-5 presents a comparison of existing data for surface soil chemicals to ecological screening levels compiled for NWSC White Oak. Figure 4-4 identifies the sampling locations where constituents were identified in excess of the screening critiera. No SVOCs

TABLE 4-4

RISK-BASED SCREENING COMPARIONS FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 6 - SLUDGE COMPOSTING AREA
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
2-METHYLNAPHTHALENE	1/6	0.14 J	0.14 J	06-SB-03(7)	0.14	0.35 - 0.41	310	NA
BIS(2-ETHYLHEXYL)PHTHALATE	3/6	0.064 J	0.27 J	06-SB-03(5)	0.1377	0.35 - 0.41	46	NA
PHENANTHRENE	1/6	0.064 J	0.064 J	06-SB-03(7)	0.064	0.35 - 0.41	310	NA
Pesticide/PCBs (mg/kg)								
ALPHA-CHLORDANE	4/5	0.0002 J	0.06 J	06-SB-03(7)	0.0162	0.0017	1.8	NA
AROCLOR 1260	4/6	0.01 J	0.44 J	06-SB-03(7)	0.1275	0.035 - 0.037	0.32	NA
GAMMA-CHLORDANE	5/6	0.0001 J	0.051 J	06-SB-03(7)	0.0108	0.0017	1.8	NA
Inorganics (mg/kg)								
ALUMINUM	6/6	2,330	21,600	06-SB-01(6)	12,787	NA	7,800	20961
ARSENIC	5/6	2.8 L	5	06-SB-01(6)	4.08	0.61	0.43	12.15
BARIUM	6/6	5.9	79.8	06-SB-03(7)	49.0	NA	550	40.09
CALCIUM	5/6	195 K	2,070	06-SB-03(7)	681	51.7	NA	247
CHROMIUM	6/6	2.9	25.4	06-SB-01(6)	16.2	NA	23	41.05
COBALT	3/6	3.6	5.1	06-SB-01(6)	4.1	0.38 - 3.3	470	16.6
COPPER	6/6	1.4	14.3	06-SB-01(6)	8.55	NA	310	21.62
IRON	6/6	1,820	25,100	06-SB-01(6)	13,843	NA	2,300	28681
MAGNESIUM	6/6	130 K	2,280	06-SB-01(6)	1,034	NA	NA	2987
MANGANESE	6/6	10.8	219	06-SB-03(7)	108	NA	160	503
MOLYBDENUM	5/6	0.19	0.48	06-SB-01(4)/02 (5)	0.398	0.13	39	NA
NICKEL	5/6	5.7	12.6	06-SB-01(6)	8.8	0.92	160	13.84
POTASSIUM	6/6	110 L	1,130 L	06-SB-01(6)	715	NA	NA	2792
SELENIUM	5/6	0.92	1.3	06-SB-01(4)/(6)	1.16	0.47	39	2.73
VANADIUM	6/6	4.7	38.9	06-SB-01(6)	25.35	NA	55	44.31
ZINC	6/6	2.8	35.4 J	06-SB-01(6)	21.83	NA	2,300	84.2
Miscellaneous								
pH (SU)	6/6	5.16	7.2	06-SB-03(7)	5.88	NA	NA	NA

NA - Not Available



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MJJ	12OCT98			
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SUBSURFACE SOIL SITE 6 / SWMU 6 - SLUDGE COMPOSTING AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 2/1
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 4-3	REV 0

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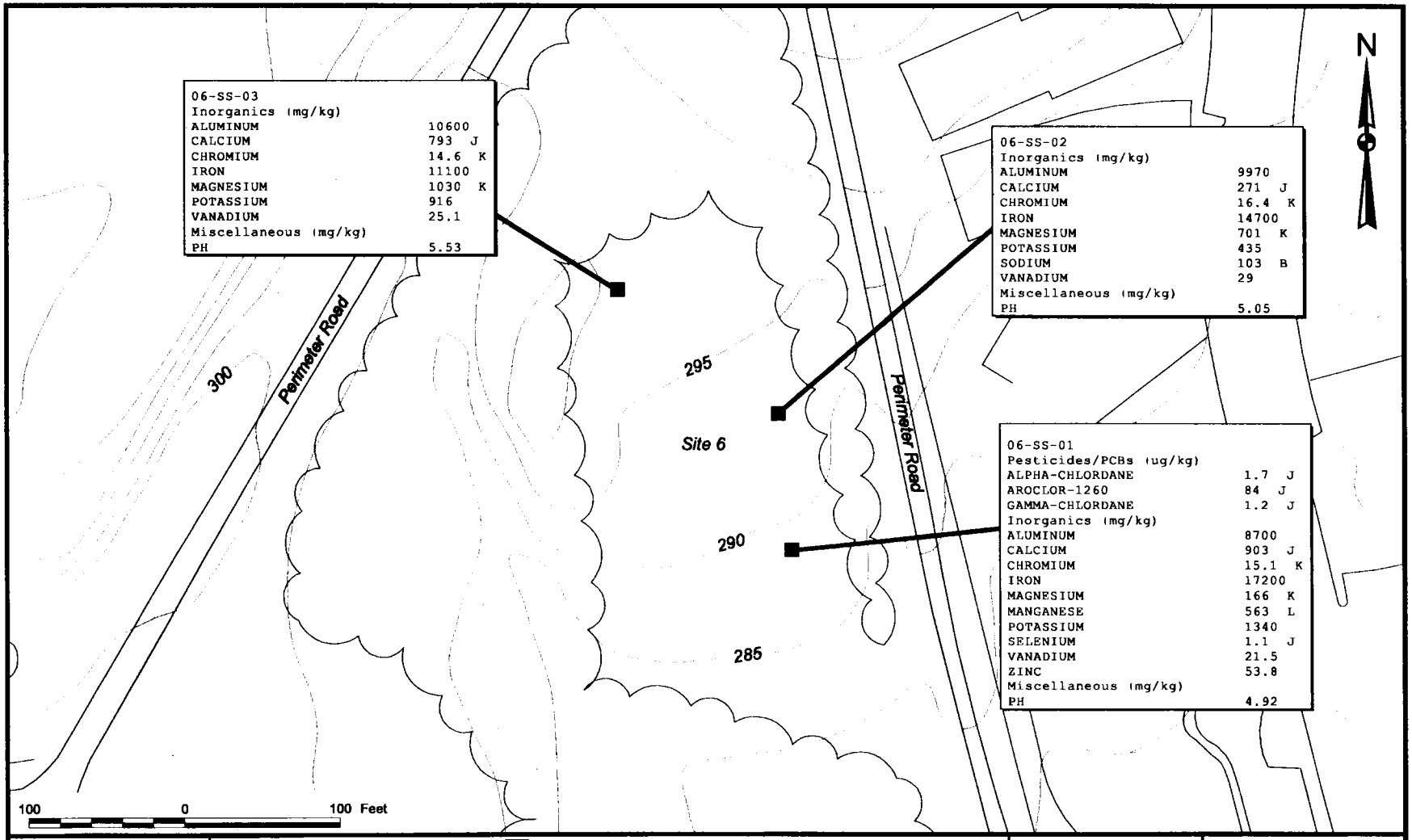
TABLE 4-5

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 6 - SLUDGE COMPOSTING AREA
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Semivolatile Organics (mg/kg)						
BIS(2-ETHYLHEXYL)PHTHALATE	1/3	0.085	0.085	06-SS-01	0.1	0.85
DI-N-BUTYL PHTHALATE	1/3	0.34	0.34	06-SS-01	100	0.00
DIETHYL PHTHALATE	3/3	0.063	0.069	06-SS-03	100	0.00
FLUORANTHENE	1/3	0.046	0.046	06-SS-01	1	0.05
PYRENE	1/3	0.051	0.051	06-SS-01	1	0.05
Pesticide/PCBs (mg/kg)						
4,4'-DDE	2/3	0.0005	0.0006	06-SS-02	0.0025	0.24
ALPHA-CHLORDANE	1/3	0.0017	0.0017	06-SS-01	NA	--
AROCLOR-1260	3/3	0.0058	0.084	06-SS-01	0.02	4.20
DIELDRIN	1/3	0.0002	0.0002	06-SS-03	0.0005	0.40
GAMMA-CHLORDANE	1/3	0.0012	0.0012	06-SS-01	NA	--
Inorganics (mg/kg)						
ALUMINUM	3/3	8700	10600	06-SS-03	50	212.00
ARSENIC	3/3	2.1	4	06-SS-02	10	0.40
BARIUM	3/3	30.8	53.4	06-SS-01	500	0.11
BERYLLIUM	1/3	0.51	0.51	06-SS-01	10	0.05
CADMIUM	1/3	0.47	0.47	06-SS-01	4	0.12
CHROMIUM	3/3	14.6	16.4	06-SS-02	1	16.40
COBALT	3/3	1.2	10.3	06-SS-01	20	0.52
COPPER	3/3	8.5	13.8	06-SS-01	50	0.28
IRON	3/3	11100	17200	06-SS-01	200	86.00
LEAD	3/3	10	16.5	06-SS-01	50	0.33
MANGANESE	3/3	60.7	563	06-SS-01	500	1.13
MERCURY	3/3	0.04	0.09	06-SS-01	0.1	0.90
MOLYBDENUM	3/3	0.464	0.728	06-SS-02	2	0.36
NICKEL	3/3	4.9	20.4	06-SS-01	30	0.68
SELENIUM	2/3	0.57	1.1	06-SS-01	1	1.10
VANADIUM	3/3	21.5	29	06-SS-02	2	14.50
ZINC	3/3	21.1	53.8	06-SS-01	50	1.08

NA = Not Available



DRAWN BY MJJ — DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	ECO RISK EXCEEDANCE IN SURFACE SOIL SITE 6 / SWMU 6 - SLUDGE COMPOSTING AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN — DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY — DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 4-4	REV 0

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had maximum concentrations that exceeded screening levels. Aroclor 1260 was the only pesticide/PCB that had a maximum concentration in excess of its screening level. No surface soil screening levels were available for 4,4'-DDE or gamma-chlordane. Aluminum, chromium, iron, manganese, selenium, vanadium, and zinc were inorganics that had HQs greater than 1.0.

Although Region III BTAG discourages risk management prior to discussion of site screening and other relevant items in the ERA process, a brief analysis of risk management in this report for Site 6 chemicals with HQs greater than 1.0 indicates that the risks may not be significant enough to require an ERA. Again, the analyses in this report do not constitute ERAs. Therefore, risk management is not being used in this report out of step with the ERA process. It is being used to determine whether an ERA is warranted.

Most of the inorganics with HQs greater than 1.0 are those associated with low ecotoxicity, including aluminum, iron, and vanadium. All of the other inorganics with HQs greater than 1.0 (except for chromium), including manganese, selenium, and zinc, have low HQs (all 1.13 or less). Chromium has an HQ of 16.4, but its maximum (16.4 mg/kg) is less than the proposed NSWC White Oak background concentration of 29.35 mg/kg. It should be noted that the maximum concentrations of aluminum, iron, and vanadium are less than proposed background concentrations. Aroclor 1260 had an HQ greater than 1.0 (4.2) and no surface soil screening levels were available for 4,4'-DDE or gamma-chlordane, but the maximum concentrations of these organics are relatively low (0.084 mg/kg or less).

For these reasons, some potential risks may be present, but Site 6 does not appear to be a candidate for a formal ERA.

4.5 CONCLUSIONS AND RECOMMENDATIONS

4.5.1 Conclusions

Based upon the results of site sampling and analysis, no significant contamination has been identified in the site soils. Inorganics and Aroclor 1260 were detected in excess of human health and ecological screening criteria. However, the concentrations were detected within the range of background for the former NSWC White Oak property.

4.5.2 Recommendations

No further action is recommended for Site 6.

5.0 SITE 12/SWMU 21 - BUILDING 201 - INDUSTRIAL WASTEWATER AREA "200" SITE 12/SWMU 22 - BUILDING 204 - INDUSTRIAL WASTEWATER AREA "200"

5.1 BACKGROUND

This site consists of two leaching wells formerly used to dispose of acid waste containing lead, antimony, and cadmium generated in Buildings 201 and 204. Photographic wastes may also have been disposed in these wells. The wells discharged directly into the subsurface soil. The units were used from 1945 until the late 1970s and were deactivated between 1982 and 1984. The locations of the two wells are not known precisely. The first well (Site 12/SWMU 21) is believed to have been located north of Building 201. A review of archived drawings has confirmed the general location of the well. The second well (Site 12/SWMU22) is thought to be located in the vicinity of Building 204. A review of archived drawings identified a suspected location of the second well, approximately 100 feet north of Building 204.

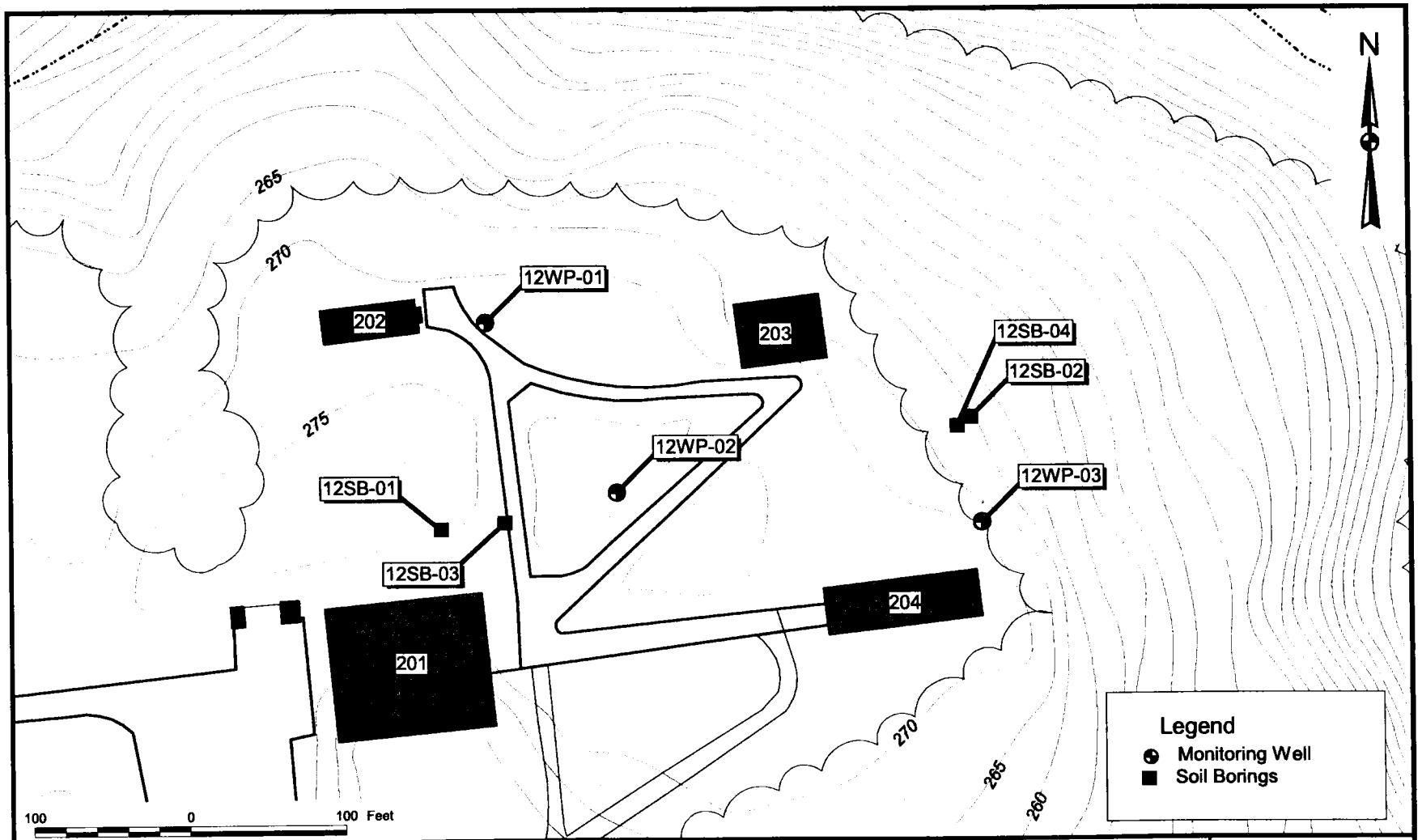
5.2 ENVIRONMENTAL SETTING

5.2.1 Topography

As illustrated in Figure 5-1, the land along the northern and eastern boundaries of Site 12 (SWMU 21 and 22) slopes rather steeply to Paint Branch. The topography of the land comprising Site 12, however, is gradually sloped toward the south and southwest. The mean elevation at the site is approximately 275 feet above mean sea level (msl).

5.2.2 Surface Water

There are no surface water bodies at Site 12. All of NSWC White Oak is drained by Paint Branch and its tributaries. The nearest surface water bodies include the eastward flowing Paint Branch tributary located approximately 400 feet north of Building 201 (SWMU 21) and Paint Branch, located approximately 450 feet northeast of Building 204 (SWMU 22). Relative to the location of Site 12, Paint Branch flows to the southeast.



DRAWN BY MJJ DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY DATE	SAMPLE LOCATION MAP SITE 12 / SWMU 21 AND SWMU 22 INDUSTRIAL WASTEWATER DISPOSAL AREA "200" NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 5-1	REV 0

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5.2.3 Geology

Log sheets for soil borings completed at the site indicate that shallow geologic conditions consist of a surficial veneer of Coastal Plain deposits of gravel, cobbles, silt, and clay to a depth of approximately 8 to 10 feet. The Coastal Plain deposits on this site overlie a thick saprolitic rock layer of varying thickness. The major soils on this site are those of the Chillum-Croom-Beltsville Association. These soils are very deep and moderately to well drained. These soils are formed in Coastal Plain deposits on uplands (USDA, Soil Conservation of Montgomery County, 1995 and Prince George's County, 1967).

Subsurface soil logs from well point 12-WP-01 in SWMU 21 showed loose, poorly sorted gravel in a dark gray to rusty brown, micaceous silty sand matrix to a depth of approximately 10 to 12 feet bgs. A similar lithology was observed in 12-WP-02 and 12-SB-01. Beneath this layer is a very stiff, blocky, grayish brown saprolitic layer to a depth of 23 feet. No PID detections were noted from any of the split-spoon samples.

Geologic logs from SWMU 22 (12-SB-02 and 12-WP-03) showed the same lithology as SWMU 21, except that the depth to the bedrock saprolite was observed to be deeper in 12-WP-03 at approximately 20 feet. The elevation at 12-WP-03 is 250 feet. No PID detections were noted during the investigations at SWMU 22. Complete geologic logs for Site 12 are enclosed in Appendix E.

Bedrock was encountered at very shallow depths at Site 12 (10 to 20 feet).

5.2.4 Hydrogeology

Groundwater at the site is expected to flow northward toward the Paint Branch tributary and eastward toward Paint Branch. However, a detailed assessment has not been completed for this site. Groundwater elevation data for Site 12 are provided in Table 5-1.

5.3 FIELD INVESTIGATION ACTIVITIES

The objectives of the field investigation included identifying the leaching well locations and assessing the impact of the leaching well operations on the site subsurface soil and groundwater. To achieve these objectives, subsurface soil and groundwater sampling was used.

TABLE 5-1

WELL POINT CONSTRUCTION SUMMARY
FORMER NSWC WHITE OAK
SITE 12 INDUSTRIAL WASTEWATER DISPOSAL 200 AREA

Well ID	Ground Elevation (ft)	Approx. PVC Riser Elevation (ft)	Total Depth bgs (ft)	Screened Interval bgs (ft)	Static Water Level bgs (ft)	Groundwater Elevation (ft)
12-WP-01	271.08	273.08	37.0	26.5-36.5	30.74	240.34
12-WP-02	274.67	276.67	42.5	30.0-40.0	33.20	241.47
12-WP-03	269.25	271.25	50.0	40.0-50.0	39.46	229.79

Static water level - initial level observed prior to well development/sampling

bgs - below ground surface

5.3.1 Soil Borings and Subsurface Soil Sampling

Four soil borings (12-SB-01 and 12-SB-03 in SWMU 21 and 12-SB-02 and 12-SB-04 in SWMU 22) were completed at Site 12 to determine the vertical extent of potential contamination from the leaching wells. Soil borings 12-SB-03 and 12-SB-04 were added to the Site 12 investigation during drilling of 12-SB-01 and 12-SB-02. The locations of 12-SB-03 and 12-SB-04 were determined in the field. 12-SB-03 was located approximately 10 feet downgradient of 12-SB-01. Due to location inaccessibility, 12-SB-04 was completed approximately 10 feet upgradient of 12-SB-02 rather than downgradient of 12-SB-02, as originally planned. The subsurface soil samples from 12-SB-01 and 12-SB-02 were collected at a depth of 10 feet bgs and samples from 12-SB-03 and 12-SB-04 were collected at 12 feet bgs. The 10 foot depths represent the bottom of the leaching wells and 12 feet represents a depth below the bottom of the leaching wells. All samples were analyzed for the following parameters: TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, TAL metals, and cyanide. Sample log sheets are provided in Appendix D.

5.3.2 Monitoring Well Installation/Temporary Well Point Construction

Three temporary well points (12-WP-01, 12-WP-02, and 12-WP-03) were installed at Site 12 (Figure 5-1). While a fourth temporary well point (12-WP-04) was planned for Site 12, this well point was not installed because of the steep topography of the proposed location.

Well point 12-WP-01 was installed to a depth of 37.0 feet; 12-WP-02 was installed to 42.5 feet; and 12-WP-03 was installed to 50.0 feet. Complete well construction features for each well point are enclosed in Appendix E. No protective casing and bumper posts were installed because the well points were abandoned after development and sampling were completed.

5.3.3 Groundwater Sampling

One groundwater sample was collected from each of the three temporary monitoring wells. Samples were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and TAL metals. VOC samples were collected first with zero headspace. The remainder of the parameters were collected by allowing the pump discharge to flow gently down the inside of the sample container with minimal turbulence. Sample log sheets are provided in Appendix D.

5.3.4 Quality Control Samples

A blind duplicate sample was collected at soil boring 12-SB-01 (10 feet).

5.4 DATA AND SCREENING EVALUATION

Results from the subsurface soil and groundwater sampling performed at Site 12 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. A summary of positive detections is presented in Tables 5-2 and 5-3 for subsurface soil and unfiltered groundwater, respectively.

5.4.1 Human Health Risk Screening

5.4.1.1 Subsurface Soil

Eight subsurface soil samples were collected at Site 12 and analyzed for TCL VOCs, SVOCs, pesticides/PCBs and TAL inorganics. Table 5-4 provides a comparison of the constituents identified in the subsurface soil with the human health risk-screening criteria. Figure 5-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 6 in subsurface soil.

All VOC results were "B" qualified and are therefore considered nondetected results. All SVOCs and pesticides/PCBs were detected at concentrations less than their respective screening values.

Inorganics detected in excess of the screening values included aluminum, arsenic, calcium, chromium, iron, magnesium, manganese, and potassium. Calcium, magnesium, and potassium are essential human nutrients and are not present at concentrations that would pose a human health risk. Arsenic and chromium were detected at concentrations less than their respective background levels. Aluminum, iron, and manganese were the only inorganics detected in excess of its background; however the sample depths were 10 to 12 feet bgs.

5.4.1.2 Groundwater

Three unfiltered groundwater samples were collected from temporary groundwater monitoring wells at Site 12 and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, and TAL inorganics. Table 5-5 provides a comparison of the detected constituents with risk-based screening criteria. Figure 5-3 identifies those constituents identified in excess of the human health risk-based screening criteria.

TABLE 5-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-01(10)-AVG	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)
DEPTH (feet):	10-12'	10-12'	10-12'	12-14'	10-12'	12-14'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100		12-SB-01(10)			
SEMIVOLATILES (µg/kg)						
BENZO(A)ANTHRACENE	350 UJ	120 J	120 J	380 UJ	370 UJ	350 UJ
BENZO(A)PYRENE	350 UJ	77 J	77 J	380 UJ	370 UJ	350 UJ
BENZO(B)FLUORANTHENE	350 UJ	100 J	100 J	380 UJ	370 UJ	350 UJ
BENZO(G,H,I)PERYLENE	350 UJ	77 J	77 J	380 UJ	370 UJ	350 UJ
BENZO(K)FLUORANTHENE	350 UJ	98 J	98 J	380 UJ	370 UJ	350 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	350 UJ	40 J	40 J	380 UJ	370 UJ	350 UJ
CHRYSENE	350 UJ	120 J	120 J	380 UJ	370 UJ	350 UJ
DIETHYL PHTHALATE	54 J	56.5 J	59 J	380 UJ	370 UJ	350 UJ
FLUORANTHENE	350 UJ	240 J	240 J	380 UJ	370 UJ	350 UJ
INDENO(1,2,3-CD)PYRENE	350 UJ	76 J	76 J	380 UJ	370 UJ	350 UJ
PHENANTHRENE	350 UJ	170 J	170 J	380 UJ	370 UJ	350 UJ
PYRENE	40 J	130 J	220 J	380 UJ	370 UJ	350 UJ
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.6 UJ	3.6 U	3.6 UJ	6.8 J	3.7 UJ	3.5 UJ
4,4'-DDE	2.2 J	1.7 J	1.2 J	49 J	3.7 UJ	3.5 UJ
4,4'-DDT	3.6 UJ	3.6 U	3.6 UJ	14 J	3.7 UJ	3.5 UJ
ALPHA-CHLORDANE	3.6 J	3.15 J	2.7 J	1.9 UJ	1.9 UJ	1.8 UJ
AROCLOR-1260	75 J	85 J	95 J	38 UJ	37 UJ	35 UJ
DIELDRIN	3.6 UJ	2.1 J	2.1 J	9.9 J	3.7 UJ	3.5 UJ
GAMMA-CHLORDANE	3.1 J	2.6 J	2.1 J	1.9 UJ	1.9 UJ	1.8 UJ
HEPTACHLOR EPOXIDE	0.59 J	0.59 J	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ
METALS (mg/kg)						
ALUMINUM	11700	12200	12700	17500	23400	26500
ARSENIC	3.2 L	3.2 L	3.2 L	4.7 L	2 L	1.1 L
BARIUM	29	29.5	29.9	57	67.5	55.5

TABLE 5-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-01(10)-AVG	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)
DEPTH (feet):	10-12'	10-12'	10-12'	12-14'	10-12'	12-14'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100		12-SB-01(10)			
METALS (mg/kg)						
BERYLLIUM	0.02 U	0.02 U	0.02 U	0.12 B	0.35 B	0.02 UL
CADMIUM	0.66	0.88	1.1	0.47 K	0.07 U	0.06 U
CALCIUM	593 J	637 J	681 J	2240 J	48.4 B	46.3 B
CHROMIUM	28.7	27.6	26.5	24.1	29.4	22.8
COBALT	3.2	3.4	3.5	7	45.8	36.8
COPPER	18.4	17.7	17	27.6	35.9	41
IRON	13500	14800	16100	22700	60000	25300
LEAD	10.4 K	10.3 K	10.1 K	32.7 K	13.2 B	8.6 B
MAGNESIUM	913 K	950 K	987 K	1550 K	4680	5340
MANGANESE	75.7 L	92.4 L	109 L	198 L	1750	920
MERCURY	0.05	0.065	0.08	0.05	0.02 B	0.02 U
NICKEL	10.3	9.6	8.9	11.1	49.7	36.9
POTASSIUM	672	683.5	695	1170	3810	4280
SELENIUM	4.2 J	4.0 J	3.8 J	0.52 U	1.1 L	0.48 UL
SILVER	1.3	0.8375	0.75 B	0.2 U	0.2 UL	0.19 UL
VANADIUM	26.4	28.3	30.2	39.4	37.5	27.3
ZINC	139	97.7	56.4	60.8	126 J	103 J
GENERAL CHEMISTRY						
PH	6.59	6.865	7.14	7.58	5.23	5.4

TABLE 5-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-03(10)	12-SB-03(12)	12-SB-04(10)	12-SB-04(12)		
DEPTH (feet):	10-12'	12-14'	10-12'	12-14'		
SAMPLE DATE:	11/04/97	11/04/97	11/13/97	11/13/97	/ /	/ /
LOCATION:	12-SB-03	12-SB-03	12-SB-04	12-SB-04		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
BENZO(A)ANTHRACENE	370 UJ	360 UJ	370 UJ	370 UJ		
BENZO(A)PYRENE	370 UJ	360 UJ	370 UJ	370 UJ		
BENZO(B)FLUORANTHENE	370 UJ	360 UJ	370 UJ	370 UJ		
BENZO(G,H,I)PERYLENE	370 UJ	360 UJ	370 UJ	370 UJ		
BENZO(K)FLUORANTHENE	370 UJ	360 UJ	370 UJ	370 UJ		
BIS(2-ETHYLHEXYL)PHTHALATE	370 UJ	360 UJ	370 UJ	370 UJ		
CHRYSENE	370 UJ	360 UJ	370 UJ	370 UJ		
DIETHYL PHTHALATE	370 UJ	360 UJ	370 UJ	370 UJ		
FLUORANTHENE	370 UJ	360 UJ	370 UJ	370 UJ		
INDENO(1,2,3-CD)PYRENE	370 UJ	360 UJ	370 UJ	370 UJ		
PHENANTHRENE	370 UJ	360 UJ	370 UJ	370 UJ		
PYRENE	370 UJ	360 UJ	370 UJ	370 UJ		
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.7 UJ	3.6 UJ	3.7 UJ	3.7 UJ		
4,4'-DDE	3.7 UJ	3.6 UJ	3.7 UJ	3.7 UJ		
4,4'-DDT	3.7 UJ	3.6 UJ	3.7 UJ	3.7 UJ		
ALPHA-CHLORDANE	1.9 UJ	1.8 UJ	1.8 UJ	1.8 UJ		
AROCLOR-1260	37 UJ	36 UJ	37 UJ	37 UJ		
DIELDRIN	3.7 UJ	3.6 UJ	3.7 UJ	3.7 UJ		
GAMMA-CHLORDANE	1.9 UJ	1.8 UJ	1.8 UJ	1.8 UJ		
HEPTACHLOR EPOXIDE	1.9 UJ	1.8 UJ	1.8 UJ	1.8 UJ		
METALS (mg/kg)						
ALUMINUM	27700	27000	19600	32300		
ARSENIC	1.4 J	0.65 UL	1.4 L	1.9 L		
BARIUM	112	183	152	71.7		

TABLE 5-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-03(10)	12-SB-03(12)	12-SB-04(10)	12-SB-04(12)		
DEPTH (feet):	10-12'	12-14'	10-12'	12-14'		
SAMPLE DATE:	11/04/97	11/04/97	11/13/97	11/13/97	/ /	/ /
LOCATION:	12-SB-03	12-SB-03	12-SB-04	12-SB-04		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
METALS (mg/kg)						
BERYLLIUM	0.12 L	0.02 UL	1.5 B	0.86 B		
CADMIUM	0.39 B	0.48 K	0.07 U	0.06 U		
CALCIUM	74.3 B	91.6 B	50.3 B	70.5 B		
CHROMIUM	15.5 K	25.6	10.7	25.7		
COBALT	26.2	10.3	55	26.3		
COPPER	11.2	7.3	28.6	29.3		
IRON	20900	26700	38900	33900		
LEAD	40.3 K	8.1 K	16.5 B	14.9 B		
MAGNESIUM	2940 K	6370 K	1640 K	3630		
MANGANESE	1090 L	312 L	2940	737		
MERCURY	0.03	0.02 U	0.02 U	0.02 U		
NICKEL	20.1	24.1	28.9	40.1		
POTASSIUM	3110	7880	1320 L	2810		
SELENIUM	0.51 UL	0.5 UL	0.5 UL	0.93 L		
SILVER	0.2 U	0.19 U	0.2 UL	0.19 UL		
VANADIUM	21.7	37.4	14	27.2		
ZINC	120	74.4	47.3 J	77.1 J		
GENERAL CHEMISTRY						
PH	5.73	5.49	5.33	5.25		

TABLE 5-3
SUMMARY OF POSITIVE DETECTS - UNFILTERED GROUNDWATER
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL, AREA 200
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	12-WP-01 11/18/97 12-WP-01	12-WP-02 11/18/97 12-WP-02	12-WP-03 11/18/97 12-WP-03	/ /	/ /	/ /
VOLATILES (µg/L)						
1,1,1-TRICHLOROETHANE	2	2	1 U			
CHLOROFORM	2	1 U	1 U			
PESTICIDES/PCBs (µg/L)						
ALDRIN	0.006 J	0.012 U	0.01 U			
DIELDRIN	0.025	0.004 J	0.02 U			
HEPTACHLOR EPOXIDE	0.006 R	0.006 R	0.021 J			
METALS (µg/L)						
ALUMINUM	5790 K	1990 K	2870 K			
ANTIMONY	2.8 U	3	2.8 U			
BARIUM	49.5	59.3	141			
CALCIUM	2700 K	7330 K	7970 K			
CHROMIUM	192	10	6.2			
COBALT	10.3	17	27.2			
COPPER	19.5	4.9 B	16.8			
IRON	8610	3660	6390			
MAGNESIUM	3060 J	4000 J	4840 J			
MANGANESE	468	818	548			
NICKEL	143	13	37.2			
POTASSIUM	3610	7710	12400			
SODIUM	6780 K	7000 K	8490 K			
VANADIUM	7.2	4.4	4.8			
ZINC	10.2 B	86.4	75.2			

TABLE 5-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA 200
FORMER NSWC WHITE OAK

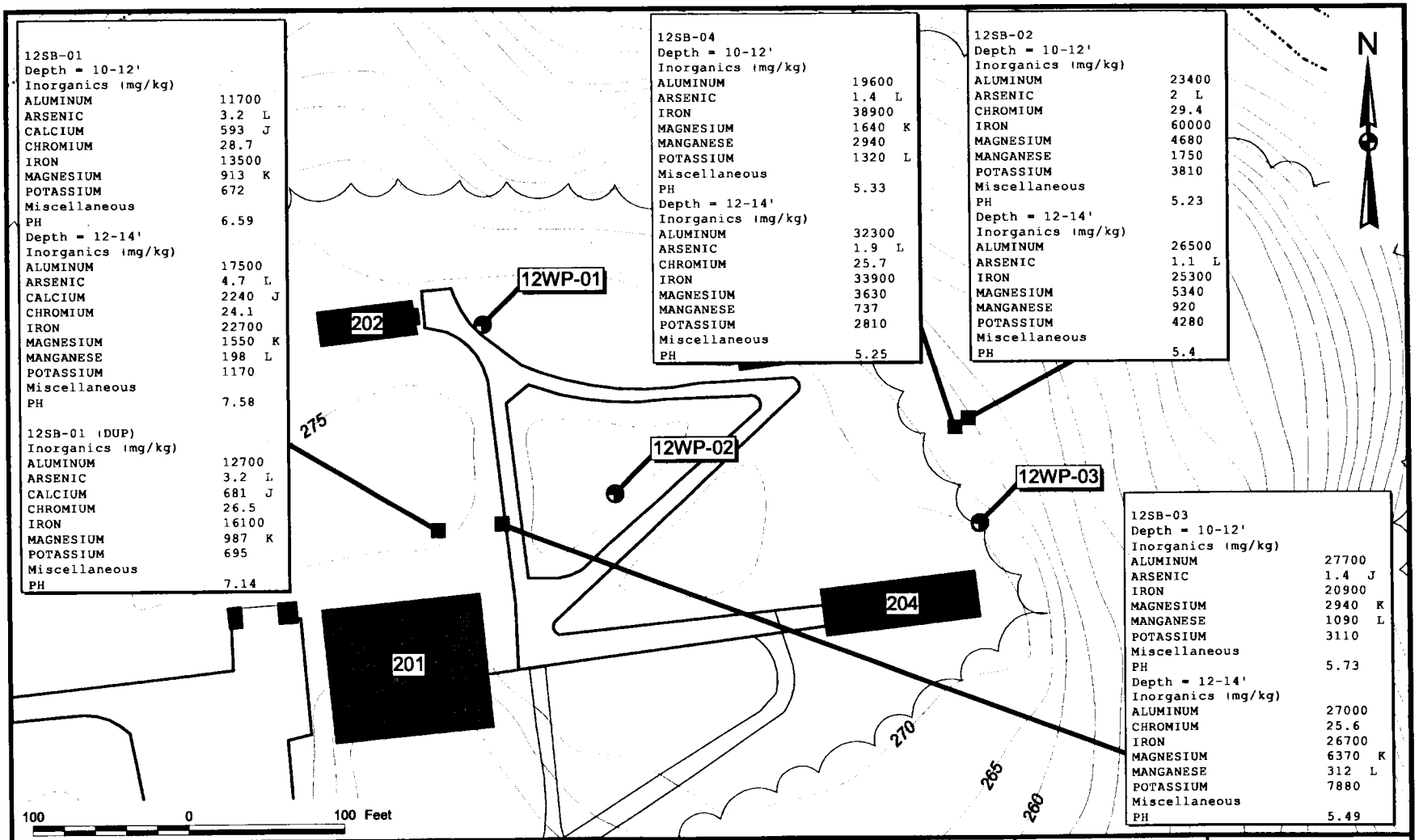
Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
BENZO(A)ANTHRACENE	1/8	0.12 J	0.12 J	12-SB-01(10)-D	0.12	0.35 - 0.38	0.87	NA
BENZO(A)PYRENE	1/8	0.077 J	0.077 J	12-SB-01(10)-D	0.077	0.35 - 0.38	0.087	NA
BENZO(B)FLUORANTHENE	1/8	0.1 J	0.1 J	12-SB-01(10)-D	0.1	0.35 - 0.38	0.87	NA
BENZO(G,H,I)PERYLENE	1/8	0.077 J	0.077 J	12-SB-01(10)-D	0.077	0.35 - 0.38	310	NA
BENZO(K)FLUORANTHENE	1/8	0.098 J	0.098 J	12-SB-01(10)-D	0.098	0.35 - 0.38	8.7	NA
BIS(2-ETHYLHEXYL)PHTHALATE	1/8	0.04 J	0.04 J	12-SB-01(10)-D	0.04	0.35 - 0.38	46	NA
CHRYSENE	1/8	0.12 J	0.12 J	12-SB-01(10)-D	0.12	0.35 - 0.38	87	NA
DIETHYL PHTHALATE	1/8	0.054 J	0.059 J	12-SB-01(10)-D	0.0565	0.35 - 0.38	6,300	NA
FLUORANTHENE	1/8	0.24 J	0.24 J	12-SB-01(10)-D	0.24	0.35 - 0.38	310	NA
INDENO(1,2,3-CD)PYRENE	1/8	0.076 J	0.076 J	12-SB-01(10)-D	0.076	0.35 - 0.38	0.87	NA
PHENANTHRENE	1/8	0.17 J	0.17 J	12-SB-01(10)-D	0.17	0.35 - 0.38	310	NA
PYRENE	1/8	0.04 J	0.22 J	12-SB-01(10)-D	0.13	0.35 - 0.38	230	NA
Pesticide/PCBs (mg/kg)								
4,4'-DDD	1/8	0.0068 J	0.0068 J	12-SB-01(12)	0.0068	0.0035 - 0.0037	2.7	NA
4,4'-DDE	2/8	0.0012 J	0.049 J	12-SB-01(12)	0.0254	0.0035 - 0.0037	1.9	NA
4,4'-DDT	1/8	0.014 J	0.014 J	12-SB-01(12)	0.014	0.0035 - 0.0037	1.9	NA
ALPHA-CHLORDANE	1/8	0.0027 J	0.0036 J	12-SB-01(10)	0.0032	0.0018 - 0.0019	1.8	NA
AROCLOR-1260	1/8	0.075 J	0.095 J	12-SB-01(10)-D	0.085	0.035 - 0.038	0.32	NA
DIELDRIN	2/8	0.0021 J	0.0099 J	12-SB-01(12)	0.006	0.0035 - 0.0037	0.04	NA
GAMMA-CHLORDANE	1/8	0.0021 J	0.0031 J	12-SB-01(10)	0.0026	0.0018 - 0.0019	1.8	NA
HEPTACHLOR EPOXIDE	1/8	0.0006 J	0.0006 J	12-SB-01(10)	0.0006	0.0018 - 0.0019	0.07	NA

TABLE 5-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA 200
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	8/8	11,700	32,300	12-SB-04(12)	23,275	NA	7,800	20961
ARSENIC	7/8	1.1 L	4.7 L	12-SB-01(12)	2.24	0.65	0.43	12.15
BARIUM	8/8	29	183	12-SB-03(12)	91.0	NA	550	40.09
BERYLLIUM	1/8	0.12 L	0.12 L	12-SB-03(10)	0.12	0.02 - 1.5	16	2.37
CADMIUM	3/8	0.47 K	1.1	12-SB-01(10)-D	0.61	0.06 - 0.39	3.9	0.179
CALCIUM	2/8	593 J	2,240 J	12-SB-01(12)	1,439	46.3 - 91.6	NA	247
CHROMIUM	8/8	10.7	29.4	12-SB-02(10)	22.7	NA	23	41.05
COBALT	8/8	3.2	55	12-SB-04(10)	26.3	NA	470	16.6
COPPER	8/8	7.3	41	12-SB-02(12)	24.8	NA	310	21.62
IRON	8/8	13,500	60,000	12-SB-02(10)	30,400	NA	2,300	28681
LEAD	4/8	8.1 K	40.3 K	12-SB-03(10)	22.8	8.6 - 16.5	400	21.23
MAGNESIUM	8/8	913 K	6,370 K	12-SB-03(12)	3,388	NA	NA	2987
MANGANESE	8/8	75.7 L	2,940	12-SB-04(10)	1,005	NA	160	503
MERCURY	3/8	0.03	0.08	12-SB-01(10)-D	0.048	0.02	2.3	0.051
NICKEL	8/8	8.9	49.7	12-SB-02(10)	27.6	NA	160	13.84
POTASSIUM	8/8	672	7,880	12-SB-03(12)	3,133	NA	NA	27.92
SELENIUM	3/8	0.93 L	4.2 J	12-SB-01(10)	2.01	0.48 - 0.52	39	2.73
VANADIUM	8/8	14	39.4	12-SB-01(12)	29.1	NA	55	44.31
ZINC	8/8	47.3 J	139	12-SB-01(10)	88.3	NA	2,300	84.2
Miscellaneous								
pH (SU)	8/8	5.23	7.58	12-SB-01(12)	5.86	NA	NA	NA

NA - Not Available



DRAWN BY MJJ	DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SUBSURFACE SOIL SITE 12 / SWMU 21 - INDUSTRIAL WASTEWATER DISPOSAL 200 AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SNSN DATE 12/1 12/1
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 5-2 REV 0

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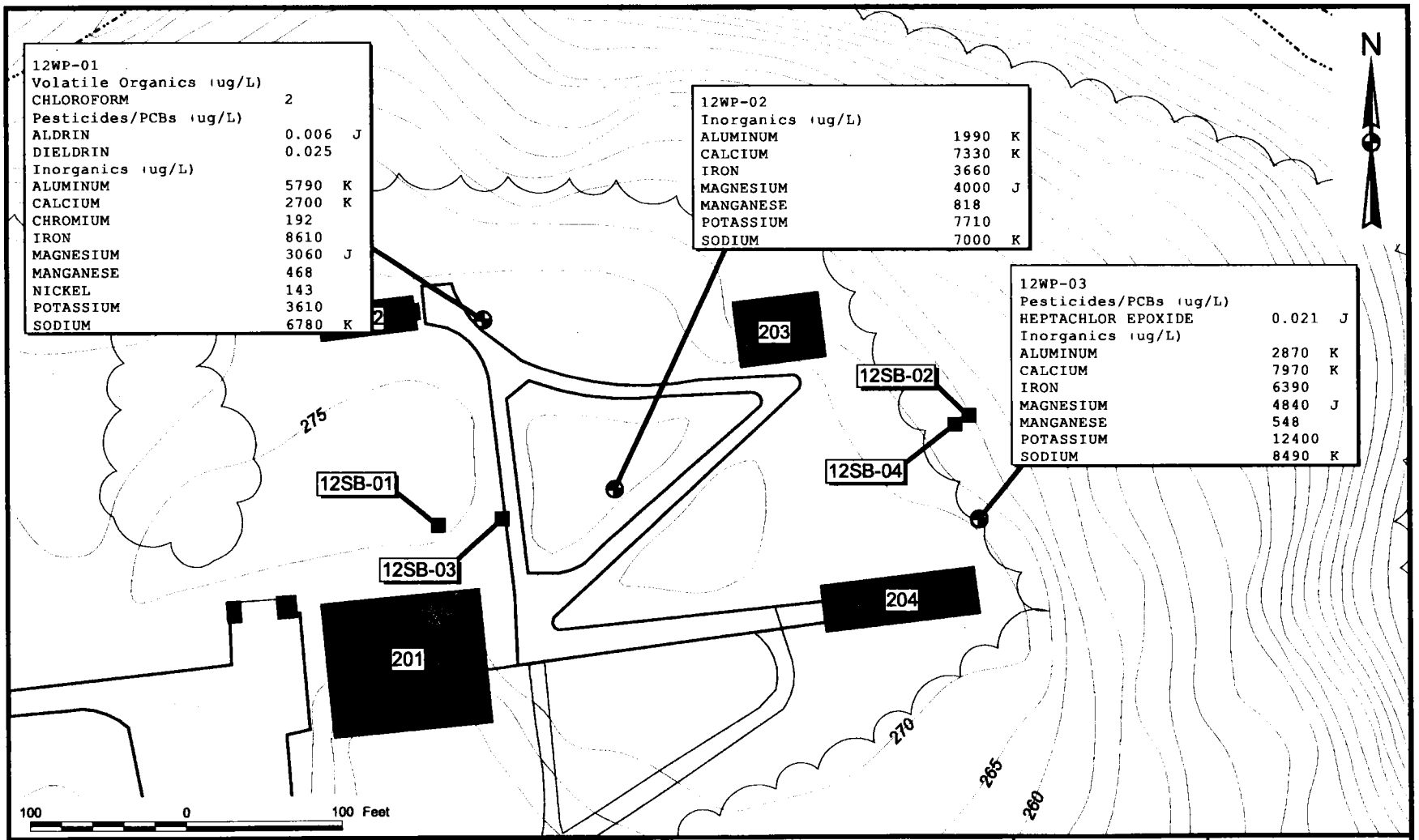
TABLE 5-5

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
UNFILTERED GROUNDWATER
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA 200
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Volatile Organics (ug/L)								
1,1,1-TRICHLOROETHANE	2/3	2	2	12-WP-01/02	2	1	200	NA
CHLOROFORM	1/3	2	2	12-WP-01	2	1	0.15	NA
Pesticide/PCBs (ug/L)								
ALDRIN	1/3	0.006 J	0.006 J	12-WP-01	0.006	0.01 - 0.012	0.0039	NA
DIELDRIN	2/3	0.004 J	0.025	12-WP-01	0.0145	0.02	0.0042	NA
HEPTACHLOR EPOXIDE	1/1	0.021 J	0.021 J	12-WP-03	0.021	NA	0.0012	0.01
Inorganics (ug/L)								
ALUMINUM	3/3	1,990 K	5,790 K	12-WP-01	3,550	NA	50	4870
ANTIMONY	1/3	3	3	12-WP-02	3	2.8	6	NA
BARIUM	3/3	49.5	141	12-WP-03	83.3	NA	2,000	75.94
CALCIUM	3/3	2,700 K	7,970 K	12-WP-03	6,000	NA	NA	6908
CHROMIUM	3/3	6.2	192	12-WP-01	69.4	NA	100	184
COBALT	3/3	10.3	27.2	12-WP-03	18.2	NA	220	24.23
COPPER	2/3	16.8	19.5	12-WP-01	18.15	4.9	150	11.76
IRON	3/3	3,660	8,610	12-WP-01	6,220	NA	300	13700
MAGNESIUM	3/3	3,060 J	4,840 J	12-WP-03	3,967	NA	NA	11600
MANGANESE	3/3	468	818	12-WP-02	611	NA	50	840
NICKEL	3/3	13	143	12-WP-01	64.4	NA	100	82.43
POTASSIUM	3/3	3,610	12,400	12-WP-03	7,907	NA	NA	9850
SODIUM	3/3	6,780 K	8,490 K	12-WP-03	7,423	NA	NA	36500
VANADIUM	3/3	4.4	7.2	12-WP-01	5.5	NA	26	10.7
ZINC	2/3	75.2	86.4	12-WP-02	80.8	10.2	1,100	211

NA - Not Available



DRAWN BY MJJ — DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	HUMAN HEALTH RISK EXCEEDANCE IN GROUNDWATER SITE 12 / SWMU 21 AND SWMU 22 INDUSTRIAL WASTEWATER DISPOSAL AREA "200" NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 5-3	REV 0

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Chloroform was the only VOC detected (2 ug/L), at a maximum concentration exceeding the screening level (0.15 ug/L). However, chloroform has been detected in groundwater samples at other NSWC-White Oak sites and background locations during previous investigations.

All SVOCs were detected at concentrations less than their respective groundwater criteria. Heptachlor epoxide was the only pesticide/PCB detected at a maximum concentration exceeding its screening level. The constituent was detected in only one sample. In addition, heptachlor epoxide has been detected in background water samples and is considered to be associated with previous facility maintenance operations at White Oak and not the waste management practices believed to have been conducted at Site 12.

Inorganics identified in excess of there screening criteria included aluminum, calcium, chromium, iron, magnesium, manganese, nickel, potassium, and sodium. Calcium, magnesium, potassium, and sodium are essential human nutrients and are not present at concentrations that would pose a human health risk. The concentrations of aluminum, chromium, iron and manganese appear to be related to the high turbidity in the unfiltered groundwater samples. Aluminum, iron, and manganese have been historically elevated in unfiltered groundwater samples collected at White Oak. The nickel and chromium concentrations appear to be within the background range for unfiltered groundwater.

5.4.2 Ecological Screening

Site 12, Industrial Wastewater Disposal 200 Area, is located in the central portion of NSWC White Oak. The site consists of several buildings, associated roadways, and mowed turfgrass areas. Some scattered ornamental trees are present (Figure 5-1). The area is surrounded to the north, east, and south by mature hardwood trees. No surface water is present on the site. A small tributary of Paint Branch is located approximately 400 feet north of Building 201 (SWMU 21), and Paint Branch is located approximately 450 feet northeast of Building 204 (SWMU 22).

Waste management practices consisted of subsurface discharge of wastewater. As a result, no surface soil samples were collected. In addition, no complete exposure routes are present. The only ecological concern at the site is groundwater discharge of chemicals to the Paint Branch watershed. Paint Branch and its tributaries will be studied as part of the RFI. Thus, no ecological study of Site 12 is recommended. If elevated concentrations of chemicals are found in the watershed near and downgradient of Site 12, efforts will be made in the RFI to investigate whether Site 12 groundwater is a source.

5.5 CONCLUSIONS AND RECOMMENDATIONS

5.5.1 Conclusions

Semivolatile organic, pesticide, PCBs and inorganic compounds were detected in subsurface soil and/or unfiltered groundwater during the investigation at Site 12. For all constituents, the detected levels only slightly exceeded the constituent specific screening levels or were within the White-Oak-specific background range. From the qualitative evaluation of risk, no apparent risk to human health or the environment is evident.

5.5.2 Recommendations

No further action is recommended for Site 12.

6.0 SITE 13/SWMU 7 - OIL SLUDGE DISPOSAL AREA

6.1 BACKGROUND

Site 13 is located near the northeastern corner of the base, between Dahlgren Road and the northern boundary patrol road (Figure 6-1). The site occupies approximately 0.7 acre. It is reported, that between 1970 and 1978, approximately 6,000 gallons to 10,000 gallons of oily sludge from storage tanks containing No. 6 fuel oil were spread over the surface of Site 13.

6.2 ENVIRONMENTAL SETTING

6.2.1 Topography

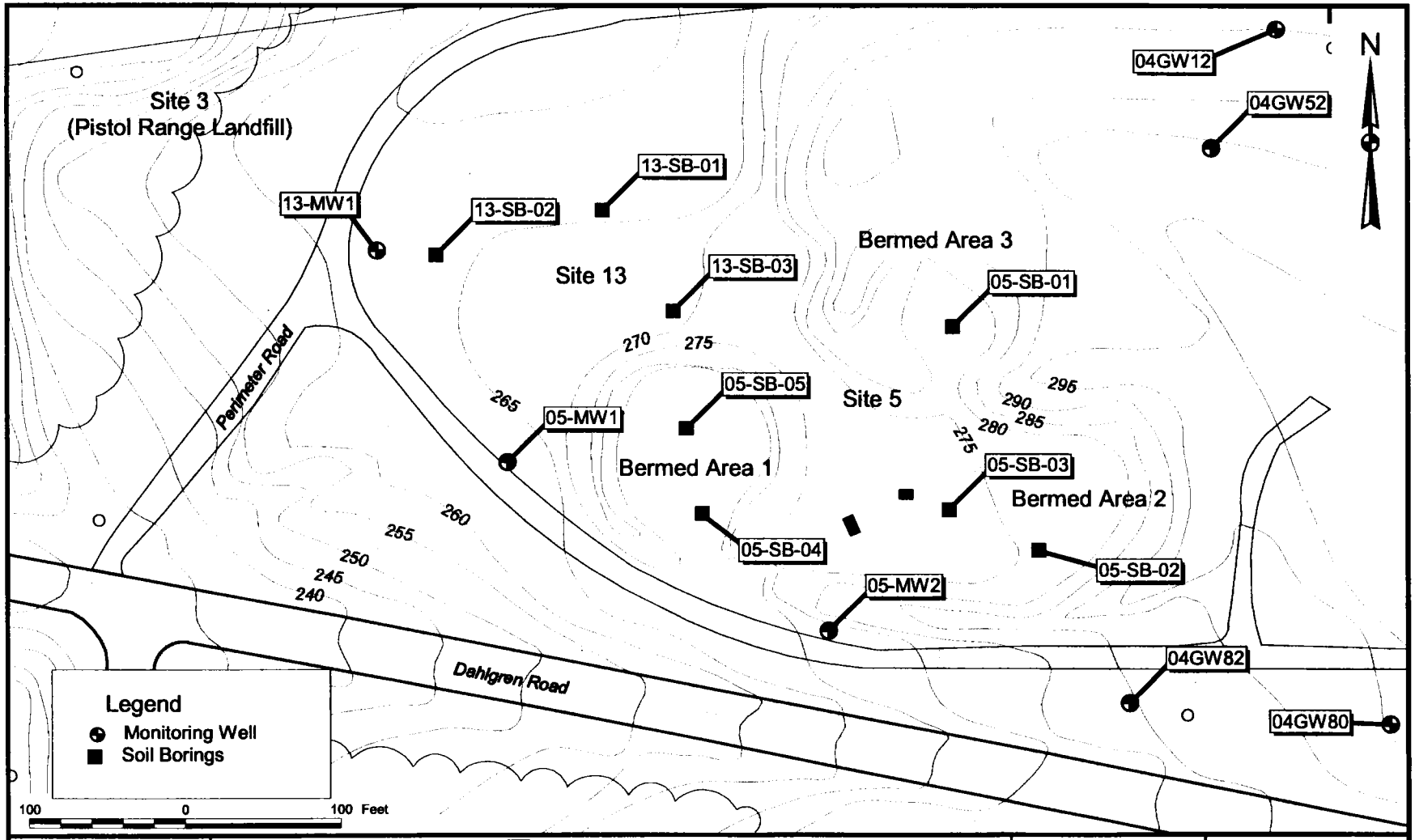
Site 13 generally slopes to the south and consists of a relatively flat area. The maximum relief of the site is approximately 5 feet. The highest area of the site registered an elevation of approximately 270 feet. This topographical high is toward the southeastern corner of the site, adjacent to Bermed Area 1 in Site 5. The remainder of the site is relatively flat, with an elevation of approximately 260 feet. The adjacent areas west and southwest of the site drop off to an elevation of 235 feet toward Dahlgren Road. The nearest surface water body to the site is Westfarm Branch, located approximately 300 feet west of the site.

6.2.2 Surface Water

There are no surface water bodies at Site 13. All of NSWC-White Oak is drained by Paint Branch and its tributaries. The nearest surface water body is a southward-flowing tributary of Paint Branch (Westfarm Branch), located approximately 300 feet west of the site.

6.2.3 Geology

Boring logs from three shallow (0 to 2 feet bgs) soil borings and one monitoring well completed at the site indicate that shallow geologic conditions consist of a surficial veneer of Coastal Plain deposits that contain varying mixtures of gravel, cobbles, silt, and clay to a depth of approximately 20 to 25 feet bgs. The Coastal Plain deposits on this site overlie a saprolitic and a weathered bedrock layer of varying thickness. The major soils on this site are those of the Chillum-Croom-Beltsville Association. These soils are very deep and moderately to well drained. These soils are formed in Coastal Plain deposits on uplands (USDA, Soil Conservation of Montgomery County, 1995 and Prince George's County, 1967).



DRAWN BY MJJ — DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	SAMPLE LOCATION MAP SITE 13 / SWMU 7 - OIL SLUDGE DISPOSAL AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 6-1	REV 0

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Logs from the lone monitoring well (13-MW1) indicate a loose, poorly sorted gravel layer in a light brown sandy silt matrix observed in the near-surface soils at 2 feet, continuing to a depth of approximately 10 feet bgs. A brown, grayish soft to medium-soft micaceous silty sand was observed at a depth of approximately 10 to 22 feet bgs. This layer was saprolitic in character, with prevalent rust and black stains/striations. Spoon and auger refusal were noted at a depth of approximately 25 feet. Drill cuttings at that depth revealed broken and blocky pieces of bedrock gneiss. No PID detections were observed during the investigations at Site 13. Complete geologic logs for Site 13 are enclosed in Appendix E.

Bedrock at Site 13 was observed at very shallow depths (approximately 25 feet bgs).

6.2.4 Hydrogeology

Well construction information related to Well 13-MW1 and adjacent Site 5 wells (5-MW1 and 5-MW2) is provided in Table 3-1. Static water level data collected at these wells do not suggest a definitive groundwater flow path; however, additional data (static water level measurements) will be collected to further evaluate groundwater flow.

6.3 FIELD INVESTIGATION ACTIVITIES

Field investigation activities at Site 13 included collecting surface and subsurface soil samples and installing a groundwater monitoring well downgradient of the site.

6.3.1 Surface Soil Sampling

Three surface soil samples were collected at Site 13. The surface soil samples were collected from the same locations as the deeper, subsurface soil samples. All surface soil samples were analyzed for TAL metals, cyanide, TCL VOCs, TCL SVOCs, and TCL pesticides/PCBs. Sample logs are provided in Appendix E.

6.3.2 Soil Borings and Subsurface Soil Sampling

Three soil borings were completed at Site 13 to determine if sludge had migrated vertically. Each boring was advanced to a maximum depth of 2 feet bgs. Subsurface soil samples collected from these borings were analyzed for TAL metals, cyanide, TCL VOCs, TCL SVOCs, and TCL pesticide/PCBs. Sample logs are provided in Appendix D.

6.3.3 Monitoring Well Installation/Temporary Well Point Construction

One monitoring well (13-MW1) was installed at the corner of Perimeter and Oak Road, located directly west of Site 13 (See Figure 6-1). The monitoring well was constructed as illustrated in Appendix E.

6.3.4 Groundwater Sampling

One groundwater sample was collected from 13-MW1 and analyzed for TAL metals, cyanide, TCL VOCs, TCL SVOCs, and TCL pesticides/PCBs. A sample log sheet is provided in Appendix D.

6.3.5 Quality Control Samples

A blind duplicate sample was collected from soil boring 13-SB-03.

6.4 DATA AND SCREENING EVALUATION

Results from the soil and groundwater sampling performed at Site 13 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. A summary of positive detections is presented in Tables 6-1, 6-2, and 6-3 for surface soil, subsurface soil, and groundwater, respectively.

6.4.1 Human Health Risk Screening

6.4.1.1 Surface Soil

Three surface soil samples were collected at Site 13 and analyzed for VOCs, SVOCs, pesticides/PCBs, and inorganics. Table 6-4 provides a comparison of the constituents identified in the surface soil with the human health risk-screening criteria. Figure 6-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 13 for surface soil.

All VOC results were "B" qualified and are therefore considered nondetected results. All pesticides/PCBs were detected at concentrations less than their respective screening levels.

Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at maximum concentrations exceeding their respective screening levels. Both of these PAHs would be associated with oil disposal or the waste management practices that were conducted at Site 13.

TABLE 6-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SS-01	13-SS-02	13-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	/ /	/ /	/ /
LOCATION:	13-SS-01	13-SS-02	13-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
ACENAPHTHENE	62 J	350 U	360 U			
ANTHRACENE	140 J	42 J	360 U			
BENZO(A)ANTHRACENE	430	310 J	360 U			
BENZO(A)PYRENE	390 J	240 J	360 U			
BENZO(B)FLUORANTHENE	380 J	780	360 U			
BENZO(G,H,I)PERYLENE	290 J	210 J	360 U			
BENZO(K)FLUORANTHENE	250 J	350 U	360 U			
CARBAZOLE	96 J	350 U	360 U			
CHRYSENE	430	350	360 U			
DIBENZO(A,H)ANTHRACENE	140 J	88 J	360 U			
FLUORANTHENE	1100	640	360 U			
FLUORENE	58 J	350 U	360 U			
INDENO(1,2,3-CD)PYRENE	250 J	200 J	360 U			
PHENANTHRENE	590	190 J	360 U			
PYRENE	570	570	360 U			
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	17 J	3.5 U	3.6 U			
4,4'-DDE	71 K	3.5 U	3.6 U			
4,4'-DDT	39 K	3.5 U	3.6 U			
ALPHA-CHLORDANE	7.8 K	1.7 U	1.8 U			
AROCLOR-1260	170 J	59 J	36 U			
DIELDRIN	15 J	3.5 U	3.6 U			
GAMMA-CHLORDANE	3.7 K	1.7 U	1.8 U			
INORGANICS (mg/kg)						
ALUMINUM	11100	4280	20000			

TABLE 6-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	13-SS-01 0-1' 10/06/97 13-SS-01 GRAB	13-SS-02 0-1' 10/06/97 13-SS-02 GRAB	13-SS-03 0-1' 10/06/97 13-SS-03 GRAB	/ /	/ /	/ /
INORGANICS (mg/kg)						
ARSENIC	2.2	1.2	2.3			
BARIUM	53.0	17.3	71.1			
BERYLLIUM	0.02 U	0.02 U	0.08			
CADMIUM	0.4	0.21	0.3 K			
CALCIUM	4970	20700	254			
CHROMIUM	17.8	10.8	19.9 K			
COBALT	6.8	2.4	21.5			
COPPER	68.4	9.0	40.9			
IRON	15100	6080	30100			
LEAD	40.6	14.8	10.3			
MAGNESIUM	1850	3620	4060			
MANGANESE	292	82.1	699			
MERCURY	0.16	0.05	0.02 U			
NICKEL	19.8 K	17.2 K	24.5 K			
POTASSIUM	995	696	3400			
SELENIUM	0.76 L	1.4 L	0.6 UR			
SODIUM	47.9 U	40.7 U	106			
VANADIUM	21.7	11.5	25.4			
ZINC	70.0	18.8	54.3			
GENERAL CHEMISTRY (unitless)						
PH	6.33	7.89	5.74			

TABLE 6-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-03-AVG	13-SB-100	
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	10/20/97	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03	13-SB-03	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:			13-SB-100		13-SB-03	
VOLATILES (µg/kg)						
TETRACHLOROETHENE	13 U	13 U	1 J	1 J	14 U	
SEMIVOLATILES (µg/kg)						
ANTHRACENE	440 UJ	82 J	420 UJ	445 U	470 UJ	
BENZO(A)ANTHRACENE	67 J	480 J	420 UJ	445 U	470 UJ	
BENZO(A)PYRENE	65 J	350 J	420 UJ	445 U	470 UJ	
BENZO(B)FLUORANTHENE	95 J	560 J	420 UJ	445 U	470 UJ	
BENZO(G,H,I)PERYLENE	440 UJ	200 J	420 UJ	445 U	470 UJ	
BENZO(K)FLUORANTHENE	440 UJ	190 J	420 UJ	445 U	470 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	56 J	260 J	130 J	103.5 J	77 J	
CHRYSENE	47 J	500 J	420 UJ	445 U	470 UJ	
DIBENZO(A,H)ANTHRACENE	440 UJ	130 J	420 UJ	445 U	470 UJ	
FLUORANTHENE	110 J	1000 J	420 UJ	445 U	470 UJ	
INDENO(1,2,3-CD)PYRENE	440 UJ	200 J	420 UJ	445 U	470 UJ	
PHENANTHRENE	73 J	410 J	420 UJ	445 U	470 UJ	
PYRENE	110 J	890 J	420 UJ	445 U	470 UJ	
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	0.65 R	2 J	4.2 UJ	4.45 U	4.7 UJ	
4,4'-DDE	0.91 J	0.65 J	4.2 UJ	4.45 U	4.7 UJ	
4,4'-DDT	0.71 J	4.2 U	4.2 UJ	4.45 U	4.7 UJ	
ALPHA-CHLORDANE	2.2 UJ	1.7 J	2.1 UJ	2.25 U	2.4 UJ	
GAMMA-CHLORDANE	2.2 UJ	1.6 J	2.1 UJ	2.25 U	2.4 UJ	
INORGANICS (mg/kg)						
ALUMINUM	10800	3380	21600	18900	16200	
ARSENIC	3.5 L	0.87 L	3.9 L	2.8 L	1.7 L	
BARIUM	41.9	8.8	59.1	53.7	48.3	

TABLE 6-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-03-AVG	13-SB-100	
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	10/20/97	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03	13-SB-03	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:			13-SB-100		13-SB-03	
INORGANICS (mg/kg)						
BERYLLIUM	0.03 U	0.03 U	0.14 K	0.0775	0.03 U	
CALCIUM	1990 K	1640 K	208 B	199 B	190 B	
CHROMIUM	19.1 J	8.6 J	28.1 J	22.8 J	17.4 J	
COBALT	3.7 J	0.63 B	11 J	11.5 J	11.9 J	
COPPER	16.1	6.3	29.8	28.5	27.1	
CYANIDE	0.28 U	0.26 U	0.24	0.24	0.32 U	
IRON	14000	4260	26300	24650	23000	
LEAD	9.6 K	5.3 K	9.9 K	8.9 K	7.8 K	
MAGNESIUM	1280 J	596 J	2550 J	2650 J	2750 J	
MANGANESE	124 J	17.9 J	375 J	381.5 J	388 J	
MERCURY	0.05	0.03	0.05	0.045	0.04	
NICKEL	7 K	4 K	15.1 K	15.1 K	15 K	
POTASSIUM	724	252	2180	2280	2380	
SELENIUM	3.2 J	2 J	3.8 J	2.8 J	1.8 J	
THALLIUM	0.76 U	0.74 U	0.73 UL	0.5825	0.8	
VANADIUM	28	11.1	39.4	31.3	23.2	
ZINC	20.1 J	6.3 J	32.2 J	33.2 J	34.2 J	
GENERAL CHEMISTRY (unitless)						
PH	7.22	7.98	5.72	5.685	5.65	

TABLE 6-3
SUMMARY OF POSITIVE DETECTS - UNFILTERED GROUNDWATER
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	13-GW-01 11/20/97 13-GW-01	/ /	/ /	/ /	/ /	/ /
VOLATILES (µg/L)						
1,1,2,2-TETRACHLOROETHANE	51					
CIS-1,2-DICHLOROETHENE	334					
TETRACHLOROETHENE	4					
TRANS-1,2-DICHLOROETHENE	61					
TRICHLOROETHENE	184					
VINYL CHLORIDE	11					
INORGANICS (µg/L)						
ALUMINUM	1310 K					
BARIUM	77.9					
CALCIUM	16800					
CHROMIUM	11.2					
COBALT	29					
CYANIDE	6.2					
IRON	4060					
MAGNESIUM	14800					
MANGANESE	969					
NICKEL	45.4					
POTASSIUM	23400					
SODIUM	15200					
VANADIUM	3.7					
ZINC	203					

TABLE 6-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
FORMER NSWC WHITE OAK

PAGE 1 OF 2

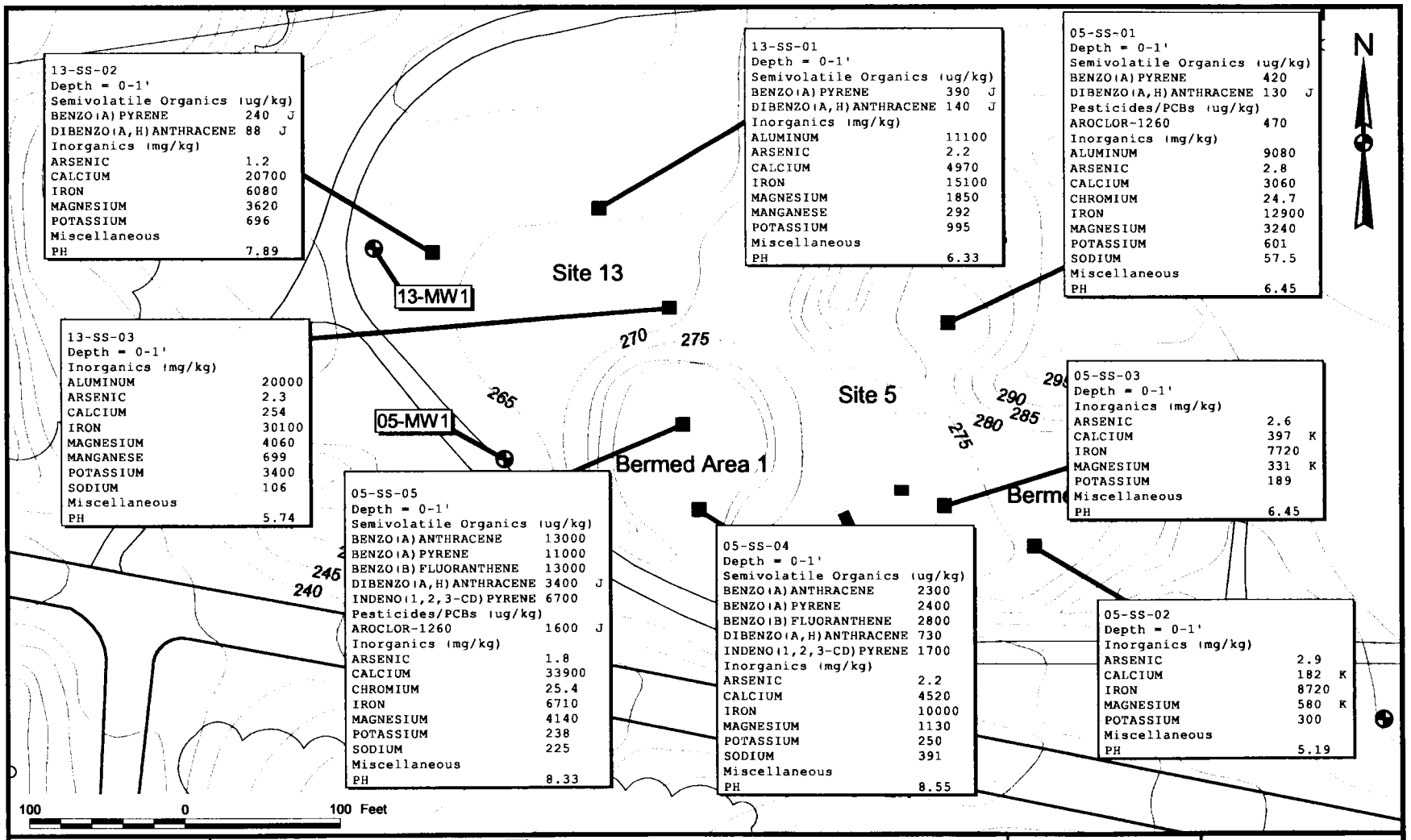
Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Volatile Organics (mg/kg)								
Acenaphthene	1/3	0.062 J	0.062 J	13-SS-01	0.062	0.35 - 0.36	470	NA
Anthracene	2/3	0.042 J	0.14 J	13-SS-01	0.091	0.36	2,300	NA
Benzo(a)anthracene	2/3	0.31 J	0.43	13-SS-01	0.37	0.36	0.87	NA
Benzo(a)pyrene	2/3	0.24 J	0.39 J	13-SS-01	0.315	0.36	0.087	NA
Benzo(b)fluoranthene	2/3	0.38 J	0.78	13-SS-02	0.58	0.36	0.87	NA
Benzo(g,h,i)perylene	2/3	0.21 J	0.29 J	13-SS-01	0.25	0.36	310	NA
Benzo(k)fluoranthene	1/3	0.25 J	0.25 J	13-SS-01	0.25	0.35 - 0.36	8.7	NA
Carbazole	1/3	0.096 J	0.096 J	13-SS-01	0.096	0.35 - 0.36	32	NA
Chrysene	2/3	0.35	0.43	13-SS-01	0.39	0.36	87	NA
Dibenzo(a,h)anthracene	2/3	0.088 J	0.14 J	13-SS-01	0.114	0.36	0.087	NA
Fluoranthene	2/3	0.64	1.1	13-SS-01	0.87	0.36	310	NA
Fluorene	1/3	0.058 J	0.058 J	13-SS-01	0.058	0.35 - 0.36	310	NA
Indeno(1,2,3-cd)pyrene	2/3	0.2 J	0.25 J	13-SS-01	0.225	0.36	0.87	NA
Phenanthrene	2/3	0.19 J	0.59	13-SS-01	0.39	0.36	310	NA
Pyrene	2/3	0.57	0.57	13-SS-01	0.57	0.36	230	NA
Pesticide/PCBs (mg/kg)								
4,4'-DDD	1/3	0.017 J	0.017 J	13-SS-01	0.017	0.0035 - 0.0036	2.7	0.0092
4,4'-DDE	1/3	0.071 K	0.071 K	13-SS-01	0.071	0.0035 - 0.0036	1.9	0.081
4,4'-DDT	1/3	0.039 K	0.039 K	13-SS-01	0.039	0.0035 - 0.0036	1.9	0.049
Alpha-Chlordane	1/3	0.0078 K	0.0078 K	13-SS-01	0.0078	0.0017 - 0.0018	1.8	NA
Aroclor-1260	2/3	0.059 J	0.17 J	13-SS-01	0.1145	0.036	0.32	NA
Dieldrin	1/3	0.015 J	0.015 J	13-SS-01	0.015	0.0035 - 0.0036	0.04	NA
Gamma-Chlordane	1/3	0.0037 K	0.0037 K	13-SS-01	0.0037	0.0017 - 0.0018	1.8	NA

TABLE 6-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
Aluminum	3/3	4,280	20,000	13-SS-03	11,793	NA	7,800	14953
Arsenic	3/3	1.2	2.3	13-SS-03	1.9	NA	0.43	5.11
Barium	3/3	17.3	71.1	13-SS-03	47.13	NA	550	59.5
Beryllium	1/3	0.08	0.08	13-SS-03	0.08	0.02	16	0.19
Cadmium	3/3	0.21	0.4	13-SS-01	0.303	NA	3.9	NA
Calcium	3/3	254	20,700	13-SS-02	8,641	NA	NA	NA
Chromium	3/3	10.8	19.9 K	13-SS-03	16.17	NA	23	29.35
Cobalt	3/3	2.4	21.5	13-SS-03	10.23	NA	470	11.81
Copper	3/3	9	68.4	13-SS-01	39.43	NA	310	11.52
Iron	3/3	6,080	30,100	13-SS-03	17,093	NA	2,300	18946
Lead	3/3	10.3	40.6	13-SS-01	21.9	NA	400	60.2
Magnesium	3/3	1,850	4,060	13-SS-03	3,177	NA	NA	1183
Manganese	3/3	82.1	699	13-SS-03	358	NA	160	490
Mercury	2/3	0.05	0.16	13-SS-01	0.105	0.02	2.3	0.142
Nickel	3/3	17.2 K	24.5 K	13-SS-03	20.5	NA	160	14.56
Potassium	3/3	696	3,400	13-SS-03	1,697	NA	NA	845
Selenium	2/2	0.76 L	1.4 L	13-SS-02	1.08	NA	39	0.68
Sodium	1/3	106	106	13-SS-03	106	40.7 - 47.9	NA	NA
Vanadium	3/3	11.5	25.4	13-SS-03	19.53	NA	55	30.08
Zinc	3/3	18.8	70	13-SS-01	47.7	NA	2,300	30.67
Miscellaneous								
pH (SU)	3/3	5.74	7.89	13-SS-02	6.65	NA	NA	NA

NA - Not Available



DRAWN BY MJJ	DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SURFACE SOIL SITE 13 / SWMU 7 - OIL SLUDGE DISPOSAL AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO FIGURE 6-2 / REV 0

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Aluminum, arsenic, calcium, iron, magnesium, manganese, potassium, and sodium were detected at a maximum concentration exceeding the soil screening levels. Calcium, magnesium, potassium, and sodium are essential human nutrients and are not present at concentrations that would pose a human health risk. The remaining inorganic constituents, aluminum, arsenic, iron, and manganese, are either below or within their respective facility specific background ranges for surface soil.

6.4.1.2 Subsurface Soil

Four subsurface soil samples were collected at Site 13 and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, inorganics, and EPA SW846-8330 explosives. Table 6-5 provides a comparison of the constituents identified in the subsurface soil with the human health risk-screening criteria. Figure 6-3 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 13 in subsurface soil.

All VOC results were either undetected or "B" qualified and therefore considered nondetected results, and all pesticides/PCBs were detected at concentrations less than their respective screening levels. No explosives were detected in the soil samples collected.

Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at maximum concentrations exceeding their respective screening levels. Both of these PAHs would be associated with oil disposal or the waste management practices that were conducted at Site 13.

Several inorganics were detected in excess of the screening levels. Aluminum, arsenic, iron, and manganese were detected in excess of their specific screening criteria but at concentrations less than their respective White-Oak-specific background. Calcium, magnesium, and potassium were detected, but they are essential human nutrients and are not believed to be present at concentrations that would pose a risk to human health.

6.4.1.3 Groundwater

One groundwater monitoring well was installed downgradient of Site 13, and a single unfiltered groundwater sample was collected. The sample was analyzed for TCL VOCs, SVOCs, pesticide/PCBs, inorganics, and EPA SW846-8330 explosives. Figure 6-4 presents the groundwater data for Site 13, and Table 6-6 provides a comparison of the detected constituents with risk-based screening criteria.

TABLE 6-5

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
FORMER NSWC WHITE OAK

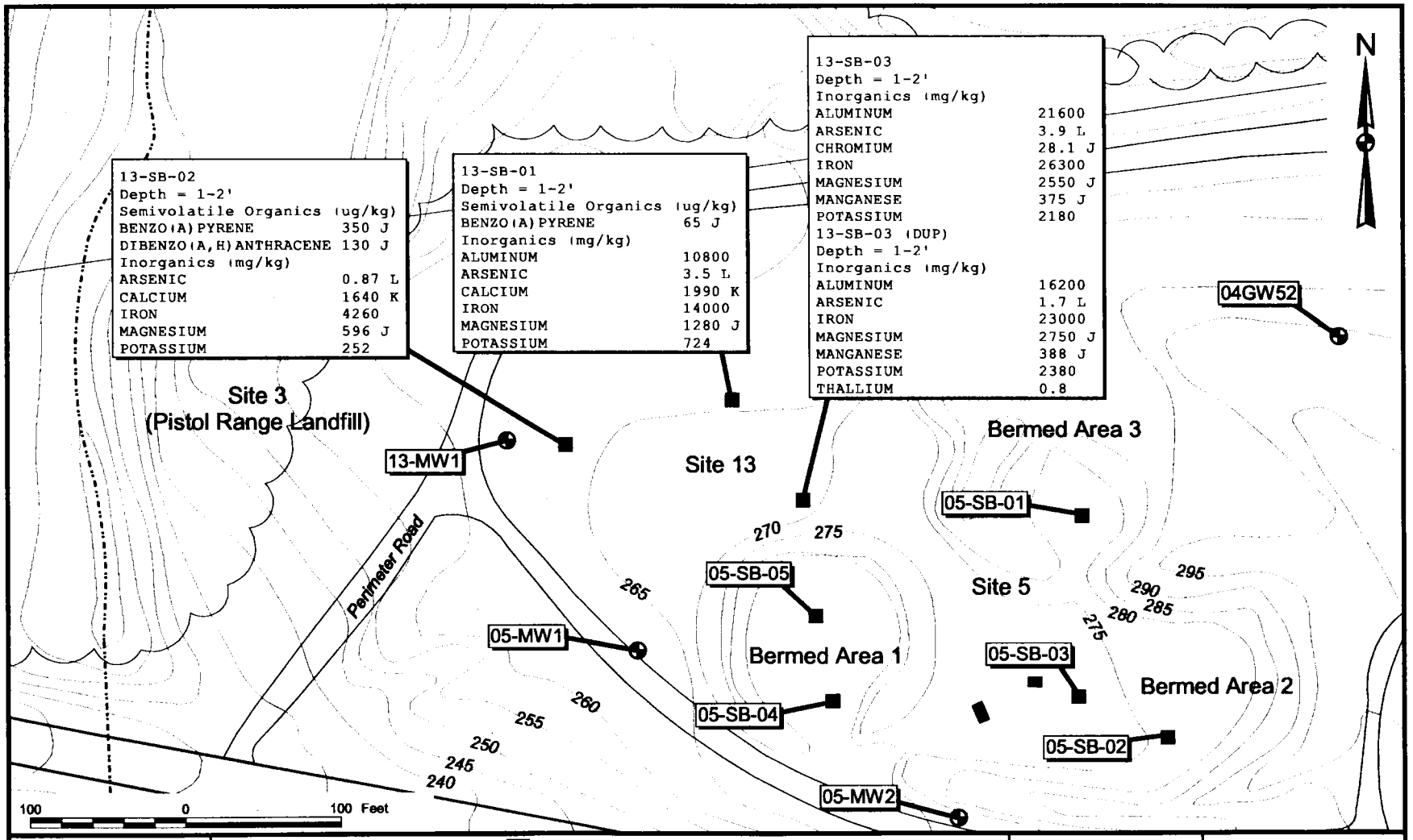
Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Volatile Organics (mg/kg)								
TETRACHLOROETHENE	1/3	0.001 J	0.001 J	13-SB-03	0.001	0.013 - 0.014	12	NA
Semivolatile Organics (mg/kg)								
ANTHRACENE	1/3	0.082 J	0.082 J	13-SB-02	0.082	0.42 - 0.47	2,300	NA
BENZO(A)ANTHRACENE	2/3	0.067 J	0.48 J	13-SB-02	0.2735	0.42 - 0.47	0.87	NA
BENZO(A)PYRENE	2/3	0.065 J	0.35 J	13-SB-02	0.2075	0.42 - 0.47	0.087	NA
BENZO(B)FLUORANTHENE	2/3	0.095 J	0.56 J	13-SB-02	0.3275	0.42 - 0.47	0.87	NA
BENZO(G,H,I)PERYLENE	1/3	0.2 J	0.2 J	13-SB-02	0.2	0.42 - 0.47	310	NA
BENZO(K)FLUORANTHENE	1/3	0.19 J	0.19 J	13-SB-02	0.19	0.42 - 0.47	8.7	NA
BIS(2-ETHYLHEXYL)PHTHALATE	3/3	0.056 J	0.26 J	13-SB-02	0.1398	NA	46	NA
CHRYSENE	2/3	0.047 J	0.5 J	13-SB-02	0.2735	0.42 - 0.47	87	NA
DIBENZO(A,H)ANTHRACENE	1/3	0.13 J	0.13 J	13-SB-02	0.13	0.42 - 0.47	0.087	NA
FLUORANTHENE	2/3	0.11 J	1 J	13-SB-02	0.555	0.42 - 0.47	310	NA
INDENO(1,2,3-CD)PYRENE	1/3	0.2 J	0.2 J	13-SB-02	0.2	0.42 - 0.47	0.87	NA
PHENANTHRENE	2/3	0.073 J	0.41 J	13-SB-02	0.2415	0.42 - 0.47	310	NA
PYRENE	2/3	0.11 J	0.89 J	13-SB-02	0.5	0.42 - 0.47	230	NA
Pesticides (mg/kg)								
4,4'-DDD	1/2	0.002 J	0.002 J	13-SB-02	0.002	0.0042 - 0.0047	2.7	NA
4,4'-DDE	2/3	0.0007 J	0.0009 J	13-SB-01	0.0008	0.0042 - 0.0047	1.9	NA
4,4'-DDT	1/3	0.0007 J	0.0007 J	13-SB-01	0.0007	0.0042 - 0.0047	1.9	NA
ALPHA-CHLORDANE	1/3	0.0017 J	0.0017 J	13-SB-02	0.0017	0.0021 - 0.0024	1.8	NA
GAMMA-CHLORDANE	1/3	0.0016 J	0.0016 J	13-SB-02	0.0016	0.0021 - 0.0024	1.8	NA

TABLE 6-5

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	3/3	3,380	21,600	13-SB-03	11,027	NA	7,800	20961
ARSENIC	3/3	0.87 L	3.9 L	13-SB-03	2.39	NA	0.43	12.15
BARIUM	3/3	8.8	59.1	13-SB-03	34.8	NA	550	40.09
BERYLLIUM	1/3	0.14 K	0.14 K	13-SB-03	0.078	0.03	16	2.37
CALCIUM	2/3	1,640 K	1,990 K	13-SB-01	1,815	190 - 208	NA	247
CHROMIUM	3/3	8.6 J	28.1 J	13-SB-03	16.82	NA	23	41.05
COBALT	2/3	3.7 J	11.9 J	13-SB-03-D	7.58	0.63	470	16.6
COPPER	3/3	6.3	29.8	13-SB-03	16.95	NA	310	21.62
CYANIDE	1/3	0.24	0.24	13-SB-03	0.24	0.26 - 0.32	160	NA
IRON	3/3	4,260	26,300	13-SB-03	14,303	NA	2,300	28681
LEAD	3/3	5.3 K	9.9 K	13-SB-03	7.92	NA	400	21.23
MAGNESIUM	3/3	596 J	2,750 J	13-SB-03-D	1,509	NA	NA	2987
MANGANESE	3/3	17.9 J	388 J	13-SB-03-D	174	NA	160	503
MERCURY	3/3	0.03	0.05	13-SB-01/03	0.042	NA	2.3	0.051
NICKEL	3/3	4 K	15.1 K	13-SB-03	8.68	NA	160	13.84
POTASSIUM	3/3	252	2,380	13-SB-03-D	1,085	NA	NA	2792
SELENIUM	3/3	1.8 J	3.8 J	13-SB-03	2.67	NA	39	2.73
THALLIUM	1/3	0.8	0.8	13-SB-03-D	0.58	0.73 - 0.76	0.55	NA
VANADIUM	3/3	11.1	39.4	13-SB-03	23.5	NA	55	44.31
ZINC	3/3	6.3 J	34.2 J	13-SB-03-D	19.9	NA	2,300	84.2
Miscellaneous								
pH (SU)	3/3	5.65	7.98	13-SB-02	6.96	NA	NA	NA

NA - Not Available



DRAWN BY MJJ DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY DATE	HUMAN HEALTH RISK EXCEEDANCE IN SUBSURFACE SOIL SITE 13 / SWMU 7 - OIL SLUDGE DISPOSAL AREA NSWC - WHITE OAK SILVER SPRING, MD.	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 6-3	REV 0

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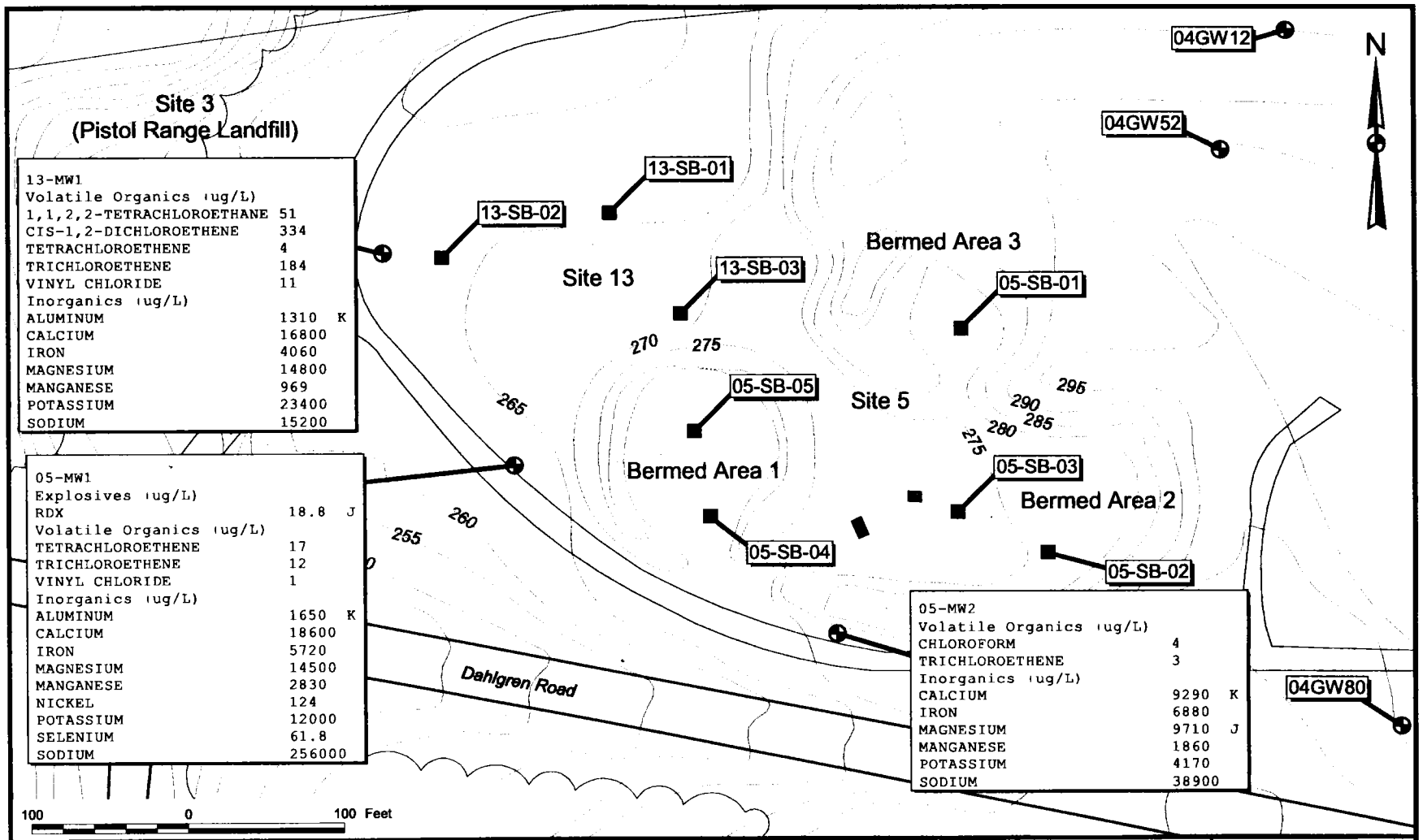

DRAWN BY MJJ DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY DATE	HUMAN HEALTH RISK EXCEEDANCE IN GROUNDWATER SITE 13 / SWMU 7 - OIL SLUDGE DISPOSAL AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SO DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 6-4	REV 0

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TABLE 6-6

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
UNFILTERED GROUNDWATER
SITE 13 - OIL SLUDGE DISPOSAL AREA
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Concentration	Location of Maximum	Screening Level	Proposed Background
Volatile Organics (ug/L)					
1,1,2,2-TETRACHLOROETHANE	1/1	51	13-MW1	0.053	NA
CIS-1,2-DICHLOROETHENE	1/1	334	13-MW1	61	NA
TETRACHLOROETHENE	1/1	4	13-MW1	1.1	NA
TRICHLOROETHENE	1/1	184	13-MW1	1.6	NA
VINYL CHLORIDE	1/1	11	13-MW1	0.019	NA
TRANS-1,2-DICHLOROETHENE	1/1	61	13-MW1	100	NA
Inorganics (ug/L)					
ALUMINUM	1/1	1310 K	13-MW1	50	4870
BARIUM	1/1	77.9	13-MW1	2000	75.94
CALCIUM	1/1	16800	13-MW1	NA	6908
CHROMIUM	1/1	11.2	13-MW1	100	184
COBALT	1/1	29	13-MW1	220	24.23
CYANIDE	1/1	6.2	13-MW1	200	NA
IRON	1/1	4060	13-MW1	300	13700
MAGNESIUM	1/1	14800	13-MW1	NA	11600
MANGANESE	1/1	969	13-MW1	50	840
NICKEL	1/1	45.4	13-MW1	100	82.43
POTASSIUM	1/1	23400	13-MW1	NA	9850
SODIUM	1/1	15200	13-MW1	NA	36500
VANADIUM	1/1	3.7	13-MW1	26	10.7
ZINC	1/1	203	13-MW1	1100	211

NA - Not Available

The VOCs 1,1,2,2-tetrachloroethane, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride were detected in the groundwater sample in excess of their screening levels. SVOCs, pesticide/PCBs, and explosives were not detected in the groundwater sample in excess of the screening levels.

Inorganics detected within the unfiltered groundwater sample included aluminum, chromium, iron, and manganese. Calcium, magnesium, potassium, and sodium, which are essential human nutrients, were also detected at 13-MW1.

Discussion of the groundwater data collected at the adjacent Site 5 is provided in Section 3 of this report.

6.4.2 Ecological Risk Screening

Site 13, Oil Sludge Disposal Area, is located between Site 3 and Site 5 (Figure 6-5). The site is mostly covered with brushy vegetation, with some small trees present. No surface water is located on the site, but Westfarm Branch is located approximately 300 feet west of the site.

Groundwater to surface water discharge of chemicals is possible at Site 5. Yet, surface soil is the primary medium of ecological interest. Ecological receptors could be directly exposed to chemicals in surface soils and indirectly via the foodchain. Chemicals in surface soil could migrate off site in surface runoff. Table 6-7 presents a comparison of existing data for surface soil chemicals to ecological screening levels compiled for NSWC-White Oak. Fluoranthene, several pesticides, Aroclor 1260, and some inorganics have HQs greater than 1.0. Therefore, it appears that an ERA should be performed for the site. Groundwater for Site 13 will be assessed as part of the RFI for Sites 3 and 4 as a result of the area's hydrogeology. It is recommended that Site 13 be assessed as part of the Site 3 and proposed Site 5 ERA.

6.5 CONCLUSIONS AND RECOMMENDATIONS

6.5.1 Conclusions

Based on the results of the risk screening evaluation, VOCs, SVOCs, and inorganics are the primary concern for Site 13. Both surface soil and groundwater appear to have been impacted by waste management activities at Site 13. The surface soil contamination appears to be limited in extent and depth and appears to be confined to the limits of the waste management unit.

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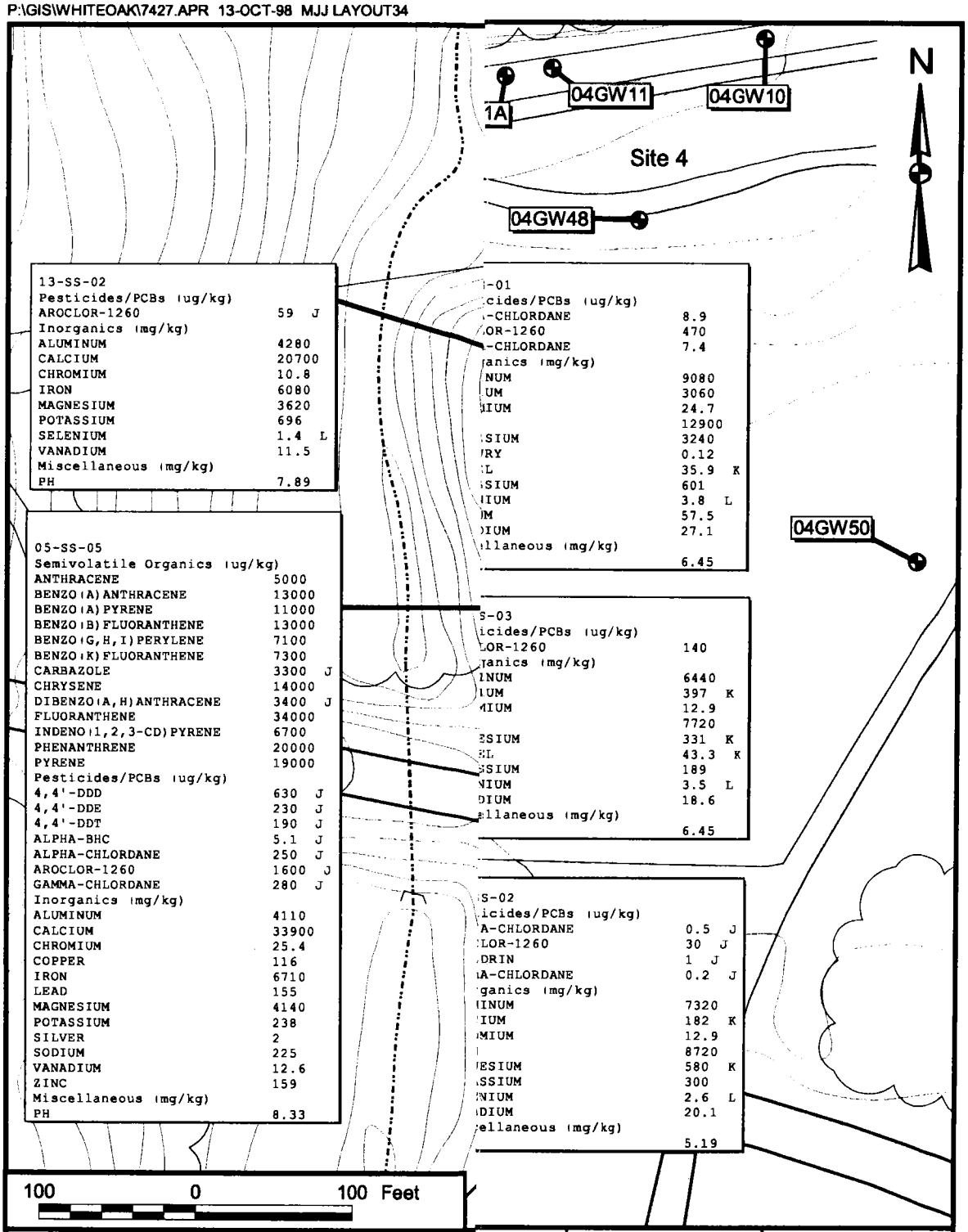

13-SS-02

Pesticides/PCBs (ug/kg)		
AROCLOR-1260	59	J
Inorganics (mg/kg)		
ALUMINUM	4280	
CALCIUM	20700	
CHROMIUM	10.8	
IRON	6080	
MAGNESIUM	3620	
POTASSIUM	696	
SELENIUM	1.4	L
VANADIUM	11.5	
Miscellaneous (mg/kg)		
PH	7.89	

05-SS-05

Semivolatile Organics (ug/kg)		
ANTHRACENE	5000	
BENZO(A)ANTHRACENE	13000	
BENZO(A)PYRENE	11000	
BENZO(B)FLUORANTHENE	13000	
BENZO(G,H,I)PERYLENE	7100	
BENZO(K)FLUORANTHENE	7300	
CARBAZOLE	3300	J
CHRYSENE	14000	
DIBENZO(A,H)ANTHRACENE	3400	J
FLUORANTHENE	34000	
INDENO(1,2,3-CD)PYRENE	6700	
PHENANTHRENE	20000	
PYRENE	19000	
Pesticides/PCBs (ug/kg)		
4,4'-DDD	630	J
4,4'-DDE	230	J
4,4'-DDT	190	J
ALPHA-BHC	5.1	J
ALPHA-CHLORDANE	250	J
AROCLOR-1260	1600	J
GAMMA-CHLORDANE	280	J
Inorganics (mg/kg)		
ALUMINUM	4110	
CALCIUM	33900	
CHROMIUM	25.4	
COPPER	116	
IRON	6710	
LEAD	155	
MAGNESIUM	4140	
POTASSIUM	238	
SILVER	2	
SODIUM	225	
VANADIUM	12.6	
ZINC	159	
Miscellaneous (mg/kg)		
PH	8.33	

-01

cides/PCBs (ug/kg)		
-CHLORDANE	8.9	
OR-1260	470	
-CHLORDANE	7.4	
anics (mg/kg)		
NUM	9080	
UM	3060	
IUM	24.7	
	12900	
SIUM	3240	
RY	0.12	
L	35.9	K
SIUM	601	
IUM	3.8	L
M	57.5	
IUM	27.1	
llaneous (mg/kg)		
	6.45	

S-03

icides/PCBs (ug/kg)		
LOR-1260	140	
anics (mg/kg)		
INUM	6440	
IUM	397	K
MIUM	12.9	
	7720	
ESIUM	331	K
EL	43.3	K
SSIUM	189	
NIUM	3.5	L
DIUM	18.6	
llaneous (mg/kg)		
	6.45	

S-02

icides/PCBs (ug/kg)		
A-CHLORDANE	0.5	J
LOR-1260	30	J
DRIN	1	J
A-CHLORDANE	0.2	J
ganics (mg/kg)		
INUM	7320	
IUM	182	K
MIUM	12.9	
	8720	
ESIUM	580	K
SSIUM	300	
NIUM	2.6	L
DIUM	20.1	
ellaneous (mg/kg)		
	5.19	

NO.	DATE	REVISIONS

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CONTRACT NUMBER 7427	OWNER NUMBER 0101
APPROVED BY SN	DATE 12/1
APPROVED BY	DATE
DRAWING NO. FIGURE 6-5	REV 0

TABLE 6-7

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 13 - OIL SLUDGE DISPOSAL AREA
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Semivolatile Organics (mg/kg)						
Acenaphthene	1/3	0.062	0.062	13-SS-01	20	0.00
Anthracene	2/3	0.042	0.14	13-SS-01	1	0.14
Benzo(a)anthracene	2/3	0.31	0.43	13-SS-01	1	0.43
Benzo(a)pyrene	2/3	0.24	0.39	13-SS-01	1	0.39
Benzo(b)fluoranthene	2/3	0.38	0.78	13-SS-02	1	0.78
Benzo(g,h,i)perylene	2/3	0.21	0.29	13-SS-01	1	0.29
Benzo(k)fluoranthene	1/3	0.25	0.25	13-SS-01	1	0.25
Carbazole	1/3	0.096	0.096	13-SS-01	1	0.10
Chrysene	2/3	0.35	0.43	13-SS-01	1	0.43
Dibenzo(a,h)anthracene	2/3	0.088	0.14	13-SS-01	1	0.14
Fluoranthene	2/3	0.64	1.1	13-SS-01	1	1.10
Fluorene	1/3	0.058	0.058	13-SS-01	30	0.00
Indeno(1,2,3-cd)pyrene	2/3	0.2	0.25	13-SS-01	1	0.25
Phenanthrene	2/3	0.19	0.59	13-SS-01	1	0.59
Pyrene	2/3	0.57	0.57	13-SS-01	1	0.57
Pyrene	2/3	0.57	0.57	13-SS-02	1	0.57
Pesticide/PCBs (mg/kg)						
4,4'-DDD	1/3	0.017	0.017	13-SS-01	0.0025	6.80
4,4'-DDE	1/3	0.071	0.071	13-SS-01	0.0025	28.40
4,4'-DDT	1/3	0.039	0.039	13-SS-01	0.0025	15.60
Alpha-Chlordane	1/3	0.0078	0.0078	13-SS-01	NA	--
Aroclor-1260	2/3	0.059	0.17	13-SS-01	0.02	8.50
Dieldrin	1/3	0.015	0.015	13-SS-01	0.0005	30.00

TABLE 6-7

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 13 - OIL SLUDGE DISPOSAL AREA
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Gamma-Chlordane	1/3	0.0037	0.0037	13-SS-01	NA	--
Inorganics (mg/kg)						
Aluminum	3/3	4280	20000	13-SS-03	50	400.00
Arsenic	3/3	1.2	2.3	13-SS-03	10	0.23
Barium	3/3	17.3	71.1	13-SS-03	500	0.14
Beryllium	1/3	0.08	0.08	13-SS-03	10	0.01
Cadmium	3/3	0.21	0.4	13-SS-01	4	0.10
Chromium	3/3	10.8	19.9	13-SS-03	1	19.90
Cobalt	3/3	2.4	21.5	13-SS-03	20	1.08
Copper	3/3	9	68.4	13-SS-01	50	1.37
Iron	3/3	6080	30100	13-SS-03	200	150.50
Lead	3/3	10.3	40.6	13-SS-01	50	0.81
Manganese	3/3	82.1	699	13-SS-03	500	1.40
Mercury	2/3	0.05	0.16	13-SS-01	0.1	1.60
Nickel	3/3	17.2	24.5	13-SS-03	30	0.82
Selenium	2/2	0.76	1.4	13-SS-02	1	1.40
Vanadium	3/3	11.5	25.4	13-SS-03	2	12.70
Zinc	3/3	18.8	70	13-SS-01	50	1.40

NA = Not Available

The groundwater contamination identified downgradient of Site 13 may be a result of waste management activities at Site 13 or may be related to known waste disposal within areas upgradient of the site.

6.5.2 Recommendations

Based on the conclusions of the contamination assessment and the screening evaluation, completion of an EE/CA that addresses a removal action is recommended for Site 13. A removal action may be appropriate because contaminant distribution is localized and confined to the surficial media. The extent of the removal action can be easily determined through additional site characterization. The following areas should be addressed during the removal action.

- Address the extent of surficial soil contamination. Appropriate clean-up criteria should be established to be protective of human health and ecologic receptors.

Further groundwater characterization at Site 13 should be conducted. The characterization should be combined with the investigation of groundwater at adjacent waste management sites, in particular Sites 3, 4, and 5.

In addition, it is recommended that Site 13 be assessed as part of the Site 3 and proposed Site 5 ERA.

7.0 SITE 28/SWMU 88 - BUILDING T-14 SCRAPYARD

7.1 BACKGROUND

The Building T-14 Scrapyard is a fenced area used to temporarily store materials prior to disposal or reuse (Figure 7-1). The site, which measures 150 feet by 300 feet, was used between 1967 and 1975 to store transformers directly on the hard-packed gravel surface. The specific location of this former transformer staging area within Site 28 is not known. Some areas of the site are currently covered with concrete.

Because the exact location of the former transformer staging area has not been identified, nine soil sample locations were selected to aid in determining the nature and extent of any surface or subsurface soil contamination that may have resulted from these staging operations. The initial soil sample locations proposed in the work plan were modified in the field due to the discovery of a buried section of concrete within the scrapyard. The modified sample locations are shown on Figure 7-1.

7.2 ENVIRONMENTAL SETTING

7.2.1 Topography

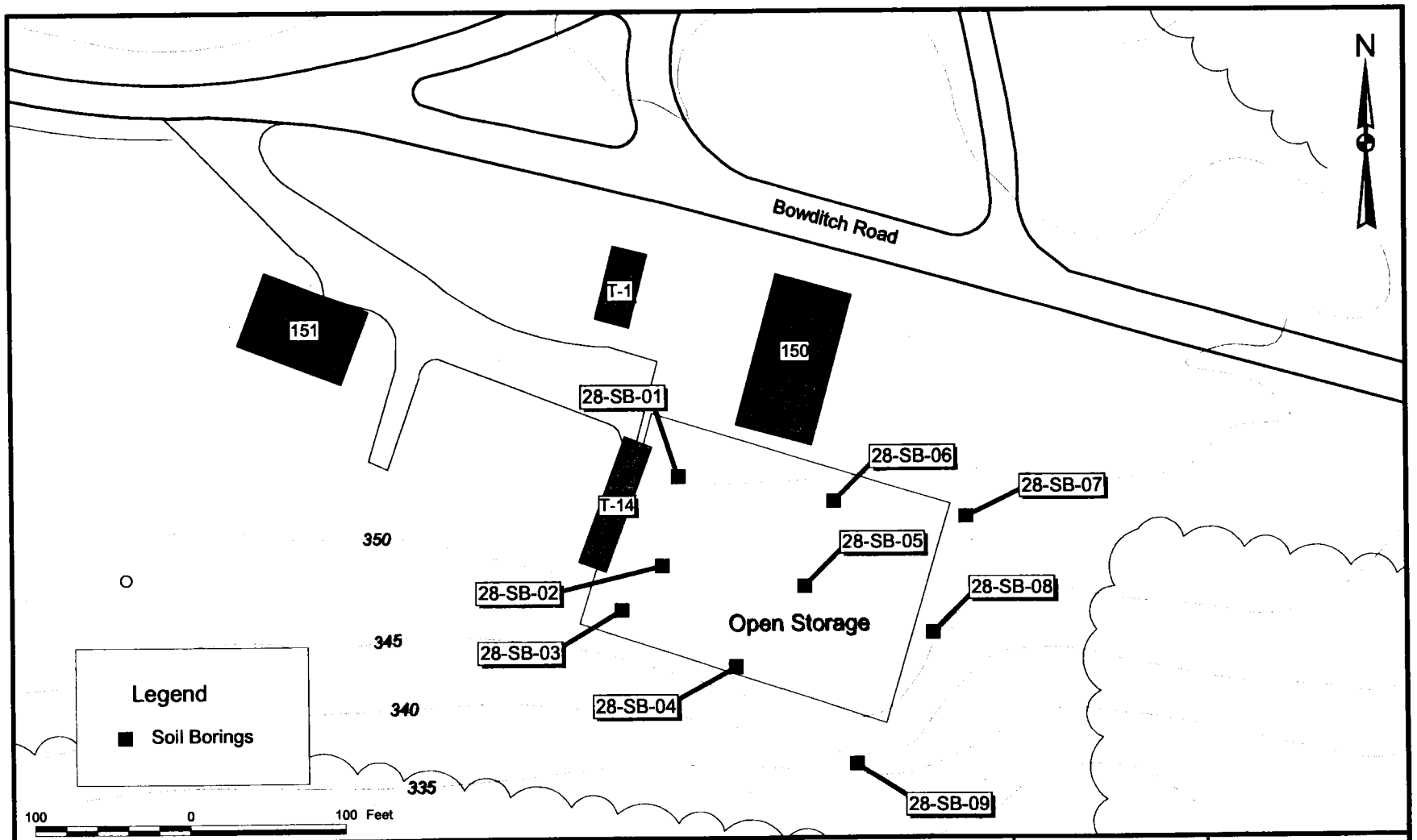
Site 28 is generally flat, with no distinct topographical features. It gently slopes southward at the southeastern corner. The maximum relief of the site is approximately 5 feet, with a maximum elevation of 350 feet and a low elevation of 345 feet.

7.2.2 Surface Water

There are no surface water bodies at Site 28. All of NSWC-White Oak is drained by Paint Branch and its tributaries. The nearest surface water body is a small southward-flowing tributary of Paint Branch, located approximately 480 feet to the south of the site. The stream flows toward the southeast and empties into Paint Branch.

7.2.3 Geology

Boring logs for drilling activity at Site 28 indicated a gravel layer (inside the fenced yard) to a depth of approximately 2 feet. Underlying the gravel layer inside the fenced area and in the area surrounding the fenced scrapyard, the soil is a mixture of clay, silt, and sand. None of the Site 28 borings extended



DRAWN BY MJJ DATE 23SEPT96	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY DATE	SITE MAP SITE 28 / SWMU 88 - BUILDING T-14 SCRAPYARD NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 7-1	REV 0

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beyond 4 feet deep. But because of observations made at deeper borings on neighboring sites, it is expected that the same Coastal Plain deposits identified in other areas of NWSC White Oak overlie a saprolitic bedrock layer at Site 28.

7.3 FIELD INVESTIGATION ACTIVITIES

Because the exact location used to store the transformers has not been identified, nine soil sampling locations were selected to aid in characterizing subsurface conditions within the gravel portion of the storage yard and areas downgradient of the concrete portions of the storage yard.

7.3.1 Surface Soil Sampling

Six surface soil samples were collected at Site 28 at a depth between 0 and 2 feet. Sample locations are shown in Figure 7-1. The surface soil samples were collected from the same locations as the subsurface soil samples. At locations 28-SB-07, 28-SB-08, and 28-SB-09, samples were collected beyond the fence line to address the potential for contaminant migration from the concrete pad in the eastern end of the storage yard. In particular, sample 28-SB-09 was collected within a drainageway along the storage yard perimeter. The surface soil samples were analyzed for TAL metals, cyanide, TCL VOCs, TCL SVOCs, and TCL pesticides/PCBs. Sample log sheets are provided in Appendix D.

7.3.2 Soil Borings and Subsurface Soil Sampling

Twelve subsurface soil samples were collected at Site 28 to evaluate the vertical extent of contamination. The subsurface soil samples were originally planned to be collected using hand auger techniques. However, because of the coarse, gravelly nature of the soil at Site 28, a 3-inch split spoon was used in place of a hand auger to collect the subsurface samples. At locations 28-SB-04, 28-SB-05, and 28-SB-06, two subsurface soil samples were collected only due to the presence of a concrete pad. Samples were collected at 2-foot and 4-foot depths by boring through the existing concrete. Sample logs are provided in Appendix D. Subsurface soil samples were collected at a depth of 2 to 4 feet and analyzed for the following parameters: TAL metals, cyanide, TCL VOCs, TCL SVOCs, and TCL pesticides/PCBs.

7.3.3 Quality Control Samples

No QA/QC samples were collected from this site, although rinseate blanks, MS/MSDs, and blind duplicate samples were collected from other sites during this investigation.

7.4 DATA AND SCREENING EVALUATION

Results for the soil sampling performed at Site 28 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. A summary of positive detections is presented in Table 7-1 for surface soil and Table 7-2 for subsurface soil.

7.4.1 Human Health Risk Screening

7.4.1.1 Surface Soil

Surface soil samples were collected at Site 28 and analyzed for VOCs, SVOCs, pesticides/PCBs, and inorganics. Table 7-3 provides a comparison of the constituents identified in the surface soil with the human health risk-screening criteria. Figure 7-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 28 for surface soil.

All VOCs were detected at concentrations less than their respective soil screening values. Aroclor 1260 was the only PCB or pesticide detected at a maximum concentration exceeding the screening levels in surface soil. Aroclor 1260 was detected in all six surface soil samples but at concentrations less than the screening level in five of the six samples. The maximum concentration was detected in a drainage swale southeast of the site.

Benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene were detected at maximum concentrations exceeding respective soil screening levels within sample 28-SS-07. No other SVOCs were detected in the surface soil samples collected. Sample 28-SS-07 was collected from an area immediately downslope of a parking area associated with Building 150.

Inorganics detected at Site 28 in excess of the screening levels included aluminum, arsenic, chromium, iron, and vanadium. The maximum levels detected were also greater than the White-Oak-specific background values for all of the inorganics listed. Calcium, magnesium, and potassium were also detected, but not at concentrations that are considered a threat to human health.

7.4.1.2 Subsurface Soil

Subsurface soil samples were collected at Site 28 and analyzed for VOCs, SVOCs, pesticides/PCBs, and inorganics. Table 7-4 provides a comparison of the constituents identified in the subsurface soil with the

TABLE 7-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
4-METHYLPHENOL	370 U	400 U	410 U	390 U	46 J	410 U
ACENAPHTHENE	370 U	400 U	410 U	280 J	360 U	410 U
ANTHRACENE	370 U	400 U	410 U	350 J	360 U	410 U
BENZO(A)ANTHRACENE	370 U	400 U	410 U	2000	77 J	57 J
BENZO(A)PYRENE	370 U	400 U	410 U	2500	78 J	59 J
BENZO(B)FLUORANTHENE	370 U	400 U	410 U	2400	80 J	79 J
BENZO(G,H,I)PERYLENE	370 U	400 U	410 U	1900	360 U	410 U
BENZO(K)FLUORANTHENE	370 U	400 U	410 U	2500	86 J	51 J
CARBAZOLE	370 U	400 U	410 U	190 J	360 U	410 U
CHRYSENE	370 U	400 U	410 U	2300	92 J	74 J
DI-N-BUTYL PHTHALATE	370 U	45 J	410 U	390 U	47 J	99 J
DIBENZOFURAN	370 U	400 U	410 U	71 J	360 U	410 U
FLUORANTHENE	370 U	400 U	410 U	4000	200 J	120 J
FLUORENE	370 U	400 U	410 U	170 J	360 U	410 U
INDENO(1,2,3-CD)PYRENE	370 U	400 U	410 U	1600	360 U	410 U
PHENANTHRENE	370 U	400 U	410 U	2600	140 J	82 J
PYRENE	370 U	400 U	410 U	5100	210 J	130 J
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.7 U	4 UL	4 U	3.7 U	0.58 J	4 U
AROCLOR-1260	71	12 J	19 J	210	42 J	4700
DELTA-BHC	1.9 U	2 UL	2 U	0.8 J	1.8 U	2 U
DIELDRIN	3.7 U	0.34 J	4 U	3.7 U	3.6 U	4 U
METALS (mg/kg)						
ALUMINUM	32200	24700	24800	3670	9180	16700
ARSENIC	8.6 K	6.6 K	5.6 K	1.9 B	4.8 K	4.7 K

TABLE 7-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
METALS (mg/kg)						
BARIUM	33.2	63.5	66.5	17.9	32.2	56.7
CALCIUM	82.5 B	1180 J	624 J	734 J	2390 J	1530 J
CHROMIUM	42.4 K	32.1 K	28.5 K	9.1 K	19.7 K	20.7 K
COBALT	3 K	6.3	6.2	1.6 B	4.7	5.1
COPPER	15.5 J	15 J	12.5 J	12.2 J	12 J	13 J
CYANIDE	0.21 U	0.28 U	0.25 U	0.25 U	0.19	0.23 U
IRON	30300	32900	29200	7200	19600	18500
LEAD	8.5 K	15.5 K	11.8 K	40.1 K	13.5 K	19.5 K
MAGNESIUM	650 K	2400	2180	399 K	699 K	1450 K
MANGANESE	24.3	121	132	71.8	115	66.5
MERCURY	0.05	0.06	0.05	0.05	0.04	0.12
NICKEL	8.2 J	13.5 J	12.9 J	3.2 J	5.5 J	9.4 J
POTASSIUM	549 K	1190 K	1050 K	183 K	405 K	759 K
SELENIUM	0.72 J	0.53 UJ	0.55 UJ	0.5 UJ	0.58 J	0.55 J
VANADIUM	56.9 K	48.5 K	43.6 K	12.8 K	32.8 K	32.2 K
ZINC	16.5 J	40.4 J	38.1 J	33.9 J	26.3 J	47.8 J
GENERAL CHEMISTRY						
PH	4.67	4.93	5.05	7.51	7.95	7.81

TABLE 7-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
2-BUTANONE	11 UJ	11 UJ	12 U	10 J	12 U	11 U
ACETONE	11 U	11 U	12 U	79 J	12 U	32 J
CHLOROBENZENE	11 U	11 U	12 U	77	15	11 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	370 U	370 U	390 U	390 UJ	52 J	370 UJ
1,2-DICHLOROBENZENE	370 U	370 U	390 U	86 J	400 UJ	370 UJ
1,3-DICHLOROBENZENE	370 U	370 U	390 U	520 J	400 UJ	370 UJ
1,4-DICHLOROBENZENE	370 U	370 U	390 U	1000 J	49 J	370 UJ
2,4-DIMETHYLPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2-METHYLNAPHTHALENE	370 U	370 U	390 U	80 J	400 UJ	370 UJ
2-METHYLPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
4-METHYLPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
ACENAPHTHENE	370 U	370 U	390 U	120 J	400 UJ	370 UJ
ANTHRACENE	370 U	370 U	390 U	140 J	400 UJ	370 UJ
BENZO(A)ANTHRACENE	370 U	370 U	390 U	350 J	400 UJ	370 UJ
BENZO(A)PYRENE	370 U	370 U	390 U	250 J	400 UJ	370 UJ
BENZO(B)FLUORANTHENE	370 U	370 U	390 U	230 J	400 UJ	370 UJ
BENZO(G,H,I)PERYLENE	370 U	370 U	390 U	190 J	400 UJ	370 UJ
BENZO(K)FLUORANTHENE	370 U	370 U	390 U	210 J	400 UJ	370 UJ
CARBAZOLE	370 U	370 U	390 U	69 J	400 UJ	370 UJ
CHRYSENE	370 U	370 U	390 U	340 J	400 UJ	370 UJ
DI-N-BUTYL PHTHALATE	250 J	38 J	57 J	390 UJ	400 UJ	370 UJ
DIBENZOFURAN	370 U	370 U	390 U	39 J	400 UJ	370 UJ
DIETHYL PHTHALATE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
FLUORANTHENE	370 U	370 U	390 U	730 J	400 UJ	370 UJ

TABLE 7-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
FLUORENE	370 U	370 U	390 U	98 J	400 UJ	370 UJ
INDENO(1,2,3-CD)PYRENE	370 U	370 U	390 U	180 J	400 UJ	370 UJ
NAPHTHALENE	370 U	370 U	390 U	84 J	400 UJ	370 UJ
PHENANTHRENE	370 U	370 U	390 U	610 J	400 UJ	370 UJ
PHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
PYRENE	370 U	370 U	49 J	660 J	400 UJ	370 UJ
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
AROCLOR-1248	37 U	37 U	1400 J	39 UJ	39 UJ	37 UJ
AROCLOR-1260	13 J	6.4 J	560 J	760 J	210 J	46 J
METALS (mg/kg)						
ALUMINUM	17900	10900	16200	17100	16600	20900
ARSENIC	6.9 K	2.1 B	3.4 B	3.8	2.8	5.1
BARIUM	19.2	31.1	62.9	74.1	64.7	64.4
CALCIUM	74 B	2610 J	3030 J	1200 J	819 J	927 J
CHROMIUM	41 K	14.8 K	21.6 K	18.7 J	16.8 J	23.3 J
COBALT	1.7 B	2.4 B	4.6	5.6	7	5.6
COPPER	15 J	9.8 J	14.7 J	9.4 J	12.6 J	9.1 J
CYANIDE	0.19 U	0.26 U	0.24 U			
IRON	25500	13300	18000	16000	18400	21100
LEAD	5.8 K	10.3 K	40.7 K	17.4 J	15.1 J	10.1 J
MAGNESIUM	374 K	1110 K	1530 K	1450 J	1210 J	1670 J
MANGANESE	89.1	65.2	106	148 J	508 J	91.3 J
MERCURY	0.03	0.06	0.12	0.05	0.03	0.06
NICKEL	6.5 J	5.8 J	8.9 J	10	9.8	11.2

TABLE 7-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
METALS (mg/kg)						
POTASSIUM	314 K	513 K	701 K	794 J	802 J	1170 J
SELENIUM	0.5 UJ	0.53 J	0.52 UJ	1 K	0.7 K	0.52 U
VANADIUM	36.4 K	21.8 K	30.7 K	28.8	25.3	37.3
ZINC	10.6 J	18.6 J	58.4 J	45.8 J	33.2 J	34 J
GENERAL CHEMISTRY ()						
PH	4.83	5.21	7.49			

TABLE 7-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
2-BUTANONE	11 U	11 U	11 U	11 U	18 J	7 J
ACETONE	11 U	11 U	11 U	11 U	120 J	69 J
CHLOROBENZENE	11 U	11 U	11 U	11 U	12 U	12 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
1,2-DICHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
1,3-DICHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
1,4-DICHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2,4-DIMETHYLPHENOL	360 UJ	360 UJ	360 UJ	380 U	190 J	400 U
2-METHYLNAPHTHALENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2-METHYLPHENOL	360 UJ	360 UJ	360 UJ	380 U	170 J	400 U
4-METHYLPHENOL	360 UJ	360 UJ	360 UJ	380 U	1600	400 U
ACENAPHTHENE	360 UJ	360 UJ	360 UJ	380 U	48 J	400 U
ANTHRACENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
BENZO(A)ANTHRACENE	360 UJ	360 UJ	360 UJ	380 U	66 J	400 U
BENZO(A)PYRENE	360 UJ	360 UJ	360 UJ	380 U	68 J	400 U
BENZO(B)FLUORANTHENE	360 UJ	360 UJ	360 UJ	380 U	64 J	400 U
BENZO(G,H,I)PERYLENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
BENZO(K)FLUORANTHENE	360 UJ	360 UJ	360 UJ	380 U	66 J	400 U
CARBAZOLE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
CHRYSENE	360 UJ	360 UJ	360 UJ	380 U	77 J	400 U
DI-N-BUTYL PHTHALATE	360 UJ	360 UJ	360 UJ	46 J	42 J	100 J
DIBENZOFURAN	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
DIETHYL PHTHALATE	360 UJ	360 UJ	360 UJ	380 U	390 U	42 J
FLUORANTHENE	360 UJ	360 UJ	360 UJ	66 J	170 J	400 U

TABLE 7-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
FLUORENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
INDENO(1,2,3-CD)PYRENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
NAPHTHALENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
PHENANTHRENE	360 UJ	360 UJ	360 UJ	55 J	160 J	400 U
PHENOL	360 UJ	360 UJ	360 UJ	380 U	330 J	400 U
PYRENE	360 UJ	360 UJ	360 UJ	62 J	180 J	41 J
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	0.71 J	4 UL
AROCLOR-1248	36 UJ	36 UJ	36 UJ	38 U	39 U	40 UL
AROCLOR-1260	5.9 J	11 J	3.6 J	46	58	49 L
METALS (mg/kg)						
ALUMINUM	12100	26200	15200	19300	16600	19900
ARSENIC	3.6	12	6.9	4.1 K	3.9 B	5.2 K
BARIUM	24.8	26	20.8	27.6	58.2	65.8
CALCIUM	1890 J	95.5 B	162 B	326 J	1190 J	1180 J
CHROMIUM	20.2 J	73.6 J	36.6 J	27.2 K	20.5 K	23.5 K
COBALT	1.8 B	2.4 B	1.4 B	1.9 B	5.7	5.6
COPPER	11.6 J	19.5 J	11 J	10.9 J	11 J	11.7 J
CYANIDE				0.25 U	0.23	0.28 U
IRON	14200	36400	19000	21000	21700	21400
LEAD	7.3 J	8.3 J	7 J	7.3 K	24.7 K	24.3 K
MAGNESIUM	709 J	541 J	374 J	603 K	1340 K	1610 K
MANGANESE	41.3 J	18.3 J	12.8 J	27.2	150	63.7
MERCURY	0.05	0.03	0.02 U	0.03	0.06	0.07
NICKEL	4.6	6.6	3.6 B	5.1 J	8.8 J	9.8 J

TABLE 7-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
METALS (mg/kg)						
POTASSIUM	501 J	503 J	411 J	478 K	754 K	880 K
SELENIUM	0.5 U	2.6 L	0.91 K	1 J	0.74 J	0.73 J
VANADIUM	25.8	61.2	39.8	38.1 K	31.8 K	37.5 K
ZINC	14.8 J	13.3 J	9.2 J	11.7 J	55.5 J	52 J
GENERAL CHEMISTRY						
PH				5.09	6.8	6.98

TABLE 7-3

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 28 - BUILDING T - 14 SCRAPYARD
FORMER NSWC WHITE OAK

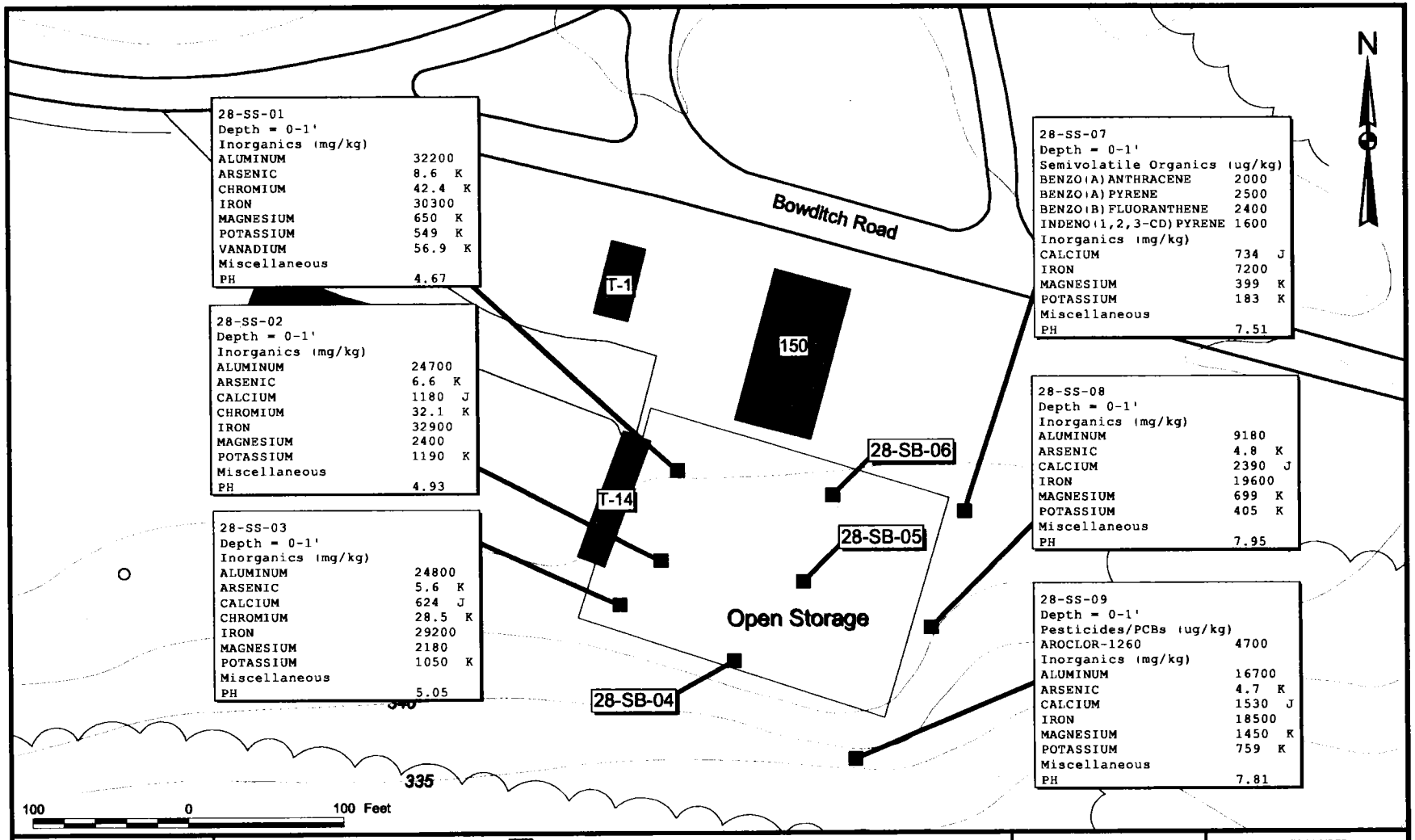
Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
4-METHYLPHENOL	1/6	0.046 J	0.046 J	28-SS-08	0.046	0.37 - 0.41	39	NA
ACENAPHTHENE	1/6	0.28 J	0.28 J	28-SS-07	0.28	0.36 - 0.41	470	0.0665
ANTHRACENE	1/6	0.35 J	0.35 J	28-SS-07	0.35	0.36 - 0.41	2,300	0.108
BENZO(A)ANTHRACENE	3/6	0.057 J	2	28-SS-07	0.711	0.37 - 0.41	0.87	0.34
BENZO(A)PYRENE	3/6	0.059 J	2.5	28-SS-07	0.879	0.37 - 0.41	0.087	0.265
BENZO(B)FLUORANTHENE	3/6	0.079 J	2.4	28-SS-07	0.853	0.37 - 0.41	0.87	0.275
BENZO(G,H,I)PERYLENE	1/6	1.9	1.9	28-SS-07	1.9	0.36 - 0.41	310	0.22
BENZO(K)FLUORANTHENE	3/6	0.051 J	2.5	28-SS-07	0.879	0.37 - 0.41	8.7	0.335
CARBAZOLE	1/6	0.19 J	0.19 J	28-SS-07	0.19	0.36 - 0.41	32	NA
CHRYSENE	3/6	0.074 J	2.3	28-SS-07	0.822	0.37 - 0.41	87	0.4
DI-N-BUTYL PHTHALATE	3/6	0.045 J	0.099 J	28-SS-09	0.0637	0.37 - 0.41	780	NA
DIBENZOFURAN	1/6	0.071 J	0.071 J	28-SS-07	0.071	0.36 - 0.41	31	NA
FLUORANTHENE	3/6	0.12 J	4	28-SS-07	1.44	0.37 - 0.41	310	0.8
FLUORENE	1/6	0.17 J	0.17 J	28-SS-07	0.17	0.36 - 0.41	310	0.067
INDENO(1,2,3-CD)PYRENE	1/6	1.6	1.6	28-SS-07	1.6	0.36 - 0.41	0.87	0.2
PHENANTHRENE	3/6	0.082 J	2.6	28-SS-07	0.941	0.37 - 0.41	310	0.57
PYRENE	3/6	0.13 J	5.1	28-SS-07	1.81	0.37 - 0.41	230	0.63
Pesticide/PCBs (mg/kg)								
4,4'-DDE	1/6	0.0006 J	0.0006 J	28-SS-08	0.0006	0.0037 - 0.004	1.9	0.081
AROCLOR-1260	6/6	0.012 J	4.7	28-SS-09	0.842	NA	0.32	NA
DIELDRIN	1/6	0.0003 J	0.0003 J	28-SS-02	0.0003	0.0036 - 0.004	0.04	0.0088
DELTA-BHC	1/6	0.0008 J	0.0008 J	28-SS-07	0.0008	0.0018 - 0.002	0.35	NA

TABLE 7-3

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 28 - BUILDING T - 14 SCRAPYARD
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	6/6	3,670	32,200	28-SS-01	18,542	NA	7,800	14953
ARSENIC	5/6	4.7 K	8.6 K	28-SS-01	6.06	1.9	0.43	5.11
BARIUM	6/6	17.9	66.5	28-SS-03	45	NA	550	59.5
CALCIUM	5/6	624 J	2,390 J	28-SS-08	1,292	82.5	NA	1040
CHROMIUM	6/6	9.1 K	42.4 K	28-SS-01	25.4	NA	23	29.35
COBALT	5/6	3 K	6.3	28-SS-02	5.06	1.6	470	11.81
COPPER	6/6	12 J	15.5 J	28-SS-01	13.37	NA	310	11.52
CYANIDE	1/6	0.19	0.19	28-SS-08	0.19	0.21 - 0.28	160	NA
IRON	6/6	7,200	32,900	28-SS-02	22,950	NA	2,300	18946
LEAD	6/6	8.5 K	40.1 K	28-SS-07	18.2	NA	400	60.2
MAGNESIUM	6/6	399 K	2,400	28-SS-02	1,296	NA	NA	1183
MANGANESE	6/6	24.3	132	28-SS-03	88.4	NA	160	490
MERCURY	6/6	0.04	0.12	28-SS-09	0.0617	NA	2.3	0.142
NICKEL	6/6	3.2 J	13.5 J	28-SS-02	8.78	NA	160	14.56
POTASSIUM	6/6	183 K	1,190 K	28-SS-02	689	NA	NA	845
SELENIUM	3/6	0.55 J	0.72 J	28-SS-01	0.617	0.5 - 0.55	39	0.68
VANADIUM	6/6	12.8 K	56.9 K	28-SS-01	37.8	NA	55	30.08
ZINC	6/6	16.5 J	47.8 J	28-SS-09	33.83	NA	2,300	30.67
Miscellaneous								
pH (SU)	6/6	4.67	7.95	28-SS-08	6.32	NA	NA	NA

NA - Not Available



DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER	OWNER NUMBER
MJJ	12OCT98		7427	0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SURFACE SOIL SITE 28 / SWMU 88 - BUILDING T-14 SCRAPYARD NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 7-2	REV 0

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TABLE 7-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAPYARD
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Volatile Organics (mg/kg)								
2-BUTANONE	3/12	0.007 J	0.018 J	28-SB-08	0.0117	0.011 - 0.012	4,700	NA
ACETONE	4/12	0.032 J	0.12 J	28-SB-08	0.075	0.011 - 0.012	780	NA
CHLOROBENZENE	2/12	0.015	0.077	28-SB-04(2)	0.046	0.011 - 0.012	160	NA
Semivolatile Organics (mg/kg)								
1,2,4-TRICHLOROBENZENE	1/12	0.052 J	0.052 J	28-SB-04(4)	0.052	0.36 - 0.4	78	NA
1,2-DICHLOROBENZENE	1/12	0.086 J	0.086 J	28-SB-04(2)	0.086	0.36 - 0.4	700	NA
1,3-DICHLOROBENZENE	1/12	0.52 J	0.52 J	28-SB-04(2)	0.52	0.36 - 0.4	700	NA
1,4-DICHLOROBENZENE	2/12	0.049 J	1 J	28-SB-04(2)	0.5245	0.36 - 0.4	27	NA
2,4-DIMETHYLPHENOL	1/12	0.19 J	0.19 J	28-SB-08	0.19	0.36 - 0.4	160	NA
2-METHYLNAPHTHALENE	1/12	0.08 J	0.08 J	28-SB-04(2)	0.08	0.36 - 0.4	310	NA
2-METHYLPHENOL	1/12	0.17 J	0.17 J	28-SB-08	0.17	0.36 - 0.4	390	NA
4-METHYLPHENOL	1/12	1.6	1.6	28-SB-08	1.6	0.36 - 0.4	39	NA
ACENAPHTHENE	2/12	0.048 J	0.12 J	28-SB-04(2)	0.084	0.36 - 0.4	470	NA
ANTHRACENE	1/12	0.14 J	0.14 J	28-SB-04(2)	0.14	0.36 - 0.4	2,300	NA
BENZO(A)ANTHRACENE	2/12	0.066 J	0.35 J	28-SB-04(2)	0.208	0.36 - 0.4	0.87	NA
BENZO(A)PYRENE	2/12	0.068 J	0.25 J	28-SB-04(2)	0.159	0.36 - 0.4	0.087	NA
BENZO(B)FLUORANTHENE	2/12	0.064 J	0.23 J	28-SB-04(2)	0.147	0.36 - 0.4	0.87	NA
BENZO(G,H,I)PERYLENE	1/12	0.19 J	0.19 J	28-SB-04(2)	0.19	0.36 - 0.4	310	NA
BENZO(K)FLUORANTHENE	2/12	0.066 J	0.21 J	28-SB-04(2)	0.138	0.36 - 0.4	8.7	NA
CARBAZOLE	1/12	0.069 J	0.069 J	28-SB-04(2)	0.069	0.36 - 0.4	32	NA
CHRYSENE	2/12	0.077 J	0.34 J	28-SB-04(2)	0.2085	0.36 - 0.4	87	NA
DI-N-BUTYL PHTHALATE	6/12	0.038 J	0.25 J	28-SB-01	0.0888	0.36 - 0.4	780	NA
DIBENZOFURAN	1/12	0.039 J	0.039 J	28-SB-04(2)	0.039	0.36 - 0.4	31	NA
DIETHYL PHTHALATE	1/12	0.042 J	0.042 J	28-SB-09	0.042	0.36 - 0.4	6,300	NA
FLUORANTHENE	3/12	0.066 J	0.73 J	28-SB-04(2)	0.322	0.36 - 0.4	310	NA
FLUORENE	1/12	0.098 J	0.098 J	28-SB-04(2)	0.098	0.36 - 0.4	310	NA
INDENO(1,2,3-CD)PYRENE	1/12	0.18 J	0.18 J	28-SB-04(2)	0.18	0.36 - 0.4	0.87	NA
NAPHTHALENE	1/12	0.084 J	0.084 J	28-SB-04(2)	0.084	0.36 - 0.4	310	NA
PHENANTHRENE	3/12	0.055 J	0.61 J	28-SB-04(2)	0.275	0.36 - 0.4	310	NA

TABLE 7-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAPYARD
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
PHENOL	1/12	0.33 J	0.33 J	28-SB-08	0.33	0.36 - 0.4	4,700	NA
PYRENE	5/12	0.041 J	0.66 J	28-SB-04(2)	0.198	0.36 - 0.4	230	NA
Pesticide/PCBs (mg/kg)								
4,4'-DDE	1/12	0.0007 J	0.0007 J	28-SB-08	0.0007	0.0036 - 0.004	1.9	NA
AROCLOR-1248	1/12	1.4 J	1.4 J	28-SB-03	1.4	0.036 - 0.04	0.32	NA
AROCLOR-1260	12/12	0.0036 J	0.76 J	28-SB-04(2)	0.147	NA	0.32	NA
Inorganics (mg/kg)								
ALUMINUM	12/12	10,900	26,200	28-SB-06(2)	17,408	NA	7,800	20961
ARSENIC	9/12	2.8	12	28-SB-06(2)	5.6	2.1 - 3.9	0.43	12.15
BARIUM	12/12	19.2	74.1	28-SB-04(2)	44.97	NA	550	40.09
CALCIUM	9/12	326 J	3,030 J	28-SB-03	1,464	74 - 162	NA	247
CHROMIUM	12/12	14.8 K	73.6 J	28-SB-06(2)	28.15	NA	23	41.05
COBALT	6/12	4.6	7	28-SB-04(4)	5.68	1.4 - 2.4	470	16.6
COPPER	12/12	9.1 J	19.5 J	28-SB-06(2)	12.19	NA	310	21.62
CYANIDE	1/6	0.23	0.23	28-SB-08	0.23	0.19 - 0.28	160	NA
IRON	12/12	13300	36,400	28-SB-06(2)	20,500	NA	2,300	28681
LEAD	12/12	5.8 K	40.7 K	28-SB-03	14.9	NA	400	21.23
MAGNESIUM	12/12	374 J	1,670 J	28-SB-05(2)	1,043	NA	NA	2987
MANGANESE	12/12	12.8 J	508 J	28-SB-04(4)	110.1	NA	160	503
MERCURY	11/12	0.03	0.12	28-SB-03	0.054	0.02	2.3	0.051
NICKEL	11/12	4.6	11.2	28-SB-05(2)	7.92	3.6	160	13.84
POTASSIUM	12/12	314 K	1,170 J	28-SB-05(2)	652	NA	NA	2792
SELENIUM	8/12	0.53 J	2.6 L	28-SB-06(2)	1.026	0.5 - 0.52	39	2.73
VANADIUM	12/12	21.8 K	61.2	28-SB-06(2)	34.5	NA	55	44.31
ZINC	12/12	9.2 J	58.4 J	28-SB-03	29.8	NA	2,300	84.2
Miscellaneous								
pH (SU)	6/6	4.83	7.49	28-SB-03	6.07	NA	NA	NA

NA - Not Available

human health risk-screening criteria. Figure 7-3 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 28 in subsurface soil.

All VOCs were detected at concentrations less than their respective screening values. Benzo(a)pyrene was the only SVOC detected at a maximum concentration exceeding the soil screening level. Benzo(a)pyrene was detected within sample 28-SB-04, within the southern central portion of the site.

Aroclor 1248 and Aroclor 1260 were both detected at maximum concentrations exceeding their respective screening levels. Aroclor 1260 was detected in all 12 of the subsurface soil samples collected but only in excess of the screening level in two samples, and Aroclor 1248 was detected in only one sample. The average concentration of Aroclor 1260 was below the screening level.

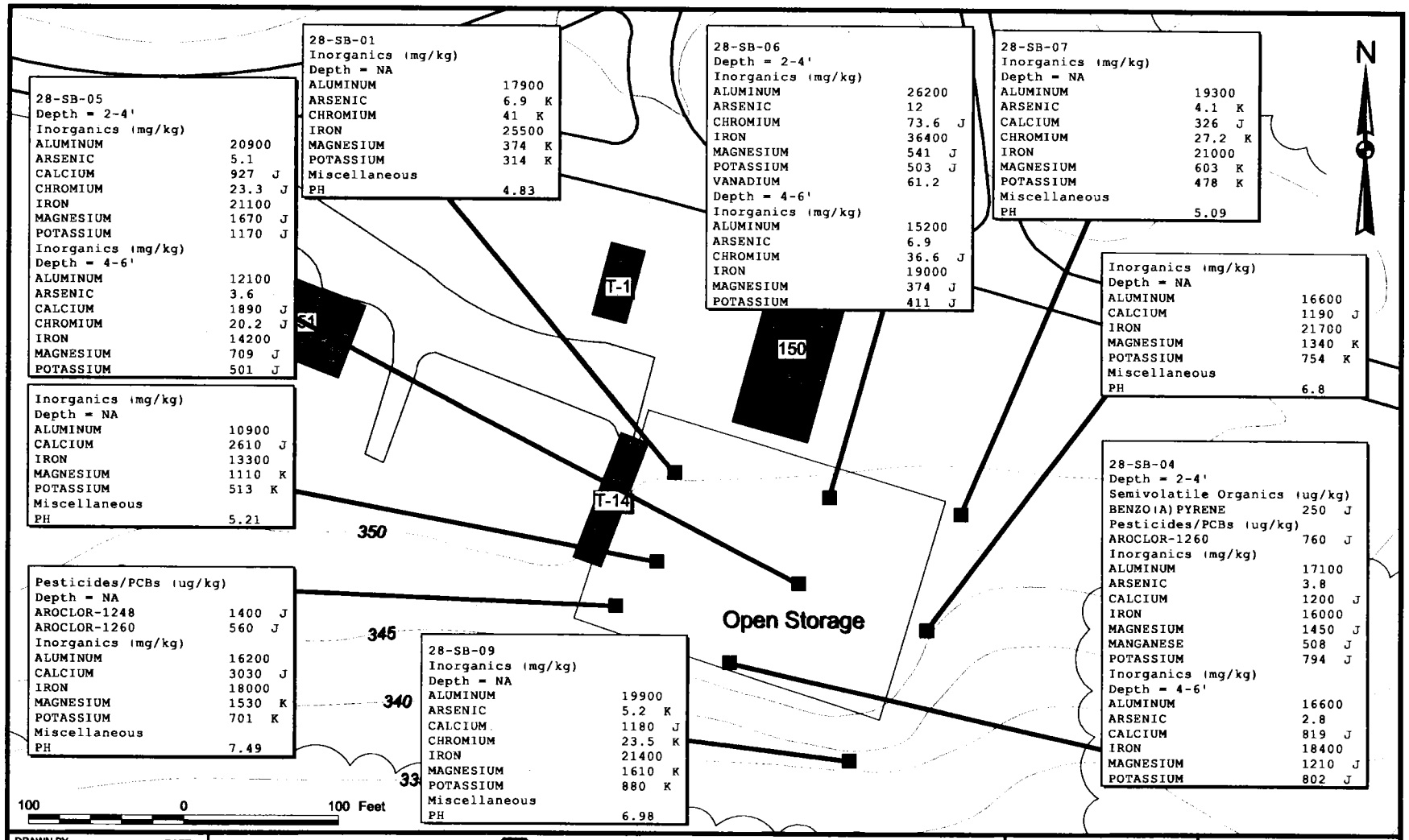
Inorganics detected in excess of their screening levels included aluminum, arsenic, calcium, chromium, iron, magnesium, manganese, and potassium. The maximum concentrations of aluminum, chromium, iron, and manganese also exceeded their respective background values. Calcium, magnesium, and potassium are essential human nutrients and are not believed to be present at concentrations that would pose a risk to human health.

7.4.2 Ecological Risk Screening

Site 28, the Building T-14 Scrapyard, is located in a developed area of the west-central portion of the base (Figure 7-4). The open storage area is all concrete and gravel surrounded by a chain-link fence. The areas outside the fence are covered with mowed turfgrass or high grasses and brushy vegetation. Mature forested areas are located to the south approximately 150 feet from the storage area. Site 28 is generally flat with no distinct topographical features. It gently slopes southward at the southeastern corner.

There are no surface water bodies on or near Site 28, precluding groundwater to surface water discharge of site chemicals. The nearest surface water is a small, intermittent southward-flowing tributary of Paint Branch, located approximately 480 feet south of the site. Off-site migration of surface soil chemicals would be minimal due to the flat nature of the site.

Table 7-5 presents a comparison of existing data for surface soil chemicals to ecological screening levels compiled for NWSC White Oak. Several PAHs, Aroclor 1260, and some inorganics have HQs greater than 1.0. Nevertheless, the site provides limited terrestrial habitat, both in quality and quantity. Contamination also appears to be localized. An EE/CA is being developed to evaluate that potential for



DRAWN BY MJJ — DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	HUMAN HEALTH RISK EXCEEDANCE IN SUBSURFACE SOIL SITE 28 / SWMU 88 - BUILDING T-14 SCRAPYARD NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 7-3	REV 0

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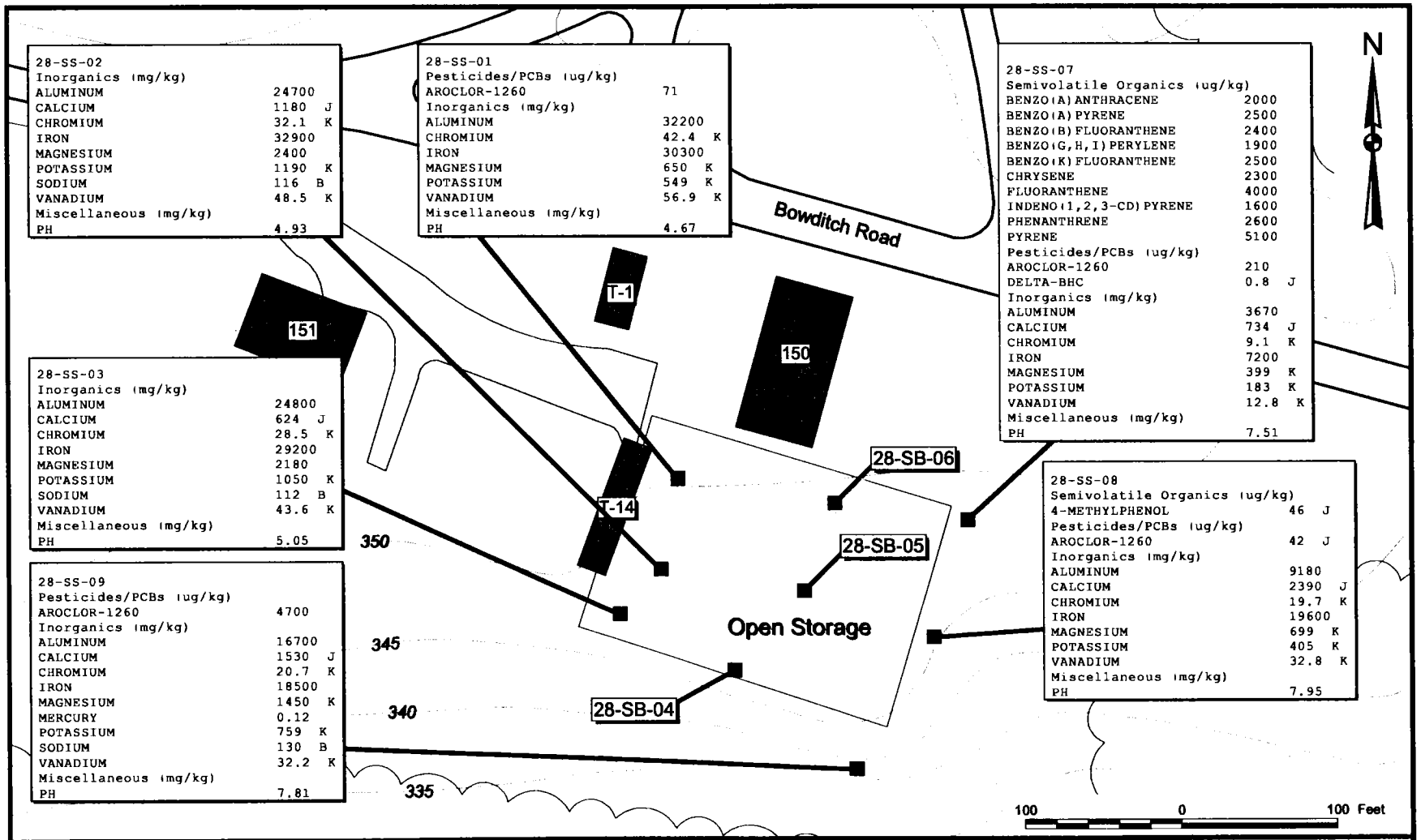

DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER	OWNER NUMBER
MJJ	12OCT98		7427	0101
CHECKED BY	DATE	ECO RISK EXCEEDANCE IN SURFACE SOIL SITE 28 / SWMU 88 - BUILDING T-14 SCRAPYARD NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SJ	DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 7-4	REV 0

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TABLE 7-5

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 28/SWMU 88 - BUILDING T - 14 SCRAPYARD
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Semivolatile Organics (mg/kg)						
4-METHYLPHENOL	1/6	0.046	0.046	28-SS-08	NA	--
ACENAPHTHENE	1/6	0.28	0.28	28-SS-07	20	0.01
ANTHRACENE	1/6	0.35	0.35	28-SS-07	1	0.35
BENZO(A)ANTHRACENE	3/6	0.057	2	28-SS-07	1	2.00
BENZO(A)PYRENE	3/6	0.059	2.5	28-SS-07	1	2.50
BENZO(B)FLUORANTHENE	3/6	0.079	2.4	28-SS-07	1	2.40
BENZO(G,H,I)PERYLENE	1/6	1.9	1.9	28-SS-07	1	1.90
BENZO(K)FLUORANTHENE	3/6	0.051	2.5	28-SS-07	1	2.50
CARBAZOLE	1/6	0.19	0.19	28-SS-07	1	0.19
CHRYSENE	3/6	0.074	2.3	28-SS-07	1	2.30
DI-N-BUTYL PHTHALATE	3/6	0.045	0.099	28-SS-09	100	0.00
DIBENZOFURAN	1/6	0.071	0.071	28-SS-07	600	0.00
FLUORANTHENE	3/6	0.12	4	28-SS-07	1	4.00
FLUORENE	1/6	0.17	0.17	28-SS-07	30	0.01
INDENO(1,2,3-CD)PYRENE	1/6	1.6	1.6	28-SS-07	1	1.60
PHENANTHRENE	3/6	0.082	2.6	28-SS-07	1	2.60
PYRENE	3/6	0.13	5.1	28-SS-07	1	5.10
Pesticide/PCBs (mg/kg)						
4,4'-DDE	1/6	0.0006	0.0006	28-SS-08	0.0025	0.24
AROCLOR-1260	6/6	0.012	4.7	28-SS-09	0.02	235.00
DIELDRIN	1/6	0.0003	0.0003	28-SS-02	0.0005	0.60
DELTA-BHC	1/6	0.0008	0.0008	28-SS-07	NA	--
Inorganics (mg/kg)						
ALUMINUM	6/6	3670	32200	28-SS-01	50	644.00
ARSENIC	5/6	4.7	8.6	28-SS-01	10	0.86
BARIUM	6/6	17.9	66.5	28-SS-03	500	0.13
CHROMIUM	6/6	9.1	42.4	28-SS-01	1	42.40
COBALT	5/6	3	6.3	28-SS-02	20	0.32

TABLE 7-5

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 28/SWMU 88 - BUILDING T - 14 SCRAPYARD
FORMER NSWC WHITE OAK

PAGE 2 OF 2

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
COPPER	6/6	12	15.5	28-SS-01	50	0.31
CYANIDE	1/6	0.19	0.19	28-SS-08	1	0.19
IRON	6/6	7200	32900	28-SS-02	200	164.50
LEAD	6/6	8.5	40.1	28-SS-07	50	0.80
MANGANESE	6/6	24.3	132	28-SS-03	500	0.26
MERCURY	6/6	0.04	0.12	28-SS-09	0.1	1.20
NICKEL	6/6	3.2	13.5	28-SS-02	30	0.45
SELENIUM	3/6	0.55	0.72	28-SS-01	1	0.72
VANADIUM	6/6	12.8	56.9	28-SS-01	2	28.45
ZINC	6/6	16.5	47.8	28-SS-09	50	0.96

NA = Not Available

excavation and off-site disposal of contaminated soils. As such, no further ecological work is recommended for Site 28.

7.5 CONCLUSIONS AND RECOMMENDATIONS

7.5.1 Conclusions

Based on the results of the risk screening evaluation, SVOCs and PCBs are the primary concern for Site 28. Their presence within site soils is limited to discrete locations associated with drainage from the site and vehicle parking areas. In addition, the site is covered with a large quantity of debris and rubble from previous base closure operations.

7.5.2 Recommendations

Based on the conclusions of the contamination assessment and the screening evaluation, a removal action is recommended for Site 28. A removal action is appropriate because contaminant distribution is localized and confined to the surficial media. The extent of the removal action can be easily determined through additional sampling and analysis. The following areas should be addressed during the removal action.

- Address the presence of PCBs and SVOCs in surface soil. Appropriate clean-up criteria should be established to be protective of human health and ecologic receptors.

- Remove the debris and rubble from the storage site to eliminate potential source areas.

8.0 SITE 29/SWMU 74 - BUILDING 76, PLASTICS LABORATORY WASTE AREA

8.1 BACKGROUND

Site 29 comprises a concrete pad that measures 10 feet by 10 feet (Figure 8-1). The pad was formerly used to stage wastes generated within the Plastics Laboratory until final off-site disposal. Wastes staged at the site included epoxies and resin waste generated within the Plastics Laboratory. The pad was surrounded by a concrete berm.

8.2 ENVIRONMENTAL SETTING

8.2.1 Topography

The area surrounding Site 29 is a relatively flat, grass-covered area that gently slopes from the northwest to the southeast. The maximum relief of the site is approximately 5, feet with a range in elevation from 355 feet to 350 feet msl.

8.2.2 Surface Water

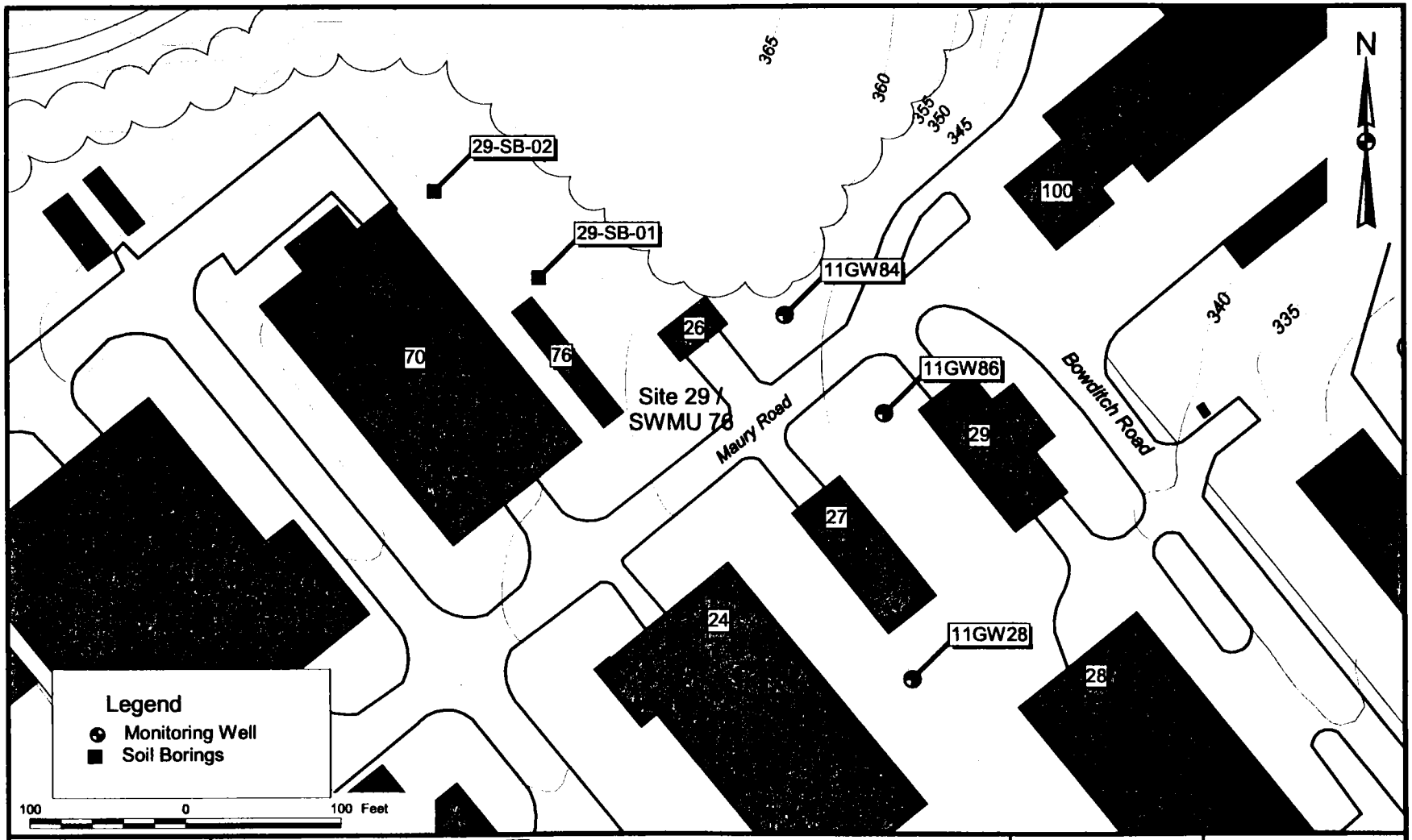
There are no surface water bodies at Site 29. All of NSWC White Oak is located within the Paint Branch watershed. The nearest surface water body is a small southward-flowing tributary of Paint Branch located approximately 2,400 feet west of the site. The tributary drains directly into Paint Branch. However, during a rain event, surface water would most likely infiltrate into the surface soil or collect in a small swale that flows southward off the site and into the storm sewer on Maury Road.

8.2.3 Geology

Based on the boring logs recorded for the site, the shallow subsurface soils consist of a brown micaceous silty sand of the Chillum-Croom-Beltsville Association. These soils are moderately well drained and are formed in Coastal Plain deposits on uplands. The soil boring logs are provided in Appendix E.

8.2.4 Hydrogeology

No hydrogeologic investigations have been conducted at this site. However, the shallow groundwater flow direction has been found to follow the surface topography and bedrock surface throughout NSWC White



DRAWN BY MJJ — DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	SAMPLE LOCATION MAP SITE 29 / SWMU 76 - BUILDING 76 PLASTICS LABORATORY WASTE AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SW — DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY — DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 8-1	REV 0

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Oak and within the overlying IRP Site 11. Therefore, groundwater flow for this site is predicted to flow in a southeastward direction. Based on information collected during soil boring, the top of the water table is anticipated to occur approximately 14 feet bgs.

8.3 FIELD INVESTIGATION ACTIVITIES

Field investigation activities at Site 29 included placing two soil borings in proximity to Site 29 and sampling surface and subsurface soils.

8.3.1 Surface Soil Sampling

Two surface soil samples were collected at Site 29. Sample locations are shown in Figure 8-1. The surface soil samples were collected from the same site locations as the subsurface samples. All surface soil samples were analyzed for TCL VOCs and TCL SVOCs. Sample log sheets are provided in Appendix D.

8.3.2 Soil Borings and Subsurface Soil Sampling

Two borings were completed at Site 29 to a maximum depth of 18 feet. The top of the water table was encountered at 14 feet. Subsurface soil samples were analyzed for TCL VOCs and TCL SVOCs. Sample logs are provided in Appendix D.

8.4 DATA AND SCREENING EVALUATION

Results for the soil sampling performed at Site 29 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. Results for surface soil are included in Table 8-1 and for subsurface soil in Table 8-2.

8.4.1 Human Health Risk Screening

8.4.1.1 Surface Soil

Two surface soil samples were collected at Site 29 and analyzed for VOCs and SVOCs. Table 8-3 provides a comparison of the constituents identified in the surface soil with the human health risk-screening criteria. Figure 8-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 28 for surface soil.

TABLE 8-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SS-01	29-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	29-SS-01	29-SS-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
ACENAPHTHENE	69 J	360 U				
ANTHRACENE	100 J	360 U				
BENZO(A)ANTHRACENE	260 J	98 J				
BENZO(A)PYRENE	210 J	93 J				
BENZO(B)FLUORANTHENE	270 J	130 J				
BENZO(G,H,I)PERYLENE	130 J	85 J				
BENZO(K)FLUORANTHENE	170 J	110 J				
BIS(2-ETHYLHEXYL)PHTHALATE	100 J	260 J				
CARBAZOLE	53 J	360 U				
CHRYSENE	280 J	140 J				
DI-N-BUTYL PHTHALATE	92 J	88 J				
DIBENZO(A,H)ANTHRACENE	64 J	360 U				
FLUORANTHENE	580	240 J				
FLUORENE	60 J	360 U				
INDENO(1,2,3-CD)PYRENE	130 J	78 J				
PHENANTHRENE	480	110 J				
PYRENE	500	210 J				
GENERAL CHEMISTRY ()						
PH	5.46	5.95				

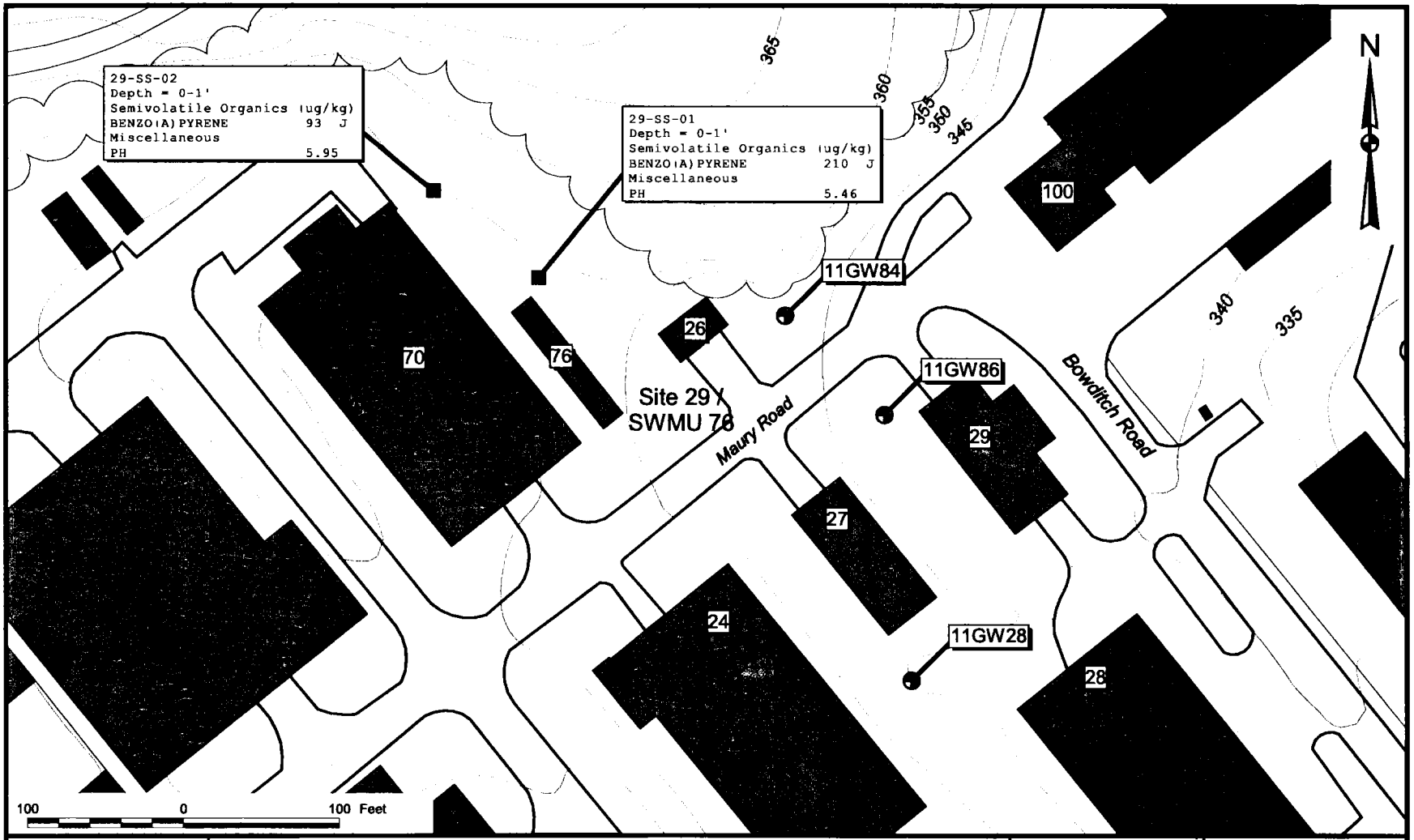
TABLE 8-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SB-01(17)	29-SB-01(6)	29-SB-02(16)	29-SB-02(6)		
DEPTH (feet):	17-19'	6-8'	16-18'	6-8'		
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/24/97	/ /	/ /
LOCATION:	29-SB-01	29-SB-01	29-SB-02	29-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	40	28	27	14 B		

TABLE 8-3

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 29 - BUILDING 76 PLASTICS LABORATORY WASTE AREA
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
ACENAPHTHENE	1/2	0.069 J	0.069 J	29-SS-01	0.069	0.36	470	0.0665*
ANTHRACENE	1/2	0.1 J	0.1 J	29-SS-01	0.1	0.36	2,300	0.108
BENZO(A)ANTHRACENE	2/2	0.098 J	0.26 J	29-SS-01	0.179	NA	0.87	0.340
BENZO(A)PYRENE	2/2	0.093 J	0.21 J	29-SS-01	0.1515	NA	0.087	0.265
BENZO(B)FLUORANTHENE	2/2	0.13 J	0.27 J	29-SS-01	0.2	NA	0.87	0.275
BENZO(G,H,I)PERYLENE	2/2	0.085 J	0.13 J	29-SS-01	0.1075	NA	310	0.220
BENZO(K)FLUORANTHENE	2/2	0.11 J	0.17 J	29-SS-01	0.14	NA	8.7	0.335
BIS(2-ETHYLHEXYL)PHTHALATE	2/2	0.1 J	0.26 J	29-SS-02	0.18	NA	46	
CARBAZOLE	1/2	0.053 J	0.053 J	29-SS-01	0.053	0.36	32	
CHRYSENE	2/2	0.14 J	0.28 J	29-SS-01	0.21	NA	87	0.400
DI-N-BUTYL PHTHALATE	2/2	0.088 J	0.092 J	29-SS-01	0.09	NA	780	
DIBENZO(A,H)ANTHRACENE	1/2	0.064 J	0.064 J	29-SS-01	0.064	0.36	0.087	0.095
FLUORANTHENE	2/2	0.24 J	0.58	29-SS-01	0.41	NA	310	0.800
FLUORENE	1/2	0.06 J	0.06 J	29-SS-01	0.06	0.36	310	0.067
INDENO(1,2,3-CD)PYRENE	2/2	0.078 J	0.13 J	29-SS-01	0.104	NA	0.87	0.200
PHENANTHRENE	2/2	0.11 J	0.48	29-SS-01	0.295	NA	310	0.570
PYRENE	2/2	0.21 J	0.5	29-SS-01	0.355	NA	230	0.630
Miscellaneous								
pH (SU)	2/2	5.46	5.95	29-SS-02	5.71	NA		



DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NUMBER	OWNER NUMBER
MJJ	12OCT98		7427	0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SURFACE SOIL SITE 29 / SWMU 76 - BUILDING 76 PLASTICS LABORATORY WASTE AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 8-2	REV 0

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All VOC results were "B" qualified and are therefore considered nondetected results. Benzo(a)pyrene was the only SVOC detected at a maximum concentration exceeding the soil screening level. Benzo(a)pyrene was detected in both surface soil samples collected at the site, but only marginally in excess of the site screening level.

8.4.1.2 Subsurface Soil

Four subsurface soil samples were collected at Site 29 and analyzed for VOCs and SVOCs. Methylene chloride was the only constituent detected in the subsurface soil samples but at concentrations below the screening level. In addition, methylene chloride is a common laboratory contaminant and may have been present in the laboratory at the time of sample analysis. Table 8-4 provides a comparison of the methylene chloride result with the human health screening criteria.

8.4.2 Ecological Risk Screening

Site 29/SWMU 74, the Building 76 Plastics Laboratory Waste Area, is located in the developed Site 11/100 Area of NSWC White Oak (Figure 8-3). The surrounding area is characterized by buildings, roadways, and mowed turfgrass to the west, south, and east. The area is relatively flat and gently slopes from the northwest to the southeast, limiting off-site migration of surface soil chemicals via runoff. Some scattered ornamental trees are present, and a wooded area is present approximately 100 feet to the northeast. No surface water is present on or near Site 29/SWMU 74, precluding groundwater to surface water discharge of site chemicals.

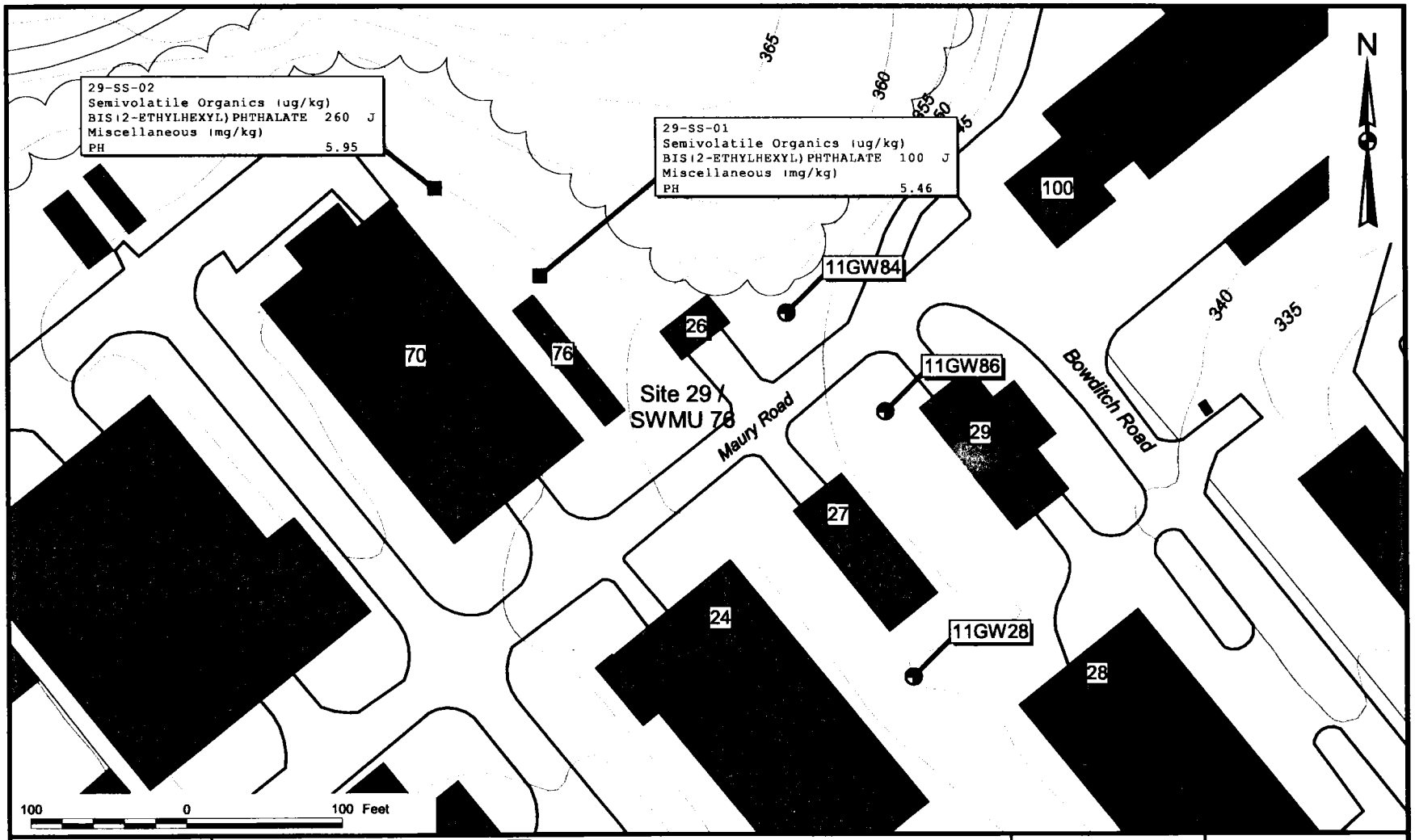
Table 8-5 presents a comparison of existing data for surface soil chemicals to ecological screening levels compiled for NWSC White Oak. Only SVOC data are available due to the nature of past waste management practices. Bis(2-ethylhexyl)phthalate is the only chemical with an HQ greater than 1.0 (HQ = 2.6), at a concentration of 0.26 mg/kg. Phthalates are ubiquitous environmental contaminants, especially where plastics are or have been present.

Due to the highly developed nature of the site and relative absence of contamination, no further ecological study is recommended for Site 29/SWMU 74.

TABLE 8-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 29 - BUILDING 76 PLASTICS LABORATORY WASTE AREA
FORMER NSWC WHITE OAK

	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Volatile Organics (mg/kg)								
METHYLENE CHLORIDE	3/4	0.027	0.04	29-SB-01(17)	0.0317	0.014	85	



DRAWN BY MJJ DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY DATE	ECO RISK EXCEEDANCE IN SURFACE SOIL SITE 29 / SWMU 76 - BUILDING 76 PLASTICS LABORATORY WASTE AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 8-3	REV 0

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TABLE 8-5

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 29/SWMU 74 - BUILDING 76 PLASTICS LABORATORY WASTE AREA
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Semivolatile Organics (mg/kg)						
ACENAPHTHENE	1/2	0.069	0.069	29-SS-01	20	0.00
ANTHRACENE	1/2	0.1	0.1	29-SS-01	1	0.10
BENZO(A)ANTHRACENE	2/2	0.098	0.26	29-SS-01	1	0.26
BENZO(A)PYRENE	2/2	0.093	0.21	29-SS-01	1	0.21
BENZO(B)FLUORANTHENE	2/2	0.13	0.27	29-SS-01	1	0.27
BENZO(G,H,I)PERYLENE	2/2	0.085	0.13	29-SS-01	1	0.13
BENZO(K)FLUORANTHENE	2/2	0.11	0.17	29-SS-01	1	0.17
BIS(2-ETHYLHEXYL)PHTHALATE	2/2	0.1	0.26	29-SS-02	0.1	2.60
CARBAZOLE	1/2	0.053	0.053	29-SS-01	1	0.05
CHRYSENE	2/2	0.14	0.28	29-SS-01	1	0.28
DI-N-BUTYL PHTHALATE	2/2	0.088	0.092	29-SS-01	100	0.00
DIBENZO(A,H)ANTHRACENE	1/2	0.064	0.064	29-SS-01	1	0.06
FLUORANTHENE	2/2	0.24	0.58	29-SS-01	1	0.58
FLUORENE	1/2	0.06	0.06	29-SS-01	30	0.00
INDENO(1,2,3-CD)PYRENE	2/2	0.078	0.13	29-SS-01	1	0.13
PHENANTHRENE	2/2	0.11	0.48	29-SS-01	1	0.48
PYRENE	2/2	0.21	0.5	29-SS-01	1	0.50

NA = Not Available

8.5 CONCLUSIONS AND RECOMMENDATIONS

8.5.1 Conclusions

Benzo(a)pyrene was the only constituent detected at a maximum concentration exceeding a soil screening level in either the surface or subsurface soil samples collected. Based upon the location of the site and the relatively low concentration of benzo(a)pyrene detected, the site does not appear to pose a risk to human health and/or the environment.

8.5.2 Recommendations

Based upon the lack of contamination identified with Site 29, no further action is recommended.

9.0 SITE 31/SWMU 72 - OUTSIDE DRUM STORAGE AREA

9.1 BACKGROUND

Site 31/SWMU 72 is a 4-foot by 15-foot asphalt pad located directly across Taylor Road from the eastern side of Building 25 (Figure 9-1). The site was formerly used to temporarily store two 55-gallon drums of waste solvents and lubrication oils generated by operations located within Building 25. The solvents contained trichloroethylene, methylene chloride, 2-butoxyethanol, xylene, toluene, ethylbenzene, and other unspecified hydrocarbon-based materials. The drums were stored on the pad for a 1- or 2-day period prior to transport off site for disposal. Stressed vegetation observed immediately downgradient of the pad, in the direction of Building 24, indicates the possibility of a release of hazardous materials. Site 31/SWMU 72 is located across the street from Site 33/SWMU 39.

9.2 ENVIRONMENTAL SETTING

9.2.1 Topography

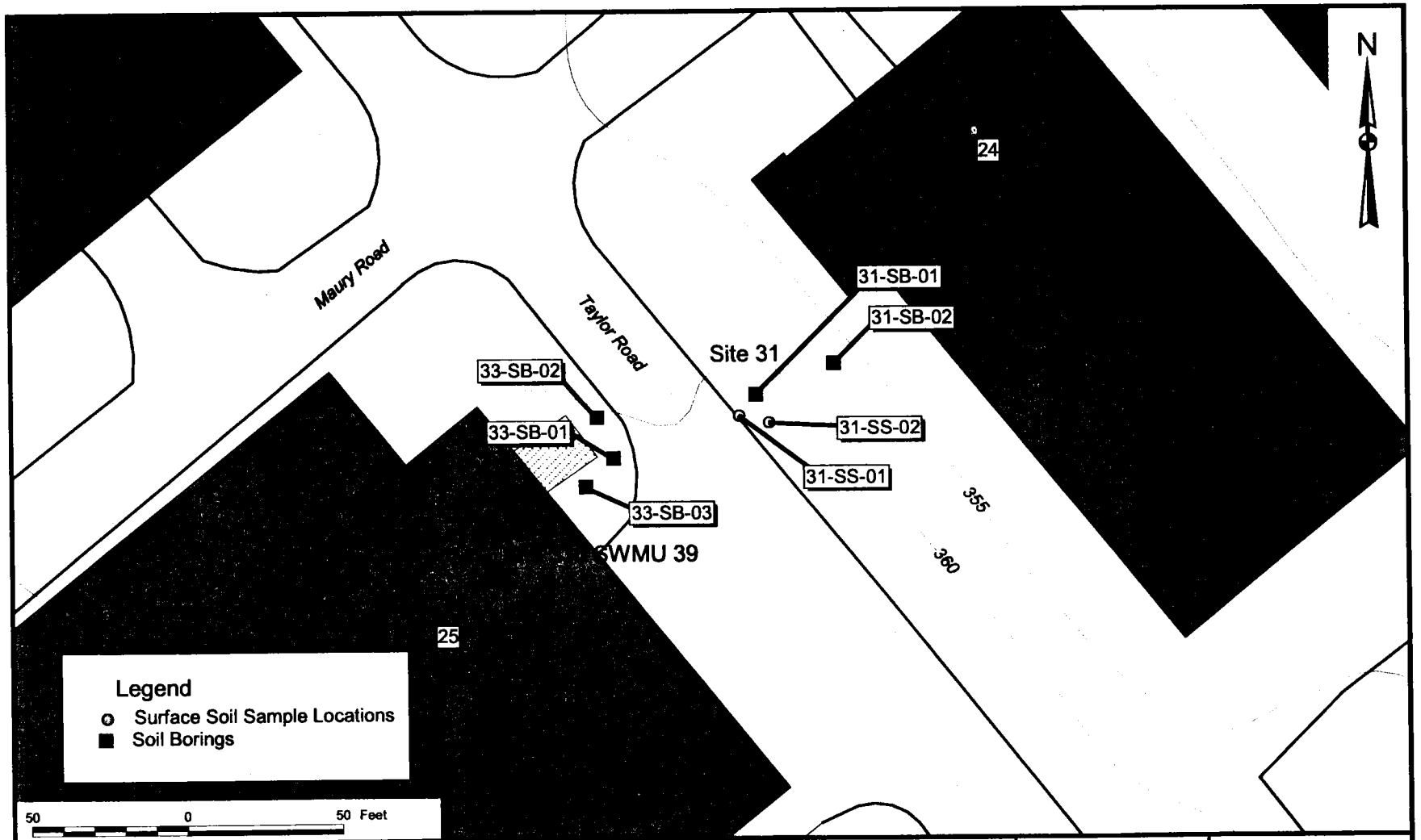
The elevation of the asphalt pad is equal to the adjacent curbing along Taylor Road (approximately 358 feet above mean sea level). From the asphalt pad the ground surface slopes eastward toward Building 24 to an elevation of approximately 353 above msl. Areas north, south, and west of the pad follow the relief of Taylor Road.

9.2.2 Surface Water

Surface water on the paved area of Site 31 consists solely of runoff from precipitation events. All surface runoff flows downhill toward Building 24.

9.2.3 Geology

Soil borings completed at this site yielded dry to slightly moist soils comprised mostly of micaceous silty sands with clay and gravel components. Some angular rock fragments that were heavily oxidized were also observed in the core samples. Surface soils down to a depth of 6 inches were comprised mostly of sandy clay with a minor gravel component. The site boring logs are provided in Appendix E.



DRAWN BY MJJ	DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	SAMPLE LOCATION MAP SITE 31 / SWMU 72 - BUILDING 25 OUTSIDE DRUM STORAGE AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 9-1 / REV 0

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9.2.4 Hydrogeology

Groundwater was not encountered in the two soil borings completed at the site. The borings extended to maximum depths of 27 feet and 28 feet, respectively. However, the shallow groundwater flow direction has been found to follow the surface topography and bedrock surface throughout NSWC White Oak and within the overlying IRP Site 11. Therefore, groundwater flow for this site is predicted to flow in an eastward direction.

9.3 FIELD INVESTIGATION ACTIVITIES

Both surface and subsurface soil sampling was used to assess the potential impact of Site 31 waste management operations on the areas adjacent to the storage pad.

9.3.1 Surface Soil Sampling

Two surface soil samples (31-SS-01 and 31-SS-02) were collected at Site 31. Sample locations are shown in Figure 8-1. Sample 31-SS-02 was located downgradient of the asphalt pad in an area of stressed vegetation. The surface soil samples were analyzed for TAL/TCL constituents including VOCs, SVOCs, metals, and total petroleum hydrocarbons (TPH). Sample log sheets are provided in Appendix D.

9.3.2 Soil Borings and Subsurface Soil Sampling

Two soil borings (31-SB-01 and 31-SB-02) were completed at Site 31 using a hollow-stem auger drill rig and a 3-inch split spoon. The borings were not performed at the locations of the corresponding surface soil samples due to the presence of underground utilities.

Subsurface soil samples were collected at depths of 4 feet bgs and at the groundwater interface, located between 27 feet and 28 feet bgs, from soil boring 31-SB-01 and also soil boring 31-SB-02. The subsurface soil samples were analyzed for TCL VOCs, TCL SVOCs, TAL metals, cyanide, and TPH. Samples were also analyzed for tentatively identified compounds to determine the presence of other volatiles such as 2-butoxyethanol and other unspecified hydrocarbons that are not included on the target compound list. Sample log sheets are provided in Appendix D.

9.4 DATA AND SCREENING EVALUATION

Results from the soil sampling performed at Site 31 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample

medium. A summary of positive detections is presented in Table 9-1 for surface soil and in Table 9-2 for subsurface soil.

9.4.1 Human Health Risk Screening

9.4.1.1 Surface Soil

Two surface soil samples were collected at Site 31 and analyzed for VOCs, SVOCs, and inorganics. Table 9-3 provides a comparison of the constituents identified in the surface soil with the human health risk-screening criteria. Figure 9-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 31 for surface soil.

All VOC results were "B" qualified and are therefore considered nondetected results. All SVOCs were detected at concentrations less than their screening values. TPH was detected at 409 mg/kg in sample 31-SS-01, in excess of the screening level. This sample was collected adjacent to Taylor Road.

Inorganics detected in excess of their screening values included aluminum, barium, arsenic, cadmium, calcium, chromium, iron, magnesium, manganese, potassium, and thallium. Calcium, magnesium, and potassium were detected, but they are essential human nutrients and are not believed to be present at concentrations that would pose a risk to human health. Maximum concentrations of arsenic did not exceed the White-Oak-specific background level. The maximum concentrations of the remaining inorganics detected in excess of their respective screening levels were found in sample 31-SS-01, which was collected immediately adjacent to Taylor Road.

9.4.1.2 Subsurface Soil

Four subsurface soil samples were collected at Site 31 and analyzed for VOCs, SVOCs, inorganics, and TPH. Table 9-4 provides a comparison of the constituents identified in the subsurface soil with the human health risk-screening criteria. Figure 9-3 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 31 in subsurface soil.

All VOC results were "B" qualified and are thereby considered nondetected results. All SVOC results were undetected. TPH was not detected in the subsurface soil samples.

Inorganics detected in excess of their screening values included aluminum, arsenic, calcium, chromium, iron, magnesium, manganese, and potassium. Calcium, magnesium, and potassium were detected, but

TABLE 9-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	31-SS-01 0-1' 10/13/97 GRAB	31-SS-02 0-1' 10/13/97 GRAB	/ /	/ /	/ /	/ /
()						
PH (unitless)	5.76	4.79				
SEMIVOLATILES (µg/kg)						
BENZO(A)ANTHRACENE	370 UJ	42 J				
BENZO(A)PYRENE	370 UJ	38 J				
BENZO(B)FLUORANTHENE	370 UJ	48 J				
BIS(2-ETHYLHEXYL)PHTHALATE	370 UJ	61 J				
CHRYSENE	370 UJ	53 J				
FLUORANTHENE	40 J	87 J				
PHENANTHRENE	370 UJ	50 J				
PYRENE	41 J	110 J				
METALS (mg/kg)						
ALUMINUM	14800	19300				
ANTIMONY	1 J	0.82 UJ				
ARSENIC	2.1 B	3.9 J				
BARIUM	1630 J	97.2 J				
BERYLLIUM	1.5	0.57				
CADMIUM	65.6 J	0.43 J				
CALCIUM	1480 K	894 K				
CHROMIUM	144	41.2				
COBALT	63.6	19.2				
COPPER	120	285				
IRON	40900	34900				
LEAD	255 L	77.9 L				
MAGNESIUM	3990 J	2610 J				
MANGANESE	7530 J	877 J				

TABLE 9-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	31-SS-01 0-1' 10/13/97 GRAB	31-SS-02 0-1' 10/13/97 GRAB	/ /	/ /	/ /	/ /
METALS (mg/kg)						
MERCURY	0.18	0.06				
NICKEL	60.1	26.1				
POTASSIUM	3860	2160				
THALLIUM	4.9 L	0.92 UL				
VANADIUM	33.1	42.8				
ZINC	223	327				
PETROLEUM HYDROCARBONS (mg/kg)						
TPH-HEAVY OIL	409	8.6 U				

TABLE 9-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SB-01(27)	31-SB-01(4)	31-SB-02(28)	31-SB-02(4)		
DEPTH (feet):	27-29'	4-6'	28-30'	4-6'		
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	/ /	/ /
LOCATION:	31-SB-01	31-SB-01	31-SB-02	31-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
()						
PH (unitless)	5.35	4.99	4.91	5.2		
METALS (mg/kg)						
ALUMINUM	19700	13600	9650	5680		
ANTIMONY	1.4 UJ	2 J	1.2 UJ	1.3 UJ		
ARSENIC	1.5 UJ	1.8 J	2.4 J	3.4 J		
BARIUM	16.7	47.9	39.2	21.6		
BERYLLIUM	1.9	0.18 B	0.04 U	0.05 U		
CALCIUM	193 K	348 K	271 K	205 K		
CHROMIUM	6.2	31.4	14.6	35		
COBALT	64.4	15.9	5	0.86 B		
COPPER	17.1	80.5	62.5	150		
IRON	6650	34000	25500	27400		
LEAD	54.4	68.3	14.8	27		
MAGNESIUM	366 J	2150 J	3270 J	267 J		
MANGANESE	2980	613	132	71.6		
MERCURY	0.02 K	0.03 K	0.02 U	0.02 U		
NICKEL	14.5	29.1	19	2.7		
POTASSIUM	238	1890	3560	327		
VANADIUM	4.2	26	15.9	21.7		
ZINC	36.8	126	96.6	56.8		

TABLE 9-3

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 31 - BUILDING 25 OUTSIDE DRUM STORAGE AREA
FORMER NSWC WHITE OAK

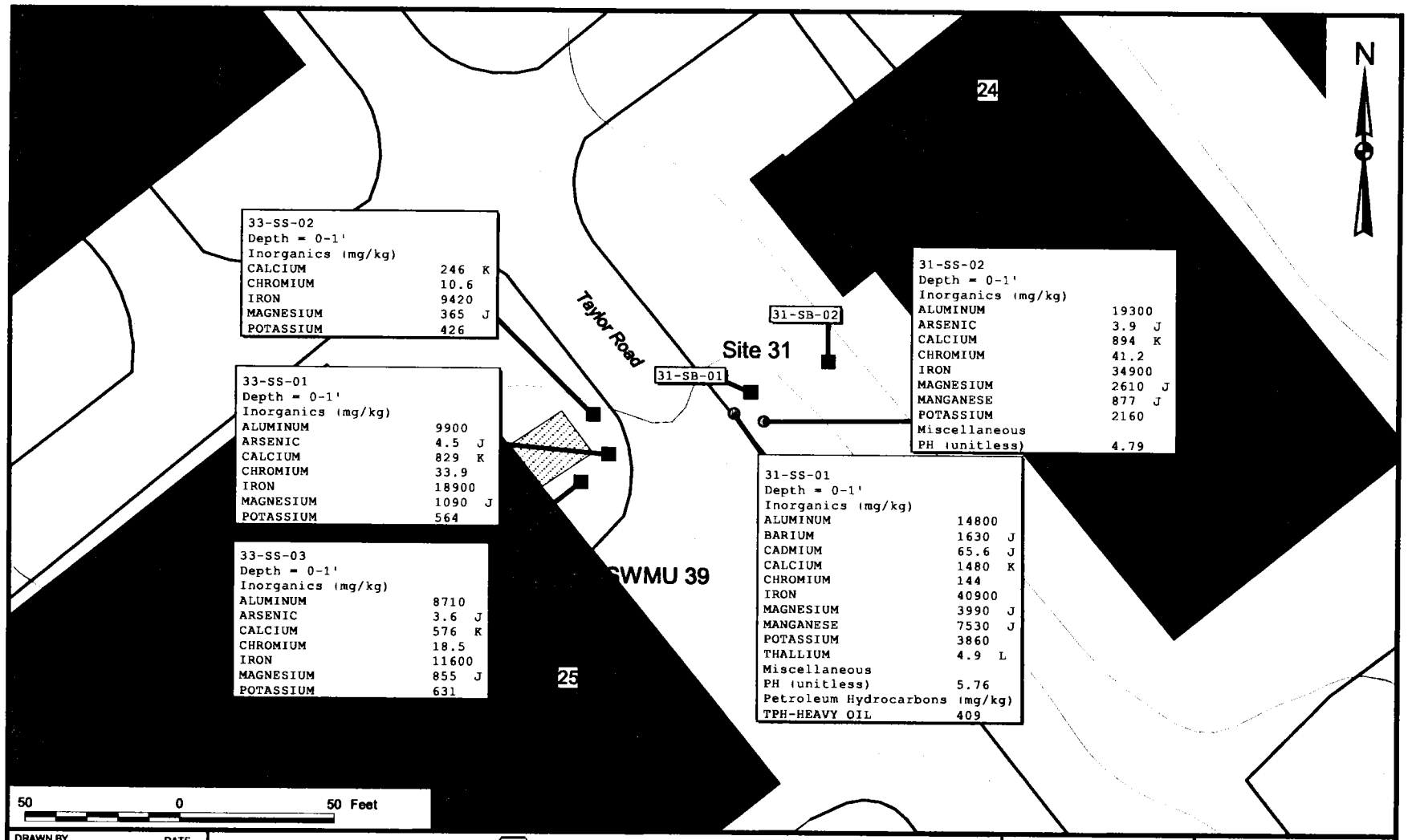
Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
BENZO(A)ANTHRACENE	1/2	0.042 J	0.042 J	31-SS-02	0.042	0.37	0.87	0.340
BENZO(A)PYRENE	1/2	0.038 J	0.038 J	31-SS-02	0.038	0.37	0.087	0.265
BENZO(B)FLUORANTHENE	1/2	0.048 J	0.048 J	31-SS-02	0.048	0.37	0.87	0.275
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	0.061 J	0.061 J	31-SS-02	0.061	0.37	46	NA
CHRYSENE	1/2	0.053 J	0.053 J	31-SS-02	0.053	0.37	87	0.400
FLUORANTHENE	2/2	0.04 J	0.087 J	31-SS-02	0.0635	NA	310	0.800
PHENANTHRENE	1/2	0.05 J	0.05 J	31-SS-02	0.05	0.37	310	0.570
PYRENE	2/2	0.041 J	0.11 J	31-SS-02	0.0755	NA	230	0.630
Inorganics (mg/kg)								
ALUMINUM	2/2	14,800	19,300	31-SS-02	17,050	NA	7,800	14953
ANTIMONY	1/2	1 J	1 J	31-SS-01	1	0.82	3.1	NA
ARSENIC	1/2	3.9 J	3.9 J	31-SS-02	3.9	2.1	0.43	5.11
BARIUM	2/2	97.2 J	1,630 J	31-SS-01	864	NA	550	59.5
BERYLLIUM	2/2	0.57	1.5	31-SS-01	1.035	NA	16	0.19
CADMIUM	2/2	0.43 J	65.6 J	31-SS-01	33.02	NA	39	NA
CALCIUM	2/2	894 K	1,480 K	31-SS-01	1,187	NA	NA	1040
CHROMIUM	2/2	41.2	144	31-SS-01	92.6	NA	23	29.35
COBALT	2/2	19.2	63.6	31-SS-01	41.4	NA	470	11.81
COPPER	2/2	120	285	31-SS-02	203	NA	310	11.52
IRON	2/2	34,900	40,900	31-SS-01	37,900	NA	2,300	18946
LEAD	2/2	77.9 L	255 L	31-SS-01	166.5	NA	400	60.2
MAGNESIUM	2/2	2,610 J	3,990 J	31-SS-01	3,300	NA	NA	1183
MANGANESE	2/2	877 J	7,530 J	31-SS-01	4,204	NA	160	490
MERCURY	2/2	0.06	0.18	31-SS-01	0.12	NA	2.3	0.142
NICKEL	2/2	26.1	60.1	31-SS-01	43.1	NA	160	14.56
POTASSIUM	2/2	2,160	3,860	31-SS-01	3,010	NA	NA	845
THALLIUM	1/2	4.9 L	4.9 L	31-SS-01	4.9	0.92	0.55	NA
VANADIUM	2/2	33.1	42.8	31-SS-02	38.0	NA	55	30.08

TABLE 9-3

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 31 - BUILDING 25 OUTSIDE DRUM STORAGE AREA
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
ZINC	2/2	223	327	31-SS-02	275	NA	2,300	30.67
Miscellaneous								
TPH-HEAVY OIL (mg/kg)	1/2	409	409	31-SS-01	409	8.6	NA	NA
pH (SU)	2/2	4.79	5.76	31-SS-01	5.28	NA	NA	NA

NA - Not Available



DRAWN BY MJJ DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY DATE	HUMAN HEALTH RISK EXCEEDANCE IN SURFACE SOIL SITE 31 / SWMU 72 - BUILDING 25 OUTSIDE DRUM STORAGE AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 9-2	REV 0

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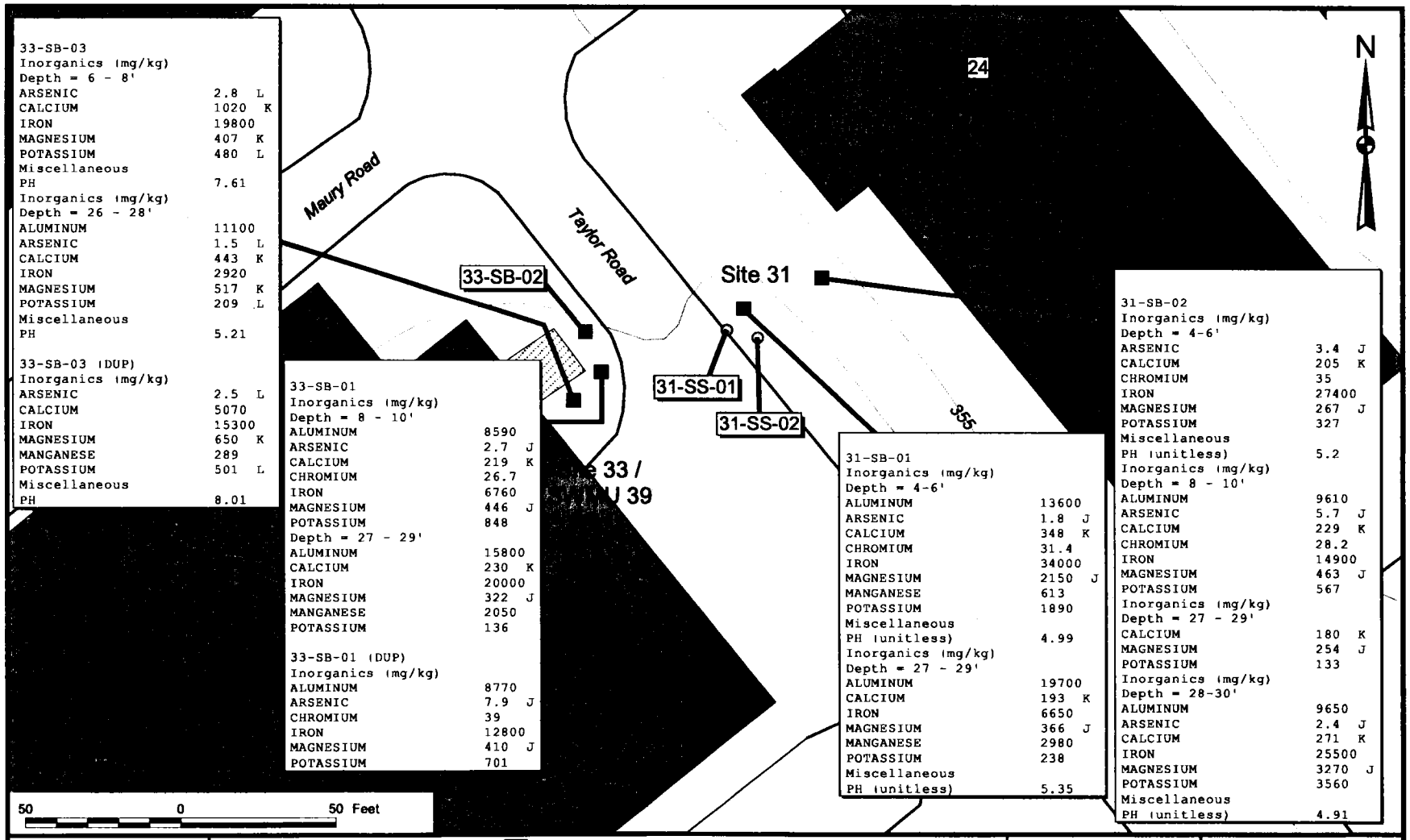
TABLE 9-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 31 - BUILDING 25 OUTSIDE DRUM STORAGE AREA
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	4/4	5,680	19,700	31-SB-01(27)	12,158	NA	7,800	20961
ANTIMONY	1/4	2 J	2 J	31-SB-01(4)	2	1.2 - 1.4	3.1	0.42
ARSENIC	3/4	1.8 J	3.4 J	31-SB-02(4)	2.53	1.5	0.43	12.15
BARIUM	4/4	16.7	47.9	31-SB-01(4)	31.35	NA	550	40.09
BERYLLIUM	1/4	1.9	1.9	31-SB-01(27)	1.9	0.04 - 0.18	16	2.37
CALCIUM	4/4	193 K	348 K	31-SB-01(4)	254	NA	NA	247
CHROMIUM	4/4	6.2	35	31-SB-02(4)	21.8	NA	23	41.05
COBALT	3/4	5	64.4	31-SB-01(27)	28.43	0.86	470	16.6
COPPER	4/4	17.1	150	31-SB-02(4)	77.5	NA	310	21.62
IRON	4/4	6,650	34,000	31-SB-01(4)	23,388	NA	2,300	28681
LEAD	4/4	14.8	68.3	31-SB-01(4)	41.13	NA	400	21.23
MAGNESIUM	4/4	267 J	3,270 J	31-SB-02(28)	1,513	NA	NA	2987
MANGANESE	4/4	71.6	2,980	31-SB-01(27)	949	NA	160	503
MERCURY	2/4	0.02 K	0.03 K	31-SB-01(4)	0.025	0.02	2.3	0.051
NICKEL	4/4	2.7	29.1	31-SB-01(4)	16.33	NA	160	13.84
POTASSIUM	4/4	238	3,560	31-SB-02(28)	1,504	NA	NA	2792
VANADIUM	4/4	4.2	26	31-SB-01(4)	17.0	NA	55	44.31
ZINC	4/4	36.8	126	31-SB-01(4)	79.1	NA	2,300	84.2
Miscellaneous								
pH (SU)	4/4	4.91	5.35	31-SB-01(27)	5.11	NA	NA	NA

NA - Not Available



33-SB-03
Inorganics (mg/kg)
Depth = 6 - 8'

ARSENIC	2.8	L
CALCIUM	1020	K
IRON	19800	
MAGNESIUM	407	K
POTASSIUM	480	L
Miscellaneous		
PH	7.61	
Inorganics (mg/kg)		
Depth = 26 - 28'		
ALUMINUM	11100	
ARSENIC	1.5	L
CALCIUM	443	K
IRON	2920	
MAGNESIUM	517	K
POTASSIUM	209	L
Miscellaneous		
PH	5.21	

33-SB-03 (DUP)
Inorganics (mg/kg)

ARSENIC	2.5	L
CALCIUM	5070	
IRON	15300	
MAGNESIUM	650	K
MANGANESE	289	
POTASSIUM	501	L
Miscellaneous		
PH	8.01	

33-SB-01
Inorganics (mg/kg)
Depth = 8 - 10'

ALUMINUM	8590	
ARSENIC	2.7	J
CALCIUM	219	K
CHROMIUM	26.7	
IRON	6760	
MAGNESIUM	446	J
POTASSIUM	848	
Depth = 27 - 29'		
ALUMINUM	15800	
CALCIUM	230	K
IRON	20000	
MAGNESIUM	322	J
MANGANESE	2050	
POTASSIUM	136	

33-SB-01 (DUP)
Inorganics (mg/kg)

ALUMINUM	8770	
ARSENIC	7.9	J
CHROMIUM	39	
IRON	12800	
MAGNESIUM	410	J
POTASSIUM	701	

31-SB-01
Inorganics (mg/kg)
Depth = 4-6'

ALUMINUM	13600	
ARSENIC	1.8	J
CALCIUM	348	K
CHROMIUM	31.4	
IRON	34000	
MAGNESIUM	2150	J
MANGANESE	613	
POTASSIUM	1890	
Miscellaneous		
PH (unitless)	4.99	
Inorganics (mg/kg)		
Depth = 27 - 29'		
ALUMINUM	19700	
CALCIUM	193	K
IRON	6650	
MAGNESIUM	366	J
MANGANESE	2980	
POTASSIUM	238	
Miscellaneous		
PH (unitless)	5.35	

31-SB-02
Inorganics (mg/kg)
Depth = 4-6'

ARSENIC	3.4	J
CALCIUM	205	K
CHROMIUM	35	
IRON	27400	
MAGNESIUM	267	J
POTASSIUM	327	
Miscellaneous		
PH (unitless)	5.2	
Inorganics (mg/kg)		
Depth = 8 - 10'		
ALUMINUM	9610	
ARSENIC	5.7	J
CALCIUM	229	K
CHROMIUM	28.2	
IRON	14900	
MAGNESIUM	463	J
POTASSIUM	567	
Inorganics (mg/kg)		
Depth = 27 - 29'		
CALCIUM	180	K
MAGNESIUM	254	J
POTASSIUM	133	
Inorganics (mg/kg)		
Depth = 28-30'		
ALUMINUM	9650	
ARSENIC	2.4	J
CALCIUM	271	K
IRON	25500	
MAGNESIUM	3270	J
POTASSIUM	3560	
Miscellaneous		
PH (unitless)	4.91	

DRAWN BY MJJ	DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SUBSSURFACE SOIL SITE 31 / SWMU 72 - BUILDING 25 OUTSIDE DRUM STORAGE AREA NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 9-3 / REV 0

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they are essential human nutrients and are not believed to be present at concentrations that would pose a risk to human health. Maximum concentrations of aluminum, arsenic, and chromium did not exceed the White-Oak-specific background level. Only iron and manganese were detected at maximum concentrations in excess of both their screening levels and the White-Oak-specific subsurface soil background. The maximum iron concentration was only marginally in excess of the screening level in one sample, but was within the range of background. Manganese was elevated in two samples, at depths of 4 and 27 feet.

9.4.2 Ecological Risk Screening

Site 31/SWMU 72, Building 25 Outside Drum Storage area, is located in the highly developed Site 11/100 area. The site is relatively flat and consists of an asphalt pad adjacent to Taylor Road (Figure 9-4). Due to the flat nature of the site, off-site migration of surface soil chemicals via runoff would be minimal. The site is surrounded by buildings, roadways, and mowed turfgrass. No surface water is present on or near the site, precluding groundwater to surface water discharge of site chemicals.

Table 9-5 presents a comparison of existing data for surface soil chemicals to ecological screening levels compiled for NWSC White Oak. No SVOCs had HQs greater than 1.0, but several inorganics were elevated relative to screening levels.

Despite the exceedances of ecological screening levels by maximum concentrations of several inorganics, the site and surrounding areas provide little to no terrestrial habitat. Migration of site contamination to areas containing habitat of greater quality and quantity is unlikely. As such, no further ecological work is recommended for Site 31/SWMU 72.

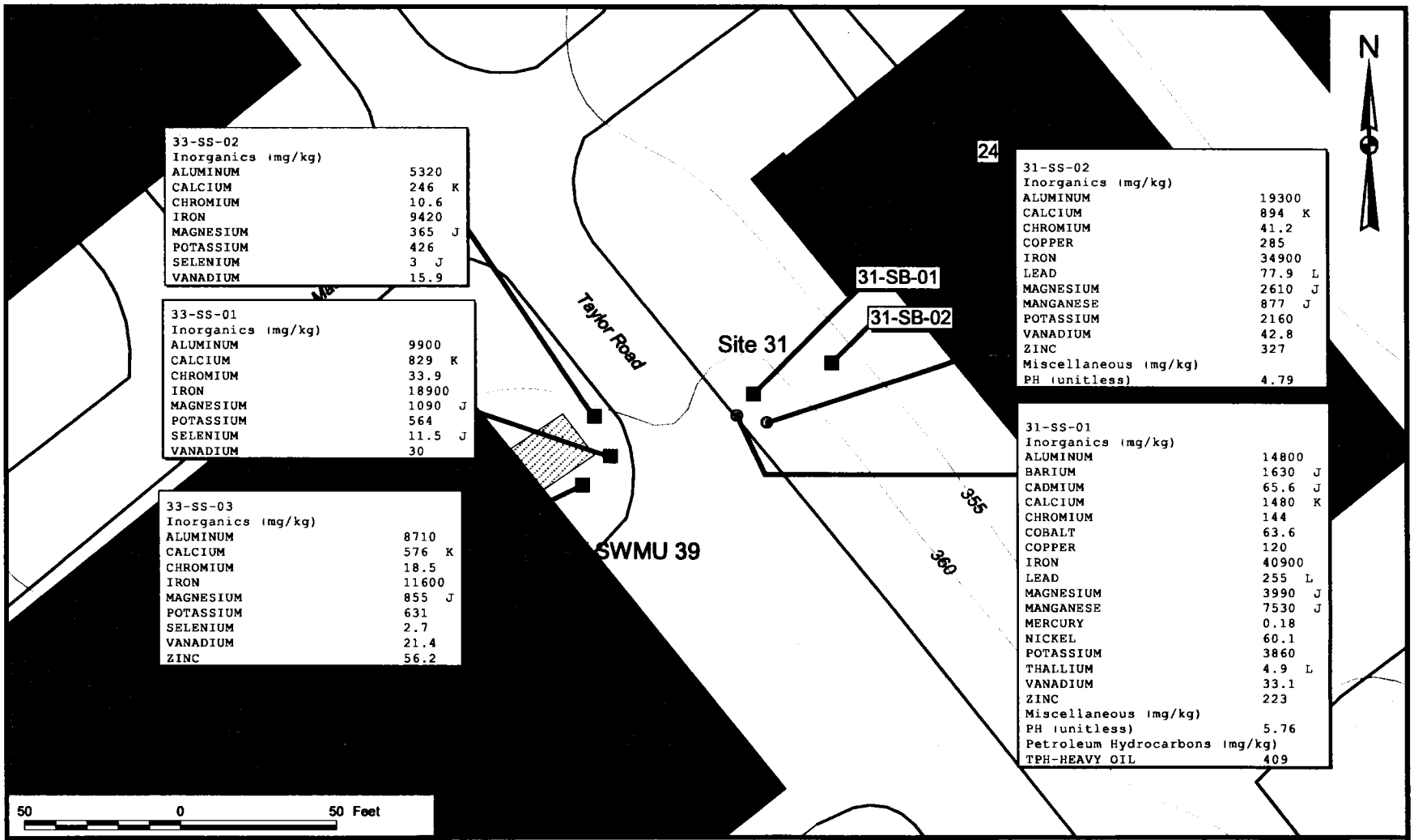
9.5 CONCLUSIONS AND RECOMMENDATIONS

9.5.1 Conclusions

Based upon the location of the site and the relatively low-concentration TPH and inorganics detected, the site does not appear to pose a risk to human health and/or the environment. Due to the location of the site in an industrialized area, current and future risks to human health and/or the environment do not appear to be significant.

9.5.2 Recommendations

Based upon the lack of contamination identified with Site 31, no further action is recommended.



33-SS-02
Inorganics (mg/kg)

ALUMINUM	5320	
CALCIUM	246	K
CHROMIUM	10.6	
IRON	9420	
MAGNESIUM	365	J
POTASSIUM	426	
SELENIUM	3	J
VANADIUM	15.9	

33-SS-01
Inorganics (mg/kg)

ALUMINUM	9900	
CALCIUM	829	K
CHROMIUM	33.9	
IRON	18900	
MAGNESIUM	1090	J
POTASSIUM	564	
SELENIUM	11.5	J
VANADIUM	30	

33-SS-03
Inorganics (mg/kg)

ALUMINUM	8710	
CALCIUM	576	K
CHROMIUM	18.5	
IRON	11600	
MAGNESIUM	855	J
POTASSIUM	631	
SELENIUM	2.7	
VANADIUM	21.4	
ZINC	56.2	

31-SS-02
Inorganics (mg/kg)

ALUMINUM	19300	
CALCIUM	894	K
CHROMIUM	41.2	
COPPER	285	
IRON	34900	
LEAD	77.9	L
MAGNESIUM	2610	J
MANGANESE	877	J
POTASSIUM	2160	
VANADIUM	42.8	
ZINC	327	
Miscellaneous (mg/kg)		
PH (unitless)	4.79	

31-SS-01
Inorganics (mg/kg)

ALUMINUM	14800	
BARIUM	1630	J
CADMIUM	65.6	J
CALCIUM	1480	K
CHROMIUM	144	
COBALT	63.6	
COPPER	120	
IRON	40900	
LEAD	255	L
MAGNESIUM	3990	J
MANGANESE	7530	J
MERCURY	0.18	
NICKEL	60.1	
POTASSIUM	3860	
THALLIUM	4.9	L
VANADIUM	33.1	
ZINC	223	
Miscellaneous (mg/kg)		
PH (unitless)	5.76	
Petroleum Hydrocarbons (mg/kg)		
TPH-HEAVY OIL	409	

DRAWN BY MJJ	DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
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COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 9-4 / REV 0

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TABLE 9-5

COMPARISON OF SITES CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 31/SWMU 72 - BUILDING 25 OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK, MARYLAND

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Semivolatile Organics (mg/kg)						
BENZO(A)ANTHRACENE	1/2	0.042	0.042	31-SS-02	1	0.04
BENZO(A)PYRENE	1/2	0.038	0.038	31-SS-02	1	0.04
BENZO(B)FLUORANTHENE	1/2	0.048	0.048	31-SS-02	1	0.05
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	0.061	0.061	31-SS-02	0.1	0.61
CHRYSENE	1/2	0.053	0.053	31-SS-02	1	0.05
FLUORANTHENE	2/2	0.04	0.087	31-SS-02	1	0.09
PHENANTHRENE	1/2	0.05	0.05	31-SS-02	1	0.05
PYRENE	2/2	0.041	0.11	31-SS-02	1	0.11
Inorganics (mg/kg)						
ALUMINUM	2/2	14800	19300	31-SS-02	50	386.00
ANTIMONY	1/2	1	1	31-SS-01	5	0.20
ARSENIC	1/2	3.9	3.9	31-SS-02	10	0.39
BARIUM	2/2	97.2	1630	31-SS-01	500	3.26
BERYLLIUM	2/2	0.57	1.5	31-SS-01	10	0.15
CADMIUM	2/2	0.43	65.6	31-SS-01	4	16.40
CHROMIUM	2/2	41.2	144	31-SS-01	1	144.00
COBALT	2/2	19.2	63.6	31-SS-01	20	3.18
COPPER	2/2	120	285	31-SS-02	50	5.70
IRON	2/2	34900	40900	31-SS-01	200	204.50
LEAD	2/2	77.9	255	31-SS-01	50	5.10
MANGANESE	2/2	877	7530	31-SS-01	500	15.06
MERCURY	2/2	0.06	0.18	31-SS-01	0.1	1.80
NICKEL	2/2	26.1	60.1	31-SS-01	30	2.00
THALLIUM	1/2	4.9	4.9	31-SS-01	0.2	24.50
VANADIUM	2/2	33.1	42.8	31-SS-02	2	21.40
ZINC	2/2	223	327	31-SS-02	50	6.54

NA = Not Available

10.0 SITE 32/AOC-O - NPDES OUTFALL #0009

10.1 BACKGROUND

Site 32 is located east of Building 112, adjacent to Outfall #002 (Figure 10-1). The site is adjacent to the Site 1 Parking Lot Landfill and Site 2 Apple Orchard Landfill. The outfall received wastewater generated in various buildings within Area 100. Contributing sources included Building 100 car wash wastewater (300 gallons per day [gpd]) and steam condensate and backwash from water treatment equipment located in the Boiler Plant Building 101 (2,300 gpd). The outfall was permitted to discharge 2,600 gpd. It is suspected that the wastewater discharges may have contained explosive materials. The outfall was eliminated before a modified NPDES permit was applied for, but the outfall was never formally closed under RCRA. The RFA (1990) stated that the unit was deactivated on an unknown date.

10.2 ENVIRONMENTAL SETTING

10.2.1 Topography

Site 32 is a steep-sloped drainage channel that flows eastward and then northeastward into Paint Branch. The range in elevation is from 320 feet near the outfall to 295 feet msl near Paint Branch.

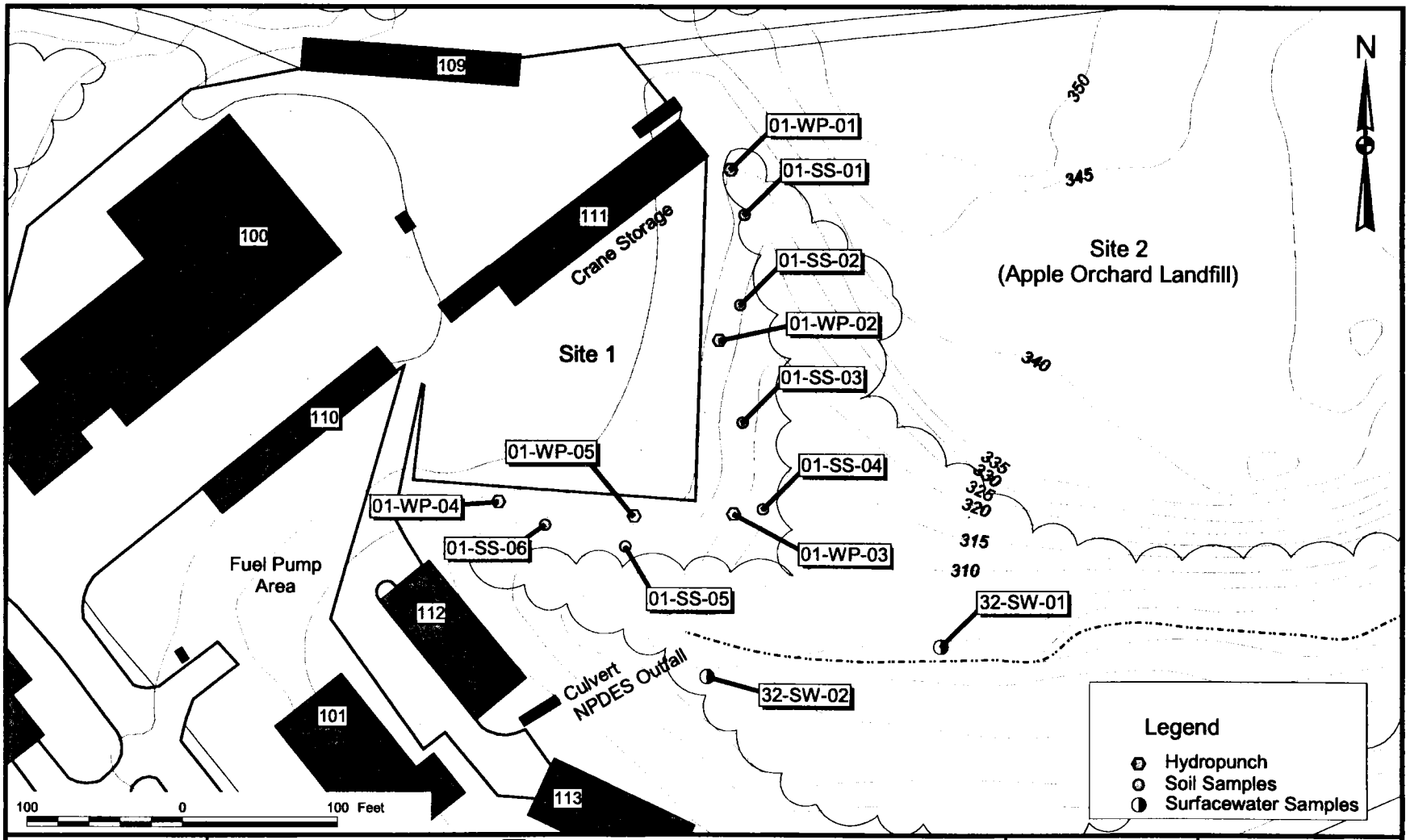
10.2.2 Surface Water

Surface water regularly flows through the Site 32 drainage channel into Paint Branch. The nearest surface water body is a small parallel-flowing tributary of Paint Branch located approximately 900 feet southeast of the site. All of NSWC White Oak is located within the Paint Branch watershed.

Surface water collected within the Area 100 storm water system is also conveyed to Site 32.

10.2.3 Geology

No subsurface investigations were completed at this site. However, based on subsurface information collected at nearby sites, it is anticipated that bedrock is located at a very shallow depth below the ground surface.



DRAWN BY MJJ DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY DATE	SAMPLE LOCATION MAP SITE 32 / AOC O - NPDES OUTFALL #0009 NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY . DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 10-1	REV 0

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10.2.4 Hydrogeology

No hydrogeologic investigations have been conducted at this site. Groundwater flow in proximity to this site is predicted to follow the direction of the tributary.

10.3 FIELD INVESTIGATION ACTIVITIES

To evaluate the potential presence of contamination at the outfall location, two surface water and two sediment samples were collected. The collection of the surface water/sediment pairs, in conjunction with the investigation activities at Site 1 (Parking Lot Landfill) and Site 2 (Apple Orchard Landfill), has provided information to characterize conditions in the area adjacent to the outfall and within the receiving drainageway.

Two surface water and two sediment samples were collected at this site (see Figure 2-1). The samples were collected downgradient of the NPDES Outfall #0009. The surface water samples were analyzed for TAL metals, cyanide, TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and explosives. The sediment samples were analyzed for TAL metals, cyanide, TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, EPA SW846-8330 explosives, total organic carbon, and grain size. The total organic carbon and grain size analyses were completed for future sample comparison and evaluation of contaminant bioavailibility. Sample log sheets are provided in Appendix D.

10.4 DATA AND SCREENING EVALUATION

Results for the sediment and surface water sampling at Site 32 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. A summary of positive detections is presented in Table 10-1 for sediment and in Table 10-2 for surface water.

10.4.1 Human Health Risk Screening

10.4.1.1 Sediment

Two sediment samples were collected at Site 32 and analyzed for VOCs, SVOCs, inorganics, pesticides/PCBs, explosives, and total organic carbon (TOC). Only sample 32-SD-02 was analyzed for SVOCs. Table 10-3 provides a comparison of the constituents identified in sediment with the human health risk-screening criteria. Figure 10-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 32 for sediment.

TABLE 10-1
SUMMARY OF POSITIVE DETECTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02	/ /	/ /	/ /	/ /
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97				
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-METHYLNAPHTHALENE		120 J				
ACENAPHTHENE		450 J				
ANTHRACENE		490				
BENZO(A)ANTHRACENE		1300				
BENZO(A)PYRENE		970				
BENZO(B)FLUORANTHENE		1900				
BENZO(G,H,I)PERYLENE		900				
BENZO(K)FLUORANTHENE		800				
BIS(2-ETHYLHEXYL)PHTHALATE		200 J				
CARBAZOLE		340 J				
CHRYSENE		1200				
DIBENZO(A,H)ANTHRACENE		330 J				
DIBENZOFURAN		400 J				
FLUORANTHENE		3000				
FLUORENE		600				
INDENO(1,2,3-CD)PYRENE		840				
NAPHTHALENE		170 J				
PHENANTHRENE		2600				
PYRENE		2100				
PESTICIDES/PCBs (µg/kg)						
ALPHA-CHLORDANE	2.4 UJ	34				
AROCLOR-1260	620 J	3000				
DIELDRIN	4.7 UJ	19 J				
GAMMA-CHLORDANE	2.4 UJ	32				
HEPTACHLOR	2.4 UJ	7.5				

TABLE 10-1
SUMMARY OF POSITIVE DETECTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02	/ /	/ /	/ /	/ /
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97				
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
METALS (mg/kg)						
ALUMINUM	9790	3480				
ARSENIC	1.7	1.3 B				
BARIUM	73.3	28.1 J				
BERYLLIUM	0.03 U	0.11				
CADMIUM	1.3	0.55 J				
CALCIUM	2470 J	5240				
CHROMIUM	20.8 J	30.8				
COBALT	12.3	7.2				
COPPER	53.1 J	47.6				
IRON	23400	16800				
LEAD	37.6 J	27 L				
MAGNESIUM	3680 J	9670 J				
MANGANESE	782 J	247 J				
MERCURY	0.1	118				
NICKEL	30.5	80.7				
POTASSIUM	1900 J	548				
SELENIUM	1.5 K	0.81 UJ				
SILVER	0.5 B	0.51 L				
VANADIUM	24.5	17				
ZINC	134 J	59.4				
MISCELLANEOUS PARAMETERS (mg/kg)						
TOTAL ORGANIC CARBON (mg/Kg)	6750	16300				
GENERAL CHEMISTRY ()						
PH		6.92				

TABLE 10-2
SUMMARY OF POSITIVE DETECTS - SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	32-SW-01 10/28/97 32-SW-01	32-SW-02 10/13/97 32-SW-02	/ /	/ /	/ /	/ /
METALS (µg/L)						
BARIUM	66.7	51				
CALCIUM	15600	11300				
IRON	128 B	410				
MAGNESIUM	7030 K	4340 J				
MANGANESE	123	320				
NICKEL	8.4 B	4.8 K				
POTASSIUM	3060	2390				
SODIUM	22100	13200				
ZINC	36.1 K	19.3				

TABLE 10-3

RISK-BASED SCREENING FOR HUMAN HEALTH
SEDIMENT
SITE 32 - NPDES OUTFALL #0009
FORMER NSWC WHITE OAK

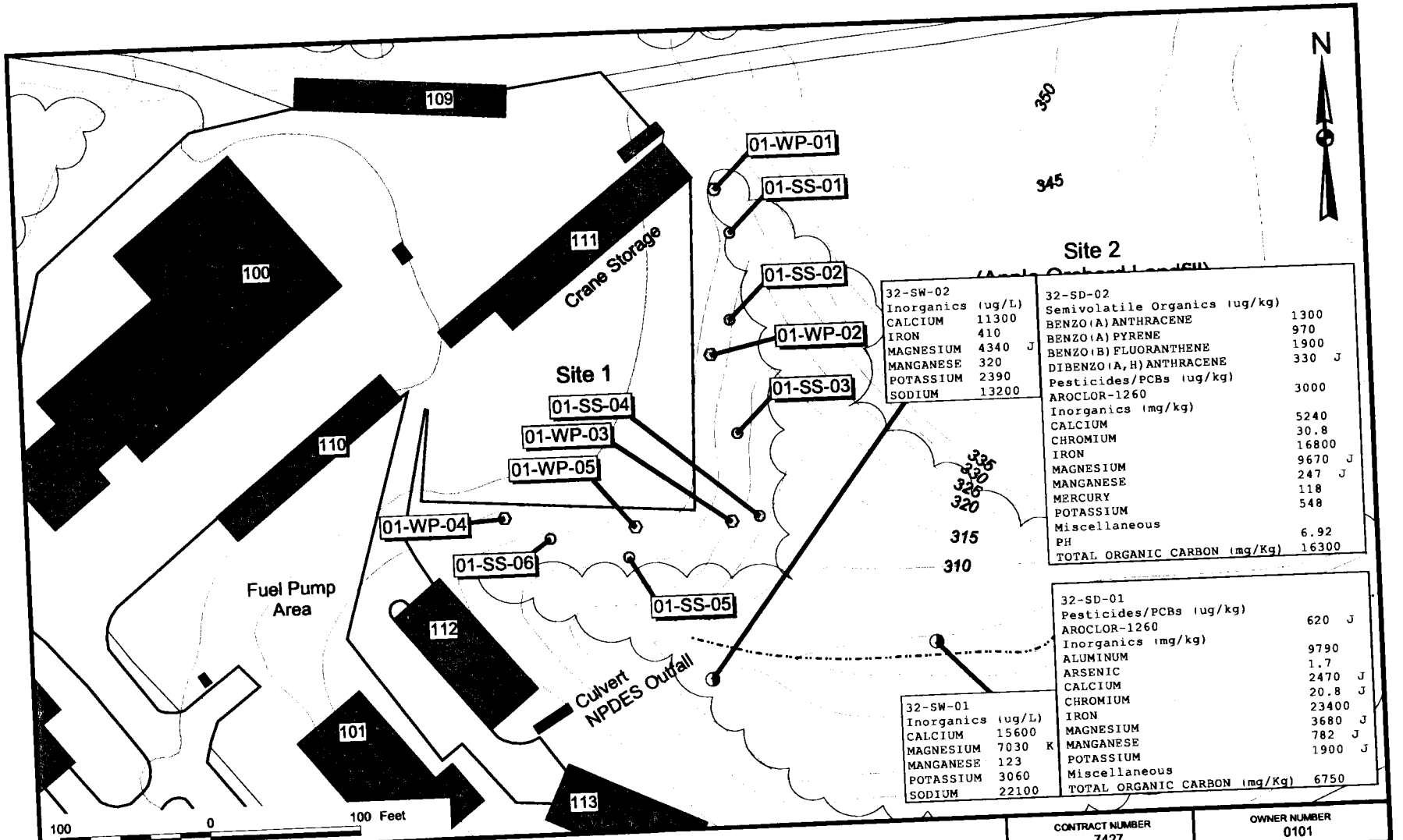
Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Semivolatile Organics (mg/kg)								
2-METHYLNAPHTHALENE	1/1	0.12 J	0.12 J	32-SD-02	0.12	NA	310	NA
ACENAPHTHENE	1/1	0.45 J	0.45 J	32-SD-02	0.45	NA	470	NA
ANTHRACENE	1/1	0.49	0.49	32-SD-02	0.49	NA	2300	NA
BENZO(A)ANTHRACENE	1/1	1.3	1.3	32-SD-02	1.3	NA	0.87	NA
BENZO(A)PYRENE	1/1	0.97	0.97	32-SD-02	0.97	NA	0.087	NA
BENZO(B)FLUORANTHENE	1/1	1.9	1.9	32-SD-02	1.9	NA	0.87	NA
BENZO(G,H,I)PERYLENE	1/1	0.9	0.9	32-SD-02	0.9	NA	310	NA
BENZO(K)FLUORANTHENE	1/1	0.8	0.8	32-SD-02	0.8	NA	8.7	NA
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	0.2 J	0.2 J	32-SD-02	0.2	NA	46	NA
CARBAZOLE	1/1	0.34 J	0.34 J	32-SD-02	0.34	NA	32	NA
CHRYSENE	1/1	1.2	1.2	32-SD-02	1.2	NA	87	NA
DIBENZO(A,H)ANTHRACENE	1/1	0.33 J	0.33 J	32-SD-02	0.33	NA	0.087	NA
DIBENZOFURAN	1/1	0.4 J	0.4 J	32-SD-02	0.4	NA	31	NA
FLUORANTHENE	1/1	3	3	32-SD-02	3	NA	310	NA
FLUORENE	1/1	0.6	0.6	32-SD-02	0.6	NA	310	NA
INDENO(1,2,3-CD)PYRENE	1/1	0.84	0.84	32-SD-02	0.84	NA	0.87	NA
NAPHTHALENE	1/1	0.17 J	0.17 J	32-SD-02	0.17	NA	310	NA
PHENANTHRENE	1/1	2.6	2.6	32-SD-02	2.6	NA	310	NA
PYRENE	1/1	2.1	2.1	32-SD-02	2.1	NA	230	NA
Pesticide/PCBs (mg/kg)								
ALPHA-CHLORDANE	1/2	0.034	0.034	32-SD-02	0.034	0.0024	1.8	0.0034
AROCLOR-1260	2/2	0.62 J	3	32-SD-02	1.81	NA	0.32	NA
DIELDRIN	1/2	0.019 J	0.019 J	32-SD-02	0.019	0.0047	0.04	0.0024
GAMMA-CHLORDANE	1/2	0.032	0.032	32-SD-02	0.032	0.0024	1.8	0.0034
HEPTACHLOR	1/2	0.0075	0.0075	32-SD-02	0.0075	0.0024	0.14	0.0032

TABLE 10-3

RISK-BASED SCREENING FOR HUMAN HEALTH
SEDIMENT
SITE 32 - NPDES OUTFALL #0009
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	2/2	3,480	9,790	32-SD-01	6,635	NA	7,800	12963
ARSENIC	1/2	1.7	1.7	32-SD-01	1.7	1.3	0.43	NA
BARIUM	2/2	28.1 J	73.3	32-SD-01	50.7	NA	550	89.9
BERYLLIUM	1/2	0.11	0.11	32-SD-02	0.11	0.03	16	0.92
CADMIUM	2/2	0.55 J	1.3	32-SD-01	0.925	NA	3.9	NA
CALCIUM	2/2	2,470 J	5,240	32-SD-02	3,855	NA	NA	1493
CHROMIUM	2/2	20.8 J	30.8	32-SD-02	25.8	NA	23	25.3
COBALT	2/2	7.2	12.3	32-SD-01	9.75	NA	470	11.59
COPPER	2/2	47.6	53.1 J	32-SD-01	50.35	NA	310	31.18
IRON	2/2	16,800	23,400	32-SD-01	20,100	NA	2,300	19427
LEAD	2/2	27 L	37.6 J	32-SD-01	32.3	NA	400	29.5
MAGNESIUM	2/2	3,680 J	9,670 J	32-SD-02	6,675	NA	NA	3410
MANGANESE	2/2	247 J	782 J	32-SD-01	514.5	NA	160	523
MERCURY	2/2	0.1	118	32-SD-02	59.05	NA	2.3	0.31
NICKEL	2/2	30.5	80.7	32-SD-02	55.6	NA	160	17.25
POTASSIUM	2/2	548	1,900 J	32-SD-01	1,224	NA	NA	2960
SELENIUM	1/2	1.5 K	1.5 K	32-SD-01	1.5	0.81	39	NA
SILVER	1/2	0.51 L	0.51 L	32-SD-02	0.51	0.5	39	NA
VANADIUM	2/2	17	24.5	32-SD-01	20.75	NA	55	17.13
ZINC	2/2	59.4	134 J	32-SD-01	96.7	NA	2300	56.87
Miscellaneous								
TOTAL ORGANIC CARBON (mg/kg)	2/2	6750	16,300	32-SD-02	11,525	NA	NA	NA
pH (SU)	1/1	6.92	6.92	32-SD-02	6.92	NA	NA	NA

NA - Not Available



DRAWN BY MJJ	DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SEDIMENT AND SURFACE WATER SITE 32 / AOC O - NPDES OUTFALL #0009 NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 10-2 / REV 0

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All VOC results were "B" qualified and are therefore considered nondetected results. Explosives were not detected in sediment samples collected at Site 32.

Aroclor 1260 was the only pesticide/PCB detected at a maximum concentration exceeding the sediment screening level. Aroclor 1260 has been detected farther downstream of Site 32, within the streambed to the north, and on the surface of a nearby site (Site 2 – Apple Orchard Landfill).

The following PAHs were detected at maximum concentrations exceeding their respective screening levels: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene. Several PAHs were detected in surface soil associated with the adjacent Site 1 (Parking Lot Landfill) and may be associated with the parking of vehicles upstream of the sample collection area.

Aluminum, arsenic, calcium, chromium, iron, magnesium, manganese, and potassium exceeded the screening levels. Calcium, magnesium, and potassium were detected, but they are essential human nutrients and are not believed to be present at concentrations that would pose a risk to human health. The maximum concentration of aluminum was less than the White-Oak-specific sediment background.

10.4.1.2 Surface Water

Two surface water samples were collected at Site 32 and analyzed for VOCs, SVOCs, inorganics, pesticides/PCBs, and explosives. Table 10-4 provides a comparison of the constituents identified in the surface water with the human health risk-screening criteria. Figure 10-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 32 for surface water.

All VOC results were either undetected or "B" qualified and therefore considered nondetected results. All SVOC results were undetected. Pesticides/PCBs and explosives were not detected in surface water samples collected at Site 32.

Inorganics detected in excess of the federal AWQCs for the consumption of water and organisms included calcium, iron, magnesium, manganese, and sodium. Calcium, magnesium, and sodium were detected, but they are essential human nutrients and are not believed to be present at concentrations that would pose a risk to human health. Both the manganese and iron maximum concentrations were less than the White-Oak-specific surface water background concentrations.

TABLE 10-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum		Maximum		Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (ug/L)										
BARIUM	2/2	51		66.7		32-SW-01	58.9	NA	NA	46.84
CALCIUM	2/2	11,300		15,600		32-SW-01	13,450	NA	NA	22,305
IRON	1/2	410		410		32-SW-02	410	128	300	1220
MAGNESIUM	2/2	4,340	J	7,030	K	32-SW-01	5,685	NA	NA	10,200
MANGANESE	2/2	123		320		32-SW-02	222	NA	50	591
NICKEL	1/2	4.8	K	4.8	K	32-SW-02	4.8	8.4	610	30.0
POTASSIUM	2/2	2,390		3,060		32-SW-01	2,725	NA	NA	3617
SODIUM	2/2	13,200		22,100		32-SW-01	17,650	NA	NA	20,800
ZINC	2/2	19.3		36.1	K	32-SW-01	27.7	NA	NA	36.6

NA - Not Available

Screening Level - Federal Ambient Water Quality Criteria - Human Health: water and organism

10.4.2 Ecological Risk Screening

Site 32/AOC O – NPDES Outfall #0009, is located adjacent to Sites 1 and 2 (Figure 10-3). The site conveys stormwater runoff from a portion of the northwestern section of the base. The outfall empties into the intermittent stream that is located south of Site 2. A description of this area was provided previously.

Tables 10-5 and 10-6 present a comparison of existing data for sediment and surface water chemicals, respectively, to ecological screening levels compiled for NWSC White Oak. Several SVOCs, pesticides, Aroclor 1260, and several inorganics have maximum concentrations in stream sediments near the outfall that exceed ecological screening levels. Some chemicals appear to be highly elevated. Barium and manganese in stream surface water had HQs greater than 1.0.

10.5 CONCLUSIONS AND RECOMMENDATIONS

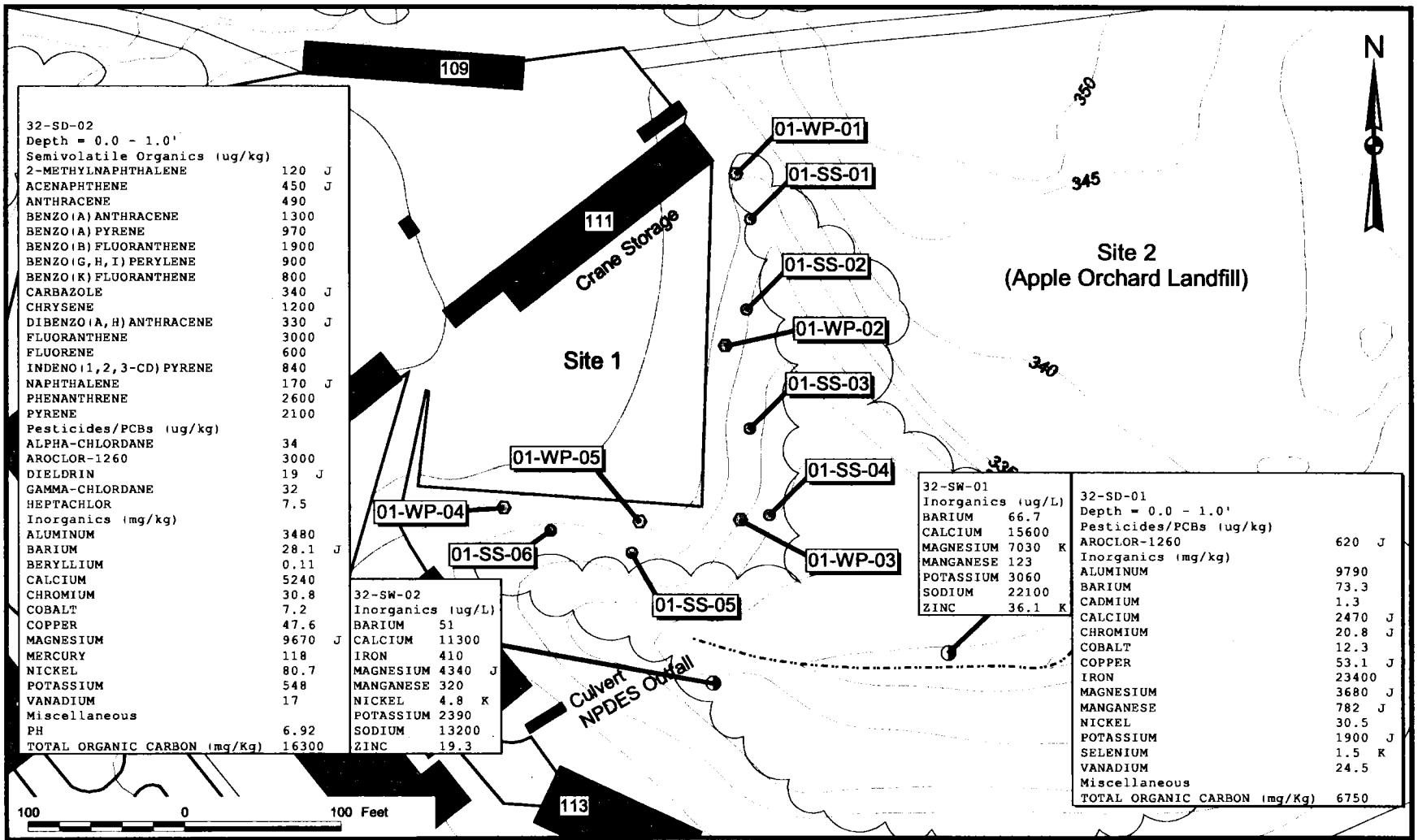
10.5.1 Conclusions

Sediment sampling at Site 32 identified the elevated concentrations of several PAHs and inorganic constituents, as well as Aroclor 1260. The PAH concentrations appear to be highly elevated and pose the greatest risk to human health and ecological receptors. The PAH contamination may be related to the contamination identified in surface soil at the adjacent Site 1. PCB contamination identified in the sediment was similar in nature to contamination identified farther downstream at Site 2.

10.5.2 Recommendations

Due to the level of contamination identified in the site sediment and the proximity of Sites 1, 2 and 32, it is recommended that further investigation of the streams and drainageways in proximity to these sites be conducted as a combined effort and as part of the ongoing investigation of Site 2.

An ERA is warranted for this area. However, sampling of surface water and sediments in the intermittent stream near the outfall and downgradient will be conducted as part of the Site 2 RFI investigation, as well as an ERA for the site. Hence, data from the outfall may be incorporated into the proposed sampling data for the area.



32-SD-02
Depth = 0.0 - 1.0'

Semivolatile Organics (ug/kg)		
2-METHYLNAPHTHALENE	120	J
ACENAPHTHENE	450	J
ANTHRACENE	490	
BENZO(A)ANTHRACENE	1300	
BENZO(A)PYRENE	970	
BENZO(B)FLUORANTHENE	1900	
BENZO(G,H,I)PERYLENE	900	
BENZO(K)FLUORANTHENE	800	
CARBAZOLE	340	J
CHRYSENE	1200	
DIBENZO(A,H)ANTHRACENE	330	J
FLUORANTHENE	3000	
FLUORENE	600	
INDENO(1,2,3-CD)PYRENE	840	
NAPHTHALENE	170	J
PHENANTHRENE	2600	
PYRENE	2100	
Pesticides/PCBs (ug/kg)		
ALPHA-CHLORDANE	34	
AROCLOR-1260	3000	
DIELDRIN	19	J
GAMMA-CHLORDANE	32	
HEPTACHLOR	7.5	
Inorganics (mg/kg)		
ALUMINUM	3480	
BARIUM	28.1	J
BERYLLIUM	0.11	
CALCIUM	5240	
CHROMIUM	30.8	
COBALT	7.2	
COPPER	47.6	
MAGNESIUM	9670	J
MERCURY	118	
NICKEL	80.7	
POTASSIUM	548	
VANADIUM	17	
Miscellaneous		
PH	6.92	
TOTAL ORGANIC CARBON (mg/Kg)	16300	

32-SW-02
Inorganics (ug/L)

BARIUM	51	
CALCIUM	11300	
IRON	410	
MAGNESIUM	4340	J
MANGANESE	320	
NICKEL	4.8	K
POTASSIUM	2390	
SODIUM	13200	
ZINC	19.3	

32-SW-01
Inorganics (ug/L)

BARIUM	66.7	
CALCIUM	15600	
MAGNESIUM	7030	K
MANGANESE	123	
POTASSIUM	3060	
SODIUM	22100	
ZINC	36.1	K

32-SD-01
Depth = 0.0 - 1.0'

Pesticides/PCBs (ug/kg)		
AROCLOR-1260	620	J
Inorganics (mg/kg)		
ALUMINUM	9790	
BARIUM	73.3	
CADMIUM	1.3	
CALCIUM	2470	J
CHROMIUM	20.8	J
COBALT	12.3	
COPPER	53.1	J
IRON	23400	
MAGNESIUM	3680	J
MANGANESE	782	J
NICKEL	30.5	
POTASSIUM	1900	J
SELENIUM	1.5	K
VANADIUM	24.5	
Miscellaneous		
TOTAL ORGANIC CARBON (mg/Kg)	6750	

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CHECKED BY	DATE	ECO RISK EXCEEDANCE IN SEDIMENT AND SURFACE WATER SITE 32 / AOC O - NPDES OUTFALL #0009 NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SIV / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 10-3 / REV 0

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TABLE 10-5

COMPARISON OF SITE CONCENTRATIONS IN SEDIMENT TO ECOLOGICAL SCREENING LEVELS
SITE 32/AOC O - NPDES OUTFALL #0009
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Semivolatile Organics (mg/kg)						
2-METHYLNAPHTHALENE	1/1	0.12	0.12	32-SD-02	0.07	1.71
ACENAPHTHENE	1/1	0.45	0.45	32-SD-02	0.016	28.13
ANTHRACENE	1/1	0.49	0.49	32-SD-02	0.0853	5.74
BENZO(A)ANTHRACENE	1/1	1.3	1.3	32-SD-02	0.261	4.98
BENZO(A)PYRENE	1/1	0.97	0.97	32-SD-02	0.43	2.26
BENZO(B)FLUORANTHENE	1/1	1.9	1.9	32-SD-02	0.43	4.42
BENZO(G,H,I)PERYLENE	1/1	0.9	0.9	32-SD-02	0.43	2.09
BENZO(K)FLUORANTHENE	1/1	0.8	0.8	32-SD-02	0.43	1.86
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	0.2	0.2	32-SD-02	1.3	0.15
CARBAZOLE	1/1	0.34	0.34	32-SD-02	NA	--
CHRYSENE	1/1	1.2	1.2	32-SD-02	0.384	3.13
DIBENZO(A,H)ANTHRACENE	1/1	0.33	0.33	32-SD-02	0.063	5.24
DIBENZOFURAN	1/1	0.4	0.4	32-SD-02	0.54	0.74
FLUORANTHENE	1/1	3	3	32-SD-02	0.6	5.00
FLUORENE	1/1	0.6	0.6	32-SD-02	0.019	31.58
INDENO(1,2,3-CD)PYRENE	1/1	0.84	0.84	32-SD-02	0.43	1.95
NAPHTHALENE	1/1	0.17	0.17	32-SD-02	0.16	1.06
PHENANTHRENE	1/1	2.6	2.6	32-SD-02	0.24	10.83
PYRENE	1/1	2.1	2.1	32-SD-02	0.665	3.16
Pesticide/PCBs (mg/kg)						
ALPHA-CHLORDANE	1/2	0.034	0.034	32-SD-02	0.0005	68.00
AROCLOR-1260	2/2	0.62	3	32-SD-02	0.005	600.00
DIELDRIN	1/2	0.019	0.019	32-SD-02	0.00002	950.00
GAMMA-CHLORDANE	1/2	0.032	0.032	32-SD-02	0.0005	64.00
HEPTACHLOR	1/2	0.0075	0.0075	32-SD-02	0.005	1.50
Inorganics (mg/kg)						
ALUMINUM	2/2	3480	9790	32-SD-01	NA	--
ARSENIC	1/2	1.7	1.7	32-SD-01	8.2	0.21
BARIUM	2/2	28.1	73.3	32-SD-01	NA	--
BERYLLIUM	1/2	0.11	0.11	32-SD-02	NA	--
CADMIUM	2/2	0.55	1.3	32-SD-01	1.2	1.08
CHROMIUM	2/2	20.8	30.8	32-SD-02	81	0.38

TABLE 10-5

COMPARISON OF SITE CONCENTRATIONS IN SEDIMENT TO ECOLOGICAL SCREENING LEVELS
SITE 32/AOC O - NPDES OUTFALL #0009
FORMER NSWC WHITE OAK

PAGE 2 OF 2

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
COBALT	2/2	7.2	12.3	32-SD-01	NA	--
COPPER	2/2	47.6	53.1	32-SD-01	34	1.56
IRON	2/2	16800	23400	32-SD-01	20000	1.17
LEAD	2/2	27	37.6	32-SD-01	46.7	0.81
MANGANESE	2/2	247	782	32-SD-01	460	1.70
MERCURY	2/2	0.1	118	32-SD-02	0.15	786.67
NICKEL	2/2	30.5	80.7	32-SD-02	20.9	3.86
SELENIUM	1/2	1.5	1.5	32-SD-01	NA	--
SILVER	1/2	0.51	0.51	32-SD-02	1	0.51
VANADIUM	2/2	17	24.5	32-SD-01	NA	--
ZINC	2/2	59.4	134	32-SD-01	150	0.89

NA = Not Available

TABLE 10-6

COMPARISONS OF SITE CONCENTRATIONS IN SURFACE WATER TO ECOLOGICAL SCREENING LEVELS
SITE 32/AOC O - NPDES OUTFALL #0009
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Inorganics (ug/L)						
BARIUM	2/2	51	66.7	32-SW-01	3.9	17.10
IRON	1/2	410	410	32-SW-02	1,000	0.41
MANGANESE	2/2	123	320	32-SW-02	80	4.00
NICKEL	1/2	4.8	4.8	32-SW-02	160	0.03
ZINC	2/2	19.3	36.1	32-SW-01	100	0.36

11.0 SITE 33/SWMU 39 - BUILDING 25 PLATING SHOP SUMP

11.1 BACKGROUND

Site 33/SWMU 39 comprises a sump located on the eastern side of Building 25 (Figure 11-1). The sump is a closed underground concrete tank measuring approximately 5 feet wide by 7 feet long by 8 feet deep with terra-cotta inlet and outflow pipes. The sump is covered by a metal lid and contains a weir.

Historically, Building 25 housed an electronics shop, an electroplating shop, a paint shop, and machine shops. Many of the shops used hazardous materials and generated hazardous wastes as a part of day-to-day operations. During its operation from the late 1940s until 1984, the sump received wastewater containing chromium, cadmium, copper, lead, nickel, and cyanide from Building 25 through the floor drains. Wastewater from the sump discharged to the Sanitary Sewer System (SWMU 46). The sump was deactivated in 1984 when metal plating activities ceased in Building 25.

There have been no known releases from the sump; however, integrity testing on the sump has never been conducted. As a result, Site 33 is being investigated to determine if the surrounding environmental media have been impacted by a release of hazardous materials from the sump.

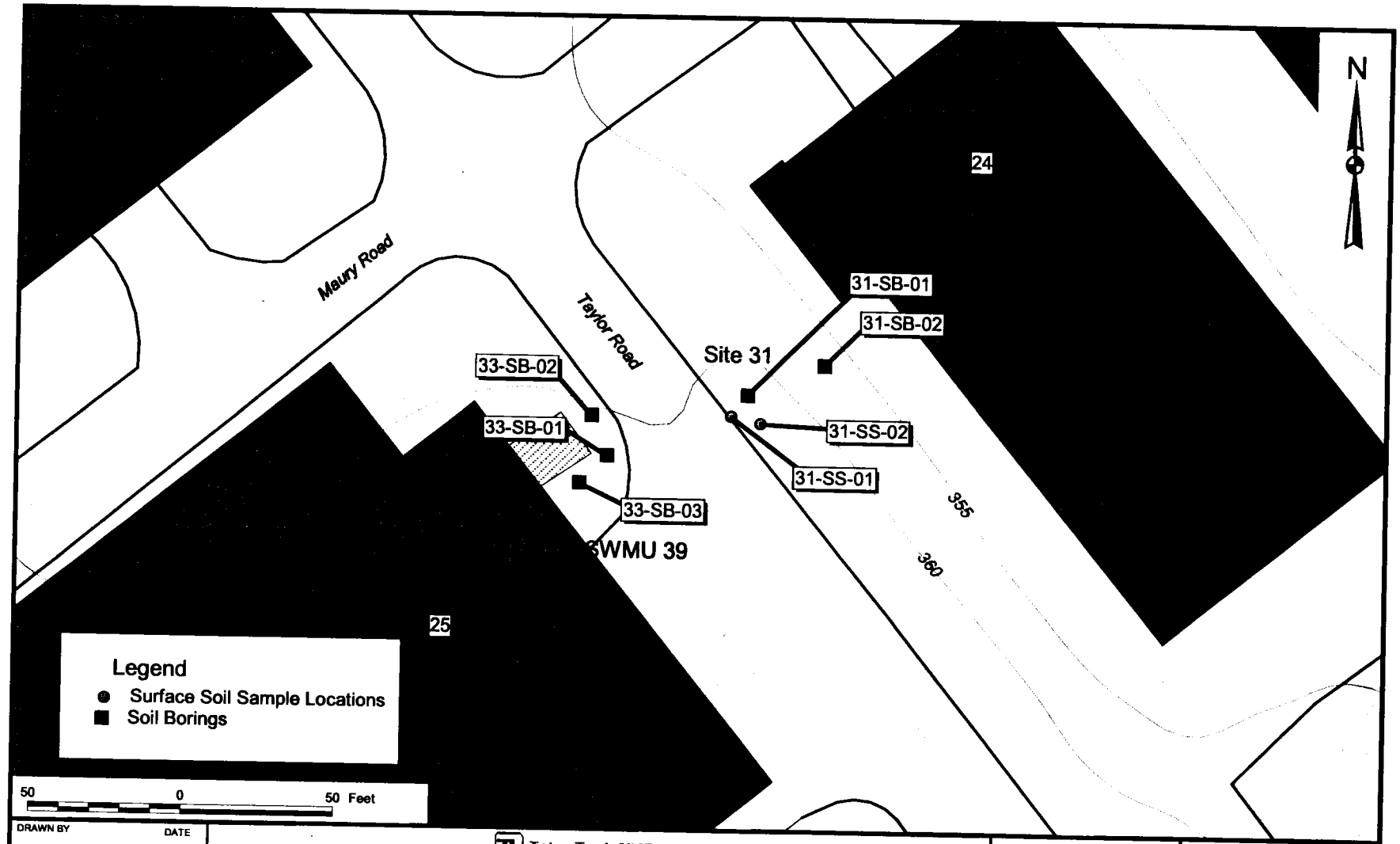
11.2 ENVIRONMENTAL SETTING

11.2.1 Topography

The sump is located adjacent to the eastern side of Building 25, approximately 10 feet from Taylor Road. It is an underground unit, reaching a depth of approximately 8 feet below street level. The top of the sump, including the cover, is approximately 2 to 4 inches above ground surface.

11.2.2 Surface Water

The sump has a full-size metal cover that prevents most precipitation runoff from infiltrating. The sump's location adjacent to Building 25 also helps to shield it from precipitation events. Precipitation runoff is a minor component of water entering the sump.



DRAWN BY MJJ	DATE 23SEPT96	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	SAMPLE LOCATION MAP SITE 33 / SWMU 39 - BUILDING 25 PLATING SHOP SUMP NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 11-1 / REV 0

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11.2.3 Geology

Soil borings completed at this site yielded dry to slightly moist soils comprising mostly saprolitic schist. Surface soil down to a depth of 6 inches comprised mostly sandy clay with a minor gravel component. Soil boring logs have been provided in Appendix E.

11.3 FIELD INVESTIGATION ACTIVITIES

Three surface and subsurface soil samples were collected in proximity to the sump and tank to characterize any impacts to the site soils.

11.3.1 Surface Soil Sampling

Three surface soil samples (33-SS-01, 33-SS-02, 33-SS-03) were collected at Site 33. Sample locations are shown in Figure 11-1. The surface soil samples were analyzed for TAL metals and cyanide only. Soil log sheets have been provided in Appendix D.

11.3.2 Soil Borings and Subsurface Soil Sampling

Three soil borings (33-SB-01, 33-SB-02, 33-SB-03) were completed at Site 33.

The soil borings were completed in the same locations as the corresponding surface soil samples. Samples from these borings were collected at a shallow subsurface layer and at the groundwater interface. For samples 33-SB-01 and 33-SB-02, this corresponded to 8 feet for the shallow subsurface layer and 27 feet for the groundwater interface. The shallow soil sample at 33-SB-03 was collected at 6 feet; the groundwater interface sample was collected at 26 feet. Subsurface soil samples were analyzed for TAL metals and cyanide. Sample log sheets have been provided in Appendix D.

11.3.3 Surface Water and Sediment Sampling

A sediment sample was planned to be collected from within the confines of the sump box. Upon visual inspection of the sump, however, no sediments could be located for collection.

11.3.4 Quality Control Samples

Two duplicate samples and a matrix spike/matrix spike duplicate sample were collected in conjunction with the soil boring samples collected at Site 33.

11.4 DATA AND SCREENING EVALUATION

Results for the soil sampling conducted at Site 33 are provided in Appendix F. Summary tables of all detected analytical results (e.g., any result not qualified with a "U") were prepared for each sample medium. Results for surface soil are included in Table 11-1 and in Table 11-2 for subsurface soil.

11.4.1 Human Health Risk Screening

11.4.1.1 Surface Soil

Three surface soil samples were collected at Site 33 and analyzed for inorganics. Table 11-3 provides a comparison of the constituents identified in the surface soil with the human health risk-screening criteria. Figure 11-2 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 33 for surface soil.

Aluminum, arsenic, calcium, chromium, iron, magnesium, and potassium were detected at maximum concentrations exceeding the soil screening levels. Calcium, magnesium, and potassium were detected, but they are essential human nutrients and are not believed to be present at concentrations that would pose a risk to human health. The maximum concentrations of aluminum, arsenic, and iron were less than the White-Oak-specific surface soil background. Only chromium was detected at a concentration in excess of both the White-Oak-specific background and soil screening values.

11.4.1.2 Subsurface Soil

Eight subsurface soil samples were collected at Site 33 and analyzed for inorganics. Table 11-4 provides a comparison of the constituents identified in the subsurface soil with the human health risk-screening criteria. Figure 11-3 provides a graphical depiction of those constituents identified in excess of the screening criteria established for human health at Site 33 for subsurface soil.

Aluminum, arsenic, calcium, chromium, iron, magnesium, manganese, and potassium were detected in excess of the soil screening levels. Calcium, magnesium, and potassium were detected, but they are essential human nutrients and are not believed to be present at concentrations that would pose a risk to human health. The maximum concentrations of aluminum, arsenic, chromium, and iron were less than the White-Oak-specific surface soil background. Only manganese was detected at a concentration in excess of both the White-Oak-specific background and soil screening values, however, this occurred in only one sample (33-SB-01) at a depth of 27 feet.

TABLE 11-1
SUMMARY OF POSITIVE DETECTS - SURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
NSWC WHITE OAK

SAMPLE NUMBER:	33-SS-01	33-SS-02	33-SS-03			
DEPTH (feet):						
SAMPLE DATE:	10/13/97	10/13/97	10/13/97	/ /	/ /	/ /
LOCATION:	33-SS-01	33-SS-02	33-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
METALS (mg/kg)						
ALUMINUM	9900	5320	8710			
ARSENIC	4.5 J	1.7 B	3.6 J			
BARIUM	49.8 J	16.3 J	32.1 J			
BERYLLIUM	0.17	0.02	0.02			
CALCIUM	829 K	246 K	576 K			
CHROMIUM	33.9	10.6	18.5			
COBALT	3.4	1.5	2.4			
COPPER	31.9	9.2	11.9			
IRON	18900	9420	11600			
LEAD	26.3 L	4 L	15 L			
MAGNESIUM	1090 J	365 J	855 J			
MANGANESE	118 J	50.4 J	81.8 J			
MERCURY	0.07	0.02	0.04			
NICKEL	9.1 K	3.7 K	6.5 K			
POTASSIUM	564	426	631			
SELENIUM	11.5 J	3 J	2.7			
SILVER	0.4 L	0.17 UL	0.17 UL			
VANADIUM	30	15.9	21.4			
ZINC	35	12.1	56.2			

TABLE 11-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
NSWC WHITE OAK

SAMPLE NUMBER:	33-SB-01(27)	33-SB-02(27)	33-SB-02(8)	33-SB-03(26)	33-SB-100	33-SB-03(6)
DEPTH (feet):						
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/14/97	11/14/97	11/14/97
LOCATION:	33-SB-01	33-SB-02	33-SB-02	33-SB-03	33-SB-100	33-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						33-SB-100
METALS (mg/kg)						
ALUMINUM	15800	7250	9610	11100	6270	7200
ARSENIC	1.5 UJ	1.2 UJ	5.7 J	1.5 L	2.8 L	2.5 L
BARIUM	9.1	3.5	34.7	6.1	108	63.6
BERYLLIUM	2.6	0.84	0.05 U	2 B	0.14 B	0.62 B
CALCIUM	230 K	180 K	229 K	443 K	1020 K	5070
CHROMIUM	0.3	0.41	28.2	0.65 B	20.5	16.2
COBALT	28.7	0.89 B	0.68 B	0.68 B	1.1 B	4.4
COPPER	26.4	2.1	7.6	4.7	39.8	16.4
CYANIDE	0.26	0.26	1.1	0.21 U	0.19 U	0.18 U
IRON	20000	861	14900	2920	19800	15300
LEAD	9.2	1.2 B	7.8	4.4 B	14.7 B	13.9 B
MAGNESIUM	322 J	254 J	463 J	517 K	407 K	650 K
MANGANESE	2050	15.9	24.2	16.9	55.2	289
MERCURY	0.02 U	0.02 K	0.02 U	0.02 U	0.02 B	0.02 B
NICKEL	6.6	3.1	1.8	5.1	2.5 B	7.2
POTASSIUM	136	133	567	209 L	480 L	501 L
SELENIUM	1.1 UJ	0.95 UJ	1.2 B	0.51 U	1.2	0.82
VANADIUM	0.49 U	0.41 U	43.2	0.22 U	22.9	17
ZINC	35.3	15.1	7.7	22 J	16.4 J	18.3 J
GENERAL CHEMISTRY ()						
PH				5.21	7.61	8.01

TABLE 11-2
SUMMARY OF POSITIVE DETECTS - SUBSURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
NSWC WHITE OAK

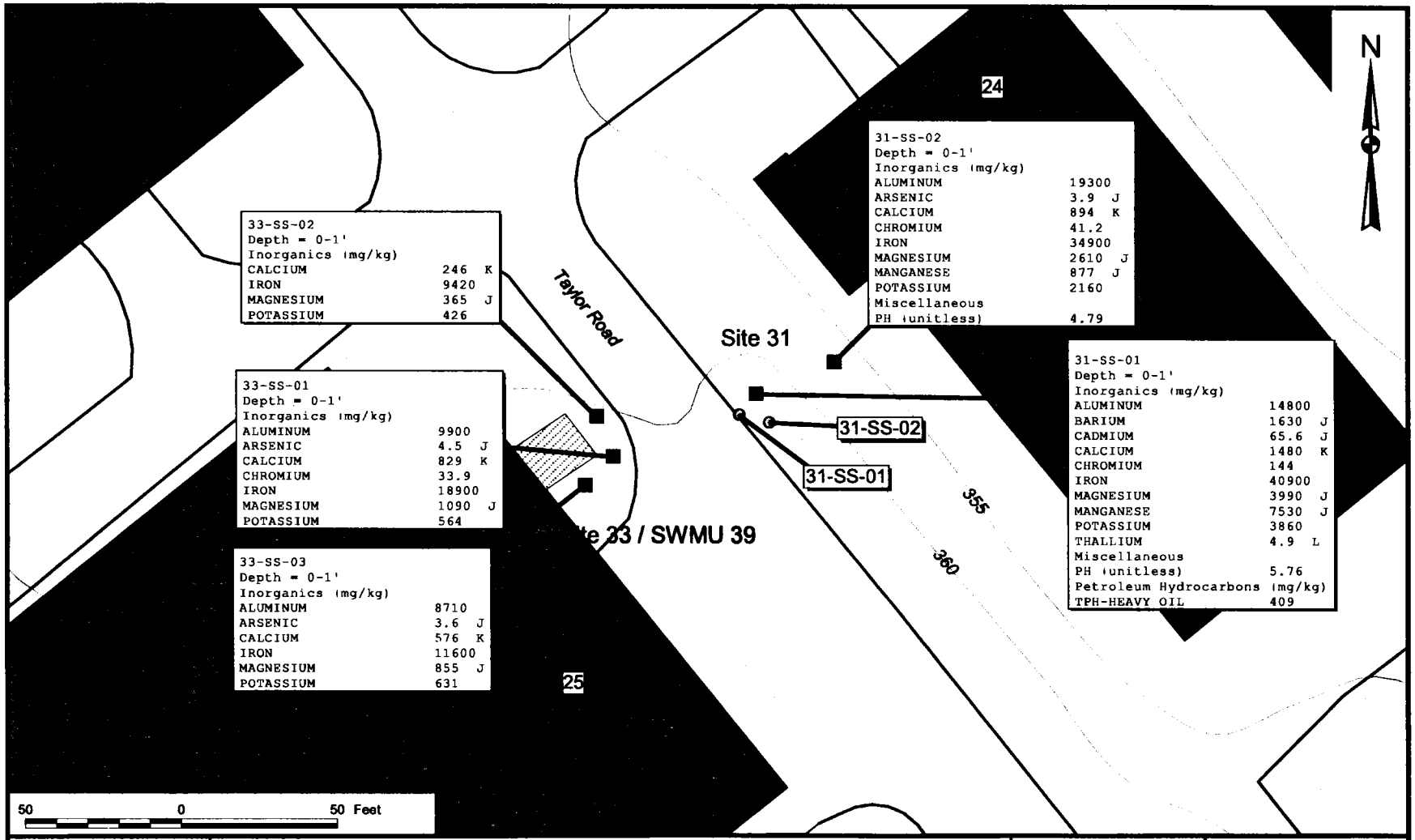
SAMPLE NUMBER:	33-SB-101	33-SB-01(8)				
DEPTH (feet):						
SAMPLE DATE:	11/17/97	11/17/97	/ /	/ /	/ /	/ /
LOCATION:	33-SB-101	33-SB-01				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:		33-SB-101				
METALS (mg/kg)						
ALUMINUM	8590	8770				
ARSENIC	2.7 J	7.9 J				
BARIUM	42.7	32.6				
BERYLLIUM	0.05 U	0.05 U				
CALCIUM	219 K	139 B				
CHROMIUM	26.7	39				
COBALT	0.28 U	0.35 B				
COPPER	3.4	14				
CYANIDE	0.26 U	0.49				
IRON	6760	12800				
LEAD	8	7				
MAGNESIUM	446 J	410 J				
MANGANESE	17.3	13.6				
MERCURY	0.02 K	0.04 K				
NICKEL	0.69	1.1				
POTASSIUM	848	701				
SELENIUM	1.4 B	1.4 B				
VANADIUM	44.9	42.6				
ZINC	5.3	6				

TABLE 11-3

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	3/3	5,320	9,900	33-SS-01	7,977	NA	7,800	14953
ARSENIC	2/3	3.6 J	4.5 J	33-SS-01	4.05	1.7	0.43	5.11
BARIUM	3/3	16.3 J	49.8 J	33-SS-01	32.7	NA	550	59.5
BERYLLIUM	3/3	0.02	0.17	33-SS-01	0.07	NA	16	0.19
CALCIUM	3/3	246 K	829 K	33-SS-01	550	NA	NA	1040
CHROMIUM	3/3	10.6	33.9	33-SS-01	21	NA	23	29.35
COBALT	3/3	1.5	3.4	33-SS-01	2.43	NA	470	11.81
COPPER	3/3	9.2	31.9	33-SS-01	17.7	NA	310	11.52
IRON	3/3	9,420	18,900	33-SS-01	13,307	NA	2,300	18946
LEAD	3/3	4 L	26.3 L	33-SS-01	15.1	NA	400	60.2
MAGNESIUM	3/3	365 J	1,090 J	33-SS-01	770	NA	NA	1183
MANGANESE	3/3	50.4 J	118 J	33-SS-01	83.4	NA	160	490
MERCURY	3/3	0.02	0.07	33-SS-01	0.043	NA	2.3	0.142
NICKEL	3/3	3.7 K	9.1 K	33-SS-01	6.43	NA	160	14.56
POTASSIUM	3/3	426	631	33-SS-03	540	NA	NA	845
SELENIUM	3/3	2.7	11.5 J	33-SS-01	5.73	NA	39	0.68
SILVER	1/3	0.4 L	0.4 L	33-SS-01	0.4	0.17	39	1.15
VANADIUM	3/3	15.9	30	33-SS-01	22.4	NA	55	30.08
ZINC	3/3	12.1	56.2	33-SS-03	34.4	NA	2,300	30.67

NA - Not Available



DRAWN BY MJJ — DATE 12OCT96	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	HUMAN HEALTH RISK EXCEEDANCE IN SURFACE SOIL SITE 33 / SWMU 39 - BUILDING 25 PLATING SHOP SUMP NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN — DATE 12/1	
COST/SCHEDULE-AREA		APPROVED BY — DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 11-2	REV 0

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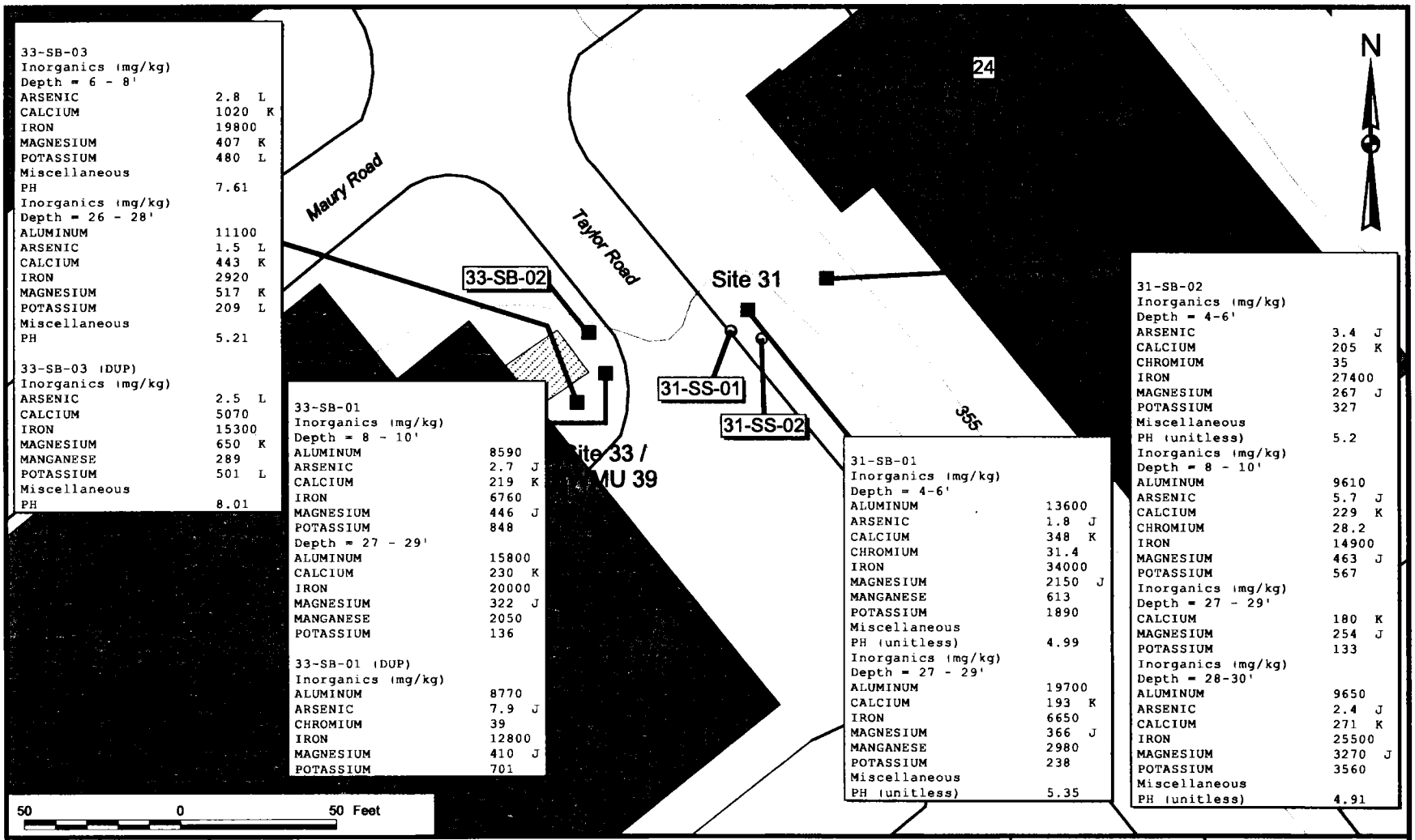
TABLE 11-4

RISK-BASED SCREENING COMPARISON FOR HUMAN HEALTH
SUBSURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
FORMER NSWC WHITE OAK

Parameter	Frequency of Detection	Minimum	Maximum	Location of Maximum	Average of Positive Detections	Range of Nondetects	Screening Level	Proposed Background
Inorganics (mg/kg)								
ALUMINUM	6/6	6,270	15,800	33-SB-01(27)	9,863	NA	7,800	20961
ARSENIC	4/6	1.5 L	7.9 J	33-SB-101-D	3.79	1.2 - 1.5	0.43	12.15
BARIUM	6/6	3.5	108	33-SB-100	29.5	NA	550	40.09
BERYLLIUM	2/6	0.84	2.6	33-SB-01(27)	1.72	0.05 - 2	16	2.37
CALCIUM	6/6	180 K	5,070	33-SB-100-D	712	139	NA	247
CHROMIUM	5/6	0.3	39	33-SB-101-D	16.0	0.65	23	41.05
COBALT	3/6	4.4	28.7	33-SB-01(27)	10.5	0.28 - 1.1	470	16.6
COPPER	6/6	2.1	39.8	33-SB-100	12.9	NA	310	21.62
CYANIDE	4/6	0.26	1.1	33-SB-02(8)	0.483	0.18 - 0.26	160	NA
IRON	6/6	861	20,000	33-SB-01(27)	11,002	NA	2,300	28681
LEAD	3/6	7	9.2	33-SB-01(27)	8.2	1.2 - 14.7	400	21.23
MAGNESIUM	6/6	254 J	650 K	33-SB-100-D	419	NA	NA	2987
MANGANESE	6/6	13.6	2,050	33-SB-01(27)	382	NA	160	503
MERCURY	2/6	0.02 K	0.04 K	33-SB-101-D	0.025	0.02	2.3	0.051
NICKEL	6/6	0.69	7.2	33-SB-100-D	3.62	2.5	160	13.84
POTASSIUM	6/6	133	848	33-SB-101	385	NA	NA	2792
SELENIUM	1/6	0.82	1.2	33-SB-100	1.01	0.51 - 1.4	39	2.73
VANADIUM	3/6	17	44.9	33-SB-101	35.6	0.22 - 0.49	55	44.31
ZINC	6/6	5.3	35.3	33-SB-01(27)	17.2	NA	2,300	84.2
Miscellaneous								
pH (SU)	2/2	5.21	8.01	33-SB-100-D	6.51	NA	NA	NA

NA - Not Available



33-SB-03
Inorganics (mg/kg)
Depth = 6 - 8'

ARSENIC	2.8	L
CALCIUM	1020	K
IRON	19800	
MAGNESIUM	407	K
POTASSIUM	480	L
Miscellaneous		
PH	7.61	
Inorganics (mg/kg)		
Depth = 26 - 28'		
ALUMINUM	11100	
ARSENIC	1.5	L
CALCIUM	443	K
IRON	2920	
MAGNESIUM	517	K
POTASSIUM	209	L
Miscellaneous		
PH	5.21	

33-SB-03 (DUP)
Inorganics (mg/kg)

ARSENIC	2.5	L
CALCIUM	5070	
IRON	15300	
MAGNESIUM	650	K
MANGANESE	289	
POTASSIUM	501	L
Miscellaneous		
PH	8.01	

33-SB-01
Inorganics (mg/kg)
Depth = 8 - 10'

ALUMINUM	8590	
ARSENIC	2.7	J
CALCIUM	219	K
IRON	6760	
MAGNESIUM	446	J
POTASSIUM	848	
Depth = 27 - 29'		
ALUMINUM	15800	
CALCIUM	230	K
IRON	20000	
MAGNESIUM	322	J
MANGANESE	2050	
POTASSIUM	136	

33-SB-01 (DUP)
Inorganics (mg/kg)

ALUMINUM	8770	
ARSENIC	7.9	J
CHROMIUM	39	
IRON	12800	
MAGNESIUM	410	J
POTASSIUM	701	

31-SB-01
Inorganics (mg/kg)
Depth = 4-6'

ALUMINUM	13600	
ARSENIC	1.8	J
CALCIUM	348	K
CHROMIUM	31.4	
IRON	34000	
MAGNESIUM	2150	J
MANGANESE	613	
POTASSIUM	1890	
Miscellaneous		
PH (unitless)	4.99	
Inorganics (mg/kg)		
Depth = 27 - 29'		
ALUMINUM	19700	
CALCIUM	193	K
IRON	6650	
MAGNESIUM	366	J
MANGANESE	2980	
POTASSIUM	238	
Miscellaneous		
PH (unitless)	5.35	

31-SB-02
Inorganics (mg/kg)
Depth = 4-6'

ARSENIC	3.4	J
CALCIUM	205	K
CHROMIUM	35	
IRON	27400	
MAGNESIUM	267	J
POTASSIUM	327	
Miscellaneous		
PH (unitless)	5.2	
Inorganics (mg/kg)		
Depth = 8 - 10'		
ALUMINUM	9610	
ARSENIC	5.7	J
CALCIUM	229	K
CHROMIUM	28.2	
IRON	14900	
MAGNESIUM	463	J
POTASSIUM	567	
Inorganics (mg/kg)		
Depth = 27 - 29'		
CALCIUM	180	K
MAGNESIUM	254	J
POTASSIUM	133	
Inorganics (mg/kg)		
Depth = 28-30'		
ALUMINUM	9650	
ARSENIC	2.4	J
CALCIUM	271	K
IRON	25500	
MAGNESIUM	3270	J
POTASSIUM	3560	
Miscellaneous		
PH (unitless)	4.91	

DRAWN BY MJJ	DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	HUMAN HEALTH RISK EXCEEDANCE IN SUBSURFACE SOIL SITE 33 / SWMU 39 - BUILDING 25 PLATING SHOP SUMP NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 11-3 / REV 0

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11.4.2 Ecological Risk Screening

Site 33/SWMU 39, Building 25 Plating Shop Sump is located in the highly developed Site 11/100 Area of NSWC White Oak (Figure 11-4). The surrounding area is characterized by buildings, roadways, and mowed turfgrass. Site 29/SWMU 76 is located approximately 300 feet to the north. The area is relatively flat, limiting off-site migration of chemicals in surface soil via runoff. Some scattered ornamental trees are present. The sump is located adjacent to the eastern side of Building 25, approximately 10 feet from Taylor Road. It is an underground unit, reaching a depth of approximately 8 feet below street level. The top of the sump, including the cover, is approximately 2 to 4 inches above ground surface. No surface water is present on or near Site 33/SWMU 39, precluding groundwater to surface water discharge of site chemicals.

Table 11-5 presents a comparison of existing data for surface soil chemicals to ecological screening levels compiled for NWSC White Oak. Only inorganics data are available due to the nature of past waste management practices. Several inorganics are present at maximum concentrations in surface soils that exceed ecological screening levels. Nonetheless, due to the highly developed nature of the site, limited potential off-site migration, and localized contamination, no further ecological study is recommended for Site 33/SWMU 39. It should be noted that plans to remove the tank are being developed.

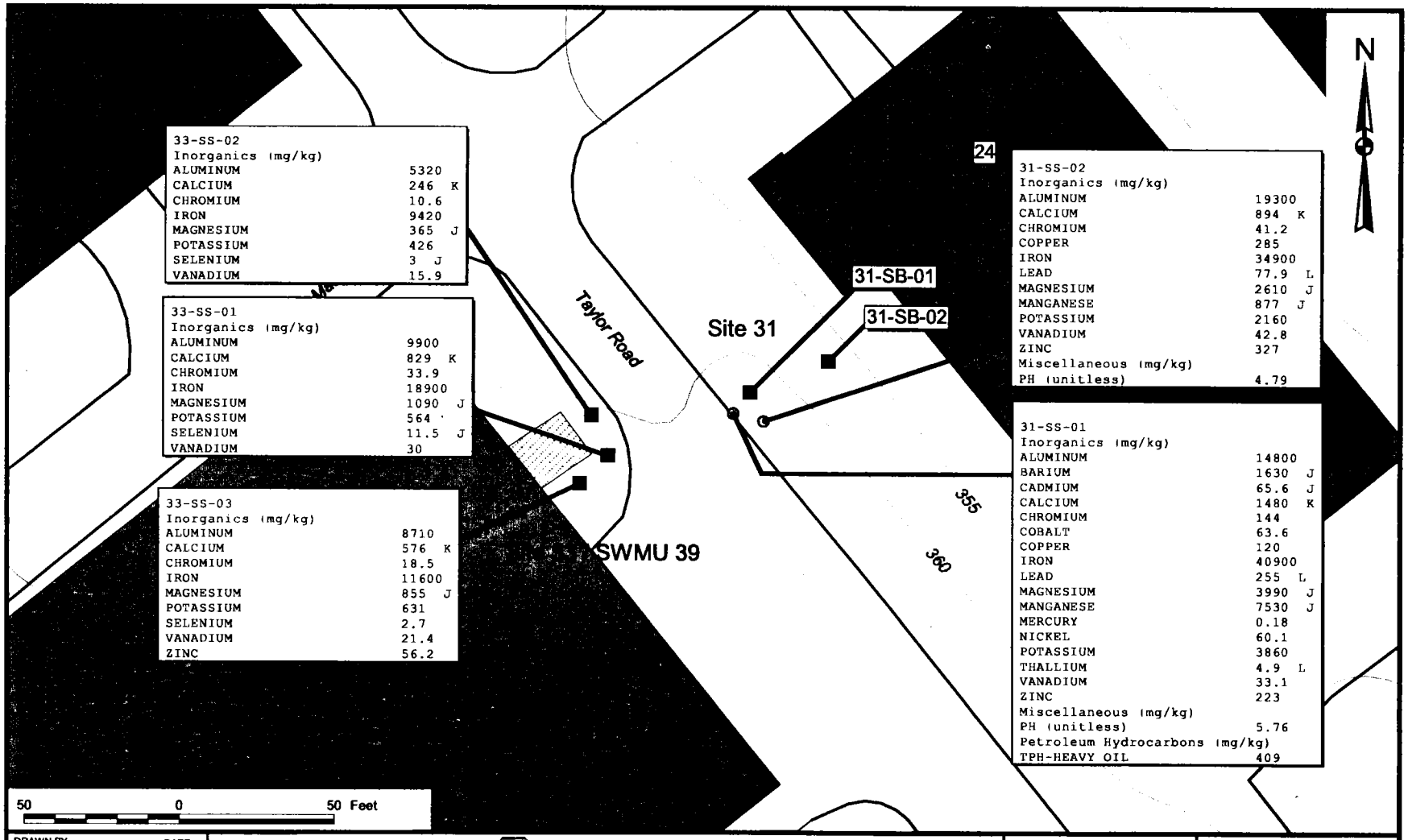
11.5 CONCLUSIONS AND RECOMMENDATIONS

11.5.1 Conclusions

Limited inorganic contamination was identified at Site 33. The constituents identified in excess of the soil screening criteria were limited in concentration and extent and were most often within the range of the background for White Oak. Additional investigation of the site has been performed and plans are being developed for the removal of the tank.

11.5.2 Recommendations

Based upon the findings of this investigation, no further site characterization or remedial action, beyond removal of the tank, is recommended for this site.



33-SS-02
Inorganics (mg/kg)

ALUMINUM	5320	
CALCIUM	246	K
CHROMIUM	10.6	
IRON	9420	
MAGNESIUM	365	J
POTASSIUM	426	
SELENIUM	3	J
VANADIUM	15.9	

33-SS-01
Inorganics (mg/kg)

ALUMINUM	9900	
CALCIUM	829	K
CHROMIUM	33.9	
IRON	18900	
MAGNESIUM	1090	J
POTASSIUM	564	
SELENIUM	11.5	J
VANADIUM	30	

33-SS-03
Inorganics (mg/kg)

ALUMINUM	8710	
CALCIUM	576	K
CHROMIUM	18.5	
IRON	11600	
MAGNESIUM	855	J
POTASSIUM	631	
SELENIUM	2.7	
VANADIUM	21.4	
ZINC	56.2	

31-SS-02
Inorganics (mg/kg)

ALUMINUM	19300	
CALCIUM	894	K
CHROMIUM	41.2	
COPPER	285	
IRON	34900	
LEAD	77.9	L
MAGNESIUM	2610	J
MANGANESE	877	J
POTASSIUM	2160	
VANADIUM	42.8	
ZINC	327	
Miscellaneous (mg/kg)		
PH (unitless)	4.79	

31-SS-01
Inorganics (mg/kg)

ALUMINUM	14800	
BARIUM	1630	J
CADMIUM	65.6	J
CALCIUM	1480	K
CHROMIUM	144	
COBALT	63.6	
COPPER	120	
IRON	40900	
LEAD	255	L
MAGNESIUM	3990	J
MANGANESE	7530	J
MERCURY	0.18	
NICKEL	60.1	
POTASSIUM	3860	
THALLIUM	4.9	L
VANADIUM	33.1	
ZINC	223	
Miscellaneous (mg/kg)		
PH (unitless)	5.76	
Petroleum Hydrocarbons (mg/kg)		
TPH-HEAVY OIL	409	

DRAWN BY MJJ	DATE 12OCT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427 / OWNER NUMBER 0101
CHECKED BY	DATE	ECO RISK EXCEEDANCE IN SURFACE SOIL SITE 33 / SWMU 39 - BUILDING 25 PLATING SHOP SUMP NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN / DATE 12/1
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 11-4 / REV 0

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TABLE 11-5

COMPARISON OF SITE CONCENTRATIONS IN SURFACE SOIL TO ECOLOGICAL SCREENING LEVELS
SITE 33/SWMU 39 - BUILDING 25 PLATING SHOP SUMP
FORMER NSWC WHITE OAK

Chemical	Frequency of Detection	Minimum Concentration	Maximum Concentration	Location of Maximum	Ecological Screening Level	Hazard Quotient
Inorganics (mg/kg)						
ALUMINUM	3/3	5320	9900	33-SS-01	50	198.00
ARSENIC	2/3	3.6	4.5	33-SS-01	10	0.45
BARIUM	3/3	16.3	49.8	33-SS-01	500	0.10
BERYLLIUM	3/3	0.02	0.17	33-SS-01	10	0.02
CHROMIUM	3/3	10.6	33.9	33-SS-01	1	33.90
COBALT	3/3	1.5	3.4	33-SS-01	20	0.17
COPPER	3/3	9.2	31.9	33-SS-01	50	0.64
IRON	3/3	9420	18900	33-SS-01	200	94.50
LEAD	3/3	4	26.3	33-SS-01	50	0.53
MANGANESE	3/3	50.4	118	33-SS-01	500	0.24
MERCURY	3/3	0.02	0.07	33-SS-01	0.1	0.70
NICKEL	3/3	3.7	9.1	33-SS-01	30	0.30
SELENIUM	3/3	2.7	11.5	33-SS-01	1	11.50
SILVER	1/3	0.4	0.4	33-SS-01	2	0.20
VANADIUM	3/3	15.9	30	33-SS-01	2	15.00
ZINC	3/3	12.1	56.2	33-SS-03	50	1.12

NA = Not Available

12.0 EBS AOC 100 - INDOOR UNDERGROUND PISTOL RANGE

12.1 BACKGROUND

AOC 100 (Figure 12-1) was identified for initial inspection during the EBS conducted in 1996. AOC 100 comprises of a former indoor, underground pistol range. The former pistol range is located below street level, just off the southeastern corner of Building 71, parallel to Maury Road. The range is now divided into two sections that are separated by a concrete wall that serves as the target end of the range. No impact/berm is present within the range.

The pistol range entrance is accessible only through an underground walkway that connects Buildings 25 and 71. This walkway is accessible through an open floor port along the south wall of Building 71 or through the basement of Building 25. The other end of the range (confined space area), which is now separated by a concrete wall, is accessible only from an above-ground port located off the southwestern corner of Building 71 and was not investigated at this time.

The pistol range has been abandoned and is clear of most debris, except for a few boxes of ballasts and lighting supplies. These boxes are located against the right side wall at the entrance to the range from the underground walkway. There is also a bucket of spent shell casings along this wall. The pulley system used to transport the paper targets from the firing line end of the range to the target end was also intact.

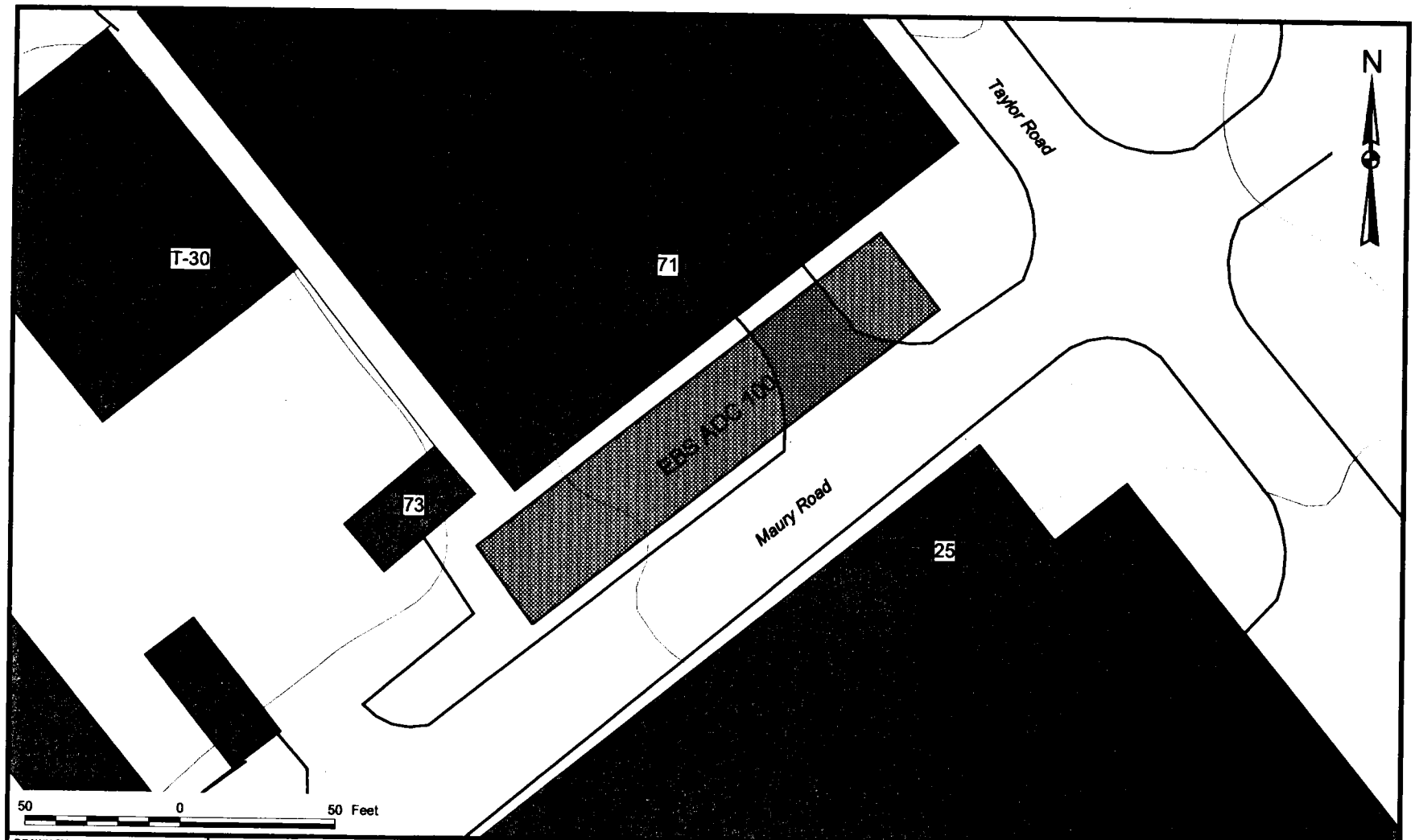
12.2 ENVIRONMENTAL SETTING

A crack in the left-hand side wall located mid-way between the firing line end and target end had water stains leading to the floor. On the floor, some light staining of the concrete indicated water was leaking from this crack. No pooled water was encountered during sampling.

12.3 FIELD INVESTIGATION ACTIVITIES

At EBS AOC 100, wipe samples were used to assess the presence or absence of contamination associated with the former pistol range.

Wipe samples were collected at various locations along the range to examine for the presence of lead (Figure 12-2). Nine wipe samples were collected by the field team: five samples at the target end and four samples at the firing line end.



DRAWN BY MJJ — DATE 23SEPT98	Tetra Tech NUS, Inc.	CONTRACT NUMBER 7427	OWNER NUMBER 0101
CHECKED BY — DATE	SAMPLE LOCATION MAP EBS AOC 100 - INDOOR UNDERGROUND PISTOL RANGE NSWC - WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHEDULE-AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 12-1	REV 0

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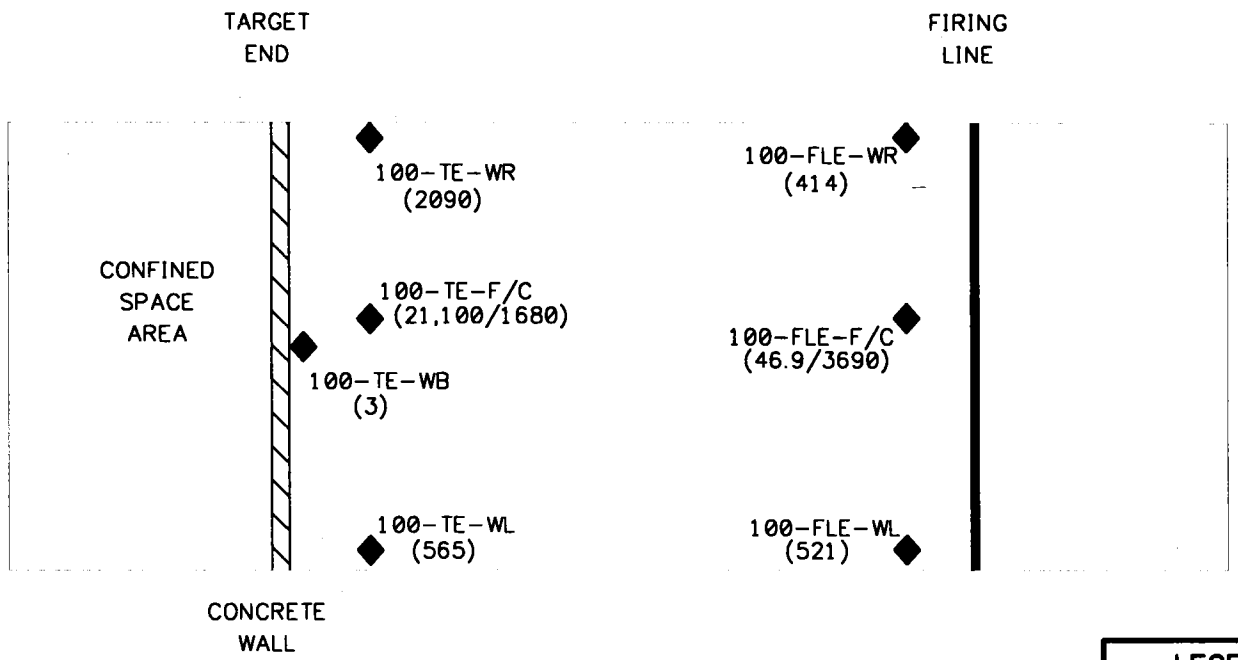
ACAD: 7427cm23.dwg 12/01/98 KW



LEGEND

◆ WIPE SAMPLE (µg/wi)
TE TARGET END
FL FIRING LINE

DRAWN BY KW DATE 11/5/98	Tetra Tech NUS, Inc.	CONTRACT NO. 7427	OWNER NO. ----
CHECKED BY DATE	SAMPLE LOCATION MAP EBS AOC 100-INDOOR UNDERGROUND PISTOL RANGE NSWC-WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY SN	DATE 12/1
COST/SCHED-AREA		APPROVED BY	DATE
SCALE N.T.S.		DRAWING NO. FIGURE 12-2	REV. 0

FORM CADD NO. TtNUS_AH.DWG - REV 0 - 1/22/98

TABLE 12-1

WIPE SAMPLE DATA
EBS AOC 100 - INDOOR UNDERGROUND PISTOL RANGE
FORMER NSWC WHITE OAK

Sample Number:	100-FLE-C	100-FLE-F	100-FLE-WL	100-FLE-WR	100-TE-C	100-TE-F	100-TE-WB	100-TE-WL	100-TE-WR
Location:	FL Ceiling	FL Floor	FL Wall Left	FL Wall Right	TE Ceiling	TE Floor	TE Back Wall	TE Wall Left	TE Wall Right
Inorganics (ug/wi)									
Lead	46.9	3,690	521	414	1,680	21,100	3.41	565	2,090
Notes:									
	FL - Firing Line								
	TE - Target End								
	wi - wipe inch								

At the target end, a determination of the exact position of the bullet trap was made from the mounting holes in the walls. At this point, wipe samples were taken on both walls, the floor, and the ceiling. Another wipe sample was conducted along a location of the back wall that would have been behind the bullet trap. At the firing line end, wipe samples were taken on both walls, the ceiling, and the floor, approximately 10 feet in front of the actual firing line.

Wipe samples were collected by applying a small amount of nitric acid to a uniform sterile wipe sample pad provided by the laboratory. This sample pad was then rubbed over a 6-inch square area that was demarcated with tape. The pad was then placed back in the sample jar from which it was originally received from the laboratory. The tape indicating the 6-inch square sample locations was left in place for future reference.

The locations of the wipe samples are provided on Figure 12-2 and on the sample log sheets provided in Appendix D.

12.4 DATA AND SCREENING EVALUATION

Analytical data for the wipe samples are provided in Appendix F. Lead concentrations were detected at the site at concentrations ranging from 46.9 to 21,100 micrograms per wipe inch (ug/wi). The lead concentrations were greatest within the center of the firing line and tended to be greater at the target end when compared to the firing line.

12.5 CONCLUSIONS AND RECOMMENDATIONS

12.5.1 Conclusions

Elevated lead levels were detected on the walls, floors, and ceiling of this site. However, given the remote nature of the site and the levels of lead contamination identified, risk to human health is believed to be minimal. Lack of information related to the confined space area still exists at the time of this report.

12.5.2 Recommendations

Additional sampling within the confined space area should be performed. Following the collection of the data, the information should be provided to GSA for use during future facilities planning or building demolition.

REFERENCES

B&R Environmental (Brown & Root Environmental), January 1997. Standard Operating Procedures. Pittsburgh, Pennsylvania.

Soil Survey Report, U.S. naval Ordnance Laboratory, White Oak, Maryland, 1970.

Tetra Tech NUS (TtNUS). 1998a. Work Plan for RCRA Facility Investigation and Corrective Measures Study, Naval Surface Warfare Center White Oak, Silver Spring Maryland prepared for Engineering Facilties Activity, Naval Facilities Engineering Command. Pittsburgh, Pennsylvania. November.

Tetra Tech NUS (TtNUS). 1998b. Proposed Ecological Screening Levels for Ecological Risk Assessment at Naval Surface Warfare Center White Oak, Silver Spring Maryland, Revision 1 prepared for Region III BTAG. Pittsburgh, Pennsylvania. September.

U.S. Environmental Protection Agency (USEPA), October 1996. Drinking Water Regulations and Health Advisories. EPA822-B-96-002.

U.S. Environmental Protection Agency (USEPA), Region III, October, 1998. Risk-Based Concentration Table.

APPENDIX A

STATE OF MARYLAND
DEPARTMENT OF THE ENVIRONMENT
WELL COMPLETION REPORT

C 1 5870 — SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 9710219003

PERMIT NO. FROM "PERMIT TO DRILL WELL" MO-94-0456

ST/CO USE ONLY — DATE Received MM DD YY

DATE WELL COMPLETED: 10 28 97

Depth of Well: 24' (TO NEAREST FOOT)

OWNER: U.S. Navy U.S.N.C.

STREET OR RFD: 7901 New Hampshire Ave. TOWN: Silver Spring

SUBDIVISION: NSWC SECTION: LOT:

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Light Brown Sand	1	9	
Silty Clay	9	12	
Fine-Med. Brown Sand	12	24	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED: yes Y / no N

CIRCLE APPROPRIATE LETTER
- A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E — ELECTRIC LOG OBTAINED
- P — TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MD 516

DRILLERS SIGNATURE (MATCH SIGNATURE ON APPLICATION)

LIC. NO.: MD 517

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): yes Y / no N

TYPE OF GROUTING MATERIAL (Circle one): CEMENT CM — BENTONITE CLAY BC

NO. OF BAGS: 3 NO. OF POUNDS: 282

GALLONS OF WATER: 18

DEPTH OF GROUT SEAL (to nearest foot): from 0 (TOP) ft. to 12 (BOTTOM) ft. (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below: ST STEEL — CO CONCRETE — PL PLASTIC — OT OTHER

MAIN CASING TYPE: PL — Nominal diameter top (main) casing (nearest inch): 2" — Total depth of main casing (nearest foot): 14

OTHER CASING (if used) — EACH CASING: diameter inch — depth (feet) from — to

SCREEN RECORD
screen type or open hole insert appropriate code below: ST STEEL — BR BRASS BRONZE — HO OPEN HOLE — PL PLASTIC — OT OTHER

C 2 — DEPTH (nearest ft.)

EACH SCREEN	TYPE	from	to
1	PL	14	24
2			
3			

SLOT SIZE 1 .020 2 ___ 3 ___

DIAMETER OF SCREEN: 2" (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 — from — to

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T — (E.R.O.S.) — W Q

TELESCOPE CASING — LOG INDICATOR — OTHER DATA

C 3 — PUMPING TEST
HOURS PUMPED (nearest hour)

PUMPING RATE (gal. per min.)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING ft.

WHEN PUMPING ft.

TYPE OF PUMP USED (for test): A air — P piston — T turbine — C centrifugal — R rotary — O other (describe below) — J jet — S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO): YES / NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

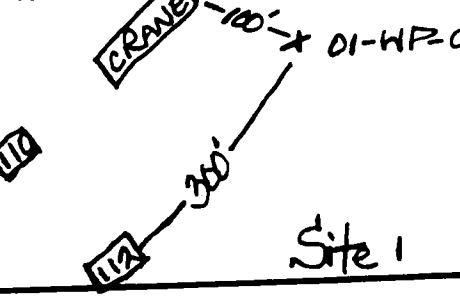
CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height): + above / − below LAND SURFACE 3 (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C1 0011 (MDE USE ONLY)

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 97102 19002

ST/CO USE ONLY DATE Received MM DD YY 6 13

DATE WELL COMPLETED MM DD YY 10 28 97 (15 20)

Depth of Well 22 24 26 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" MO-94-0457 (28 29 30 31 32 33 34 36)

OWNER U.S. NAVY U.S.N.C.

STREET OR RFD 901 New Hampshire Ave. (last name first name) TOWN Silver Spring

SUBDIVISION NSWC SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Light Brown Sand	1	9	
Silty Clay	9	12	
Fine-Med. Brown Sand	12	24	✓

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes Y no N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MWD 516

DRILLERS SIGNATURE (MATCH SIGNATURE ON APPLICATION)

LIC. NO.: MWD 517

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y 44 no N 44

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT CM 45 46 BENTONITE CLAY BC 45 46

NO. OF BAGS 3 NO. OF POUNDS 150

GALLONS OF WATER 75

DEPTH OF GROUT SEAL (to nearest foot) from 0 (48 TOP 52) ft. to 11 (54 BOTTOM 58) ft. (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL (60 61)	2" (63 64)	14 (66 70)

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below

ST STEEL, BR BRASS BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

C 2 (1 2)

EACH SCREEN		DEPTH (nearest ft.)	
1	PL (8 9)	14 (11 15)	24 (17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

SLOT SIZE 1 .020 2 ___ 3 ___

DIAMETER OF SCREEN 2" (56 60) (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68: from 12 to 24 (68)

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

70. ___ TELESCOPE CASING; 72 ___ LOG INDICATOR; 74 75 76 OTHER DATA

C 3 (1 2)

PUMPING TEST
HOURS PUMPED (nearest hour) ___ (8 9)

PUMPING RATE (gal. per min.) ___ (11 1:)

METHOD USED TO MEASURE PUMPING RATE ___

WATER LEVEL (distance from land surface)

BEFORE PUMPING 15 (17 20) ft.

WHEN PUMPING ___ (22 25) ft.

TYPE OF PUMP USED (for test) (27)

A air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) ___ (31 35)

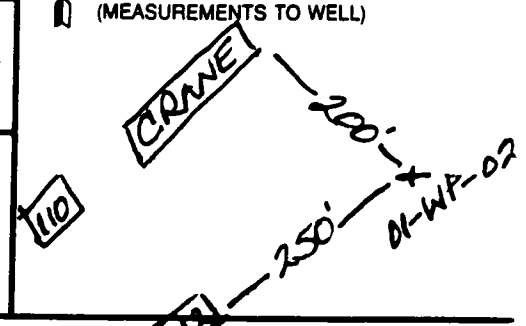
PUMP HORSE POWER ___ (37 41)

PUMP COLUMN LENGTH (nearest ft.) ___ (43 47)

CASING HEIGHT (circle appropriate box and enter casing height) + above (49), − below (49) LAND SURFACE ___ (50 51) (nearest foot)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C 1 5872 — SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 97/021 9003

PERMIT NO. FROM "PERMIT TO DRILL WELL" MD-97-0458

ST/CO USE ONLY
DATE Received MM DD YY

DATE WELL COMPLETED 10 28 97

Depth of Well 24 (TO NEAREST FOOT)

OWNER U.S. Navy U.S.N.C.

STREET OR RFD 70 901 New Hampshire Ave. TOWN Silver Spring

SUBDIVISION NSWC SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Light Brown Sand	1	9	
Silty Clay	9	12	
Fine-Med. Brown Sand	12	24	✓

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes Y N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MWD 516

DRILLERS SIGNATURE (MATCH SIGNATURE ON APPLICATION)

LIC. NO.: MWD 517

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y N no

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT CM BENTONITE CLAY BC

NO. OF BAGS 3 NO. OF POUNDS 150

GALLONS OF WATER 75

DEPTH OF GROUT SEAL (to nearest foot) from 0 TOP ft. to 11 BOTTOM ft. (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below: ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	2"	14

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole insert appropriate code below: ST STEEL, BR BRASS BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	14	24
2			
3			

SLOT SIZE 1 020 2 3

DIAMETER OF SCREEN 2" (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 — from 11 to 24

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER) (E.R.O.S.) T W Q

TELESCOPE CASING LOG INDICATOR OTHER DATA

PUMPING TEST
HOURS PUMPED (nearest hour)

PUMPING RATE (gal. per min.)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING 15 ft.

WHEN PUMPING ft.

TYPE OF PUMP USED (for test)

A air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

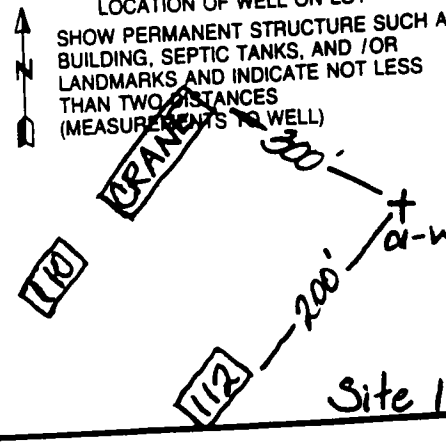
CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height) + above, − below LAND SURFACE (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C 1 5873 SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT

FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 97102190 03

ST/CO USE ONLY
DATE Received MM DD YY

DATE WELL COMPLETED MM DD YY: 10 29 97

Depth of Well: 24 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": MO-94-0[illegible]

OWNER: U.S. Navy U.S.N.C.
STREET OR RFD: 10901 New Hampshire Ave. TOWN: Silver Spring
SUBDIVISION: N.S.W.C. SECTION: LOT:

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Light Brown Sand	1	9	
Silty Clay	9	12	
Fine-Med. Brown Sand	12	24	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED: yes Y / no N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MWD 516
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)
LIC. NO.: MWD 517

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): yes Y / no N

TYPE OF GROUTING MATERIAL (Circle one): CEMENT CM / BENTONITE CLAY BC

NO. OF BAGS: 3 NO. OF POUNDS: 150

GALLONS OF WATER: 75

DEPTH OF GROUT SEAL (to nearest foot): from 0 ft. to 11 ft. (TOP / BOTTOM) (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below: ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE: PL
Nominal diameter top (main) casing (nearest inch)!: 2"
Total depth of main casing (nearest foot): 14

OTHER CASING (if used): EACH CASING — diameter inch, depth (feet) from to

SCREEN RECORD
screen type or open hole insert appropriate code below: ST STEEL, BR BRASS BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

C 2 DEPTH (nearest ft.)

EACH SCREEN			
1	PL	14	24
2			
3			

SLOT SIZE 1 .020 2 ___ 3 ___

DIAMETER OF SCREEN: 2" (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68: from 11 to 24

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)
T (E.R.O.S.) W Q
TELESCOPE CASING / LOG INDICATOR / OTHER DATA

C 3

PUMPING TEST
HOURS PUMPED (nearest hour)

PUMPING RATE (gal. per min.)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)
BEFORE PUMPING: 15 ft.
WHEN PUMPING: ___ ft.

TYPE OF PUMP USED (for test): A air, P piston, T turbine, C centrifugal, R rotary, O other (describ below), J jet, S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO): YES / NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

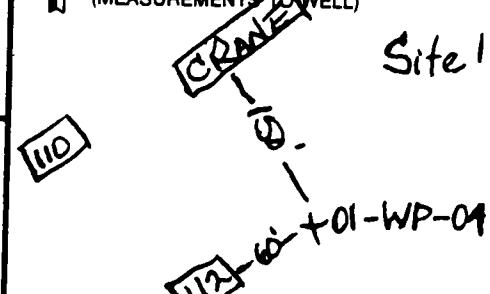
CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height): + above / − below LAND SURFACE (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C 1 | 5874 — SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT

FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER: 9710 21 1063

PERMIT NO. FROM "PERMIT TO DRILL WELL": MO-94-0460

ST/CO USE ONLY
DATE Received MM DD YY

DATE WELL COMPLETED: 10 29 97

Depth of Well: 24 (TO NEAREST FOOT)

OWNER: U.S. Navy U.S.N.C.

STREET OR RFD: 7090 New Hampshire Ave TOWN: Silver Spring

SUBDIVISION: USNC SECTION: LOT:

WELL LOG

Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Silty Clay	1	12	
Fine-Med. Brown Sand	12	24	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED: yes Y / no N

CIRCLE APPROPRIATE LETTER
- A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E — ELECTRIC LOG OBTAINED
- P — TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MD 516

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: MD 517

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD

WELL HAS BEEN GROUTED (Circle Appropriate Box): yes Y / no N

TYPE OF GROUTING MATERIAL (Circle one): CEMENT CM — BENTONITE CLAY BC

NO. OF BAGS: 3 NO. OF POUNDS: 150

GALLONS OF WATER: 75

DEPTH OF GROUT SEAL (to nearest foot): from 0 (TOP) ft. to 11 (BOTTOM) ft. (enter 0 if from surface)

CASING RECORD

casing types insert appropriate code below: ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	2"	14

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD

screen type or open hole — insert appropriate code below: ST STEEL, BR BRASS BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

C 2

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	14	24
2			
3			

SLOT SIZE #: 020 2 3

DIAMETER OF SCREEN: 2" (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68: from 11 to 24

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

TELESCOPE CASING — LOG INDICATOR — OTHER DATA

C 3

PUMPING TEST

HOURS PUMPED (nearest hour)

PUMPING RATE (gal. per min.)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING: 15 ft.

WHEN PUMPING: ft.

TYPE OF PUMP USED (for test): A air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible

PUMP INSTALLED

DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO): YES / NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

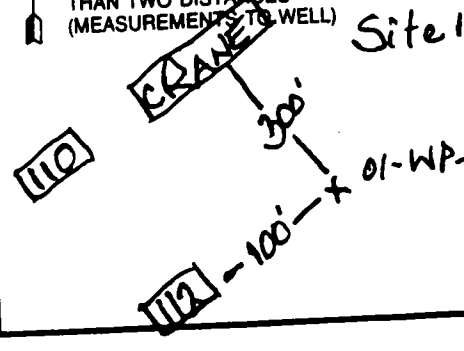
PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height): + above / − below LAND SURFACE (nearest foot)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C 1 | 5864 — SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER: 97102 19003

ST/CO USE ONLY — DATE Received MM DD YY

DATE WELL COMPLETED: 10 30 97

Depth of Well: 26 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": MO-94-04

OWNER: U.S. NAVY N.S.W.C.

STREET OR RFD: 10901 New Hampshire Ave (last name / first name)

TOWN: Silver Spring

SUBDIVISION: NSWC

SECTION: ____ LOT: ____

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Fine - Med. Brown Sand	1	6	
Fine Light Brown Sand	6	20	✓
Light Green Sand	20	25	✓
Rock	25	28	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED: yes [Y] no [N]

CIRCLE APPROPRIATE LETTER
- A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E — ELECTRIC LOG OBTAINED
- P — TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MD 516

DRILLERS SIGNATURE: [signature]
(MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: MW D 51

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): yes [Y] no [N]

TYPE OF GROUTING MATERIAL (Circle one): CEMENT [CM] BENTONITE CLAY [BC]

NO. OF BAGS: 3 NO. OF POUNDS: 188

GALLONS OF WATER: 78

DEPTH OF GROUT SEAL (to nearest foot): from 0 ft. (TOP) to 13 ft. (BOTTOM) (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

[ST] STEEL [CO] CONCRETE [PL] PLASTIC [OT] OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL	2"	16

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below

[ST] STEEL [BR] BRASS BRONZE [HO] OPEN HOLE [PL] PLASTIC [OT] OTHER

C 2 — DEPTH (nearest ft.)

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	16	26
2			
3			

SLOT SIZE 1 .020 2 ____ 3 ____

DIAMETER OF SCREEN: 2" (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68: from 13 to 26

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

TELESCOPE CASING ____ LOG INDICATOR ____ OTHER DATA ____

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) ____

PUMPING RATE (gal. per min.) ____

METHOD USED TO MEASURE PUMPING RATE ____

WATER LEVEL (distance from land surface)

BEFORE PUMPING ____ ft.

WHEN PUMPING ____ ft.

TYPE OF PUMP USED (for test)

[A] air [P] piston [T] turbine [C] centrifugal [R] rotary [O] other (describe below) [J] jet [S] submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO): YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. ____

CAPACITY: GALLONS PER MINUTE (to nearest gallon) ____

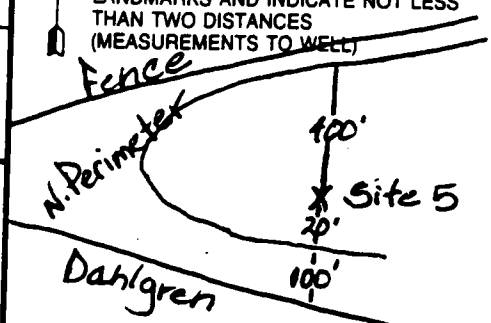
PUMP HORSE POWER ____

PUMP COLUMN LENGTH (nearest ft.) ____

CASING HEIGHT (circle appropriate box and enter casing height) [+] above [−] below LAND SURFACE ____ (nearest foot)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C 1 | 5866 — SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 97102/9003

ST/CO USE ONLY — DATE Received MM DD YY

DATE WELL COMPLETED: 11 3 97

Depth of Well: 25 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": MO-94-0452

OWNER: U.S. Navy N.S.N.C.

STREET OR RFD: 10901 New Hampshire Ave. (last name / first name) TOWN: Silver Spring

SUBDIVISION: NSWC SECTION: LOT:

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Fine-Med. Brown Sand	1	6	
Fine Light Brown Sand	6	20	✓
Cobbles and Rock	20	28	✓

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED: yes [Y] no [N]

CIRCLE APPROPRIATE LETTER
- A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E — ELECTRIC LOG OBTAINED
- P — TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MWD 516

DRILLER SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: MWD 517

SITE SUPERVISOR (sign. of driller or journeyman responsible for siteworks if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): yes [Y] no [N]

TYPE OF GROUTING MATERIAL (Circle one): CEMENT [CM] BENTONITE CLAY [BC]

NO. OF BAGS 2 NO. OF POUNDS 188

GALLONS OF WATER 12

DEPTH OF GROUT SEAL (to nearest foot): from 0 ft. (TOP) to 12 ft. (BOTTOM) (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below: [ST] STEEL, [CO] CONCRETE, [PL] PLASTIC, [OT] OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	2"	15

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below: [ST] STEEL, [BR] BRASS BRONZE, [HO] OPEN HOLE, [PL] PLASTIC, [OT] OTHER

C 2

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	15	25
2			
3			

SLOT SIZE 1 .020 2 ____ 3 ____

DIAMETER OF SCREEN 2" (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68: from 12 to 25

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

TELESCOPE LOG

C 3

PUMPING TEST
HOURS PUMPED (nearest hour)

PUMPING RATE (gal. per min.)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING ft.

WHEN PUMPING ft.

TYPE OF PUMP USED (for test)

[A] air, [P] piston, [T] turbine, [C] centrifugal, [R] rotary, [O] other (describe below), [J] jet, [S] submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

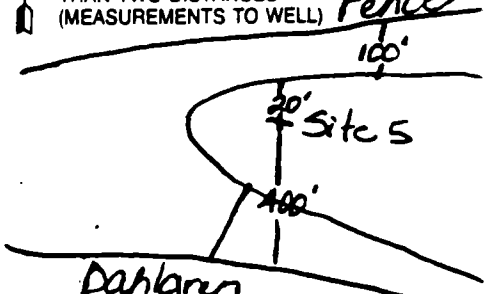
PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height): [+] above, [−] below — LAND SURFACE 3 (nearest foot)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL) Fence



C 1 5878 SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 9710219003

ST/CO USE ONLY
DATE Received MM DD YY

DATE WELL COMPLETED 7 / 3 / 97

Depth of Well 37 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" MO-94-0414

OWNER U.S. Navy U.S.N.C.

STREET OR RFD 7090 New Hampshire Ave. TOWN Silver Spring

SUBDIVISION NSWC SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Light Brown Sand	1	9	
Fine-Med. Brown Sand	9	23	✓
Hard Green Sand	23	37	✓

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes Y no N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO. MWD 5168

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO. MWD 5174

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y no N

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT CM BENTONITE CLAY BC

NO. OF BAGS 4 NO. OF POUNDS 200

GALLONS OF WATER 100

DEPTH OF GROUT SEAL (to nearest foot)

from 0 TOP ft. to 24 BOTTOM ft.
(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL CO CONCRETE PL PLASTIC OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	2"	27

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole insert appropriate code below

ST STEEL BR BRASS BRONZE HO OPEN HOLE PL PLASTIC OT OTHER

C 2

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	27	37
2			
3			

SLOT SIZE 1 .020 2 3

DIAMETER OF SCREEN (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 from 24 to 37

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

TELESCOPE CASING LOG INDICATOR OTHER DATA

C 3

PUMPING TEST
HOURS PUMPED (nearest hour)

PUMPING RATE (gal. per min.)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING 29 ft.

WHEN PUMPING ft.

TYPE OF PUMP USED (for test)

A air P piston T turbine C centrifugal R rotary O other (describe below) J jet S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

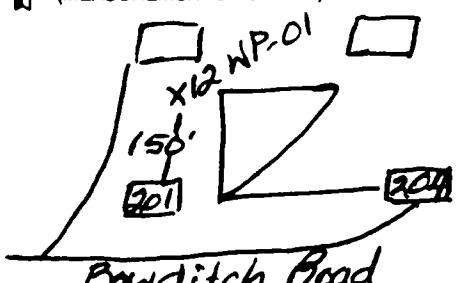
CASING HEIGHT (circle appropriate box and enter casing height)

+ above LAND SURFACE

– below (nearest foot)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C 1 5817 (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 9710219003

ST/CO USE ONLY DATE Received MM DD YY

DATE WELL COMPLETED 11 3 97

Depth of Well 40 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" MO-94-0463

OWNER U.S. Navy U.S.N.C.

STREET OR RFD 10901 New Hampshire Ave. TOWN Silver Spring

SUBDIVISION NSWC SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Light Brown Sand	1	9	
Fine-Med. Brown Sand	9	27	
Hard Green Sand	27	42	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes Y no N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MWD 516

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: MWD 517

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) Y N

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT CM BENTONITE CLAY BC

NO. OF BAGS 8 NO. OF POUNDS 200

GALLONS OF WATER 100

DEPTH OF GROUT SEAL (to nearest foot) from 0 ft. to 27 ft. (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL CO CONCRETE PL PLASTIC OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	2"	30

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole insert appropriate code below

ST STEEL BR BRASS BRONZE HO OPEN HOLE PL PLASTIC OT OTHER

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	30	40
2			
3			

SLOT SIZE 1 .020 2 3

DIAMETER OF SCREEN 2" (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68: from 27 to 40

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

TELESCOPE CASING LOG INDICATOR OTHER DATA

PUMPING TEST
HOURS PUMPED (nearest hour)

PUMPING RATE (gal. per min.)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING 32 ft.

WHEN PUMPING ft.

TYPE OF PUMP USED (for test)

A air P piston T turbine C centrifugal R rotary O other (describe below) J jet S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

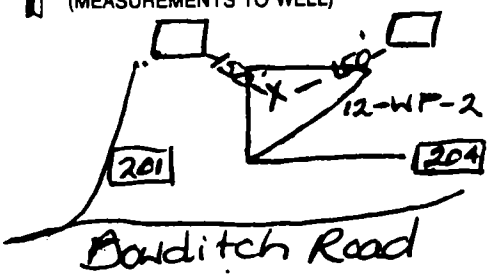
CASING HEIGHT (circle appropriate box and enter casing height)

+ above LAND SURFACE

– below (nearest foot)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C 1 5876 SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 9710219043

ST/CO USE ONLY
DATE Received MM DD YY

DATE WELL COMPLETED MM 11 DD 5 YY 97

Depth of Well 49 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" MO-94-0412

OWNER U.S. Navy N.S.W.C.

STREET OR RFD 10901 New Hampshire Ave (last name / first name) TOWN Silver Spring

SUBDIVISION NSWC SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Light Brown Sand	1	12	
Fine Brown Sand	12	34	
Hard Green Sand	34	49	✓

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes Y no N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO. MWD 5167

DRILLERS SIGNATURE (MATCH SIGNATURE ON APPLICATION)

LIC. NO. MWD 5177

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y no N

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT CM BENTONITE CLAY BC

NO. OF BAGS 6 NO. OF POUNDS 300

GALLONS OF WATER 150

DEPTH OF GROUT SEAL (to nearest foot)

from 0 (TOP) ft. to 37 (BOTTOM) ft.

(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL CO CONCRETE PL PLASTIC OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL	2"	39

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole insert appropriate code below

ST STEEL BR BRASS BRONZE HO OPEN HOLE PL PLASTIC OT OTHER

C 2

DEPTH (nearest ft.) — EACH SCREEN

1 PL	39	49
2		
3		

SLOT SIZE 1 020 2 ____ 3 ____

DIAMETER OF SCREEN 2" (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 — from 37 to 49

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

TELESCOPE CASING ____ LOG INDICATOR ____ OTHER DATA ____

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) ____

PUMPING RATE (gal. per min.) ____

METHOD USED TO MEASURE PUMPING RATE ____

WATER LEVEL (distance from land surface)

BEFORE PUMPING 39 ft.

WHEN PUMPING ____ ft.

TYPE OF PUMP USED (for test)

A air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

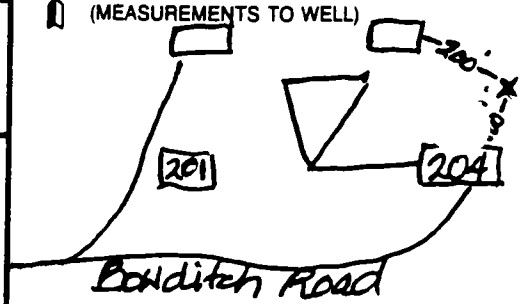
PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height)

+ above / − below LAND SURFACE (nearest foot)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



C 1 5865 (MDE USE ONLY)
1 2 3 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER 9710 219003

ST/CO USE ONLY
DATE Received MM DD YY
8 13

DATE WELL COMPLETED MM DD YY 10 28 97 (15 20)

Depth of Well 22 24 26 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" MO-94-0457 (28 29 30 31 32 33 34 35 36)

OWNER U.S. Navy N.S.W.C.
last name first name
STREET OR RFD 10,901 New Hampshire Ave TOWN Silver Spring
SUBDIVISION NSWC SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	1	
Fine-Med. Brown Sand	1	6	
Fine Light Brown Sand	6	20	
Light Green Sand	20	25	✓
Rock	25	28	✓

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes Y no N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO. MWD 516
DRILLERS SIGNATURE
(MATCH SIGNATURE ON APPLICATION)
LIC. NO. MWD 517
SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y no N (44)
TYPE OF GROUTING MATERIAL (Circle one)
CEMENT CM (45 46) BENTONITE CLAY BC (45 46)
NO. OF BAGS 3 NO. OF POUNDS 283
GALLONS OF WATER 16
DEPTH OF GROUT SEAL (to nearest foot)
from 0 ft. to 10 ft.
48 TOP 52 54 BOTTOM 58
(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below
ST STEEL CO CONCRETE PL PLASTIC OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL (60 61)	2" (63 64)	14 (66 70)

EACH CASING — OTHER CASING (if used)

	diameter in	depth (feet) from	to

SCREEN RECORD
screen type or open hole insert appropriate code below
ST STEEL BR BRASS BRONZE HO OPEN HOLE PL PLASTIC OT OTHER

C 2 — DEPTH (nearest ft.)

EACH SCREEN			
1	PL (8 9)	14 (11 15)	24 (17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

SLOT SIZE 1 .020 2 ____ 3 ____
DIAMETER OF SCREEN 2" (NEAREST INCH) (56 60)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 from 10 to 24 (68)

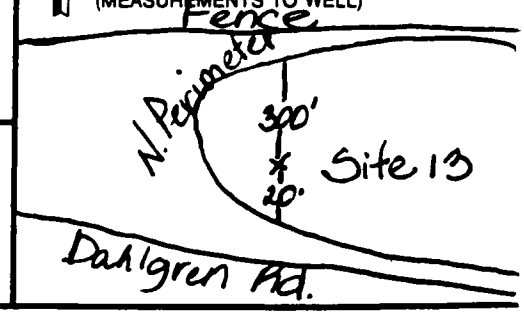
MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)
T (E.R.O.S.) W Q
70 TELESCOPE CASING 72 LOG INDICATOR 74 75 76 OTHER DATA

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) (8 9)
PUMPING RATE (gal. per min.) (11 15)
METHOD USED TO MEASURE PUMPING RATE
WATER LEVEL (distance from land surface)
BEFORE PUMPING (17 20) ft.
WHEN PUMPING (22 25) ft.
TYPE OF PUMP USED (for test)
A air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible (27)

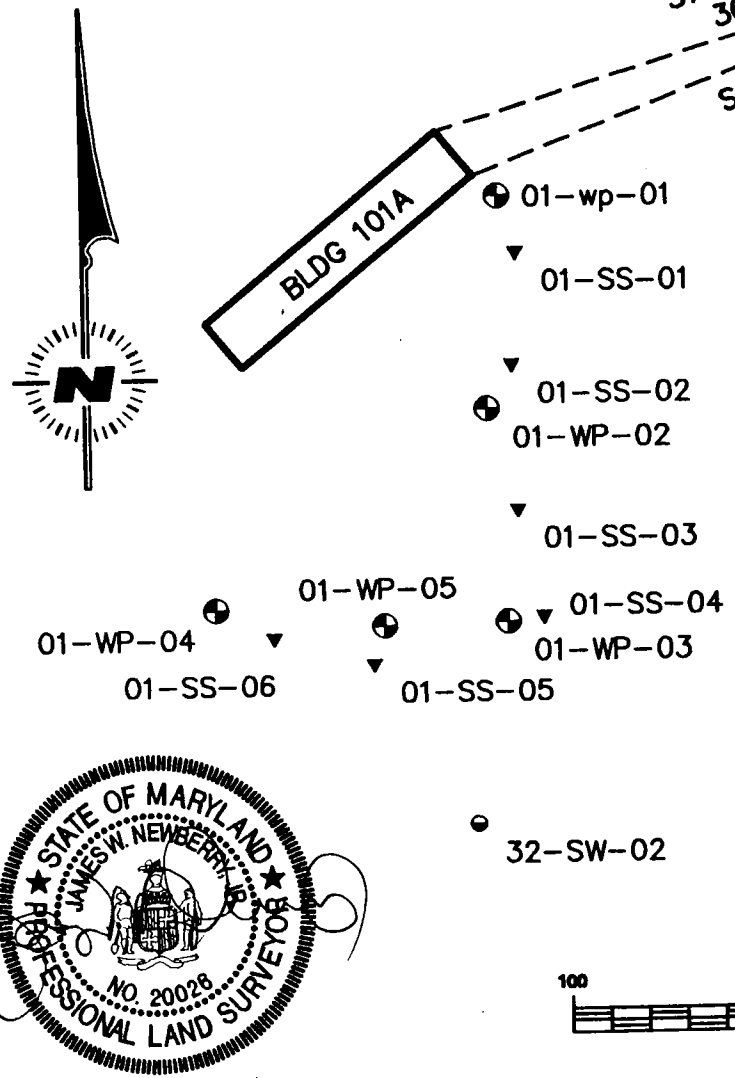
PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.
TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)
CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)
PUMP HORSE POWER (37 41)
PUMP COLUMN LENGTH (nearest ft.) (43 47)
CASING HEIGHT (circle appropriate box and enter casing height)
+ above (49) / − below (49)
LAND SURFACE 3 (nearest foot) (50 51)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



APPENDIX B

SURVEY DATA



LEGEND:
SOIL SAMPLE ▼
SUFACE WATER ◒
HYDROPUNCH ◕

SOIL SAMPLES

NORTHING	EASTING	ELEV.	DESC.
499963.281	1317944.300	333.02	01-SS-01
499904.965	1317941.561	332.46	01-SS-02
499829.130	1317943.517	329.57	01-SS-03
499773.297	1317956.266	326.94	01-SS-04
499749.063	1317867.782	330.83	01-SS-05
499763.193	1317815.808	331.56	01-SS-06

TEMPORARY WELLS

NORTHING	EASTING	ELEV.	DESC.
499992.595	1317935.222	335.51	01-wp-01
499881.857	1317928.203	334.78	01-WP-02
499770.307	1317937.594	333.14	01-WP-03
499778.091	1317785.812	336.64	01-WP-04
499768.856	1317873.310	335.53	01-WP-05

SURFACE WATER SAMPLES

NORTHING	EASTING	ELEV.	DESC.
499684.748	1318070.630	303.59	32-SW-01
499664.885	1317920.242	307.27	32-SW-02

STATE OF MARYLAND
JAMES W. NEWBERRY JR.
NO. 20028
PROFESSIONAL LAND SURVEYOR

2-9-98

100 0 100 200 300

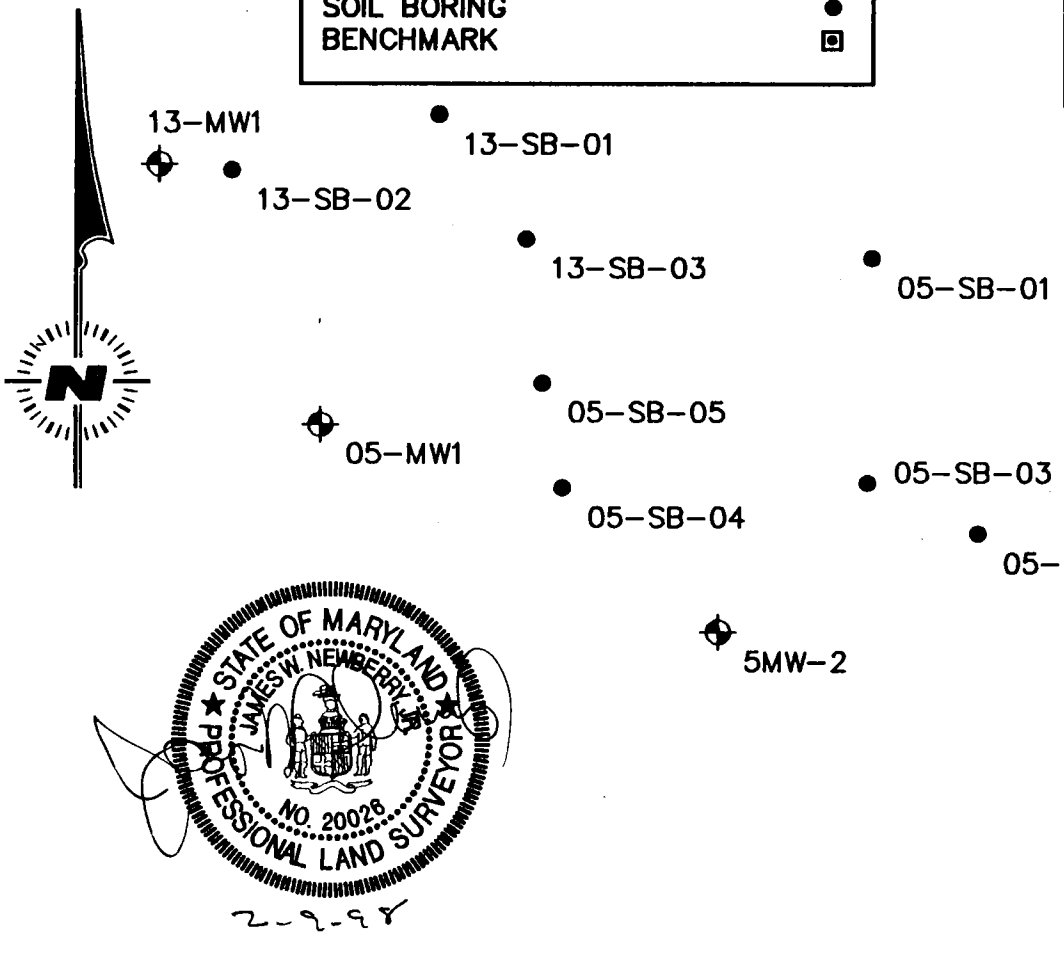
GRAPHIC SCALE IN FEET
1 inch = 100 ft.

MONITORING WELL & SAMPLE LOCATIONS
FOR
TETRA TECH NUS, INC.
OF
SITE 1 – PARKING LOT LANDFILL
SITE 32 – NPDES OUTFALL #0009
NSWC WHITE OAK
SILVER SPRING, MARYLAND

PROJECT NO.: 2775-017-N1
DATE: FEBRUARY 4, 1998
DWG NO.: NC001-98-A
DWG BY: J.S.M.
CHK BY: J.W.N.
CADD DWG NO.: N421.DWG
SCALE: 1"=100'

Donaldson Garrett & Associates, Inc.
MACON • CHARLOTTE
500 E. MOREHEAD STREET
CHARLOTTE, NC 28202
(704) 374-1955 FAX:(704)374-1955
http://www.dg-a.com

LEGEND:
MONITORING WELL
SOIL BORING
BENCHMARK



MONITORING WELLS

NORTHING	EASTING	GRD	TOC	DESC.
500642.426	1323788.140	261.26	264.38	05-MW1
500534.275	1323994.511	268.57	271.05	05-MW2
500778.862	1323704.171	259.66	262.56	13-MW1

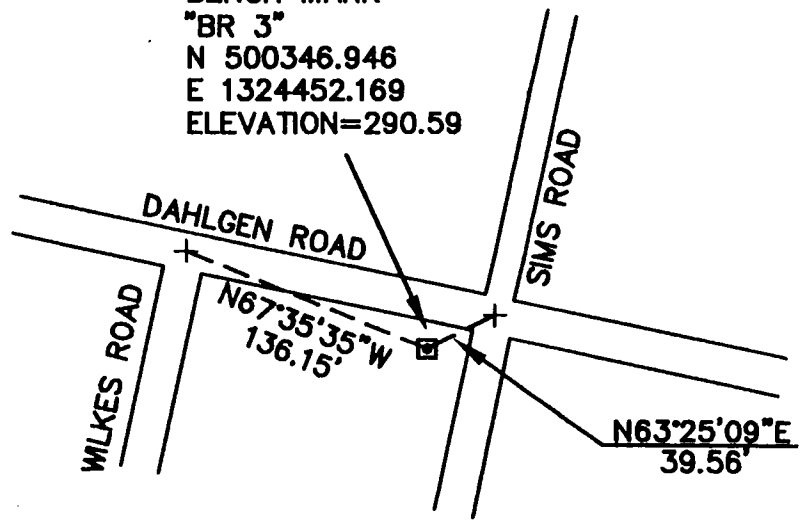
SOIL BORINGS

NORTHING	EASTING	ELEV.	DESC.
500729.842	1324074.105	277.37	05-SB-01
500585.776	1324129.203	273.48	05-SB-02
500611.910	1324071.789	272.63	05-SB-03
500609.270	1323913.443	265.53	05-SB-04
500664.358	1323903.064	264.21	05-SB-05
500804.515	1323849.415	258.92	13-SB-01
500775.818	1323741.861	260.97	13-SB-02
500739.801	1323894.793	266.63	13-SB-03

STATE OF MARYLAND
JAMES W. NEWBERRY
NO. 20028
PROFESSIONAL LAND SURVEYOR

2-9-98

BENCH MARK
"BR 3"
N 500346.946
E 1324452.169
ELEVATION=290.59



100 0 100 200 300

GRAPHIC SCALE IN FEET
1 inch = 100 ft.

MONITORING WELL & SAMPLE LOCATIONS
FOR
TETRA TECH NUS, INC.
OF
SITE 5 – OPEN BURN AREAS
SITE 13 – OIL SUDGE DISPOSAL AREA
NSWC WHITE OAK
SILVER SPRING, MARYLAND

PROJECT NO.: 2775-017-N1
DATE: FEBRUARY 4, 1998
DWG NO.: NC004-98-A
DWG BY: J.S.M.
CHK BY: J.W.N.
CADD DWG NO.: N425.DWG
SCALE: 1" = 100'

Donaldson Garrett & Associates, Inc.
MACON • CHARLOTTE
500 E. MOREHEAD STREET
CHARLOTTE, NC 28
(704) 374-1955 FAX: (704 1955
http://www.dg-a.c

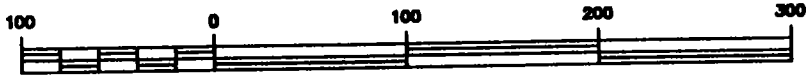
SOIL BORINGS

NORTHING	EASTING	ELEV.	DESC.
501238.857	1325351.995	285.88	06-SB-01
501327.078	1325343.534	290.16	06-SB-02
501406.837	1325240.161	296.58	06-SB-03

06-SB-03

06-SB-02

06-SB-01



GRAPHIC SCALE IN FEET
1 inch = 100 ft.

STATE OF MARYLAND
JAMES W. NEWBERRY
NO. 20026
PROFESSIONAL LAND SURVEYOR

2-9-98

MONITORING WELL & SAMPLE LOCATIONS
FOR
TETRA TECH NUS, INC.
OF
SITE 6 – SLUDGE COMPOSTING AREA
NSWC WHITE OAK
SILVER SPRING, MARYLAND

PROJECT NO.: 2775-017-N1
DATE: FEBRUARY 4, 1998
DWG NO.: NC003-98-A
DWG BY: J.S.M.
CHK BY: J.W.N.
CADD DWG NO.: N426.DWG
SCALE: 1"=100'

Donaldson
Garrett
&
Associates, Inc.
MACON • CHARLOTTE
500 E. MOREHEAD STREET
CHARLOTTE, NC 28202
(704) 374-1955 FAX: (704)374-1955
http://www.dg-a.com

LEGEND:
WELL POINT
SOIL BORING
BENCHMARK

12WP-01

12SB-04 12SB-02

12SB-01 12SB-03 12WP-02

12WP-03

STATE OF MARYLAND
JAMES W. NEWBERRY JR.
NO. 20026
PROFESSIONAL LAND SURVEYOR

2-9-98

100 0 100 200 300

GRAPHIC SCALE IN FEET
1 inch = 100 ft.

SOIL BORINGS

NORTHING	EASTING	ELEV.	DESC.
498849.446	1321119.462	274.86	12-SB-01
498920.032	1321460.434	258.62	12-SB-02
498853.386	1321160.489	270.95	12-SB-03
498914.420	1321451.679	260.54	12-SB-04

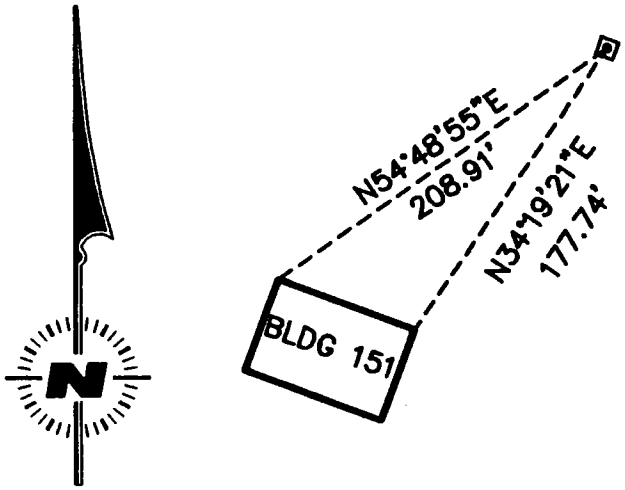
WELL POINTS

NORTHING	EASTING	ELEV.	DESC.
498982.071	1321149.079	271.08	12-WP-01
498872.632	1321233.267	274.67	12-WP-02
498853.036	1321467.317	269.25	12-WP-03

MONITORING WELL & SAMPLE LOCATIONS
FOR
TETRA TECH NUS, INC.
OF
SITE 12 – INDUSTRIAL WASTEWATER DISPOSAL
NSWC WHITE OAK
ER SPRING, MARYLAND

PROJECT NO.: 2775-017-N1
DATE: FEBRUARY 4, 1998
DWG NO.: NC006-98-A
DWG BY: J.S.M.
CHK BY: J.W.N.
CADD DWG NO.: N4212.DWG
SCALE: 1" 0'

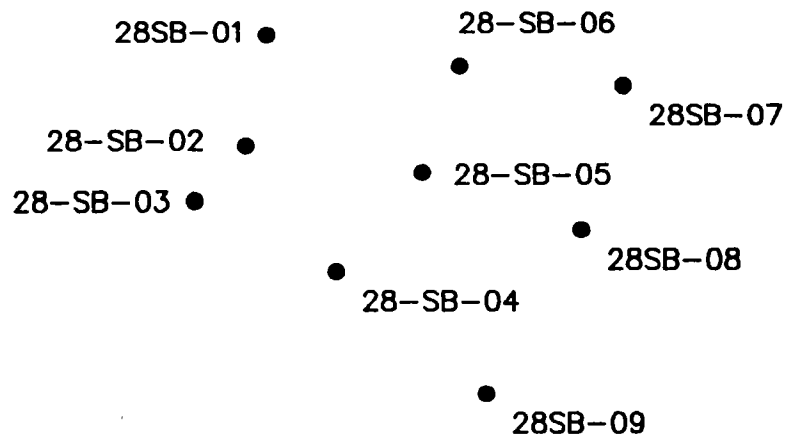
Donaldson Garrett & Associates, Inc.
MACON • CHARLOTTE
500 E. MOREHEAD STREET
CHARLOTTE, NC 28
(704) 374-1955 FAX: (704) 1955
http://www.dg-a.com

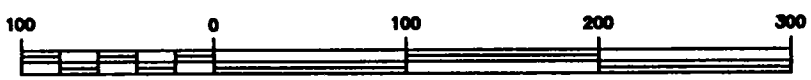


BENCH MARK
"BR 2"
N 498614.703
E 1318819.783
ELEVATION=353.60

SOIL BORINGS

NORTHING	EASTING	ELEV.	DESC.
498361.757	1318915.014	348.51	28-SB-01
498303.571	1318903.925	346.29	28-SB-02
498274.761	1318877.316	345.59	28-SB-03
498238.294	1318950.918	343.61	28-SB-04
498289.671	1318995.618	345.07	28-SB-05
498345.569	1319015.142	347.17	28-SB-06
498335.123	1319100.099	346.20	28-SB-07
498259.794	1319078.276	343.92	28-SB-08
498175.096	1319028.622	334.40	28-SB-09





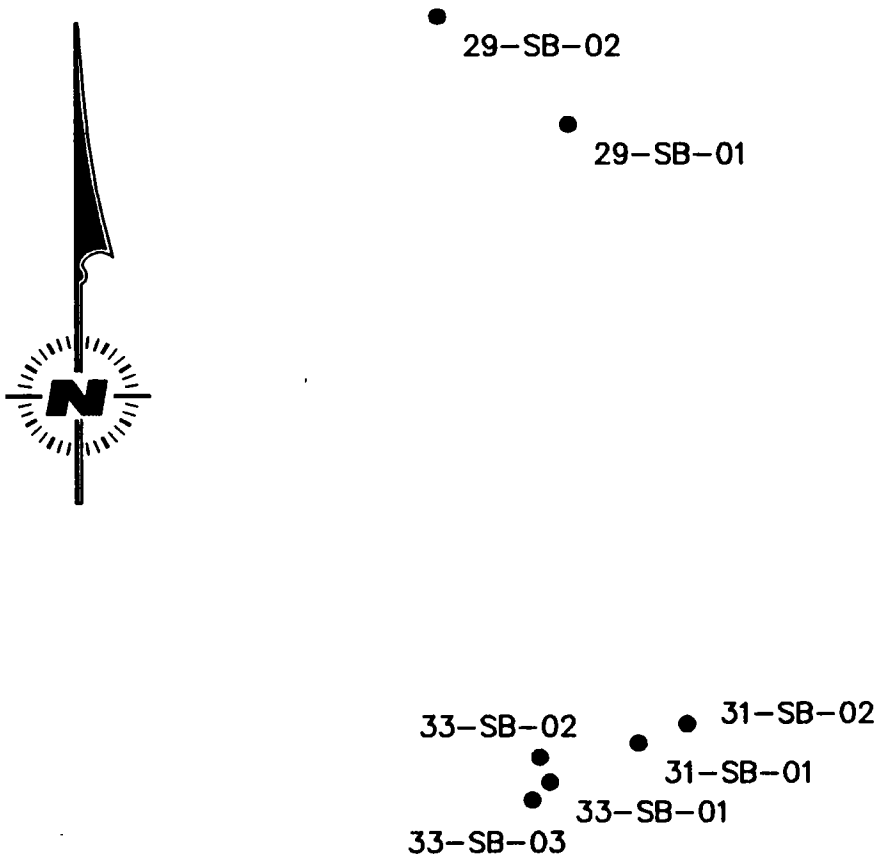
GRAPHIC SCALE IN FEET
1 inch = 100 ft.

2-9-98

MONITORING WELL & SAMPLE LOCATIONS
FOR
TETRA TECH NUS, INC.
OF
SITE 28 – SCRAPYARD
NSWC WHITE OAK
SILVER SPRING, MARYLAND

PROJECT NO.: 2775-017-N1
DATE: FEBRUARY 4, 1998
DWG NO.: NC005-98-A
DWG BY: J.S.M.
CHK BY: J.W.N.
CADD DWG NO.: N4228.DWG
SCALE: 1"=100'

Donaldson
Garrett
&
Associates, Inc.
MACON • CHARLOTTE
500 E. MOREHEAD STREET
CHARLOTTE, NC 28202
(704) 374-1955 FAX:(704)374-1955
http://www.dg-a.com



SOIL BORINGS

NORTHING	EASTING	ELEV.	DESC.
499763.872	1317153.116	354.50	29-SB-01
499820.112	1317085.333	354.15	29-SB-02
499441.977	1317188.401	359.94	31-SB-01
499452.043	1317213.627	355.93	31-SB-02
499421.552	1317142.478	361.31	33-SB-01
499434.591	1317137.237	360.09	33-SB-02
499412.348	1317133.390	357.88	33-SB-03

100 0 100 200 300

GRAPHIC SCALE IN FEET
1 inch = 100 ft.

STATE OF MARYLAND
JAMES W. NEWBERRY, JR.
NO. 20028
PROFESSIONAL LAND SURVEYOR

2958-

MONITORING WELL & SAMPLE LOCATIONS
FOR
TETRA TECH NUS, INC.
OF
SITE 29 – PLASTICS LABORATORY WASTE AREA
SITE 31 – OUTSIDE DRUM STORAGE AREA
SITE 33 – PLATING SHOP SUMP
NSWC WHITE OAK
SILVER SPRING, MARYLAND

PROJECT NO.: 2775-017-N1
DATE: FEBRUARY 4, 1998
DWG NO.: NC002-98-A
DWG BY: J.S.M.
CHK BY: J.W.N.
CADD DWG NO.: N4229.DWG
SCALE: 1" 0'

Donaldson
Garrett
&
Associates, Inc.
MACON • CHARLOTTE
500 E. MOREHEAD STREET
CHARLOTTE, NC 282
(704) 374-1955 FAX: (704) 955
http://www.dg-a.co

APPENDIX C

BROWN & ROOT ENVIRONMENTAL
GEOPHYSICAL SURVEY RESULTS MEMO
SITES 1 AND 6
OCTOBER 14, 1997

Memo

BROWN & ROOT ENVIRONMENTAL

To: Scott Nesbit

From: Tom Jordan

CC: File

Date: October 14, 1997

Re: Geophysical Survey Results
NSWC White Oak
Silver Spring, Maryland

1.0 Introduction

On July 22 through 24, 1997 Brown & Root Environmental conducted a terrain conductivity survey at three sites within the NSWC White Oak facility. The sites investigated were Site 1, Parking Lot landfill and Site 6, the Sludge Composting Area. The purpose and objectives of the terrain conductivity investigation at each site are as follows:

Site 1: Map and delineate the lateral limits of buried wastes associated with a former landfill located at this site. The geophysical data collected at this site will be used for future planning.

Site 6: Map the lateral limits of residual sludges and wastes associated with a former sludge composting area at this site. The geophysical data collected at this site will be used to assist in the planning of future sampling activities.

2.0 Methods

2.1 Geophysical Reference Grid

A geophysical reference grid was established at each site location to assist in the accurate location of data. The reference grids were established such that data could be easily collected at 10-foot line spacings and at station spacings of two to three feet. The grid was established using a transit and tape measure. PVC pin flags were used to denote station and line locations. PVC rather than metal pin flags were used to minimize the potential for signal interference. Pin flags were labeled using a local grid system that was tied to existing site features. The local grid system was established in feet and relative to north and east directions. The local grid system was later translated to the site coordinate system using the software OASIS MONTAGE.

The local grid system at Site 1 was tied to the following features:

Local grid coordinate 0North (N), 0 East (E) was 100.5 feet north of the northwest corner of Building 112 and 91-feet southwest of the corner of the Crane Storage Building. Local grid coordinate 190N, 200E was 22-feet from the southeast corner of the Crane Storage Building and 148-feet east-southeast of the Southwest corner of the Crane Storage Building.

The local grid system at Site 6 was tied to the following features:

The grid was established aligned parallel to an east trending power corridor. Station 0N, 130E was located 74-feet west of the Perimeter Road chain link fence. Station 200N, 100E was located 86-feet west of the Perimeter Road chain link fence.

Data were not collected in areas of dense brush during this investigation. The areas of dense brush that were encountered were either avoided or data were collected around them.

2.2 Instrumentation

A Geonics EM31 Terrain conductivity meter was used to collect data at each of the three sites. The EM31 is a frequency domain electromagnetic (FDEM) device that utilizes the principle of electromagnetic (EM) induction to measure the apparent conductivity and magnetic susceptibility of materials and their pore fluids. The instrument is equipped with a very low frequency (VLF) radio transmitter and receiver coils. These coils are separated by a distance of 12-feet and are located at the ends of a ridged, non-metallic pole.

Terrain conductivity and magnetic susceptibility data were collected simultaneously through the use of a digital data logger. Terrain conductivity data are a measure of the apparent conductivity of the subsurface materials and their pore fluids. Terrain conductivity data are collected in units of millimhos per meter (mmhos/m). Terrain conductivity data are used to map subtle soil moisture content changes often associated with disturbed or contaminated soils, fill materials, shallow soil stratigraphic changes, the presence of shallow metallic objects and metallic pipes/utilities. Magnetic susceptibility data were also collected during this investigation. Magnetic susceptibility data are collected in dimensionless units of parts per thousand (ppt). Magnetic susceptibility data are used to further identify and confirm the presence of buried metallic objects, pipes and utilities.

Data were collected with the instrument held at waist height, in the vertical dipole mode and oriented parallel to the direction of travel. The depth of investigation using this configuration is approximately 15-feet. Data were collected at each site at 10-foot line spacings and at 1-second intervals as the operator maintained a constant pace. This resulted in a station spacing of approximately 2.5-feet.

A base station was established in an open field located southwest of Site 1. This open field was believed to contain re-worked soils but also believed to have minimal anthropogenic features present. Values of terrain conductivity for this location were approximately 7 mmhos/m during heavy rains and 5 mmhos/m during periods of no rain. These values of terrain conductivity typically correspond to clean sands. The magnetic susceptibility values at the base station were approximately 0 ppt suggesting that no buried metals were present.

The base station was staked using PVC pin flags and occupied before the start and after the completion of data collection at each site. The EM31 was allowed to warm-up prior to occupying the base station and the power was kept on throughout each days data collection. Allowing the instrument to warm up and keeping the instruments power on helps to minimize the potential for data drift which can result in offsets in the data set. The instrument was calibrated following procedures outlined in the manufacturers operations manual. Minimal instrument drift was noted during the two days of data collection. The instrument drift that was observed was believed to be due to the presence of alternating light and heavy rain storms. All data were collected with a time stamp such that drift corrections could be made if found to be significant.

A digital data logger was used to collect the spatial and temporal data at each site. Surface features observed during data collection were recorded onto the data logger as text and later used to assist in data interpretation. All data were downloaded to a portable laptop computer at the completion of each days data collection. These data were reviewed for completeness and preliminary processing was performed on-site to insure that additional data were not required to meet the projects objectives. Data were then archived onto floppy disks to minimize the risk of damage or data loss.

3.0 Results

The results of the EM31 survey were color contoured and presented in Figures 1 through 3. The raw EM31 data were initially processed using the manufacturers software DAT31. Initial data processing involved the editing of position data and conversion into an ASCII format. The data were then imported into the OASIS MONTAGE processing software where it was transformed into site coordinates. The data were then gridded using the bi-directional algorithm BIGRID. Data were gridded using a cubic spline and a grid cell size of 1.25 feet. A base map was then imported and overlain onto the data set. The gridded data sets were color contoured and plotted to B-size paper.

3.1 Site 1, Parking Lot Landfill (Figures 1 and 2)

The color contoured terrain conductivity data for Site 1 are presented in Figure 1 and the magnetic susceptibility data are presented in Figure 2. Approximately 934 data points were collected at Site 1. The terrain conductivity data minimum value was -75.5 and the maximum was 124.7 mmhos/m. The data mean was 29.4 mmhos/m. The terrain conductivity data were color contoured using an equal

area color zone to maximize the presentation of the full dynamic range of the data set. The data were color contoured such that areas representing clean fill are presented in shades of light blue. The values believed to represent background conditions for this site are approximately 13 mmhos/m. These values correspond to a coarse textured soil that has a silt component. Areas believed to represent contaminated soils and fill are presented in shades of green, yellow, orange and red. These areas include values of terrain conductivity of approximately 22 to 50 mmhos/m. Areas of signal interference due to the presence of buildings or surface anthropogenic features are presented in shades of purple and deep blue and are located near the boundaries of the grid. Areas of buried metal are presented in deep blue.

The magnetic susceptibility data had a minimum value of -31.5 and a maximum of 44.9 ppt. The mean of the data were 6.03 ppt. These data were contoured using a linear color zone due to the small dynamic range of the data set.

The following anomalous responses were observed at Site 1 during this investigation (Figures 1 and 2):

(A) Anomaly "A" was observed as a broad above background terrain conductivity anomaly with localized anomalously low values present. This anomaly is represented as yellow-orange-red color contours in the Figure 1. The terrain conductivity data suggests that contaminated soil or fill is present at this location.

(B) Anomaly "B" was observed as a broad below background terrain conductivity and magnetic susceptibility response and is presented in shades of blue (Figures 1 and 2). These anomalies are located within the suspected contaminated fill defined in Anomaly "A" above. Anomaly "B" probably represents the presence of metallic objects.

(C,D) Anomalies "C" and "D" were observed as a below background response in the terrain conductivity data and are represented in shades of blue (Figure 1). The magnetic susceptibility responses were at background levels and are shown in shades of green across these areas (Figure 2). The background magnetic susceptibility response suggests that buried metals are not present at this location. These anomalies may represent the presence of clean sandy fill, or other resistive materials such as concrete debris.

(E, F) Anomalies "E" and "F" are due to the presence of buried metallic pipes or utilities with signal noise from the presence of a metallic guard rail denoted as Anomaly "D". A hydrant was noted in the vicinity of these anomalies suggesting that one anomaly may represent a buried water line.

(G, H) Anomalies "G", "H" and "I" are due to signal interference from surface and subsurface features. Anomaly "G" is due to the presence of buried pipes and proximity of the survey to buildings with metal frames and skin; Anomaly "H" is due to the presence of a chain link fence surrounding a power transformer; and, Anomaly "I" is due to the metal skin on the Crane Storage Building.

3.2 Site 6, Sludge Composting Area (Figure 4)

The color contoured terrain conductivity data for Site 6 are presented in Figure 3. Approximately 1,250 data points were collected at Site 6 during this investigation. Magnetic susceptibility data were not presented at this location due to signal interference from the overhead power lines in the southern area of the site.

The terrain conductivity data minimum value was -4.4 and the maximum was 7.7 mmhos/m. The data mean was 2.5 mmhos/m. The terrain conductivity data were color contoured using an equal area color zone to maximize the presentation of the full dynamic range of the data set. The data were color contoured such that areas representing clean soils or fill are presented in shades of green or light blue. The values believed to represent background conditions for this site are approximately 1 to 2 mmhos/m. These values typically correspond to a dry, homogeneous, coarse textured soil such as a sand or gravel. Areas believed to represent residual sludge or fill are presented in shades of orange, red and purple. These areas include values of terrain conductivity of approximately 3 to 8 mmhos/m. Areas of buried metal or surface metallic debris are presented in shades of deep blue. These values were observed to be less than 0. Values observed that are less than 0 represent an "off scale" instrument reading and indicate the presence of highly conductive materials.

The following anomalous responses were observed at Site 6 during this investigation (Figures 3):

(A) Anomaly "A" was observed as an above background anomalous response and is presented in shades of red and purple. The western boundary of this anomaly was not defined due to the presence of thick brush. This anomaly is believed to represent the presence of residual sludge from the sludge composting operations conducted at this location. Brown & Root Environmental anticipated that the residual sludge, if present, would produce an above background response due to elevated electrolytes commonly found in sludge, the disturbed soil from the composting operations and presence of finer texture sludge materials relative to the natural soils of this area.

(B) Anomaly "B" is a collection of above and below background anomalies in the southern area of Site 6. These anomalies probably represent fill, disturbed soils and the presence of surface metallic debris. During the survey metallic debris, such as an electrical motor, were observed on the surface in this area. The presence of the overhead power lines may have also contributed to the anomalous responses observed at this location.

4.0 Conclusions and Recommendations

4.1 Site 1, Parking Lot Landfill

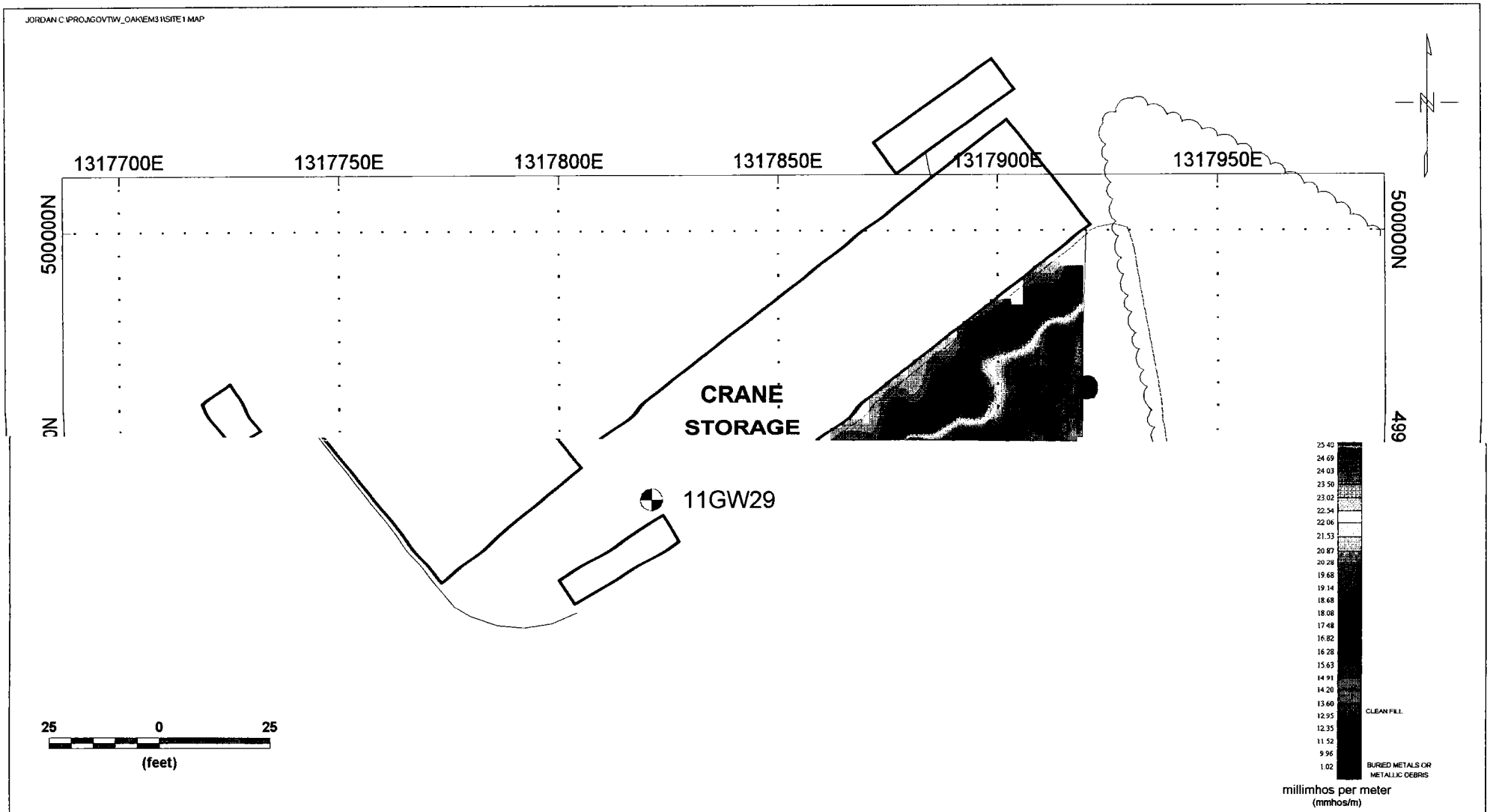
Anomalies "A" and "B" are believed to be due to the presence of the landfill. Anomaly "A" is believed to represent the approximate lateral extent of the landfill. Anomaly "B" is believed to represent the

presence of buried metallic objects or containers within the landfill. The southern extent of Anomaly "A" was not defined due to the presence of brush and a ravine. Further EM31 surveying to define the southern extent of this anomaly is not recommended due to the presence of the brush and ravine. Based upon the data trend of the anomaly and the existing topography, the southern landfill limit most likely exists between sample location 01-SS-05 and the southern extent of the EM31 grid.

4.2 Site 6, Sludge Composting Area

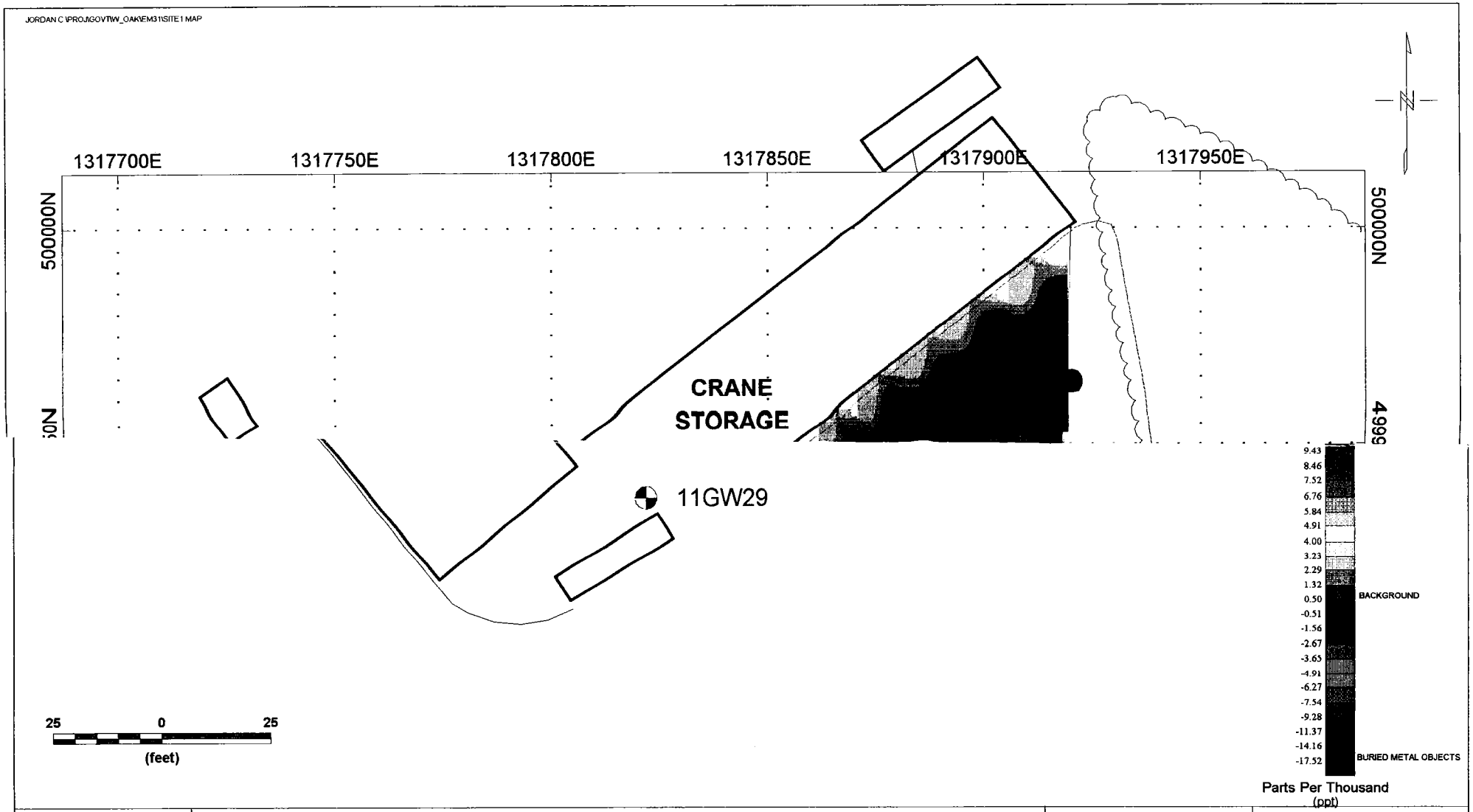
The EM31 survey indicated that a broad above background anomaly (Anomaly "A") was present in the northwestern area of this site. Anomaly "A" is in the region historically thought to represent the sludge composting area. Sludge typically contains elevated electrolytes that would result in a net increase of the bulk electrical conductivity of the soil. It is believed that Anomaly "A" represents the eastern extent of the sludge composting area. The presence of brush prohibited the definition of the western extent of this anomaly. It is recommended that results of this EM31 survey be used to help focus future soil sampling activity at this site. The definition of the western extent of the sledge composting area could be performed with an EM31 if brush were cleared prior to mobilization of staff and equipment.

JORDAN C:\PROJ\GOVT\W_OAK\EM31\SITE1.MAP



DRAWN BY T. Jordan	DATE 9/4/97	Brown & Root Environmental	CONTRACT NO.
CHECKED BY	DATE	EM31 TERRAIN CONDUCTIVITY RESULTS SITE 1, PARKING LOT LANDFILL NSWC WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY S. NESBIT — DATE
COST/SCHED-AREA			APPROVED BY — DATE
SCALE AS NOTED			DRAWING NO. 1 — REV. 0

JORDAN C:\PROJ\GOV\TW_OAK\EM31\SITE1.MAP

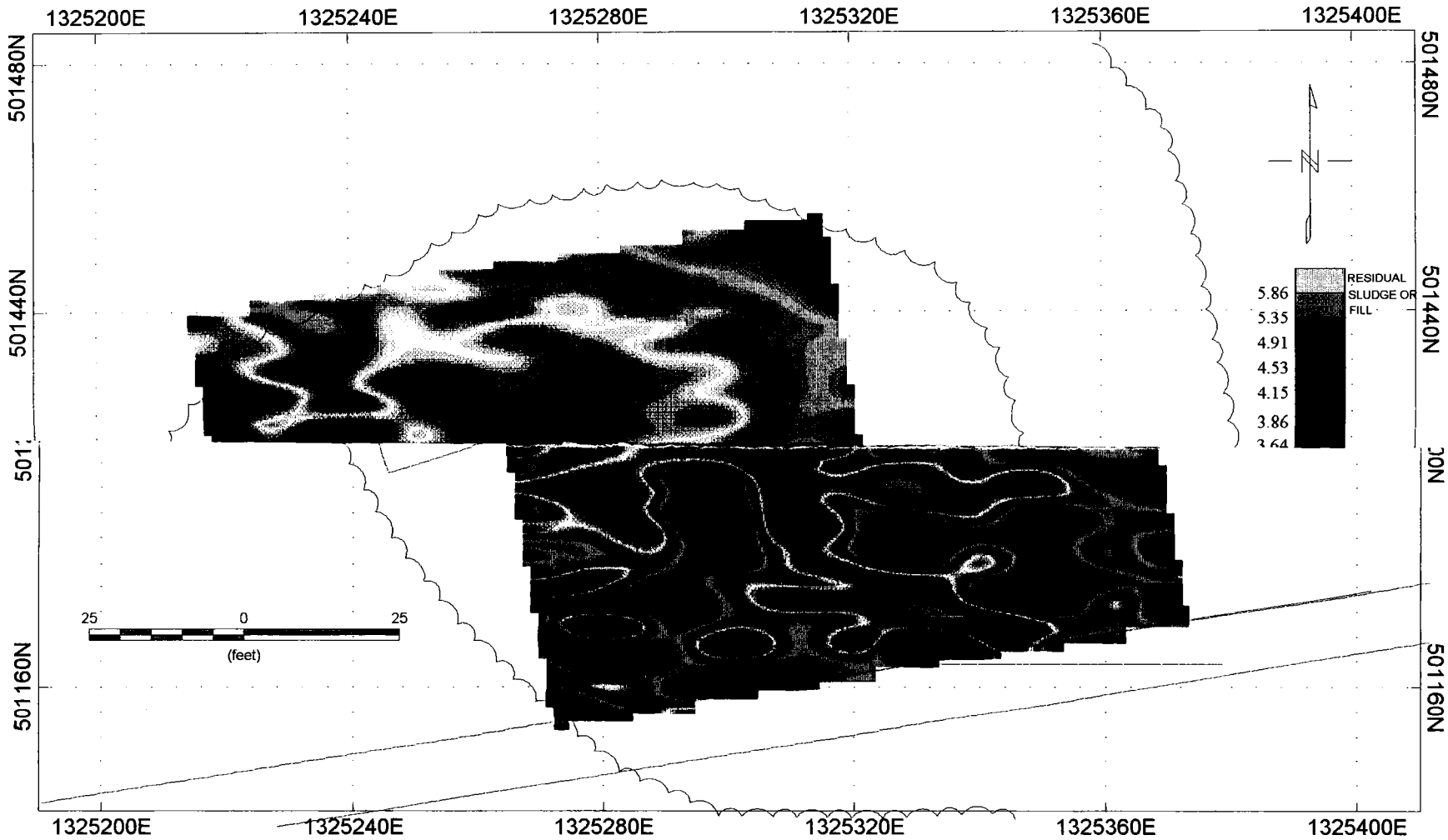


DRAWN BY T. Jordan	DATE 9/4/97	Brown & Root Environmental	CONTRACT NO.
CHECKED BY	DATE	EM31 MAGNETIC SUSCEPTIBILITY RESULTS SITE 1, PARKING LOT LANDFILL NSWC WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY S. NESBIT — DATE
COST/SCHED-AREA			APPROVED BY — DATE
SCALE AS NOTED			DRAWING NO. 2 — REV. 0

APPENDIX D

BROWN & ROOT ENVIRONMENTAL
SAMPLE LOG SHEETS

JORDAN: C:\PROJ\GOVTW_OAK\EM31\S6.MAP



DRAWN BY T. JORDAN — DATE 9/4/97	Brown & Root Environmental	CONTRACT NO.	OWNER NO.
CHECKED BY — DATE	EM31 TERRAIN CONDUCTIVITY RESULTS SITE 6, SLUDGE COMPOSTING AREA NSWC WHITE OAK SILVER SPRING, MARYLAND	APPROVED BY S. NESBIT — DATE	
COST/SCHED-AREA		APPROVED BY — DATE	
SCALE AS NOTED		DRAWING NO. 3	REV. 0

APPENDIX D.1

SITE 1 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name NSWC, ~~Dahlgren~~ WO

Project Site Number CTO 273

NUS Source No. _____

Source Location 01-SS-01

Sample Method:	SS SPOON
Depth Sampled:	0-6"
Sample Date & Time:	10/6/97 @ 1450
Sampled By:	DS
Signatures:	David J. Schnackenberg

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [X] Low Concentration
- [ ] High Concentration
- [X] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Black organic Top Soil

Analysis:

VOC - 4 oz

SVOC, PEST/PCB - 8 oz

TAL METALS, CN - 8 oz

Description of Sample Location

DUPLICATE

01-SS-100

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name NSWC, ~~Dahlgren~~ WO

Project Site Number CTO 273

NUS Source No. _____

Source Location 01-SS-02

Sample Method:	SS SPOON
Depth Sampled:	0-6"
Sample Date & Time:	10/6/97 @ 1455
Sampled By:	D.S.
Signature:	David J. Schnachaly

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Black organic Top Soil

Analysis:

VOC - 4oz
SVOC, PEST/PCB - 8oz
TAL METALS, CN - 8oz

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name NSWC, ~~Dahlgren~~ WC

Project Site Number CTO 273

NUS Source No. _____

Source Location 01-SS-03

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: SS SPOON			
Depth Sampled: 0-6"			
Sample Date & Time: 10/6/97 @ 1450			
Sampled By: L. HUDGINS			
Signature:			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Black organic Top Soil

Analysis:

VOC - 4OZ
SVOC, PEST/PCB - 8OZ
TAL METALS, CN - 8OZ

Description of Sample Location

MS/MSD QUANTITY TAKEN

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name NSWC, ~~Dahlgren~~ WO

Project Site Number CTO 273

NUS Source No.

Source Location 01-SS-04

Sample Method: SS SPOON	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 10/6/97 @ 1505			
Sampled By: L. HUDGINS			
Signature:			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Black Organic Top Soil

Analysis:

VOC - 4OZ
SVOC, PEST/PCB - 8OZ
TAL METALS, CN - 8OZ

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By DJS

Project Site Name WO NSWC, Dahlgren

Project Site Number CTO273

NUS Source No.

Source Location 01-55-05

Sample Method: Stainless Steel Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 10-6-97 1515			
Sampled By: Larry Hudgins			
Signature:			
Type of Sample			
[X] Low Concentration			
[ ] High Concentration			
[X] Grab			
[ ] Composite			
[ ] Grab - Composite			

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.) Brown Sandy Clay, some gravel

Analysis: VOCs, SVOCs, Pest/PCBs, TAL metals, CN

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By DJS

Project Site Name ~~NSWC, Dahlgren~~ WO

Project Site Number CTO 273

NUS Source No.

Source Location 01-SS-06

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: Stainless Steel Spoon			
Depth Sampled: 0 - 6"			
Sample Date & Time: 10-6-97 1510			
Sampled By: DJS			
Signatures: David Schmachenberg			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Brown Sandy clay, some gravel

Analysis: VOCs, SVOCs, Pest/PCBs, TAL metals, CN

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ WO

Project Site Number 7427

NUS Source No. _____

Source Location 01-55-01 (Recollect)

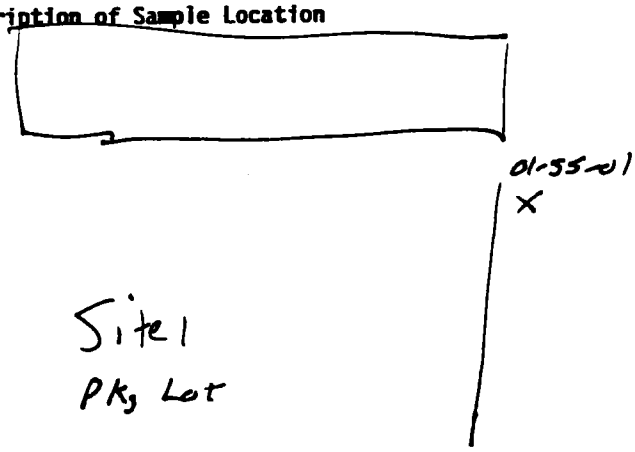
Sample Method: SS Spoon + Bowl	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 11/3/97 1425			
Sampled By: J. Dustin Ferris / John Merli			
Signatures: [signature]			
Type of Sample [x] Low Concentration [ ] High Concentration [x] Grab [ ] Composite [ ] Grab - Composite			

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.) Black organic soil

Analysis:

Explosives

Description of Sample Location



Recollecting SS's at Site 1 for explosives

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name NSWC, ~~Dahlgren~~ WO

Project Site Number 7427

NUS Source No. _____

Source Location 01-55-02 (Recollect)

Sample Method:	Spoon & Bowl
Depth Sampled:	0-6"
Sample Date & Time:	11/3/97 1430
Sampled By:	J. Dustin Ferris / John Marchi
Signatures:	[signature]

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

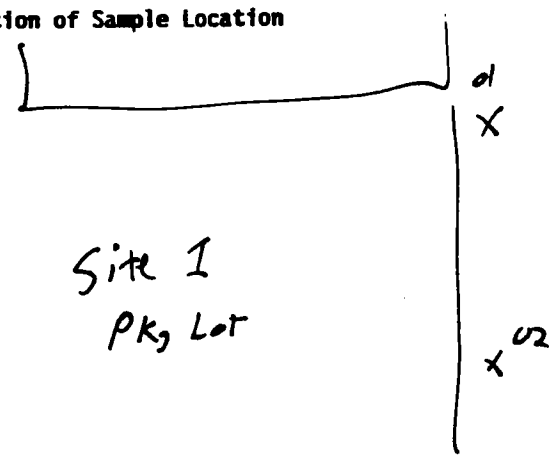
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Black organic Soil

Analysis:

Explosives

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~2446~~ 7427

By _____

Project Site Name WO ~~NSWC, Dahlgren~~

Project Site Number 7427

NUS Source No. _____

Source Location 01-SS-03 (Recollect)

Sample Method: SS Spoon & Bowl

Depth Sampled: 0-6"

Sample Date & Time: 10/3/97 14:35

Sampled By: J. Dustin Ferris / John Merli

Signatures:

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Composite Sample Data

Sample	Time	Color / Description

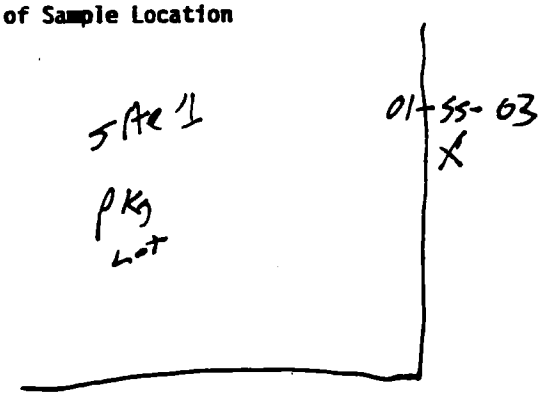
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Black Organic Soil

Analysis:

Explosives

Description of Sample Location



Recollect SS at Site 1 for Explosives

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name ~~NSWC, Dahlgren~~ WO

Project Site Number 7127

NUS Source No. _____

Source Location 01-SS-04 (Recollect)

Sample Method:	SP & Bowl
Depth Sampled:	0-6"
Sample Date & Time:	11/3/97 1440
Sampled By:	J. Dustin Farris / John Merhi
Signatures:	[signature]

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

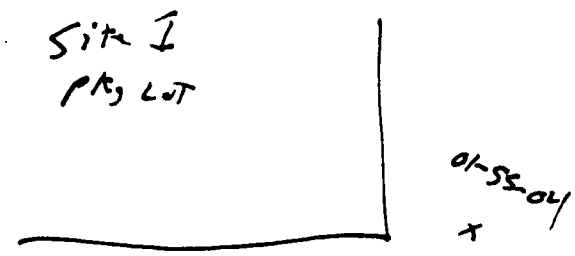
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Black organic Soil

Analysis:

Explosives

Description of Sample Location



Recollect for Expl. only

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # ~~2046/2046~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ WO

Project Site Number 7427

NUS Source No. _____

Source Location 01-SS-05 (Recollect)

Sample Method: SS sp. & Bowl	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 11/3/97 1445			
Sampled By: J. Dustin Ferris / John Merhi			
Signatures:			
Type of Sample			

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.) Black Organic Soil

Analysis: Explosives

Description of Sample Location

Site 1
pkg Lot

X
01-SS-05

Recollect SS's for Expl. ONLY

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
A8#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

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SAMPLE LOG SHEET

Page 1 of 1

- ☐ Spring
- ☒ Lake
- ☐ Stream
- ☐ Other _____

Surface Soil

Case # _____

By _____

Project Site Name NSWC-Wo CTO 273 Project Site Number 7427

NUS Source No. _____ Source Location 01-SS-06 (Recollect)

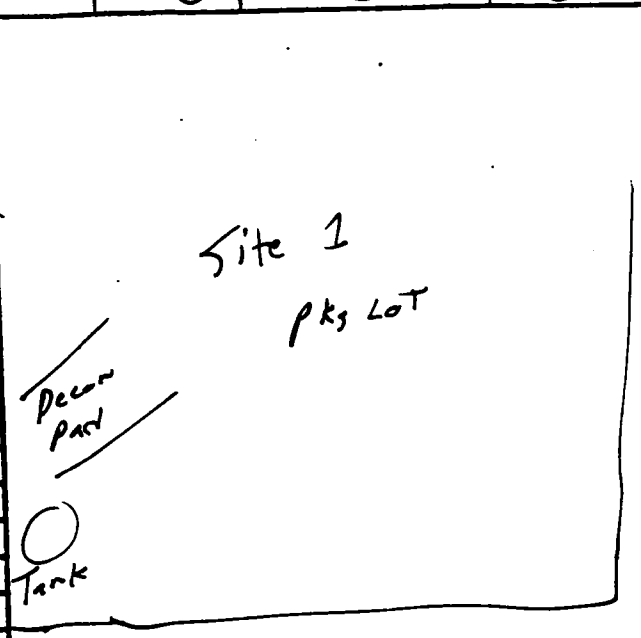
Sample Method: SSSP + Bowl	Sample Data			
	pH	S.C.	Temp. (°C)	Color & Turbidity
Depth Sampled: 0-6"				
Sample Date & Time: 11/3/97 1450				
Sampled By: J. Dustin Ferris / Jerry Marsh				
Signatures:				

NA

Type of Sample

- ☐ Low Concentration
- ☐ High Concentration
- ☒ Grab
- ☐ Composite
- ☐ Grab - Composite

Analysis:	Preservative
Explosives	



Recollect SS's for Expl. only

	Organic	Inorganic
Traffic Report #		
Tag #		
AB #		
Date Shipped		
Time Shipped		
Lab		
Volume		

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301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By JMM/JDF 11/13/97

Project Site Name CTO 273 Project Site Number 7427

NUS Source No. _____ Source Location 01-WP-01

Total Well Depth: 24.75	Purge Data					
Well Casing Size & Depth: 2"	~~Volume~~ TIME	pH	S.C.	Temp. (°C)	Color & Turbidity	D.O
	INIT 1440	6.00	0.406	14.0	999 / DK BROWN	7.9
Static Water Level: 15.6	1516	6.17 ~~6.24~~	0.380	16.9	764 / BROWN	4.3
One Casing Volume: 1.46 gal	1533	6.18	0.376	17.3	999 / BROWN	4.1
Start Purge (hrs.): 1430 11/13/97						
End Purge (hrs.): 1533						
Total Purge Time (min.): 63						
Total Amount Purged (gal.): 5 gal						
Purge Method: ~~Disp~~ Low Flow 2" Grundfos						
Sample Method: " " "						
Sample Date & Time: 11/13/97 1535	Sample Data					
	pH	S.C.	Temp. (°C)	Color & Turbidity		
Sampled By: J. Dustin Ferris / John Mehi						

Signature(s): / JMM

Type of Sample

☐ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Observations/Notes:

24.75
15.6
9.15

9.15
.16
5490
9150
1.4640

Analysis:				Organic	Inorganic
VOA's	2				
SVOCS	2	Date Shipped			
PEST/PCB	2	Time Shipped			
METALS	1	Lab			
CN	1				
		Volume			

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☑ Development Data
☐ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name NSWC-WO CTD 273 Project Site Number _____

NUS Source No. 01-WP-01 Source Location Site 1 (1) Development

		Purge Data					
Total Well Depth:							
Well Casing Size & Depth:		~~Volume~~ Time	pH	S.C.	Temp. (°C)	Color & Turbidity	D.C
Static Water Level:	17.15	1320	5.22	0.344	20.5	Light Brown / 224	4.5
One Casing Volume:	24.65	1330	5.66	0.338	20.7	BROWN / 807	6.4
Start Purge (hrs.):	1300	1342	5.77	0.334	20.4	BROWN / 999	4.4
End Purge (hrs.):	1410	1354	5.85	0.346	19.9	TAN / 563	3.9
Total Purge Time (min.):	70 (1:10)	1405	5.90	0.354	19.9	TAN / 640	4.3
Total Amount Purged (gal.):	~8.0						
Purge Method:	Grundfos pump						
Sample Method:							

Sample Date & Time:	Sample Data			
	pH	S.C.	Temp. (°C)	Color & Turbidity
Sampled By:				

Signature(s): N/A

Type of Sample
- ☐ Low Concentration
- ☐ High Concentration
- ☐ Grab
- ☐ Composite
- ☐ Grab - Composite

Observations/Notes:

24.65
-17.15
7.50

7.5
.16
450
75
1.200

1.2
× 5
6.0

* Changed Grundfos pumps. 1st pump clogged

Analysis:		Organic	Inorganic
	Date Shipped		
	Time Shipped		
	Lab		
	Volume		

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☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name 7427

Project Site Number CTO 273

NUS Source No. _____

Source Location 01- ~~GW~~ WP-02

Total Well Depth: 26'	Purge Data					
Well Casing Size & Depth: 2"	Volume	pH	S.C.	Temp. (°C)	Color & Turbidity	D.[illegible]
	Init	6	0.647	13.0	Clear / MOD-High	4.9[illegible]
Static Water Level: 18.65	0915	7.18	0.689	16.0	clear / 3	4.6
One Casing Volume: 1.0	0945	6.84	0.810	16.9	clear / 33	3.4
Start Purge (hrs.): 0900	1004	6.96	0.826	16.5	BRN [illegible]	3.4
End Purge (hrs.): 1020	1025	6.94	0.870	15.6	TAN/436	4.3
Total Purge Time (min.): 80						
Total Amount Purged (gal.): 3						
Purge Method: Grundfos						
Sample Method: "						

Sample Date & Time: 11/11/97 1035	Sample Data			
	pH	S.C.	Temp. (°C)	Color & Turbidity
Sampled By: JDF / John Merh				

Signature(s): [signature]

Observations/Notes:

Type of Sample

☐ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
LC VOCs			
LC SVOCs	Date Shipped		
LC Pest/PCB	Time Shipped		
EXPlosives	Lab		
Metals tcv			
	Volume		

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☐ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name: WHITE OAK

Project Site Number: _____

NUS Source No.: 01-WP-02 (Development)

Source Location: _____

Total Well Depth:	24.95	Purge Data					
Well Casing Size & Depth:		~~Volume~~ TIME	pH	S.C.	Temp. (°C)	Color & Turbidity	D.C
		Init 1425	6.31	0.883	17.6	BROWN / 999	
Static Water Level:	18.65	1435	6.08	0.696	18.0	BROWN / 999	3.0
One Casing Volume:	1.0	1442	6.13	0.818	17.7	LT. BROWN / 422	4.3
Start Purge (hrs.):	1410	1456	6.03	0.698	17.5	BROWN / 999	4.9
End Purge (hrs.):	1505	1504	5.98	0.652	18.0	BROWN / 999	4.3
Total Purge Time (min.):	55						
Total Amount Purged (gal.):	~9 gal						
Purge Method:	Grundfos pump						
Sample Method:							

Sample Date & Time:	Sample Data			
	pH	S.C.	Temp. (°C)	Color & Turbidity
Sampled By:				
Signature(s): N/A				

Type of Sample

- ☐ Low Concentration
- ☐ High Concentration
- ☐ Grab
- ☐ Composite
- ☐ Grab - Composite

Observations/Notes:

24.95
-18.65
6.30

6.3
1.6
378
63
1008

Analysis:		Organic	Inorganic
	Date Shipped		
	Time Shipped		
	Lab		
	Volume		

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☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name NSWC-WO

Project Site Number CTO 263

NUS Source No. _____

Source Location 01-~~GW~~ WP 03

Total Well Depth:	24.73
Well Casing Size & Depth:	2"
Static Water Level:	17.98
One Casing Volume:	1.1 gal
Start Purge (hrs.):	0930
End Purge (hrs.):	1010
Total Purge Time (min.):	40 min
Total Amount Purged (gal.):	3.3 gal
Purge Method:	Grundfos
Sample Method:	"
Sample Date & Time:	11/14/97 1015
Sampled By:	J.D. Ferris
Signature(s):	[signature]

Purge Data

Volume	pH	S.C.	Temp. (°C)	Color & Turbidity	D.O.
Init	6.68	0.536	12.5	Lt. Brown / mod	3.04
1	6.78	0.555	15.5	Clear / mod	4.02
2	6.30	0.570	16.2	Cloudy / mod	2.17
3	6.47	0.567	16.9	Clear / low 20	3.12

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity

Observations/Notes:

Type of Sample

☐ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
LC VOCs			
LC SVOCs	Date Shipped		
LC Pest/PCB	Time Shipped		
Metals + Cn	Lab		
Explosives			
	Volume		

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☑ Well Development
☐ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name: WHITE OAK

Project Site Number: CTO 273

NUS Source No.: 01-WP-03 (Development)

Source Location: SITE 1

Total Well Depth:	24.90
Well Casing Size & Depth:	
Static Water Level:	19.05
One Casing Volume:	0.9 gal
Start Purge (hrs.):	1525
End Purge (hrs.):	1615
Total Purge Time (min.):	50
Total Amount Purged (gal.):	8 gal
Purge Method:	Grundfos pump
Sample Method:	
Sample Date & Time:	
Sampled By:	
Signature(s):	W/A

Purge Data

~~Volume~~ TIME	pH	S.C.	Temp. (°C)	Color & Turbidity	
					D.O
1535	6.10	0.648	15.9	BROWN / 999	
1540	5.99	0.648	16.5	Lt BROWN / 613	
1544	6.10	0.640	16.2	Almost clear / 256	1.9
1552	6.10	0.627	16.1	Clear / -10	
1612	6.18	0.627	16.4	TAN / 999	2.0

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity

Observations/Notes:

24.90
-19.05
5.85

5.85
.16
3510
585
.9360

Type of Sample

☐ Low Concentration
☐ High Concentration
☐ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
	Date Shipped		
	Time Shipped		
	Lab		
	Volume		

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☐ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By JMM 11/14/97

Project Site Name WHITE OAK

Project Site Number _____

NUS Source No. SITE 1

Source Location OI-WP-04

Total Well Depth: 24.85	Purge Data					
Well Casing Size & Depth: 2"	Volume	pH	S.C.	Temp. (•C)	Color & Turbidity	D.O
	INIT	5.24	0.404	14.8	CLEAR / 0	8.8
Static Water Level: 18.10	1415	5.23	0.405	17.6	CLEAR / 5	3.4
One Casing Volume: 1.1 gal	1440	5.17	0.402	16.7	CLEAR / 15	3.5
Start Purge (hrs.): 1315	1455	5.14	0.400	20.0	CLEAR / 0	3.3
End Purge (hrs.): 1500						
Total Purge Time (min.): 1:45						
Total Amount Purged (gal.): 5						
Purge Method: Grundfos						
Sample Method: "						
Sample Date & Time: 11/14/97 1510	Sample Data					
	pH	S.C.	Temp. (•C)	Color & Turbidity		
Sampled By: JDF / John Merhi						
Signature(s):	Observations/Notes:					

Type of Sample

☐ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
LC VOCs			
LC SVOCs	Date Shipped		
LC Pest/PCBs	Time Shipped		
Explosives	Lab		
Metals + CN			
	Volume		

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301-258-6000

☐ Monitoring Well Data
☐ Domestic Well Data
☒ Other Development

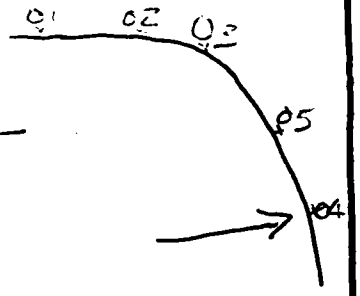
Case # _____

By _____

Project Site Name NSWC - WHITE OAK Project Site Number _____

NUS Source No. 01-WP-04 (Development) Source Location _____

Total Well Depth:	24.85	Purge Data					
Well Casing Size & Depth:	2"	~~Volume~~ TIME	pH	S.C.	Temp. (°C)	Color & Turbidity	D.O
		INIT/1005	5.15	0.397	14.8	474 / Tan (light)	
Static Water Level:	19.20	1010	5.30	0.379	14.9	-10 / Clear	5.1
One Casing Volume:	~~19.20~~ 0.9 gal	1025	5.30	0.381	15.9	-10 / Clear	4.9
Start Purge (hrs.):	1000	1033	5.26	0.378	16.3	17 / Mostly Clear	4.2
End Purge (hrs.):	1045	1041	5.22	0.380	17.5	-10 / CLEAR	4.2
Total Purge Time (min.):	45						
Total Amount Purged (gal.):	5.5 gal						
Purge Method:	Grundfos pump						
Sample Method:							
Sample Date & Time:		Sample Data					
		pH	S.C.	Temp. (°C)	Color & Turbidity		
Sampled By:							
Signature(s):	N/A	Observations/Notes: 24.95 − 19.20 = 5.65; 5.65 × .16 = 3390 + 565 = .9040					



Type of Sample

☐ Low Concentration
☐ High Concentration
☐ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
	Date Shipped		
	Time Shipped		
	Lab		
	Volume		

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301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name NSWC - WO

Project Site Number 7427

NUS Source No. _____

Source Location ~~BG SW 09~~ 01-~~GW~~ WP-05

Total Well Depth:	24.85
Well Casing Size & Depth:	2"
Static Water Level:	19.70
One Casing Volume:	1 gal
Start Purge (hrs.):	1430
End Purge (hrs.):	1510
Total Purge Time (min.):	40 min
Total Amount Purged (gal.):	4 gal
Purge Method:	Grundfos 2"
Sample Method:	"
Sample Date & Time:	11/14/97 1530
Sampled By:	J. Dustin Ferris
Signature(s):	[signature]

Purge Data

Volume	pH	S.C.	Temp. (°C)	Color & Turbidity	
Initial	4.91	0.395	15.1	Brown / High	0.0
1	4.90	0.405	16.6	Clear / mod	3.00
2	4.92	0.396	16.4	Clear / low	2.95
3	4.93	0.394	16.7	" "	2.85
					2.7

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity
#3 above			

Observations/Notes:

Type of Sample

☐ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis: LC VOCs
LC SVOCs
LC Pest / PCB
Explosives
Metals TCN

	Organic	Inorganic
Date Shipped		
Time Shipped		
Lab		
Volume		

NUS CORPORATION
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GAITHERSBURG MARYLAND 20878-1399
301-258-6000

☐ Monitoring Well Data
☐ Domestic Well Data
☑ Other Development

Case # _____

By _____

Project Site Name: NSWC-WHITE OAK

Project Site Number: _____

NUS Source No.: 01-WP-05 (Development)

Source Location: _____

Total Well Depth:	24.75
Well Casing Size & Depth:	2" INIT
Static Water Level:	19.50
One Casing Volume:	0.84 gal
Start Purge (hrs.):	0920
End Purge (hrs.):	0945
Total Purge Time (min.):	25
Total Amount Purged (gal.):	7.5 gal
Purge Method:	Grundfos pump
Sample Method:	
Sample Date & Time:	
Sampled By:	
Signature(s):	NA

Purge Data

~~Volume~~ TIME	pH	S.C.	Temp. (°C)	Color & Turbidity	D.O
0924	5.12	0.401	13.9	999 - DK BROWN	3.07
0933	5.09	0.390	14.5	581 - TAN	3.0
0938	5.06	0.389	15.4	207 - Light Tan	3.1
0942	5.13	0.394	15.6	10 - Clear	3.9
0945	5.13	0.387	15.3	3 - Clear	3.7

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity

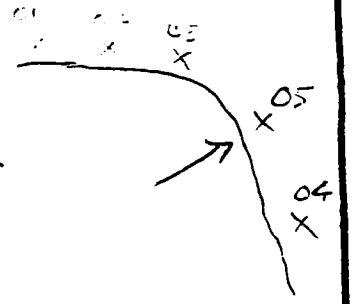
Type of Sample

☐ Low Concentration
☐ High Concentration
☐ Grab
☐ Composite
☐ Grab - Composite

Observations/Notes:

24.75
- 19.50
5.25

5.25
.16
3150
525
840.00



Analysis:		Organic	Inorganic
	Date Shipped		
	Time Shipped		
	Lab		
	Volume		

APPENDIX D.2

SITE 5 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name ~~NSWC, Dahlgren~~ WO

Project Site Number CTO 273

NUS Source No. _____

Source Location 05-SS-01

Sample Method: SS SPOON	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 10/6/97 @ 1345			
Sampled By: L. HUDGINS			
Signature:			
Type of Sample [X] Low Concentration [ ] High Concentration [X] Grab [ ] Composite [ ] Grab - Composite			

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:	Description of Sample Location
VOC	4 oz
SVOC, PCB/PEST, EXP	8 oz
TAL METALS, CN	8 oz

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By C. Cotte

Project Site Name NSWC, ~~Dahlgren~~ W.O.

Project Site Number _____

NUS Source No. _____

Source Location 5-SB-01(7)

Sample Method:	HSA - Split Spoon
Depth Sampled:	6-8'
Sample Date & Time:	10/21/97
Sampled By:	C. Cotte L. HODGINS
Signatures:	[signature]

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

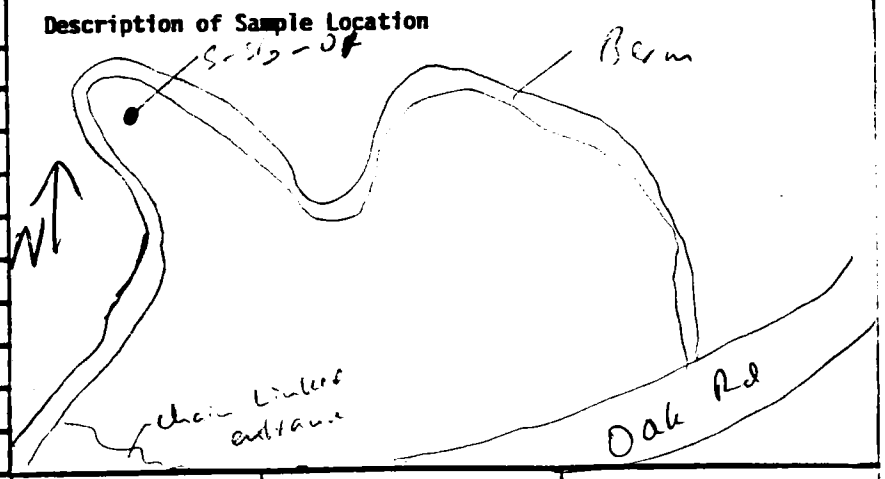
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- Metals
- CN
- VOC
- SVOC
- Pest/PCB
- Explosives

Description of Sample Location



Collected duplicate 5-SB-100

Sample Tan-Lt Brown Silty Sand w/ rust "Stains" ≈ 4" Clay Lens - Sandstone frag and quartz cobbles.

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. Elotte

Project Site Name NSWC, Dahlgren

Project Site Number

NUS Source No.

Source Location 05 - SB - 01 (24)

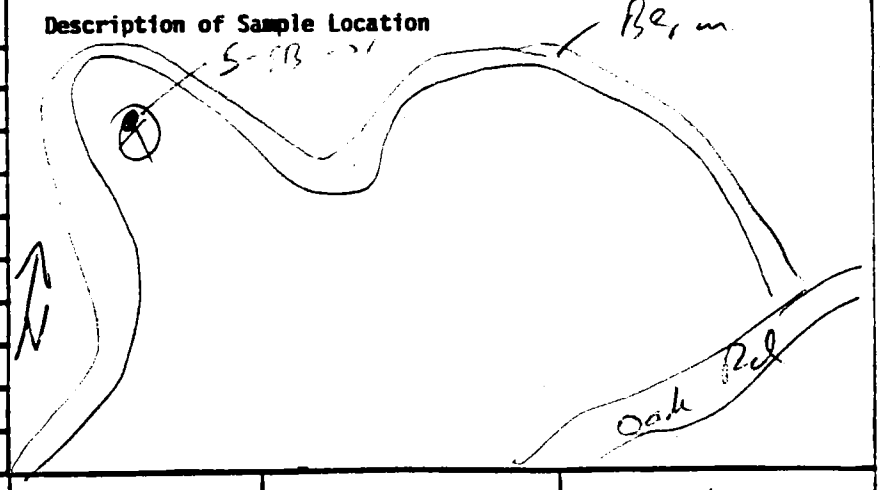
Sample Method: HSA - Split Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 24'			
Sample Date & Time: 10/21/97 1410			
Sampled By: Larry Hudgins			
Signatures:			
Type of Sample			
[X] Low Concentration			
[ ] High Concentration			
[X] Grab			
[ ] Composite			
[ ] Grab - Composite			

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- Metal
- CN
- VOC
- SVOC
- Pest/PCB
- Explosives

Description of Sample Location



Spoon refusal @ 20'

No PID reading.

Duplicate Taken

05-SB-100

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

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Case # 2046/1446

By _____

Project Site Name NSWC, ~~Dahlgren~~ WD

Project Site Number CTO 273

NUS Source No. _____

Source Location 05-SS-02

Sample Method: SS SPOON	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 10/6/97 @ 1340			
Sampled By: D.S.			
Signatures: Diane Schnackenberg			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	DK BRN

Analysis:	
VOC	4 oz
SVOC, PEST/PCB, EXD	8 oz
TAL METALS, CN	8 oz

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA-	NA-
AB #	NA	NA-
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

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Case # 2046/1446

By L. HUDGINS

Project Site Name WHITE OAK ~~NSWC, Dahlgren~~

Project Site Number

NUS Source No.

Source Location 05-SB-02(10)

Sample Method: 3" SPLIT SPOON

Depth Sampled: 8-10'

Sample Date & Time: 10/22/97 @ 0850

Sampled By: L. HUDGINS

Signatures:

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Composite Sample Data

Sample	Time	Color / Description

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BRN	GRAVELLY SAND

Analysis:

VOC - 4 oz

SVOC, TEST/PCB, EXP - 8 oz

METALS, CN - 8 oz

Description of Sample Location

SAMPLE DUPLICATED # 05-SB-101

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

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Case # 2046/1446

By L. HUDGINS

Project Site Name WHITE OAK ~~NSWC, Dahlgren~~

Project Site Number

NUS Source No.

Source Location 05-SB-02(22)

Sample Method: 3" SPLIT SPOON

Depth Sampled: 20-22'

Sample Date & Time: 10/22/97 @ 1000

Sampled By: L. HUDGINS

Signatures:

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis:

VOC - 4oz

SVOC, PEST/PCB, EXP - 8oz

METALS, CN - 8oz

Composite Sample Data

Sample	Time	Color / Description

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BRN	GRAVELLY SAND W/ QUARTZ COBBLES

Description of Sample Location

SPOON REFUSAL @ 22'

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

W.O.

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Case # 2046/1446

By LH

Project Site Name NSWC, Dahlgren

Project Site Number CTO 273

NUS Source No. _____

Source Location 05-SS-03

Sample Method:	SS SPOON
Depth Sampled:	0-6"
Sample Date & Time:	10/6/97 @ 1330
Sampled By:	DS
Signatures:	David Schnachely

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [X] Low Concentration
- [ ] High Concentration
- [X] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	DARK BRN

Analysis:	Description of Sample Location
VOC	402
SVOC, PEST/PCB, EXP	802
TAL METALS, CN	802

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

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Case # 2046/1446

By L. HUDGINS

Project Site Name WHITE OAK

Project Site Number

NUS Source No.

Source Location 05-SB-03(12)

Sample Method: 3" SPLIT SPOON

Depth Sampled: 10-12'

Sample Date & Time: 10/22/97 @ 1300

Sampled By: L. HUDGINS

Signatures:

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis:

VOC - 2 4oz

SVOC, PEST/PCB, EXP - 8oz

METALS, CN - 8oz

Composite Sample Data		
Sample	Time	Color / Description

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BRN	GRAVELLY SAND W/ QUARTZ COP'S

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

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Case # 2046/1446

By L. HUDGINS

Project Site Name WHITE OAK ~~NSWC, Dahlgren~~

Project Site Number _____

NUS Source No. _____

Source Location 05-SB-03(25)

Sample Method: 3" SPLIT SPOON

Depth Sampled: 23-25'

Sample Date & Time: 10/22/97 @ 1445

Sampled By: L. HUDGINS

Signatures: [signature]

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Composite Sample Data

Sample	Time	Color / Description

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BRN	GRAVELLY SAND W/COBBLES

Analysis:

VOC - 4OZ

SVOC, PEST/PCB, EXP - 8OZ

METALS, CN - 8OZ

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

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Case # 2046/1446

By LH

N.O.

Project Site Name NSWC, Dahlgren

Project Site Number CTO273

NUS Source No.

Source Location 05-SS-04

Sample Method: SS SPOON	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 10/6/97 @ 1320			
Sampled By: LHUDGINS			
Signatures:			

Type of Sample

- [X] Low Concentration
- [ ] High Concentration
- [X] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BRN	

Analysis:	Description of Sample Location
VOC	- 4oz
SVOC, PEST/PCB, EXP	- 8oz
TAL METALS, CN	- 8oz

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. E. Lotte

Project Site Name NSWC, ~~Dahlgren~~ [illegible]

Project Site Number _____

NUS Source No. _____

Source Location 05-SB-04 (6)

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: HSA - [illegible] Spoon			
Depth Sampled: 6'			
Sample Date & Time: 10/2/95 9:15			
Sampled By: L. Hodgins			
Signatures: [illegible]			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

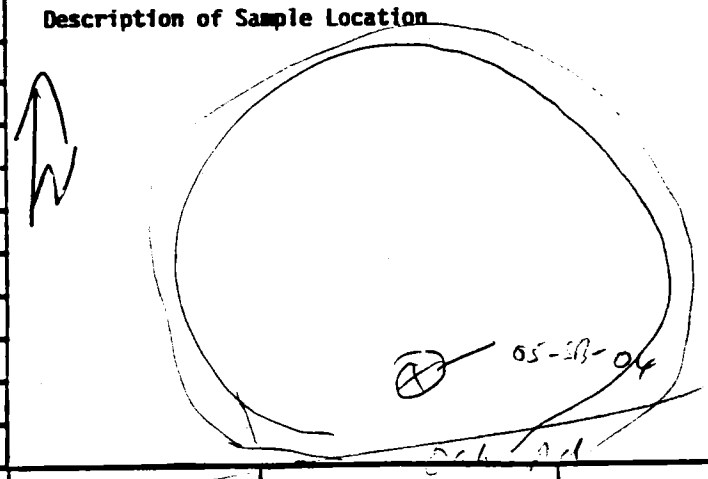
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- VOC
- CVOC
- Metals
- CN
- Vesicles
- Explosives

Description of Sample Location



Sample Dk grey to black [illegible] S[illegible]. Sample contained [illegible] decomposed leaves, roots, broken glass, paper, rubber, metal, burnt wood, ash. Had an organic odor but no PID reading

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. Elotte

Project Site Name NSWC, ~~Dahlgren~~ N.C.

Project Site Number

NUS Source No.

Source Location 5-SB-04 (20)

Sample Method: HSA - Split Spoon	
Depth Sampled: 20'	
Sample Date & Time: 10/21/97 10:25	
Sampled By: G. Elotte L. Hodgins	
Signatures: [signature]	

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

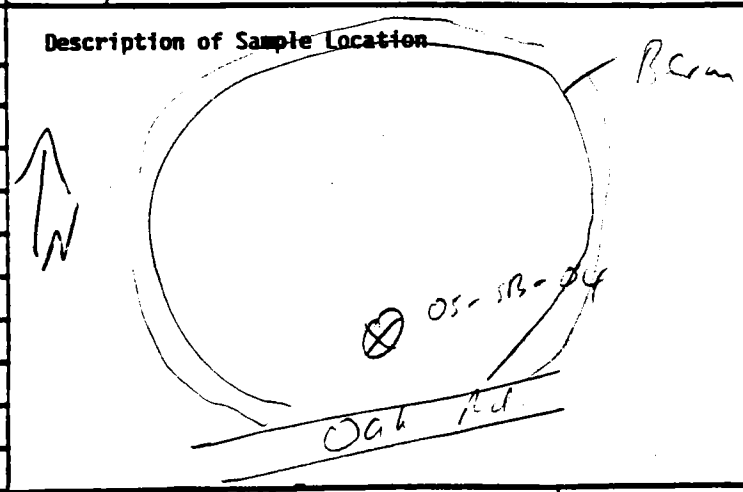
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- Metals
- CN
- VOC
- SVOC
- Pest / PCB
- Explosives

Description of Sample Location



Collected MS/MSD

- Whitish-grey wet silty clay. Sample had appearance like saprolite without mica flakes. No PID reading

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name NSWC, Dahlgren W.D.

Project Site Number CTO 273

NUS Source No. _____

Source Location 05-SS-05

Sample Method: SS BTOON	
Depth Sampled: 0-6"	
Sample Date & Time: 10/6/97 @ 1330	
Sampled By: L. HUDGINS	
Signature: [signature]	

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	DK BRN

Analysis:

VOC	4oz
SVOC, PEST/PCB, EXP	8oz
TAL METALS, CN	8oz

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped	10/10/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. EFOTTE

Project Site Name NSWC, ~~Dahlgren~~ W.O.

Project Site Number _____

NUS Source No. _____

Source Location 05-SB-05 (2)

Sample Method: HSA - Split Spoon	
Depth Sampled: 2'	
Sample Date & Time: 10/20/92	
Sampled By: G. Efotte	
Signatures: [signature]	

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

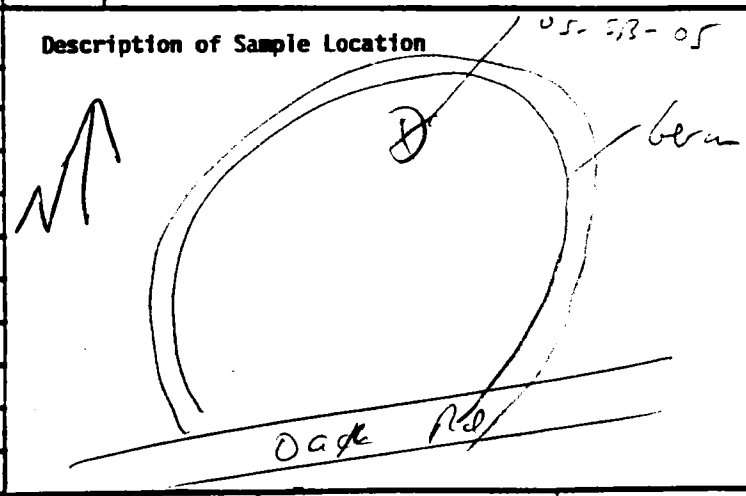
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

VOC
SVOC / Pest / PCB / EXP.
TAL Metals + LN

Description of Sample Location



Brn/blk sandy silt with black layer. Petroleum odor, metal chips, wood and grass, glass

Pb ≈ 556 ppm

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

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Case # 2046/1446

By G. E. Pitte

Project Site Name NSWC, ~~Dahlgren~~ W.O.

Project Site Number

NUS Source No.

Source Location 05-SB-05(25)

Sample Method: HSA - Split Spoon 2"	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 25'			
Sample Date & Time: 10/20/97 - 1020 - 1400			
Sampled By: Gustave E			
Signatures: [signature]			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

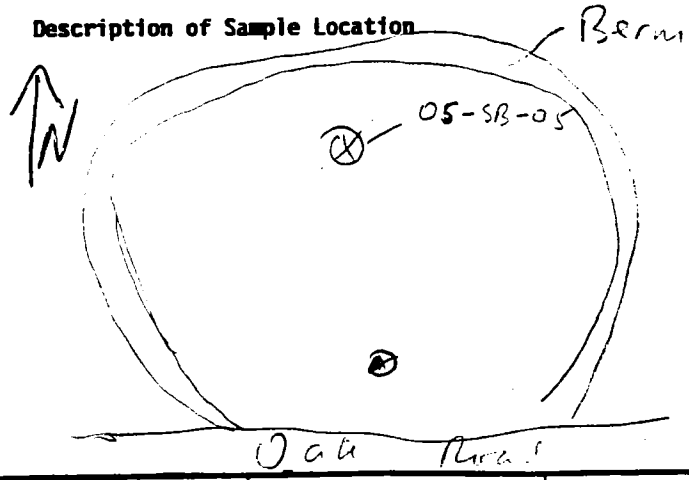
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- Metals
- CN
- Explosives
- VOC
- SVOC
- Pest/PCBs

Description of Sample Location



- Silty Sand w/cobbles, Sandstone and angular gravel
- From ~2 ft to ~11 feet is a fill area with voids. Strong physical petroleum odor. Cuttings reveal wire, broken glass pieces, burnt wood chip, tire tube, plastic etc.
- Saprolite is at 18-25'.
- Perched water observed in fill area

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

NUS CORPORATION
910 CLOPPER ROAD
GAITHERSBURG, MARYLAND 20878-1399
301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By TEM / JDF

Project Site Name NSWC - WO

Project Site Number CTO 273 / 7427

NUS Source No. _____

Source Location OS-GW-01

Total Well Depth:	29.24'
Well Casing Size & Depth:	2" PVC
Static Water Level:	11.76'
One Casing Volume:	2.8 gallons
Start Purge (hrs.):	1000 11/20/97
End Purge (hrs.):	1130
Total Purge Time (min.):	~~[illegible]~~ 90
Total Amount Purged (gal.):	8.4 gallons
Purge Method:	grundfos 2"
Sample Method:	"
Sample Date & Time:	11-20-97 1130
Sampled By:	TEM / JDF
Signature(s):	[signature]

Purge Data

Volume	pH	S.C.	Temp. (°C)	Color & Turbidity	DO
Initial	5.71	1.39	12.3	clear / low	9.12
1	5.78	1.43	23.0	cloudy / mod.	5.5
2	5.71	1.40	22.1	cloudy / mod.	5.9[illegible]
3	5.84	1.63	26.5	cloudy / mod.	5.[illegible]

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity	DO
5.84	1.63	26.5	cloudy / mod.	5.2

Observations/Notes:

2 4
17.48
.16
10488
1748
27968

Type of Sample

☒ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis: LC VOCs
LC SVOCs
LC PEST. / PCBs
EXPLOSIVES
METALS / CN⁻

	Organic	Inorganic
Date Shipped		
Time Shipped		
Lab		
Volume		

NUS CORPORATION
910 CLOPPER ROAD
GAITHERSBURG MARYLAND 20878-1399
301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____ OY 5-6W-1

Case # _____

By _____

Project Site Name NSWC-WO

Project Site Number 7427 - CTO 273

NUS Source No. _____

Source Location ~~13-6W~~ 02 (Development)

Total Well Depth: 27.4	Purge Data Sal = 0.06					
Well Casing Size & Depth: 2" + 27.4	Volume	pH	S.C.	Temp. (°C)	Color & Turbidity ↓	0.0
	2nd	5.70	1.39	14.2	Cloudy / Mod 174	5.1
Static Water Level: 11.05	5th	5.85	1.86	13.6	Cloudy / 401 Sal = 0.08	5.1
One Casing Volume: 2.5 gal						
Start Purge (hrs.): 1615 11/12/97						
End Purge (hrs.):						
Total Purge Time (min.):						
Total Amount Purged (gal.):						
Purge Method:						
Sample Method:						
Sample Date & Time: N/A	Sample Data					
	pH	S.C.	Temp. (°C)	Color & Turbidity		
Sampled By:						
Signature(s):	Observations/Notes: 1st Vol Removed w/out msmts.					

Type of Sample

☐ Low Concentration
☐ High Concentration
☐ Grab
☐ Composite
☐ Grab - Composite

3.6
.16
1.92
1.60
2.52

Analysis:		Organic	Inorganic
	Date Shipped		
	Time Shipped		
	Lab		
	Volume		

NUS CORPORATION
910 CLOPPER ROAD
GAITHERSBURG MARYLAND 20878-1399
301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name: NSWC - White Oak

Project Site Number: CTO 273 / 7427

NUS Source No. _____

Source Location: 05-GW-02

Total Well Depth: 25.46	
Well Casing Size & Depth: 2"	
Static Water Level: 21.95'	
One Casing Volume: .6 gal	
Start Purge (hrs.): 0815 11/20/97	
End Purge (hrs.): 0910	
Total Purge Time (min.): 55 min	
Total Amount Purged (gal.): 2 gal	
Purge Method: Grundfos 2"	
Sample Method: "	
Sample Date & Time: 11/20/97 0915	
Sampled By: J.D. Ferris	
Signature(s):	

Purge Data

Volume	pH	S.C.	Temp. (°C)	Color & Turbidity	DO
Initial	6.09	0.367	14.5	Brown / High	0.0
1	6.22	0.314	19.5	brown / ~~med~~ High	4.2
2	6.31	0.339	20.9	" / High	6.0
3	6.29	0.365	24.2	Lt Brown / Mod.	4.0
					5.7

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity	DO
6.29	0.365	24.2	lt. brown / mod.	5.7

Observations/Notes:

2.16
4
.64

Type of Sample

☒ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
LC VOCs			
LC SVOCs	Date Shipped		
LC Pest/PCBs	Time Shipped		
Explosives	Lab		
metals + CN			
	Volume		

NUS CORPORATION
910 CLOPPER ROAD
GAITHERSBURG, MARYLAND 20878-1399
301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____ or 5-GW-2

Case # _____

By _____

Project Site Name NSWC-WO

Project Site Number 7427-CTO273

NUS Source No. _____

Source Location ~~13-GW-23~~ (Development)

Total Well Depth: 25 6"	**Purge Data**					P.O.
Well Casing Size & Depth: 2"	Volume	pH	S.C.	Temp. (°C)	Color & Turbidity	
	Init				No Readings	
Static Water Level: 22'	1	Removed		Previously		
One Casing Volume: 0.4	2	6.42	0.389	14.2	Brown / High	2.58
Start Purge (hrs.): Removing 2nd Vol 1000 11/12/97	3+4	6.15	0.394	14.2	" "	3.32
End Purge (hrs.): 1100 "	5+6	6.19	0.386	13.9	Lt. Brown / Mod	9.16
Total Purge Time (min.): 60						
Total Amount Purged (gal.): 9 gal						
Purge Method: Disp. Bailer						
Sample Method: " "						

Sample Date & Time:	**Sample Data**			
	pH	S.C.	Temp. (°C)	Color & Turbidity
Sampled By: N/A				

Signature(s):

Observations/Notes: Well clearing up / w/some silty seds remaining

3
2.6 Development Complete
0.16
1 1 5 2
2 6 0
.4 1 2

Type of Sample

☐ Low Concentration
☐ High Concentration
☐ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
	Date Shipped		
	Time Shipped		
	Lab		
	Volume		

APPENDIX D.3

SITE 6 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~2445~~ 7427

By _____

Project Site Name: NSWC, ~~Dahlgren~~ White Oak

Project Site Number: 7427

NUS Source No. _____

Source Location: 06-55-01

Sample Method: Spoon + Bowl

Depth Sampled: 0-6"

Sample Date & Time: 10/3/97 0910

Sampled By: J. Justin Ferris / Jonni Mehi

Signatures: [signature]

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Composite Sample Data

Sample	Time	Color / Description

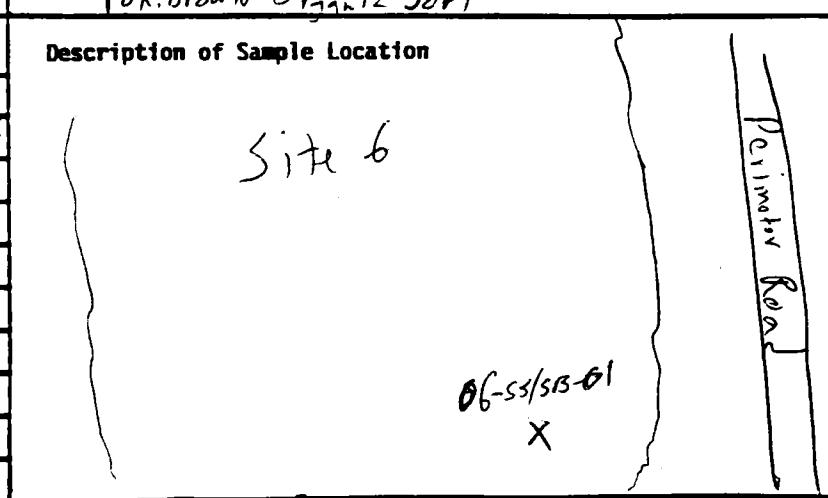
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Dk. Brown Organic Soil

Analysis:

- VOCs
- SVOCs
- Pest/PCB
- EXP.
- Metals + CN + Mb

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number _____

NUS Source No. _____

Source Location _____

Sample Method: HSA	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 3'-4'	06-SB-01(4)	1010	DK GRY CLAYEY FILL
Sample Date & Time: 11/14/97			
Sampled By: S. Perez			
Signatures: Stephanie B Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
DKGRY	CLAYEY FILL

Analysis: VOCs
SVOCs
Pest/PCB
Exp.
Metals + CN + Mb

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number _____

NUS Source No. _____

Source Location 06-SB-01 (6)

Sample Method: HSA	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 5-6'	06 SB-01(6)	1020	ORG SAND w/CLAY
Sample Date & Time: 11/14/97			
Sampled By: S. Perez			
Signatures: Stephanie B Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
ORG	SAND w/CLAY

Analysis: VOCs
SVOCs
Pest/PCB
Exp
Metals + CN + Mb

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GVP	~~SOUTHWEST~~ GVP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446 7427

By

Project Site Name WO NSWC, Dahlgren

Project Site Number 7427

NUS Source No.

Source Location 06-55-02

Sample Method: 55 Spoon + Bowl	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 11/3/97 0915			
Sampled By: J. Dustin Ferris / John Mizhi			
Signatures:			
Type of Sample [x] Low Concentration [ ] High Concentration [x] Grab [ ] Composite [ ] Grab - Composite			

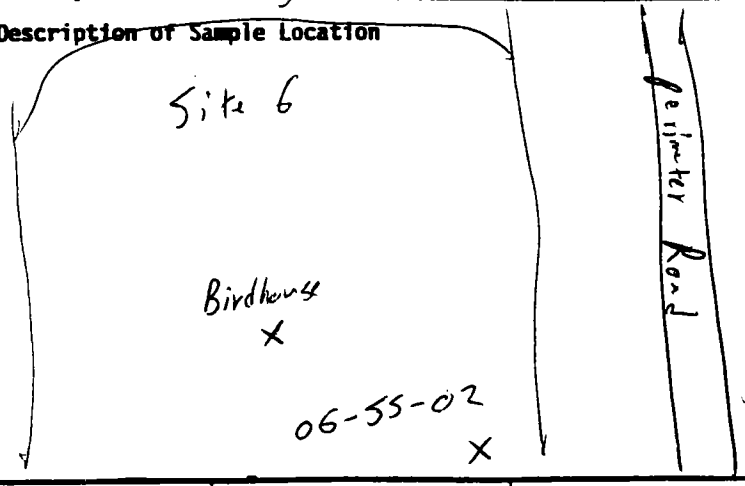
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Dk. Brown Organic Soil w/Some Med. Sand

Analysis:

- VOCs
- SVOCs
- Pest/PCB
- Expl.
- Metals + CN + Mb

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By S. Perez

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number

NUS Source No.

Source Location

Sample Method: HSA

Depth Sampled: 4-5'

Sample Date & Time: 11/14/97

Sampled By: S. Perez

Signatures: Stephanie B Perez

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis: VOCs
SVOCs
Pest/PCB
Exp.
Metals + CN + Mb

Composite Sample Data

Sample	Time	Color / Description
D6-SB-02 (5')	0855	DK GRY CLAYEY FILL

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
DRK GRY	CLAYEY FILL, WET

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # ~~2046/1446~~ 7427

By S. Perez

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number

NUS Source No.

Source Location

Sample Method: HSA

Depth Sampled: 6-7'

Sample Date & Time: 11/14/97

Sampled By: S. Perez

Signatures: Stephanie B Perez

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis: VOCs
SVOCs
Pest/PCB
EXP
Metals + CN + Mb

Composite Sample Data

Sample	Time	Color / Description
06-SB-02(7)	0900	ORG SAND

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
ORG	SAND

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name NSWC, ~~Dahlgren~~ WO

Project Site Number 7427

NUS Source No. _____

Source Location 06-SS-03

Sample Method: Spoon & Bowl	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 11/3/97 0925			
Sampled By: J. Dustin Ferris / John Merki			
Signatures:			
Type of Sample			

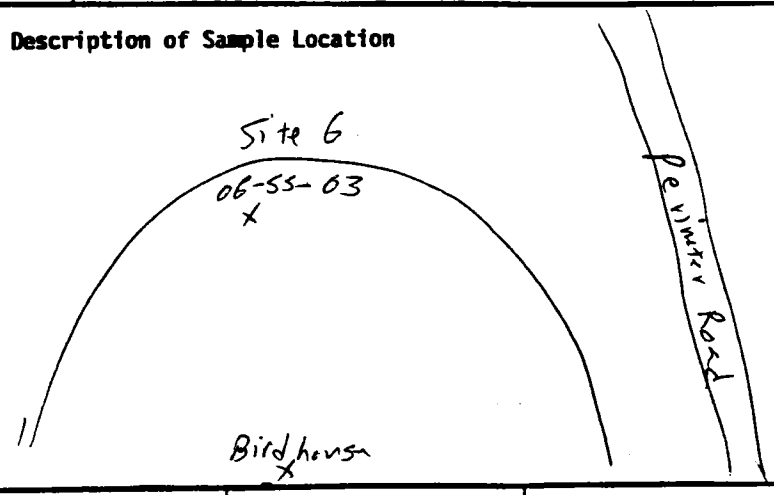
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- VOCs
- SVOCs
- Pest / PCB
- EXPL
- Metals + CN + Mb

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name NSWC, ~~Dahlgren~~ White Oak

Project Site Number _____

NUS Source No. _____

Source Location _____

Sample Method: HSA	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 4-5'	06 SB-03/5	1200	BRN CLAYEY SAND
Sample Date & Time: 11/14/97			
Sampled By: S. Perez			
Signatures: Stephanie S Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BRN	CLAYEY SAND

Analysis: VOCs
SVOCs
Pest/PCB
Exp.
Metals + CN + MB

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # ~~2046/1446~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number _____

NUS Source No. _____

Source Location _____

Sample Method: HSA

Depth Sampled: 6-7'

Sample Date & Time: 11/14/97

Sampled By: S. Perez

Signatures: Stephanie A Perez

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis: VOCs
SVOCs
EXP.
Pest/PCB
Metals + CN + Mb

Composite Sample Data

Sample	Time	Color / Description
06-SB-03(7)	1205	DK GRY CLAYEY FILL

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
DK GRY	CLAYEY FILL

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

APPENDIX D.4

SITE 12 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~2000~~

By S. Perez

Project Site Name W.O. ~~NSWC, Dahlgren~~

Project Site Number

NUS Source No.

Source Location

Sample Method: HSA	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 10'	12-SB-01(10)	0915	LT BRN/ORG SANDY SILT
Sample Date & Time: 11/4/97 0915			
Sampled By: S. Perez			
Signatures: Stephanie B Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

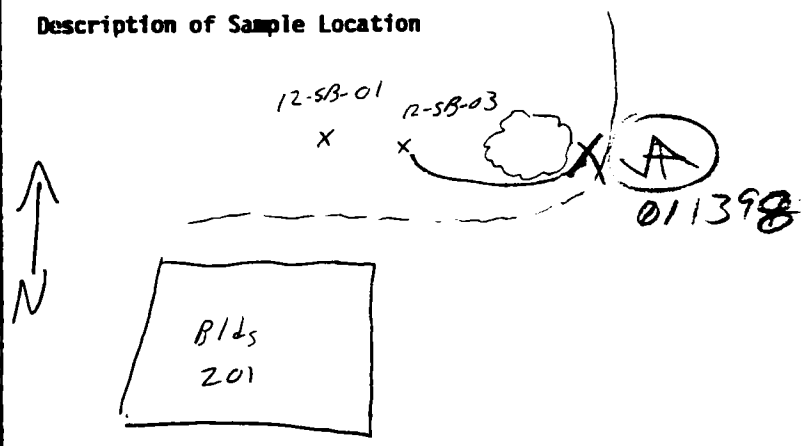
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
LT BRN	~~CLAYEY~~ SANDY SILT

Analysis:

- VOCs
- SVOCs
- Pest PCBs
- Metals + Cn/+Hg
- Explosives

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~3046~~ 7427

By S. Perez

Project Site Name NSWC, ~~Dahlgren~~ WO

Project Site Number

NUS Source No.

Source Location

Sample Method: HSA	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: ~~[illegible]~~ 12'	12-SB-01 (12)	0930	MED BRN. CLAYEY SILT
Sample Date & Time: 11/4/97 0930			
Sampled By: S. Perez			
Signatures: Stephanie B Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
MED BRN.	CLAYEY SILT

Analysis:

- VOCs
- SVOCs
- Pest/PCBs
- Metals + CN + amb
- Explosives

Description of Sample Location

See 12-SB-01 (10)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name NSWC, Dahlgren WQ

Project Site Number _____

NUS Source No. _____

Source Location _____

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: HSA			
Depth Sampled: 10'	12-SB-02(10)	1200	saprolitic gneiss
Sample Date & Time: 11/13/97 1200			
Sampled By: S. Perez			
Signatures: Stephanie B Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

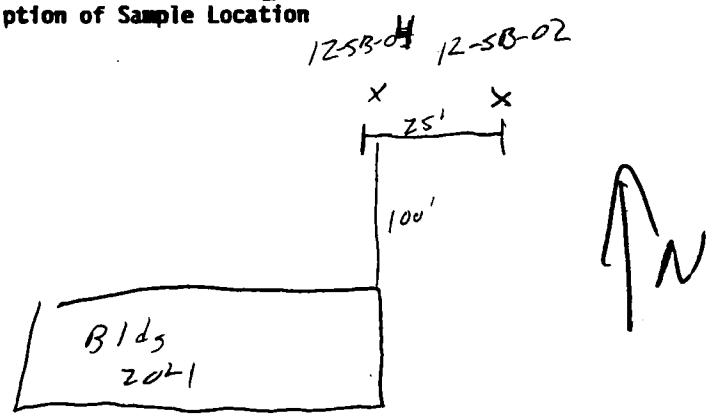
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
Blk/wht	gneiss, dry, hard

Analysis:

- VOCs
- SVOCs
- Pest/PCBs
- Metals + CN + MS
- Explosives

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number _____

NUS Source No. _____

Source Location _____

Sample Method: HSA

Depth Sampled: 12'

Sample Date & Time: 11/13/97 1210

Sampled By: S. Perez

Signatures: Stephanie S Perez

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis:

- VOCs
- SVOCs
- Pest/PCBs
- Metals + CN + MS
- Explosives

Composite Sample Data

Sample	Time	Color / Description
12-SB-02(12)	1210	saprolitic gneiss

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
Blk/wh	gneiss, dry

Description of Sample Location

See 12-SB-02 (10)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # ~~2046/1446~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number _____

NUS Source No. _____

Source Location _____

Sample Method: HSA

Depth Sampled: 10'

Sample Date & Time: 11/4/97 1015

Sampled By: S. Perez

Signatures: Stephanie B Perez

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis:

VOCs
SVOCs
Pest/PCBs
Metals + CN + Mb
Explosives

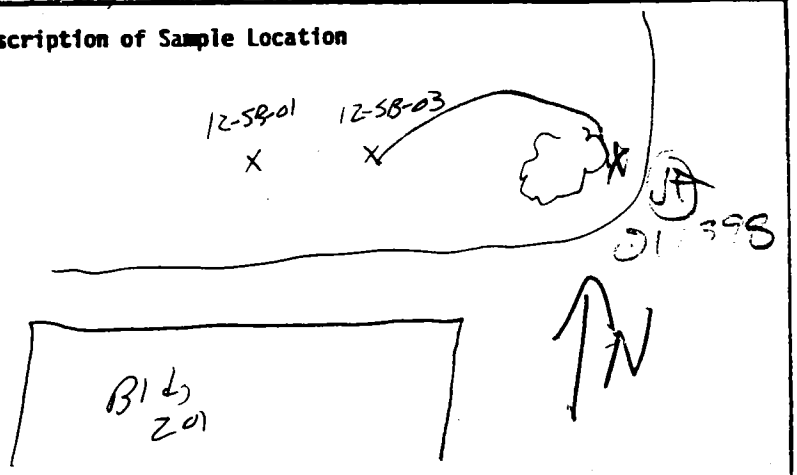
Composite Sample Data

Sample	Time	Color / Description
~~SB~~ 12-SB-03/10	1015	BLK/WH SAPROLITIC GNEISS

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BLK/WH	BLK/WH SAPROLITIC GNEISS

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~2446~~ 7427

By _____

Project Site Name: NSWC, ~~Dahlgren~~ WO

Project Site Number: _____

NUS Source No.: _____

Source Location: _____

Sample Method: HSA	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 12'	12-SB-03(12)	1045	BLK/WH SAPROLITIC GNEISS
Sample Date & Time: 11/4/97 1045			
Sampled By: S. Perez			
Signatures: Stephanie L Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BLK/WT	SAPROLITIC GNEISS

Analysis:

- VOCs
- SVOCs
- Pest/PCBs
- Metals + CN + ~~Exp~~ Mb
- Explosives

Description of Sample Location

See 12-SB-03(10)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # ~~2046/1446~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number _____

NUS Source No. _____

Source Location _____

Sample Method: HSA	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 10	12-SB-04(10)	1245	ORG SAPROLITIC GNEISS
Sample Date & Time: 11/13/97 1245			
Sampled By: S. Perez			
Signatures: Stephanie S Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

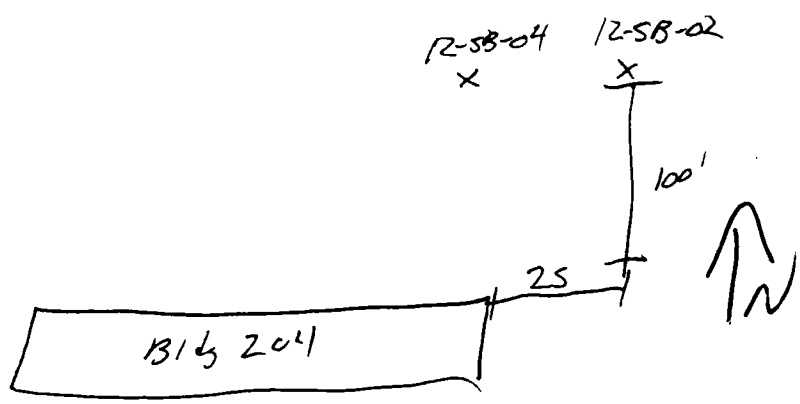
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
ORG	SAPROLITIC GNEISS

Analysis:

- VOCs
- SVOCs
- Pest/PCBs
- Metals + CN + Hg
- Explosives

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By S. Perez

Project Site Name ~~NSWC, Dahlgren~~ White Oak Project Site Number _____

NUS Source No. _____ Source Location _____

Sample Method:	HSA
Depth Sampled:	12'
Sample Date & Time:	11/13/97 1255
Sampled By:	S. Perez
Signatures:	Stephanie B Perez

Composite Sample Data

Sample	Time	Color / Description
12-SB-04(12)	1255	ORG SAPROLITIC GNEISS

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
ORG	SAPROLITIC GNEISS

Analysis:

- VOCs
- SVOCs
- Pest/PCBs
- Metals + CN + ~~Ex~~Mb
- Explosives

Description of Sample Location

See 12-SB-04 (10)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	~~SOUTHWEST~~ GP	~~SOUTHWEST~~ GP
Volume		

NUS CORPORATION
910 CLOPPER ROAD
GAITHERSBURG, MARYLAND 20878-1399
301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By DF, TEM

Project Site Name 7427 Project Site Number CTO 273

NUS Source No. NSWC-W01 Source Location 12-WP01

Total Well Depth:	38.06
Well Casing Size & Depth:	2"
Static Water Level:	30.74
One Casing Volume:	1.2
Start Purge (hrs.):	0855
End Purge (hrs.):	0930
Total Purge Time (min.):	35
Total Amount Purged (gal.):	6.0
Purge Method:	slow flow
Sample Method:	slow flow - direct fill
Sample Date & Time:	11-18-97 0930
Sampled By:	TEM
Signature(s):	Dristan Madden

Purge Data

Volume	pH	S.C.	Temp. (°C)	Color & Turbidity
Initial	5.77	0.090	11.7	brown, 825 DO = 3.92 mg/L
1	5.71	0.064	12.2	cloudy, 10 DO = 8.22
2	5.78	0.062	13.2	cloudy, 3 DO = 7.48
3	5.72	0.061	14.6	cloudy, 10 DO = 7.12
4	5.85	0.064	14.7	brown, 999 DO = 4.10
5	5.81	0.059	13.6	cloudy, 10 DO = 7.70
~~6~~	~~5.~~			~~cloudy,~~

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity
5.81	0.059	13.6	cloudy, 10 DO = 7.70

Observations/Notes:

7.3
.16
435
736
1165

Type of Sample

☒ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
Lc VOCs			
Lc SVOCs	Date Shipped		
Lc PEST/PCBs	Time Shipped		
Metals - CPL	Lab		
Metals			
	Volume		

NUS CORPORATION
910 CLOPPER ROAD
GAITHERSBURG, MARYLAND 20878-1399
301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name 7427 Project Site Number CTO 273

NUS Source No. NSWC-WO Source Location 12-WP-02

Total Well Depth: 42.07'	Purge Data					
Well Casing Size & Depth: 2"	Volume	pH	S.C.	Temp. (°C)	Color & Turbidity	D.O.
	Initial	6.82	0.175	9.9	Brown/Gray - High 999	9.11
Static Water Level: 33.20'	1	7.03	0.159	10.8	" "	6.22
One Casing Volume: 1.3 gal	2	6.91	0.127	16.0	" "	4.92
Start Purge (hrs.): ~~1515~~ 0915 11/18/97	3	6.81	0.127	18.4	" 510	4.9[illegible]
End Purge (hrs.): 1035	4	6.74	0.117	17.7	" Mod 80	7.48
Total Purge Time (min.): 80 min						
Total Amount Purged (gal.): 5.2						
Purge Method: Grundfos 2"						
Sample Method: " "						

Sample Date & Time: 11/18/97 1040	Sample Data			
	pH	S.C.	Temp. (°C)	Color & Turbidity
Sampled By: J.D. Ferris				

Signature(s): [signature]

Type of Sample

☐ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Observations/Notes:

8.1
.16
486
810
1,296

Analysis:		Organic	Inorganic
LC VOCs	Date Shipped		
LC SVOCs	Time Shipped		
LC Pest/PCBs	Lab		
Metals + CN			
	Volume		

NUS CORPORATION
910 CLOPPER ROAD
GAITHERSBURG, MARYLAND 20878-1399
301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name 7427 Project Site Number GTO 273

NUS Source No. NSWC-WQ Source Location 12-WP-03

Total Well Depth: 50.03'	
Well Casing Size & Depth: 2"	
Static Water Level: 39.46'	
One Casing Volume: 1.7 gallons	
Start Purge (hrs.): 1250	
End Purge (hrs.): 1600	
Total Purge Time (min.): ≅ 30 min	
Total Amount Purged (gal.): 4 gal	
Purge Method: slow flow	
Sample Method: grundfos-slow flow	
Sample Date & Time: 11/18/97 1615	
Sampled By: J. D. Ferris	
Signature(s): [signature]	

Purge Data

Volume	pH	S.C.	Temp. (°C)	Color & Turbidity
Initial	6.45	0.117	12.3	cloudy, 58
1	6.50	0.124	16.3	Lt. Brown / High 870 ↓
2	6.68	0.136	14.2 ?*	" / High
3	6.17	0.112	11.8 ?	" / high

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity

Observations/Notes: Well Drying After 1 Vol.
Pump off at 1300; Pump on 1310
1315 still No Flow, Pump Off
1335 Pump on
1350 water level Down, Pump off

10.57
0.16
6342
1057
1,6912

* Water Had cooled in Atmosphere

Type of Sample

☐ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis: LC VOC's
LC SVOC's
LC Pest/PCB's
Metals + CN

	Organic	Inorganic
Date Shipped		
Time Shipped		
Lab		
Volume		

APPENDIX D.5

SITE 13 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name WO ~~NSWC, Dahlgren~~

Project Site Number CTO 273

NUS Source No.

Source Location 13-SS-01

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: SS SPOON			
Depth Sampled: 0-6"			
Sample Date & Time: 10/6/97 @ 1400			
Sampled By: D. S.			
Signatures: David Schnackenberg			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

VOC - 4oz

SVOC, PEST/PCB - 8oz

TAL METALS, CN - 4oz

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. E Potte

Project Site Name NSWC, ~~Dahlgren~~ White Oak

Project Site Number

NUS Source No.

Source Location 13-SB-01 (2)

Sample Method: Split Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 2'			
Sample Date & Time: 10/20/97 9:00			
Sampled By: L. HUDGINS			
Signatures:			
Type of Sample			
[X] Low Concentration			
[ ] High Concentration			
[X] Grab			
[ ] Composite			
[ ] Grab - Composite			

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- Metals
- CN
- Explosives
- Pest/PCBs
- VOC
- SVOCs

Description of Sample Location

6" of black humus soil w/ decomposed leaves and roots

12" lt brown - whitish sand w/ angular quartz cobble and gravel. Trace fines

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name NSWC, ~~Bethesda~~ WD

Project Site Number CTO 273

NUS Source No.

Source Location 13-SS-02

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: SS SPOON			
Depth Sampled: 0-6"			
Sample Date & Time: 10/6/97 @ 1420			
Sampled By: DS			
Signatures: David Schmuckeberg			

Type of Sample

- [X] Low Concentration
- [ ] High Concentration
- [X] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

VOC - 40Z
SVOC, PEST/PCB - 80Z
TAL METALS, CN - 80Z

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. Eflotte

Project Site Name NSWC, ~~Dahlgren~~ White Oak Project Site Number

NUS Source No. Source Location 13-SB-02 (2)

Sample Method: Split Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 2'			
Sample Date & Time: 10/20/92 9:00			
Sampled By: L. Hudgins			
Signatures:			
Type of Sample			

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- Metals
- Cyanide
- ~~[illegible]~~
- Pest/PCBs
- VOC
- SVOC

Description of Sample Location

Dk brown sandy silt w/gravel & cobbles

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name NSWC, ~~Dahlgren~~ W/O

Project Site Number CTO 273

NUS Source No.

Source Location 13-SS-03

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: SS SPOON			
Depth Sampled: 0-6"			
Sample Date & Time: 10/6/97 @ 1405			
Sampled By: L. HUDGINS			
Signatures:			
Type of Sample			

Type of Sample

- [X] Low Concentration
- [ ] High Concentration
- [X] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

VOC - 4 OZ

SVOC, PEST/PCB - 8 OZ

TAL METALS, CN - 8 OZ

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped	10/6/97	
Time Shipped	1700	
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. Eatte

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number

NUS Source No.

Source Location 2-SB-03 (2)

Sample Method: Split Spoon

Depth Sampled: 2'

Sample Date & Time: 10/20/97 9:20

Sampled By: L. Hudgins

Signatures:

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Composite Sample Data

Sample	Time	Color / Description

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- Metals
- CN
- Explosives
- VOC
- SVOC
- Pest/PCB

Description of Sample Location

12" Decomposed sand w/mica schist flakes. Some organics, leaves, twigs + roots; rust stain, trace fines.

12" Sandy silt w/fines and quartz cobbles and gravel.

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

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301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By TEM / JAF

Project Site Name NSWC-WO

Project Site Number CTO 273 / 7427

NUS Source No. _____

Source Location 13-GW-01

Total Well Depth:	26.78'
Well Casing Size & Depth:	2" PVC
Static Water Level:	14.50'
One Casing Volume:	2.0 gallon
Start Purge (hrs.):	1330 11/20/97
End Purge (hrs.):	1515
Total Purge Time (min.):	105
Total Amount Purged (gal.):	6 gallon
Purge Method:	grundfos 2"
Sample Method:	"
Sample Date & Time:	11-20-97 1515
Sampled By:	TEM / JAF
Signature(s):	Tristan Madden

Purge Data

Volume	pH	S.C.	Temp. (°C)	Color & Turbidity	DC
Initial	6.67	0.436	15.6	cloudy / high	9.0
1	6.77	0.436	21.0	Cloudy-high 999	4.9
2	6.67	0.419	23.0	" - " 457	6.2
3	6.71	0.398	26.9	" " 809	3.3

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity	DC
6.71	0.398	26.9	cloudy-high 809	3.3

Observations/Notes:

12.28
.16
7368
1228
1.9648

Type of Sample

☒ Low Concentration
☐ High Concentration
☒ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
LC VOCs	Date Shipped		
LC SVOCs	Time Shipped		
LC PEST. / PCBs	Lab		
EXPLOSIVES			
METALS / CN⁻			
	Volume		

NUS CORPORATION

910 CLOPPER ROAD
GAITHERSBURG MARYLAND 20878-1399
301-258-6000

☒ Monitoring Well Data
☐ Domestic Well Data
☐ Other _____

Case # _____

By _____

Project Site Name: NSWC-WO

Project Site Number: _____

NUS Source No.: _____

Source Location: 13-GW-1 (Development)

	Purge Data				
Total Well Depth: 26.75					
Well Casing Size & Depth: 2"	Volume	pH	S.C.	Temp. (°C)	Color & Turbidity
Static Water Level: 15.5					
One Casing Volume:					
Start Purge (hrs.): 1330 2nd vol. 11/12/97	Dry	After	8 gal.		
End Purge (hrs.): 1400	After Recharge	6.53	0.355	14.5	~~Bin~~ gray/green / high.
Total Purge Time (min.): 30					
Total Amount Purged (gal.): 8 gal					
Purge Method: Grundfos 2"					
Sample Method:					

0.0
4.1

Sample Date & Time:	Sample Data			
	pH	S.C.	Temp. (°C)	Color & Turbidity
Sampled By:				
Signature(s): N/A	Observations/Notes:			

Type of Sample

☐ Low Concentration
☐ High Concentration
☐ Grab
☐ Composite
☐ Grab - Composite

Analysis:		Organic	Inorganic
	Date Shipped		
	Time Shipped		
	Lab		
	Volume		

APPENDIX D.6

SITE 28/SWMU 88 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page _____ of 1

Case # 2046/1446

By G. E Potte

Project Site Name NSWC, Dahlgren

Project Site Number 28-SS-01

NUS Source No. _____

Source Location 28 - SB - 01 (4)

Sample Method: Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 3 - 4'			
Sample Date & Time: 10/23/97 SS 1440 SB 1441			
Sampled By: G. E Potte			
Signatures:			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- VOC
- SVOC
- Pesticide
- Metals
- CN

Description of Sample Location

Very Stiff gravelly, Cobbly Silty Sand (Rusty brown Color)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name WHITE OAK ~~Project Site Number~~ 28-SB-02(3)

NUS Source No. _____ Source Location 28-SS-02

Sample Method: 3" SPLIT SPOON	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: SS = 0-2' SB = 2-4'			
Sample Date & Time: 10/23/97 SS = 1530 SB = 1549			
Sampled By: L. HUDGINS			
Signatures:			

Type of Sample
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:
- VOC - 4oz
- SVOC, PEST/PCB - 8oz
- METALS, CN - 8oz

Description of Sample Location SEE MAP

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [X] Surface Soil
- [X] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By L. HUDGINS

Project Site Name WHITE OAK ~~[illegible]~~

~~Project Site Number~~ 28-SB-03 (3)

NUS Source No. _____

Source Location 28-SS-03

Sample Method: 3" SPLIT SPOON

Depth Sampled: SS = 0.5 - 2'
SB = 2 - 4'

Sample Date & Time: 10/23/97
SS = 1505 SB = 1515

Sampled By: L. HUDGINS

Signature: [signature]

Type of Sample

- [X] Low Concentration
- [ ] High Concentration
- [X] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis:

VOC = 4oz
SVOC, PEST/PCB = 8 OZ
METALS, CN = 8oz

Composite Sample Data

Sample	Time	Color / Description

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	ORANGE - BRN SAND W/COPPLES

Description of Sample Location SEE MAP

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name: NSWC, ~~Dahlgren~~ White oak

Project Site Number: 28-SB-04 (4)

NUS Source No. _____

Source Location: 28-SB-04 (2)

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: Split Spoon			
Depth Sampled: 3-4'			
Sample Date & Time: 10/23/97 0-2 8:15 + 4-2 8:20			
Sampled By: T. Madden			
Signatures: Tristan Madden			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- VOCs
- SVOCs
- Pest/PCBs
- Metals + CN

Description of Sample Location

See Map

4" aggregate on top

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. EFOTTE

Project Site Name NSWC, Dahlgren

Project Site Number 28-SB-05(4)

NUS Source No.

Source Location 28-SB-05(2)

Sample Method: Split Spoon

Depth Sampled: 0-2' + 2-4'

Sample Date & Time: 10/26/97 0-2 835 2-4 845

Sampled By: T. Madden

Signatures: Kristen Madden

Type of Sample
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Composite Sample Data

Sample	Time	Color / Description
0-2	835	Brn Silty Sand w/gravel, trace Cl, stiff
2-4	0845	" " " " "

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:
- VOC
- SVOC
- Metals + CN
- Pesticides

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. Elotte

Project Site Name NSWC, Dahlgren

Project Site Number 28-SB-06 (2)

NUS Source No. _____

Source Location 28-SB-06 (4)

Sample Method: Split Spoon

Depth Sampled: 2-4' 0-2'

Sample Date & Time: 10/24/97

Sampled By: T Madden

Signatures: Jonathan Madden

Composite Sample Data

Sample	Time	Color / Description
0-2	910	Brn Silty Sand, trace clay, gravel / Cobbles
2-4	925	Brn Gravelly Silty Sand

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- VOC
- SVOC
- Pest/PCBs
- Metals + CN

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By C. EFOTTE

Project Site Name NSWC, Dahlgren WO

Project Site Number

NUS Source No.

Source Location 28-SS/SB-07

Sample Method: HSA - split spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 4'	0-2'	1250	Dk to grey fine sand 0-1 Silty sand w/cobbles 1-2
Sample Date & Time: 10/23/92 1250	2-4	1310	Cobbly + gravelly silty sand
Sampled By: C. EFOTTE			
Signatures:			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- VOC 4oz
- SVOC
- Pest/PCB } 8oz
- Metals
- CN } 8oz

Description of Sample Location

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By G. EFOTTE

Project Site Name NSWC, ~~Dahlgren~~ WO

Project Site Number 28-SS-08

NUS Source No. _____

Source Location 28-SB-08(3)

Sample Method:	HSA Split-Spoon
Depth Sampled:	4'
Sample Date & Time:	10/23/92 1330
Sampled By:	G. EFOTTE
Signatures:	[signature]

Composite Sample Data

Sample	Time	Color / Description
28-SS-08	1320	~~[illegible]~~ See Below

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

VOC	4 oz
SVOC	6 oz
Pest/PCBs	3 oz
Metals	3 oz
CN	3 oz

Description of Sample Location

0 - 2' - 6" Humus (top soil) Silty sand with cobbles & gravel

2 - 4 Grey silty sand with organ at 3-4' depth.

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

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Case # 2046/1446

By

Project Site Name NSWC, Dahlgren W.O

Project Site Number

NUS Source No.

Source Location 28-SB-09

Sample Method: Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled:	28-SB 09	(0-2) 1400	Brn/grey wet clay
Sample Date & Time: 10/23/97 SS 1400 / SB 1615	28-SB 09	2-4 1615	"
Sampled By: G. E Pottle			
Signatures:			

Type of Sample

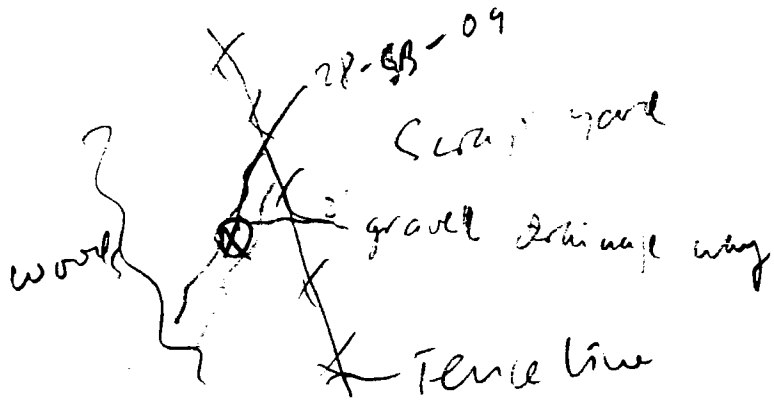
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

VOC — 4 oz
CVOV
Pest/PCB } 8 oz
Metal
CN } 8 oz

Description of Sample Location



- Brn - grey, wet clay, trace silt

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

APPENDIX D.7

SITE 29/SWMU74 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number CTO 273/7427

NUS Source No. _____

Source Location 29-SS-01

Sample Method: 55 Spoon + Bowl	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 0-6"			
Sample Date & Time: 10/13/97 1535			
Sampled By: John Merki / D. Schwackenberg			
Signatures: David Schwackenberg			

Type of Sample

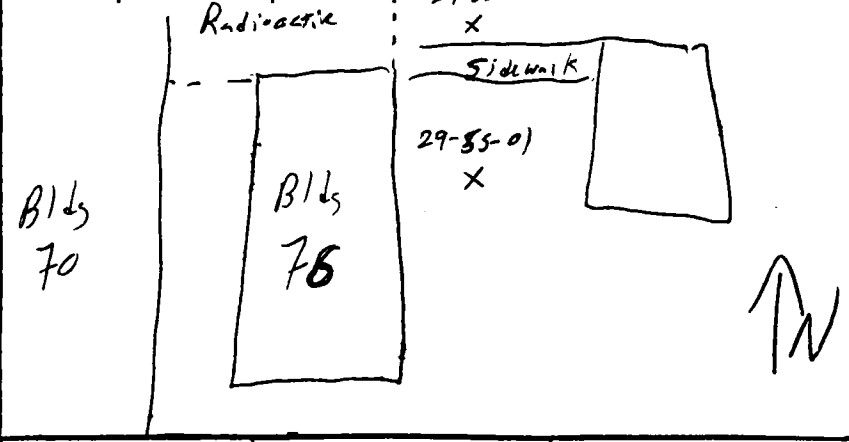
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis: VOC w/TIC
SVOC w/TIC

Description of Sample Location 29-SS-02



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By C Ettolle

Project Site Name WO NSWC, Dahlgren

Project Site Number 29-SB-01 (17)

NUS Source No.

Source Location 29-SB-01 (6)

Sample Method: HSA Split Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: Total Depth 17'	29-SB-01(6)	1315	5-6'
Sample Date & Time: 10/21/97	29-SB-01(17)	1415	16-17'
Sampled By: T. Madden			
Signatures: Anita Malli			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

VOC (TICs)
SVOC (TICs)

Description of Sample Location

Brownish grey micaceous silty sand. Saprolitic. With dark and rust striations. Alternating light + dark bands.

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number CTO 273/7427

NUS Source No. _____

Source Location B9-SS-02

Sample Method: SS Spoon + Bowl

Depth Sampled: 0-6"

Sample Date & Time: 10/13/97 1530

Sampled By: John Merhi / D. Schnack

Signatures: David Schnack

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

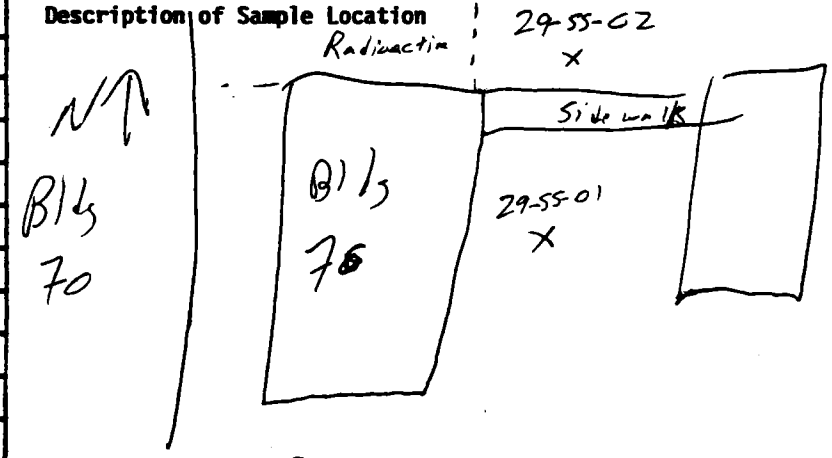
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis: VOCs w/TIC
SVOCs w/TIC

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By C. EFOTTE

Project Site Name NSWC, ~~Dahlgren~~ WO

Project Site Number 29-SB-02(16)

NUS Source No. _____

Source Location 29-SB-02(6)

Sample Method: HSA - Split Spoon

Depth Sampled: 16'

Sample Date & Time: 10/24/92

Sampled By: T. Madden

Signatures: [signature]

Composite Sample Data

Sample	Time	Color / Description
4-6	1210	dk brown micaceous silty sand with dk striations
14-16	1341	wet dk grey/brown (same)

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

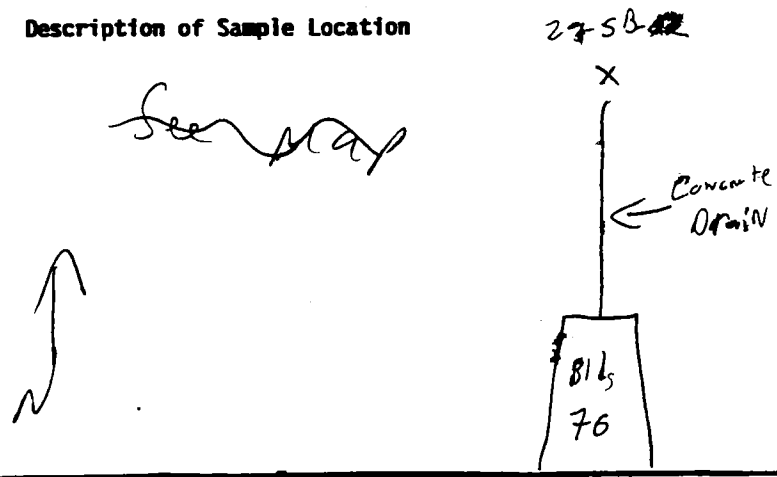
Analysis:

VOC (TICs)

SVOC (TICs)

Description of Sample Location

~~See map~~



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

APPENDIX D.8

SITE 31/SWMU 72 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By J. MERHI

Project Site Name ~~NSWC, Dahlgren~~ WO

Project Site Number CTO 273

NUS Source No. _____

Source Location 31-SS-01

Sample Method:	SS HAND AUGER
Depth Sampled:	0-6"
Sample Date & Time:	10-13-97 0945
Sampled By:	DJS / JMM
Signatures:	J. Merhi / C. Schnackeberg

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

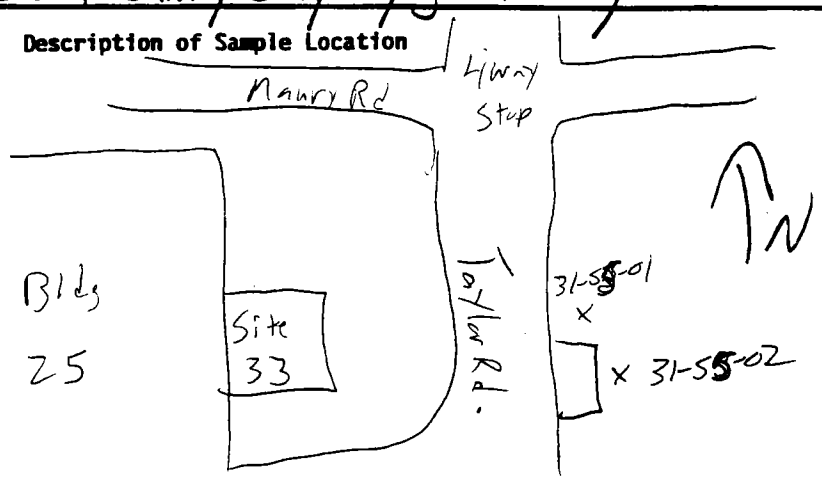
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BROWN	SANDY CLAY w/ gravel - DRY

Analysis:

- TPH
- TAL METALS
- TCL VOA's
- TCL SVOC's

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name W.O. ~~NSWC, Dahlgren~~

Project Site Number 7427 (CO 273)

NUS Source No. _____

Source Location 31-SB-01 (4)

Sample Method: Split Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 2-4'			
Sample Date & Time: 11/17/97 1525			
Sampled By: J.D. Ferris / T. Madden			
Signatures:			
Type of Sample			

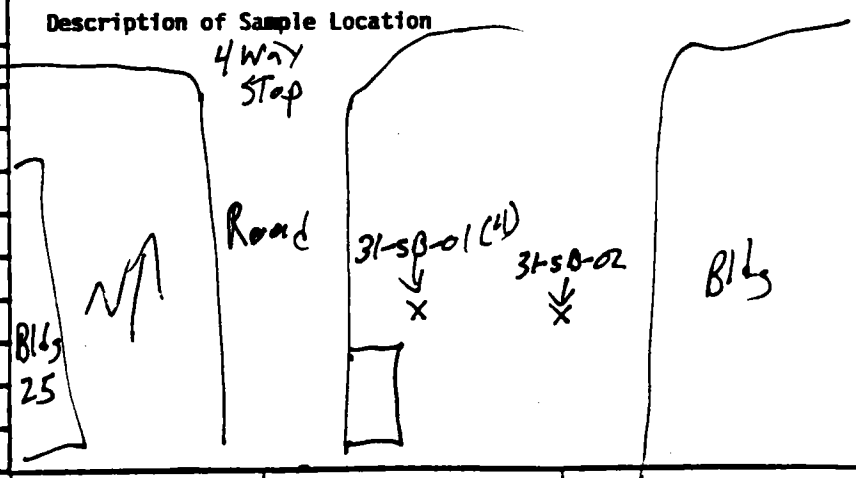
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- VOC's w/TICs
- SVOC's w/TICs
- Metals + CN
- TPH

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name ~~NSWC, Dahlgren~~ W.O.

Project Site Number 7427 (STO 273)

NUS Source No. _____

Source Location 31-SB-01 (27)

Sample Method: Split Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 25-27'			
Sample Date & Time: 11/17/97 1600			
Sampled By: J.D. Ferris / T. Mallen			
Signatures: [signature]			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

- VOC's W/TICS
- SVOC's W/TICS
- Metals + CN
- TPH

Description of Sample Location

See 31-SB-01 (4)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By J. MERHI

Project Site Name NSWC, ~~Dahlgren~~ W.O.

Project Site Number CTO 273

NUS Source No. _____

Source Location 31-SS-02

Sample Method:	SS HAND AUGER
Depth Sampled:	0-6"
Sample Date & Time:	10-13-97 1010
Sampled By:	DJS/JMM
Signatures:	J. Merhi - D. Schnackenberg

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BROWN	SANDY CLAY w/ Gravel - DRY

Analysis:

TOTAL PETRO. HYDROCARBONS
TAL METALS
TCL SVOC
TCL VOC

Description of Sample Location

See 31-SS-01

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By TEM

Project Site Name NSWC, ~~Dahlgren~~ White Oak

Project Site Number 7427

NUS Source No. _____

Source Location Site 31

Sample Method:	split spoon
Depth Sampled:	2'-4'
Sample Date & Time:	11/17/97 0935
Sampled By:	TEM, JM
Signatures:	Dristan Madd

Composite Sample Data

Sample	Time	Color / Description
~~31-SB-02(4)~~	~~[illegible]~~	

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
brown	micaceous silty sand w/ clay and gravel, moist

Analysis: VOAs w/ TICs
SVOAs w/ TICs
Metals / CN-

Description of Sample Location

31-SB-02(4)

See Sample 31-SB-01(4)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By Tom

Project Site Name ~~NSWC, Dahlgren~~ W.O.

Project Site Number 7427

NUS Source No.

Source Location Site 31

Sample Method: split spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 26'-28'			
Sample Date & Time: 11-17-97 1130			
Sampled By: Tom, Jim			
Signatures: [illegible]			

Type of Sample
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
red-brown	micaceous silty sand w/ angular rock frag, roots, heavily oxidized

Analysis: VOAs w/ TICs
SVOAs w/ TICs
Metals / CN-

Description of Sample Location

31-SB-02(28)

See Sample 31-SB-01(4)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

APPENDIX D.9

SITE 32/AOC O SAMPLE LOG SHEETS

NUS CORPORATION
A Halliburton Company

SAMPLE LOG SHEET

Page 1 of 1

- ☐ Spring
- ☐ Lake
- ☒ Stream
- ☐ Other _____

Case # _____

By _____

Project Site Name NSWC-WU

Project Site Number 7427

NUS Source No. _____

Source Location 32-SW/SD-01

Sample Method: Grab / Spoon + Bowl

Depth Sampled:

Sample Date & Time: SW / SD 10/28/97 1550 / 1600

Sampled By: Justin Ferris / John Meski

Signatures:

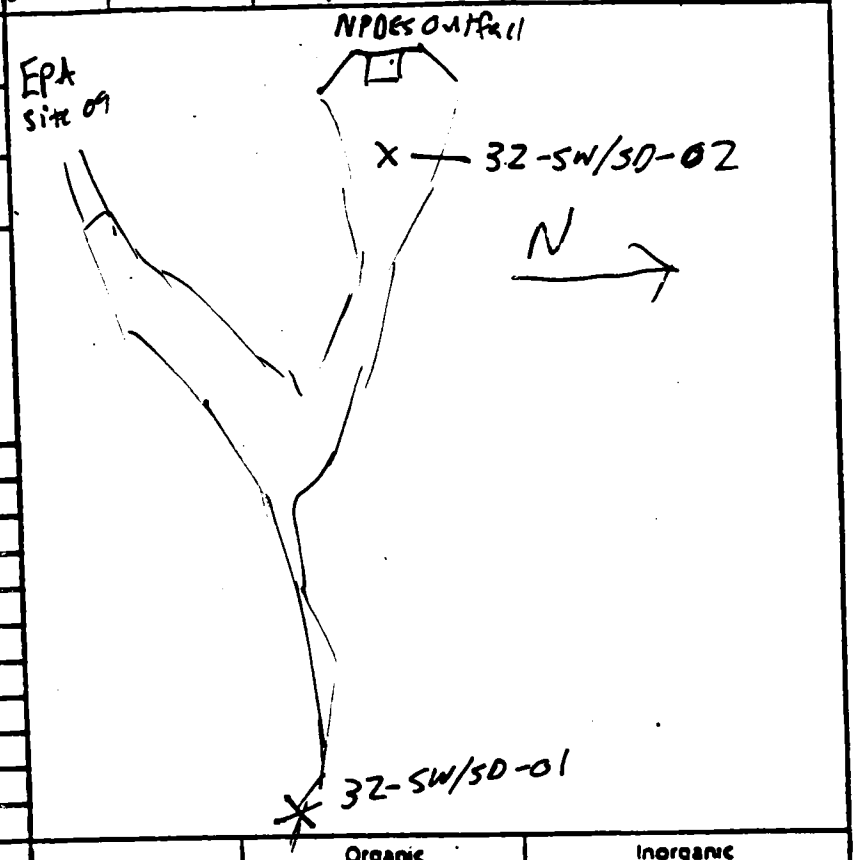
Type of Sample
- ☐ Low Concentration
- ☐ High Concentration
- ☒ Grab
- ☐ Composite
- ☐ Grab - Composite

Analysis:	Preservative
LC SVOCs	
LC VOCs	
LC Pest/PCB	
Explosives	
Metals	
TOC	
Grain Size	

Sample Data

pH	S.C.	Temp. (°C)	Color & Turbidity
6.44	0.272	10.6	Clear / low / -0

D.O. 12.04



	Organic	Inorganic
Traffic Report #		
Tag #		
AB #		
Date Shipped		
Time Shipped		
Lab		
Volume		

NUS CORPORATION
A Halliburton Company

SAMPLE LOG SHEET

Page 1 of 1

Case # _____

By _____

- [ ] Spring
- [ ] Lake
- [x] Stream
- [ ] Other _____

Project Site Name: NSWC-W Lite oak
Project Site Number: 7427
NUS Source No.: CTC273
Source Location: 32-SW/SD-02

Sample Method: Grab + Spoon + Bowl	Sample Data			
	pH	S.C.	Temp. (°C)	Color & Turbidity
Depth Sampled: N/A				

Sample Date & Time: SW 10/13/97 1345 SD 1445

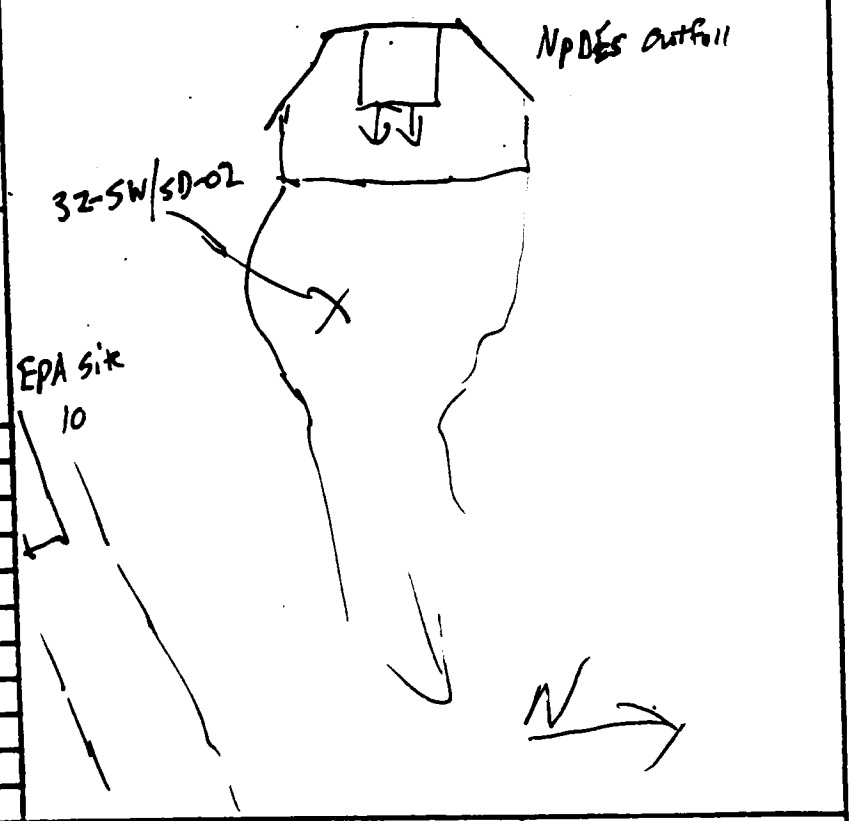
Sampled By: John Morhi / D. Schwackenberg

Signatures: David Schwackenberg

Type of Sample

- [ ] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis:	Preservative
VOA	
SVOCs	
pest/PCB	
Explosives	
Metals	
Grain Size	
TOC	



This is a replacement sheet; ~~DSR~~ No Log sheet was found for this sample
12/17/97

	Organic	Inorganic
Traffic Report #		
Tag #		
AB #		
Date Shipped		
Time Shipped		
Lab		
Volume		

APPENDIX D.10

SITE 33/SWMU 39 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # ~~2046/1446~~

By J. MERHI

Project Site Name ~~NSWC, Dahlgren~~ WHITE OAK

Project Site Number CTO 273

NUS Source No. _____

Source Location 33-SS-01

Sample Method:	SS HAND AUGER
Depth Sampled:	0-6"
Sample Date & Time:	10-13-97 0920
Sampled By:	DJS / JMM
Signatures:	J. Merhi A. Smitchelay

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Brown Sandy Clay w/gravel - DRY

Analysis:

TAL METALS

CYANIDE

Description of Sample Location

See 33-SB-01 (8)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

W.O.

Project Site Name NSWC, Dahlgren

Project Site Number 7427

NUS Source No. _____

Source Location Sta 33 33-SB-01(8)

Sample Method: split spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 6'-8'			
Sample Date & Time: 11-17-97 1345			
Sampled By: TOM / JM			
Signatures: [illegible]			

Type of Sample

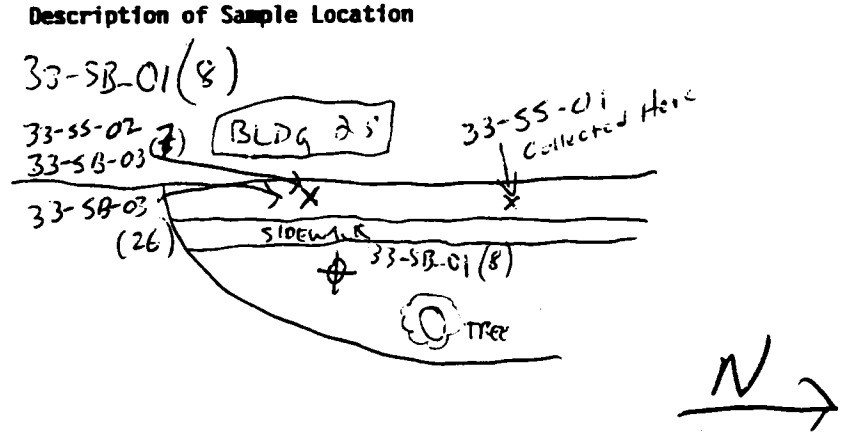
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis: Metal/CN-

Description of Sample Location



Duplicate 33-SB-101 MS/MSD

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By TEM

Project Site Name NSWC, ~~Dahlgren~~ W.O.

Project Site Number 7427 27

NUS Source No. _____

Source Location Site 33 33-SB-01 (27)

Sample Method: split spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 25'-27'			
Sample Date & Time: 11-17-97 1400			
Sampled By: TEM / JM			
Signatures: ~~TEM~~ Tristram Modin			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

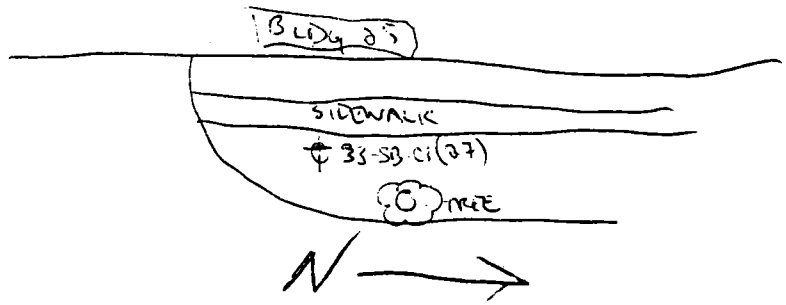
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis: Metals / CN -

Description of Sample Location

33-SB-01 (27)



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By J. MERHI

Project Site Name NSWC, ~~Dahlgren~~ WHITE OAK

Project Site Number CTO 273

NUS Source No. _____

Source Location 33-SS-02

Sample Method:	SS HAND AUGER
Depth Sampled:	0-6"
Sample Date & Time:	10-13-97 0910
Sampled By:	DJS/JMM
Signatures:	J. Merhi D. [illegible]

Composite Sample Data

Sample	Time	Color / Description

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BROWN	SANDY CLAY w/gravel - DRY

Analysis:

TAL METALS
CYANIDE

Description of Sample Location

See 33-SB-01(8)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name W.O. NSWC, Dahlgren

Project Site Number CTO-273

NUS Source No. _____

Source Location 33-SB-02 (8)

	Composite Sample Data		
	Sample	Time	Color / Description
Sample Method: SS split Spoon			
Depth Sampled: 6-8'			
Sample Date & Time: 11/17/97 1435			
Sampled By: J. D. Ferris / Tris Madder			
Signatures: [signature]			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

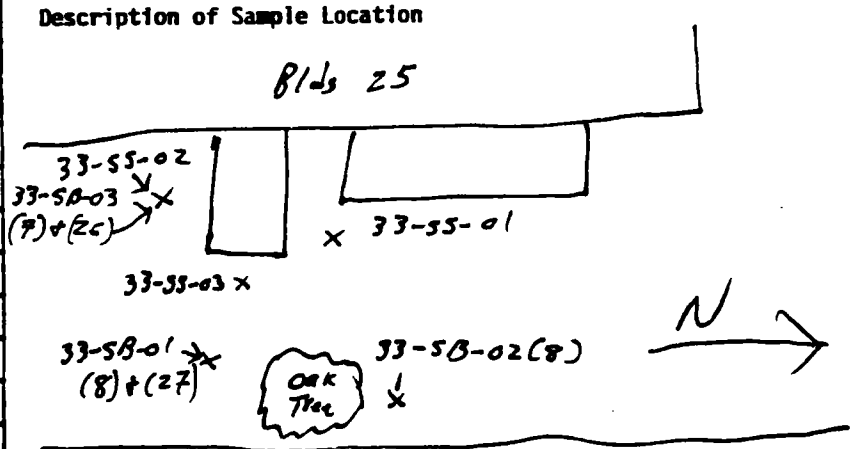
Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
	Brown Clay

Analysis:

VOCs

Metals + CN

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name ~~NSWC, Dahlgren~~ W.V.

Project Site Number 7427 (CTO 273)

NUS Source No. _____

Source Location 33-SB-02 (27)

Sample Method: Split Spoon	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 25-27'			
Sample Date & Time: 11/17/97			
Sampled By: J. Dustin Ferris / T. Maddox			
Signatures:			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

Metals + CN

Description of Sample Location

See 33-SB-02 (8)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/1446

By J. MERHI

Project Site Name NSWC, ~~Dahlgren~~ WHITE OAK

Project Site Number CTO 273

NUS Source No. _____

Source Location 33-SS-03

Sample Method:	SS HAND AUGER
Depth Sampled:	0-6"
Sample Date & Time:	10-13-97 0930
Sampled By:	DJS / JMM
Signatures:	J. Merhi D. Schnackenberg

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Composite Sample Data

Sample	Time	Color / Description

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
BROWN	SANDY CLAY w/ gravel - DRY

Analysis:

TAL METALS

CYANIDE

Description of Sample Location

See 33-SB-01 (8)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name NSWC, Bahtgren WO

Project Site Number _____

NUS Source No. _____

Source Location _____

Sample Method: HSA	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: 5-6'	33-SB-03(6)		saprolitic schist
Sample Date & Time: 11/14/97			
Sampled By: S. Perez			
Signatures: Stephanie Perez			

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
ORG	SCHIST, dry

Analysis:

Metals + CN

Description of Sample Location

See 33-SB-01(8)

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [ ] Other _____

Page 1 of 1

Case # 2046/~~1446~~ 7427

By _____

Project Site Name ~~NSWC, Dahlgren~~ White Oak

Project Site Number _____

NUS Source No. _____

Source Location _____

Sample Method: HSA

Depth Sampled: 25-26'

Sample Date & Time: 11/14/97

Sampled By: S. Perez

Signatures: Stephanie Perez

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Analysis:

Metals tCN

Composite Sample Data

Sample	Time	Color / Description
33-SB-03/26		ORG / SAPROLITIC SCHIST

Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)
ORG	SCHIST, ~~[illegible]~~ SLIGHTLY MOIST

Description of Sample Location

Sec 33-SB-01 (85

	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB#	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

APPENDIX D.11

EBS AOC 100 SAMPLE LOG SHEETS

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [x] Other Wipe Samples

Page 1 of 1

Case # 2046/1446

By

Project Site Name White Oak ~~NSWC, Dahlgren~~

Project Site Number 7427 CTO 273

NUS Source No.

Source Location 100-FLE-WR, F, C, WL

Sample Method: Wipe	Composite Sample Data		
	Sample	Time	Color / Description
Depth Sampled: NA	100-FLE-C	1605	
Sample Date & Time: 10/27/97 Time →	100-FLE-WR	1615	
	100-FLE-F	1610	
Sampled By: J. Dustin Ferris / John Merhi	100-FLE-WL	1600	
Signatures:			
Type of Sample			

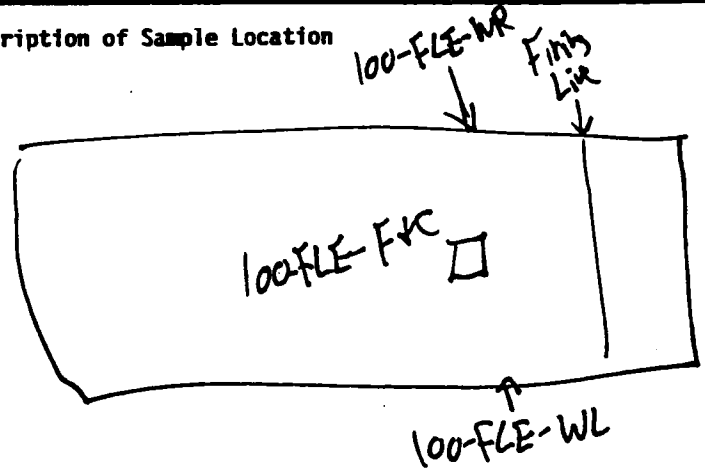
- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

Sample Data	
Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

Lead

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

SAMPLE LOG SHEET

NUS CORPORATION

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Lagoon / Pond
- [x] Other _____

Page 1 of 1

Case # 2046/1446

By _____

Project Site Name: NSWC, ~~Dahlgren~~ White Oak

Project Site Number: AOC-100

NUS Source No. _____

Source Location: 100-TE-WB, WR, WL, F, C

Sample Method: Wipe

Depth Sampled: NA

Sample Date & Time: 10/27/97

Sampled By: J. Dustin Fewis/John Mott

Signatures: [signature]

Composite Sample Data

Sample	Time	Color / Description
100-TE-WB	1545	
100-TE-WR	1540	
100-TE-WL	1535	
100-TE-F	1550	
100-TE-C	1530	

Type of Sample

- [x] Low Concentration
- [ ] High Concentration
- [x] Grab
- [ ] Composite
- [ ] Grab - Composite

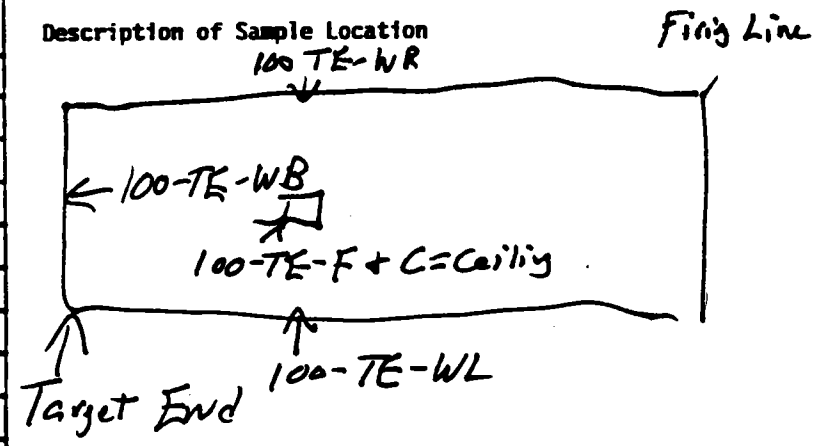
Sample Data

Color	Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis:

TAL Lead

Description of Sample Location



	Organic	Inorganic
Traffic Report #	NA	NA
Tag #	NA	NA
AB #	NA	NA
Date Shipped		
Time Shipped		
Lab	SOUTHWEST	SOUTHWEST
Volume		

APPENDIX E

BROWN & ROOT ENVIRONMENTAL
WELL CONSTRUCTION SHEETS
BORING LOG SHEETS

APPENDIX E.1

SOIL BORING LOG SHEETS

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL IW-O
PROJECT NO. _____ BORING 01-WP-01
ELEVATION _____ DATE 10/27/87
FIELD GEOLOGIST Gustaire Ebotie

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD(%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	2			Loose/Soft	Dk Brn	Humus mixed w/Silty Sand	SM	P.I.D = 0
1	2							
	2							
2	2	6/24						
	1			Soft	Brn	Silty Sand w/mica flakes trace clay	SM	P.I.D = 0
3	1							
	2							
4	2	12/24						
	Wt of Hammer							P.I.D = 0
5	1							
	1							
6	3	12/24						P.I.D = 0
	1							
7	2							
	2							
8	3	20/24						P.I.D = 0
	6							
9	6							
	4				Brn	Silty clay, clayey fine sands	ML	P.I.D = 0
10	4	12/24				trace mica flakes, infrequent gravels		
	2							
11	5							
	6							
12	6					Clayey Sand w/gravel	SC/GC/ML	
	3							

REMARKS 2-inch spoons

BORING _____

*SEE LEGEND ON BACK

PAGE 1 OF 2

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL W.O.
PROJECT NO. _____ BORING 01-WP-01
ELEVATION _____ DATE 10/27/97
FIELD GEOLOGIST Gustave EFOTTE

SAMPLE NO., TYPE* & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
13	11			Med Stiff	Brn	Silty sandy clay, w/ mica flakes.	SC/GC/ML/MH	
	7					Some gravel, rust stains, trace clay		
14	7	24/24						
	3							
15	11			Stiff		Micaceous silt sand rust + black	ML	
	18					stains.		
16	19	24/24						
	8				Lt Brn Grey	Saprolite		
17	18							
	24							
18	28	24/24						
	5							
19	10							Moist?
	22			V. Stiff	Rust Brn			
20	27	24/24						
	11							
21	22							
	32							
22	750	24/24				Spoon Refusal		
	11							Moist?
23	15							
	34							
24	750	24/24				Spoon Refusal		
	17							
						Spoon Refusal		

REMARKS 2-inch spoon

BORING _____

*SEE LEGEND ON BACK

NUS CORPORATION
Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 01-WP-02
ELEVATION _____ DATE 10/28/87
FIELD GEOLOGIST Guido e EFOTTE

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (in)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	4			Loose	black	4" top soil with silty sand		P.I.D = 0
1	16					8" asphalt + aggregates		P.I.D = 0
	14			Soft	brown	6" silty sand w/ mica flakes	SM	P.I.D = 0
2	3	18/24						
	2							
3	2							
	4							
4	3	16/24				Clayey silt some mica flakes	SC/CL	P.I.D = 0
	1							
5	1							
	2							
6	2	6/24						P.I.D = 0
	1							
7	1							
	2							
8	4	6/24				No Recovery. (Cobble lodged on		
	2					tip of spoon)		
9	7							
	4							
10	2	0/24						
	5							
11	9							
	75					Spoon refusal		
12		0/24				No Recovery Cobbles + aggregates		
	3					at tip of spoon		

REMARKS _____
BORING _____

*SEE LEGEND ON BACK

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL White Oak
PROJECT NO. _____ BORING 01-WP-02
ELEVATION _____ DATE 10/28/97
FIELD GEOLOGIST Gustave EFOTTE

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD(%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
13	5					No Recovery		
	3							
14	1	0/24						
	2							
15	2							
	2			Soft	Blk	Silty Sand w/ cobbles	SM/GP	Moist O=PP
16	2	12/24		Soft	Blk	Silty Sand w/ cobbles		Moist
	WT of Hammer				Grey	Micaceous Silty Sand (Saprolite)	M/U	
17	1							
	3							
18	7	20/24			Rust Brn	w/ rust + black stains		P.D = 0 ppm
	2							
19	5							
	8			Med Stiff				
20	16	22/24			Rust Brn	Saprolite w/ black stainings		
	9							
21	15							
	11							
22	18	24/24						
						End of boring @ 23'		

REMARKS _____ BORING _____

*SEE LEGEND ON BACK

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL W-O
PROJECT NO. _____ BORING 01-WP-03
ELEVATION _____ DATE 10/28/97
FIELD GEOLOGIST Gustave EPOTTE

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	1				Blk	Top Soil (4")		
1	1				DkBrn	Fill material cobbles + gravels	SM/GP	
	2					mixed w/silty sand		
2	3							
	5							
3	30			Broken	Brn	Concrete frags and aggregates		
	7			Soft		Silty sand w/clay	SM/SC	
4	4							
5						Will drill down to 23		
						as agreed on with Scott		
6						No sight. (No more spoons)		
7								
8								
9								
10								
11								
12								

REMARKS _____ BORING _____

*SEE LEGEND ON BACK

PAGE ____ OF ____

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO. _____ BORING 06-SB-01
ELEVATION _____ DATE 11/14/97
FIELD GEOLOGIST S. Perez

SAMPLE NO., TYPE & DEPTH (ft.)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
4	14-16-	100%		STIFF	DK GRY ~~ORG~~	CLAYEY FILL w/COBBLES		sample 4
	20-17					& WOOD		
6	11-7	80%			ORG	SAND w/ CLAY		sample 6
	8-7							

REMARKS _____

BORING 06-SB-01

*SEE LEGEND ON BACK

PAGE 1 OF 1

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO. _____ BORING 06-SB-02
ELEVATION _____ DATE 11/14/97
FIELD GEOLOGIST S. Perez

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (in)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
					BRN/	CLAY w/ SAND, WET		
2	3-3-3-3	80%			ORG ~~BRN~~			
4	1-2-5-8	90%			DARK GRY	CLAYEY FILL w/ COBBLES &		Sample 5'
						WOOD DEBRIS, WET		
6	3-3-3-2	90%			ORG	SAND w/ SOME CLAY, FINE		
						TO MED GRN., MOIST		Sample 7'

REMARKS _____ BORING 06-SB-02

*SEE LEGEND ON BACK

PAGE 1 OF 1

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO. _____ BORING 06-SB-03
ELEVATION _____ DATE 11/14/97
FIELD GEOLOGIST S. Perez

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD(%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
4	3-5-4-5	75%			BRN	CLAYEY SAND, MOIST		sample 5'
6	1-4-5-7	80%			DK GRY	CLAYEY FILL w/ COBBLES + WOOD DEBRIS, MOIST		sample 7'

REMARKS _____

BORING 06-SB-03

*SEE LEGEND ON BACK

PAGE 1 OF 1

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO. _____ BORING 12-SB-01
ELEVATION _____ DATE 11/4/97
FIELD GEOLOGIST S Perez

SAMPLE NO., TYPE & DEPTH(ft)	BLOWS/SIX INCHES OR RQD(%)	SAMPLE RECOVERY/ SAMPLE LENGTH(in)	MATERIAL MOISTURE & WATER DEPTH(ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS TIME / PID
10	6-9-11-10	20/24		VERY DENSE	LT BRN/ ORANGE	SANDY SILT WITH LG. SUBROUNDED COBBLES <1"		0915/301
12	8-9-8-6	12/24		VERY DENSE	~~LT~~ MED. BRN	~~SANDY~~ CLAYEY SILT WITH LG. COBBLES <1"		0930/308

REMARKS _____

BORING 12-SB-01

*SEE LEGEND ON BACK

PAGE 1 OF 1

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO. _____ BORING 12-SB-02
ELEVATION _____ DATE 11/13/97
FIELD GEOLOGIST S. Peirce

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
10	6-12	18/24		DENSE	RED TO ORG.	~~SANDY SILT~~ SAPROLITIC GNEISS	SC	sample c[illegible] 1200
	14-37							
12	18-90	12/24		VERY DENSE				Sample collect 1210
	58							

REMARKS sample 12-SB-02(10) collect w/ spoon used for rinsate

BORING 12-SB-02

*SEE LEGEND ON BACK

PAGE 1 OF 1

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL/WO
PROJECT NO. _____ BORING 12-SB-03
ELEVATION _____ DATE 11/4/97
FIELD GEOLOGIST S. Perez

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS TIME / PID
	19-27-38	24/24		VERY DENSE	Blk/wht	SAPROLITIC GNEISS, VISIBLE OXIDATION		1075 / 318
						ALONG FRACTURE PLANES (BOTH VERT		
12	17/23/27/27	24/24		VERY DENSE	Blk/wht	+ HORIZONTAL)		1045 / 460

REMARKS _____

BORING 12-SB-03

*SEE LEGEND ON BACK

PAGE 1 OF 1

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 12-SB-04
ELEVATION _____ DATE 11/13/97
FIELD GEOLOGIST S. Perez

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
10	11-24-23-25	20/24		DENSE	ORG	SAPROLITIC GNEISS		collect sample at 1245
12	20-37-47-50	24/24			BLK/WHT	w/ GARNET		collect sample at 1255

REMARKS _____

BORING 12-SB-04

*SEE LEGEND ON BACK

PAGE 1 OF 1

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL (N) - 0
PROJECT NO. _____ BORING 12-WP-01
ELEVATION _____ DATE 10/30/92
FIELD GEOLOGIST Gustaire [illegible]

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	6			Soft	Dk Grey	Silty Sand	SM	
1	12			Stiff	Lt Grey Brn	Silty Sand, trace gravel	SM/GP	
	9							
2	6	18/24			Brn			PID = 0
	7				Rusty Brn	Silty Sand, some mica flakes	SM	
3	12							
	12							
4	12	18/24						PID = 0
	5							
5	13							
	14							
6	10	12/24						PID = 0
	4							
7	10							
	13							
8	14	18/20					SM/MH	PID = 0
	9							
9	15			V. Stiff				
	17				Grey/Brn	Micaceous Silty Sand (Like Saprolite) Not Quite		PID = 0
10	12				Rusty Brn	Silty Sand w/mica flakes, dk stains		
	6							
11	15							
	15				Grey/Brn	Micaceous Silty Sand		
12	14							
	8							

REMARKS _____

BORING _____

*SEE LEGEND ON BACK

PAGE 1 OF 2

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL W.O.
PROJECT NO. _____ BORING 12-WP-01
ELEVATION _____ DATE 10-30-97
FIELD GEOLOGIST Gustave EFOTTE

SAMPLE NO., TYPE* & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
13	12			V. Stiff	Grey/Brn	Micaceous Silty Sand Black Stains	MH	
	15					Blocky (decomposed) Saprolite?		Damp @ 15'
14	10	20/24						0 ppm
	4			Med Stiff				
15	8							
	9							
16	10	20/24						PID = 0
	9				Grey	Micaceous Saprolite Blocky		Dry/Almost Dam
17	16			V. Stiff		w/dk + rust Stains		
	20							
18	23	24/24						PID = 0
	[illegible]							
19	[illegible]							
	[illegible]							
20	[illegible]	20/24						0
	[illegible]							Damp
21	[illegible]							
	20							0
22	27	20/24						
	25							
23	>50					Spoon Refusal		
	0							
24	0	8/24						0
	22							
25	>50							

REMARKS _____

BORING _____

*SEE LEGEND ON BACK

PAGE 2 OF 3

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL White - Oak
PROJECT NO. _____ BORING 12-WP-01
ELEVATION _____ DATE 10/20/93
FIELD GEOLOGIST Gustave Efotte

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	0							
2[illegible]	0	0/24		Stiff Very	Grey	No trap at [illegible]		
	750				Brn	Saprolite (Grey w/ rust	MU	
3[illegible]	0					black Stains		
	0							
2[illegible]	0	6/24						PID = 0
	750							
24	0							
	0							
3[illegible]	0	6/24						PID = 0
	27				Blk Grey			Wet
3[illegible]	750							
	0							
32	0	12/24						= 0
	15							
3[illegible]	18							
	23							
34	24	24/24						
	9							0
3[illegible]	30							
	750							
36	0	18/24						0
37						Boring end @ 37'		

REMARKS _____

BORING _____

*SEE LEGEND ON BACK

PAGE 3 OF 3

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL W.O.
PROJECT NO. _____ BORING 12-WP-02
ELEVATION _____ DATE 10/31/97
FIELD GEOLOGIST Gustave EFOTTE

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (in)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
5								
	4 8			Med Stiff	Brn	Silty Sand w/mica flakes	SM	P.D = 0
	9	18/24			Brown Brn			
10								
	3				Brown Brn	Silty Sand with mica flakes	Sm	0
	10 11	18/24						
15								
	4 6							
	9 8	18/24			Grey	Decomposed silty sand w/mica flakes yellow/rust stains	MH	0
20								
	17			V. Stiff	Grey			
	27 26	20/24						0
25								

REMARKS _____

BORING _____

*SEE LEGEND ON BACK

PAGE 1 OF 2

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL White Oak
PROJECT NO. _____ BORING 12-WP-02
ELEVATION _____ DATE 10/31/97
FIELD GEOLOGIST Gustave Efot

SAMPLE NO., TYPE* & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	4 12			Med Stiff	Grey	Decomposed S - Sand w/ mica pebble	M/H	Damp
	12 16	20/24				dk & rust stains		PID = 0
30								
	10 33			V. Stiff	Grey/yellow	Same with yellowish - rust stains		
	39 26	18/24			Grey	Same with black stains		0
35								
	>50 0			Broken	Grey	Broken pieces of schist	Schist	(bedrock?) 0
	0 0	4/24						
40								
	>50 0							
	0 0	0/24				Boring @ 42' will let fit		PID 0
						over weekend.		(From Hole)

REMARKS _____ BORING _____

*SEE LEGEND ON BACK

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL White Oak
PROJECT NO. _____ BORING 12-WP-03
ELEVATION _____ DATE 11/3/97
FIELD GEOLOGIST Stephanie Perez

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS PID READINGS
				SOFT	BRNGE	SILT WITH TRACE SAND, ~~SOFT~~ TRACE		0.0
						MICACEOUS MATERIAL; TRACE ROUNDED		
						PEBBLES.; DRY		
5	4-7-7-6	18/24		DENSE		TRACE CLAY		0.0
10	11-14-19-11	16/24				TRACE LARGE COBBLES (<1")		0.0
15	13-20-13-5	0/24				COBBLE STUCK IN SPOON		0.0
					DARK GRY.	Δ IN COLOR TO DARK GRNG.;		
						MOIST		
20	6-9-19-24-35	20/24		VERY DENSE	WHT/ BLK	SAPROLITIC GNEISS; HEAVY OXIDATION		
						ALONG FRACTURE PLANES (VERTICAL)		
						TO APPROX. 21.5'; MOIST		
25	13-46-50/3	18/24						

REMARKS _____

BORING 12-WP-03

*SEE LEGEND ON BACK

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO.
BORING 12-WP-03
ELEVATION
DATE 11/3/97
FIELD GEOLOGIST S. Perez

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
30	16-19-24-26	20/24		VERY DENSE				0.0
35	13-24-50/3	~~[illegible]~~		VERY DENSE				0.0 ~~0~~ SBB
40	50/4"	4"/4"		VERY DENSE				0.0 Spoon Refusal
45	Refusal							
50	Refusal					Bottom of boring		

REMARKS

BORING 12-WP-03

*SEE LEGEND ON BACK

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 28-SB-01
ELEVATION _____ DATE 10/23/92 1440
FIELD GEOLOGIST Gustave Efotie

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	15			Loose		8" Aggregates and rubbish		
1	22			Very Stiff	Rust/Brn	Gravelly + Cobbly Silt Sand		
	22							
2	20	24/24						
	41							
3	750							
	750							
4								

REMARKS _____
BORING _____

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 28-SB-04
ELEVATION _____ DATE 10/23/97
FIELD GEOLOGIST Gustave Efotte

SAMPLE NO., TYPE* & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	6			Loose	Brn	4" inch aggregate Silty Sand gravel/cobbles frequent	SP/GP	
1	8			Soft	Grey	Silty Sand w/trace clay + rust stains	SP	
	6							
2	8							
	4					Silty Sand w/trace clay + organics	SM	
3	3							Moist
	16							
4	39			Hard	Rust	Gravelly Silty Sand	GP	

REMARKS _____ BORING _____

*SEE LEGEND ON BACK

PAGE ____ OF ____

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL White Oak
PROJECT NO. _____ BORING 28-SB-05
ELEVATION _____ DATE 10/27/87
FIELD GEOLOGIST Gustave Eforit

SAMPLE NO., TYPE* & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	16					4-inch aggregates		
1	25			Stiff	BRN	Silty Sand w/ gravel [illegible]	SP	
	27							
2	52							
	50							
3	[illegible]							
	50							
4	750							

REMARKS _____ BORING _____

*SEE LEGEND ON BACK

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING SB 28 - SR - 06
ELEVATION _____ DATE 10/26/87
FIELD GEOLOGIST G. [illegible]

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	25					6" inch aggregate base		
1	35			V-Stiff	Brn	Silty sand w/trace clay frequent	SP/GP	
	48					cobbles + gravels		
2	52							
	54			V. Stiff		Gravelly Silty Sand	GM	
3	50							
	68							
4	80							

REMARKS _____

BORING _____

*SEE LEGEND ON BACK

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 28-SB-07
ELEVATION _____ DATE 10/23/97
FIELD GEOLOGIST Gustave E Fotte

SAMPLE NO., TYPE* & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	6			Loose	DK to Grey	Fine sand		
1	8							
	11				Lt Brn	Silty Sand w/rust stains. Cobbles		
2	24	24/24		Stiff		and gravels		
	23							
3	06					Cobbles + Gravelly silty sand cemented		
	50					with a ~~soft~~ rusty brown silty sand.		
4	31	24/24						

REMARKS _____ BORING _____

*SEE LEGEND ON BACK

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 28-SB-
ELEVATION _____ DATE 10/23/[illegible]
FIELD GEOLOGIST Gustave EFUTTE

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (in)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS
	3			Loose	Dk	Humus soil (Top soil)	
1	4			Med Stiff	BRN	Silty sand w/ pebbles & gravels	
	15						
2	9	18/24					
	6			Soft	Grey	Silty sand	
3	7						
	15					Silty sand w/organics	
4	15	22/24					

REMARKS _____

BORING _____

*SEE LEGEND ON BACK

PAGE _____

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 28-SB-09
ELEVATION _____ DATE 10/23/97
FIELD GEOLOGIST Gustave Eftrel

SAMPLE NO., TYPE* & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
1						Aggregates		
1								
2								
				Soft	Brown-grey	Wet Clay, trace silt		wet
3								
4		12/24						

REMARKS _____

BORING _____

*SEE LEGEND ON BACK

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 29-SB-01
ELEVATION _____ DATE 10/24/87
FIELD GEOLOGIST G. Efotte

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	6			Med Loose	Brn	Silty Sand	SM	
1	9			Coff				
	2							
2	7	24/24						
	6				Br	Silty Sand with mica flakes	Sm	
3	6							
	6							
4	8	24/24			Rusty Brn	Micaceous Silty Sand	Sm/MH	
	6							
5	7							
	9							
6	9	18/24		Friable	Brn	Micaceous Silty Sand rust stains		
	9					+ dark striations		
7	14							
	12							
8	13	18/24			Brn Grey			Saprolite?
	9							
9	9							
	11							
10	11	18/24						
	6							
11	6							
	9							
12	10	12/24						
	12							

REMARKS 2-inch spoon (We are filling 1-8oz and 1-4oz) for VOC + SVOC only.

BORING _____

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 29-SB-01
ELEVATION _____ DATE 10/24/87
FIELD GEOLOGIST Gustave EFSTE.

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
13	18			Med dense	Green/Br	Micaceous Silty Sand rust/dark	M H	
	20					Striations		
14	10	24/24						
	12							
15	15							
	15							wet/moist
16	15	24/24			Rust		M H	
	17							
17	21			Stiff				
	75°			Stiff				
18								

REMARKS _____
BORING _____

*SEE LEGEND ON BACK

PAGE 2 OF 2

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 29-SR-02
ELEVATION _____ DATE 10/26/97
FIELD GEOLOGIST Gustave EFOTTE

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	15			Soft	Dk Br	4-inch top soil (humus)		
1	9			soft	red br.	Silty Sand w/mica flakes	SM	
	10			soft	red br.			
2	13	w/w		soft	red br.			
	6				Brn	Micaceous Silty Sand w/		
3	9					dk Striations		
	12							
4	12	w/w						
	4				Br	Micaceous Silty Sand w/ dk Striations		
5	8							
	9							
6	11	22/w						
	9				Brn/Gray	Micaceous Silty Sand w/ dark		Saprolite?
7						and rust stains/striations	MH	
	10							
8	10	w/w						
	2							
9	1							
	10							
10	10	w/w						
	6							
11	3							
	8							
12	7	w/w						
	6							

REMARKS _____

BORING _____

*SEE LEGEND ON BACK

PAGE 1 OF 2

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL
PROJECT NO. _____ BORING 29-SB-02
ELEVATION _____ DATE 10/24/97
FIELD GEOLOGIST Gustave EFOTTE

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (in)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
13	7				Dk for grey	Micaceous silty sand w/dk	MH	
	9					Striations		
14	10	4/24						
	2		▽					wet
15	6				White	Micaceous silt sand	MH	
	9							
16	2	24/24						
17								
18								
19								
20								

REMARKS _____
BORING _____

*SEE LEGEND ON BACK

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO. 7427 BORING 31-SB-01
ELEVATION UNKNOWN DATE 11-17-97
FIELD GEOLOGIST TRISTRAM MADDEN

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	2-3-4-5	15		SOFT	olive brown	micaceous silty sand w/ rounded pebbles, moist	SM	0 ppm
2								
	3-4-6-5	18		MED. STIFF	brown	micaceous silty clay w/ gravel		0 ppm
4								
	3-4-7-6	15		MED. STIFF	brown			0 ppm
6								
8								
10	1-4-3-6	15		SOFT	brown	micaceous silty sand w/ rounded pebbles	SM	0 ppm
15	2-3-5-5	15		SOFT	red-brown	micaceous silty clay w/ rounded pebbles		0 ppm
20	3-4-3-5	18		SOFT	gray-green			0 ppm
25	3-3-10-12	20		STIFF	light brown	micaceous silty sand w/ dark striations, wet	SM	0 ppm

REMARKS

BORING 31-SB-01

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO. 7427 BORING 31-SB-02
ELEVATION UNKNOWN DATE 11-17-97
FIELD GEOLOGIST TRISTRAM MADDEN

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD(%)	SAMPLE RECOVERY/ SAMPLE LENGTH (in)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	1-1-2-3	18		VERY SOFT	brown	silty sand, micaceous, w/	SM	0 ppm
2						angular gravel, moist		
	1-2-1-2	18		SOFT	brown	silty sand, micaceous, w/ clay	SM	0 ppm
4						and gravel, moist		
	3-4-5-7	14		MED. STIFF	brown		SM	0 ppm
6					gray-green	silty sand w/ gravel and clay	SM	
	3-4-4-5	20		MED. STIFF	brown	clayey sand w/ silt, moist, micaceous	SM	0 ppm
8					gray-green	micaceous silty sand w/ gravel	SM	
	5-6-8-8	18		MED. STIFF	brown	micaceous ~~sandy silt~~ w/	SM	0 ppm
10						sand and gravel, moist		
	3-3-3-3	14		SOFT	red-brown			0 ppm
12								
	1-3-5-5	8		SOFT	red-brown			0 ppm
14								
	2-5-4-5	18		MED STIFF	red-brown			0 ppm
16					black-gray	micaceous sandy silt, moist		
	2-3-4-4	6		SOFT	gray-green	micaceous sandy silt, moist		0 ppm
18								
	3-8-9-11	24		STIFF	light gray	micaceous silty sand w/ trace		0 ppm
20						rounded pebbles, moist		
	9-13-21	24		VERY STIFF	red-brown	micaceous silty sand w/		0 ppm
22						angular rock fragments, heavily oxidized moist		
	12-36→Ref	18		HARD	red-brown			0 ppm
24								
	55→Ref			HARD	red-brown			0 ppm

REMARKS

BORING 31-SB-02

*SEE LEGEND ON BACK

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL CO
PROJECT NO. 7427 BORING 31-SB-02
ELEVATION UNKNOWN DATE 11-17-97
FIELD GEOLOGIST TRISTRAM MADDEN

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
26				HARD				
	SS = 19'				red-brown			0 ppm
28								

REMARKS

BORING 31-SB-02

*SEE LEGEND ON BACK

PAGE 2 OF 2

NUS CORPORATION
A Halliburton Company

PROJECT NSWCDD WO
PROJECT NO. 9477 BORING 33-SB-01
ELEVATION UNKNOWN DATE 11-17-97
FIELD GEOLOGIST TRISTRAM MADDEN

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
						~~silty clay w/ gravel~~		
6	6-8-12-12	24		STIFF	red-brown	silty clay w/ gravel (angular), dry		0.0 ppm
8								
10	2-5-7-7	18		MED. STIFF	brown	micaceous silty sand, moist	SM	0.0 ppm
15	1-3-7-6	18		MED. STIFF	brown	micaceous sandy clay w/ silt, moist		0.0 ppm
20	3-4-6-7	18		MOD. STIFF	light brown	micaceous silty sand, moist		0.0 ppm
25	7-13-16-19	24		STIFF	light brown	micaceous silty sand, heavily oxidized, moist		0.0 ppm

REMARKS

BORING 33-SB-01

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PAGE 1 OF 1

NUS CORPORATION
A Halliburton Company

PROJECT NSWC DAHLGREN
PROJECT NO. 7427 BORING 33-SB-02
ELEVATION UNKNOWN DATE 11-17-97
FIELD GEOLOGIST TRISTRAM MADDEN

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (in)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
	5-8-11-9	16		STIFF	brown	micaceous silty clay w/ angular		0.0 ppm
6						gravel, moist		
8								
	4-6-7-6	16		MED. STIFF	brown	micaceous silty sand w/ clay,		0.0 ppm
10						moist		
	3-4-6	12		SOFT	red-brown	micaceous silty sand w/ clay		0.0 ppm
15						and angular gravel, moist		
20	2-5-5-6	18		MED. STIFF	light	micaceous silty sand, moist		0.0 ppm
25	2-3-4-5	20		SOFT	light			0.0 ppm

REMARKS

BORING 33-SB-02

*SEE LEGEND ON BACK

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NUS CORPORATION
A Halliburton Company

PROJECT NSWCDL WO
PROJECT NO.
BORING ~~06~~ 33-SB-03
ELEVATION
DATE 11/14/97
FIELD GEOLOGIST S. Perez

SAMPLE NO., TYPE & DEPTH (ft)	BLOWS/SIX INCHES OR RQD (%)	SAMPLE RECOVERY/ SAMPLE LENGTH (ft)	MATERIAL MOISTURE & WATER DEPTH (ft)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	USCS OR ROCK BROKENNESS	REMARKS
6	4-5	50%			ORG	SAPROLITIC SCHIST w/		sample @ 6
	6-5					RED + BLK MOTTLES		
8	5-6	75%						
	6-7							
10	5-6	75%						
	7-7							
12	3-4	100%						
	8-9							
14	3-4	100%						
	4-5							
16	2-4	50%						
	6-4							
18	6-5	80%						
	7-8							
20	5-8	80%						
	9-10							
22	6-11	75%						
	12-10							
24	4-7	80%						
	7-9							

26 8-14-20-24 100%

REMARKS sample @ 26

BORING 33-SB-03

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APPENDIX E.2

WELL CONSTRUCTION SHEETS

NUS CORPORATION
A Halliburton Company

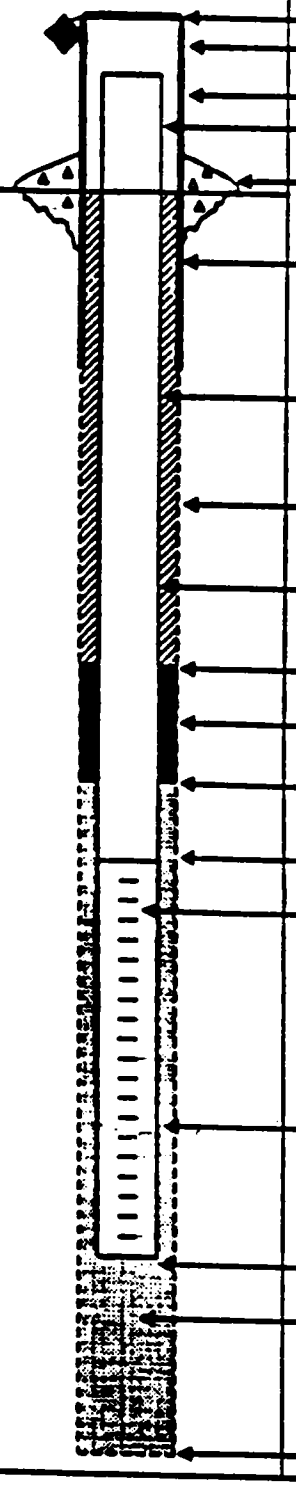
BORING NO.: 01-WP-01
TEMPORARY WELL POINT

OVERBURDEN MONITORING WELL SHEET

PROJECT
PROJECT NO.
ELEVATION
FIELD GEOLOGIST: GUSTAVE EFOTTE

LOCATION: SITE 1
BORING: 01-WP-01
DATE: 10/28/97

DRILLER: A.C. Schultes
DRILLING METHOD: HSA
DEVELOPMENT METHOD:



ELEVATION OF TOP OF SURFACE CASING: N/A
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING: ⊥
STICK - UP RISER PIPE: 2'
TYPE OF SURFACE SEAL: N/A
I.D. OF SURFACE CASING: N/A
TYPE OF SURFACE CASING: ⊥
RISER PIPE I.D. 2-inch
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: N/A
ELEVATION / DEPTH TOP OF SEAL: 8.0'
TYPE OF SEAL: Bentonite Pellets
DEPTH TOP OF SAND PACK: 10.0'
ELEVATION / DEPTH TOP OF SCREEN: 13'
TYPE OF SCREEN: 2-inch PVC (10 foot)
SLOT SIZE x LENGTH: 0.010 inch
I.D. OF SCREEN: 2-inch
TYPE OF SAND PACK: #2 Morie SAND
ELEVATION / DEPTH BOTTOM OF SCREEN: 23'
ELEVATION / DEPTH BOTTOM OF SAND PACK: #2 Morie Sand
TYPE OF BACKFILL BELOW OBSERVATION WELL:
ELEVATION / DEPTH OF HOLE: 24'

NUS CORPORATION
A Halliburton Company

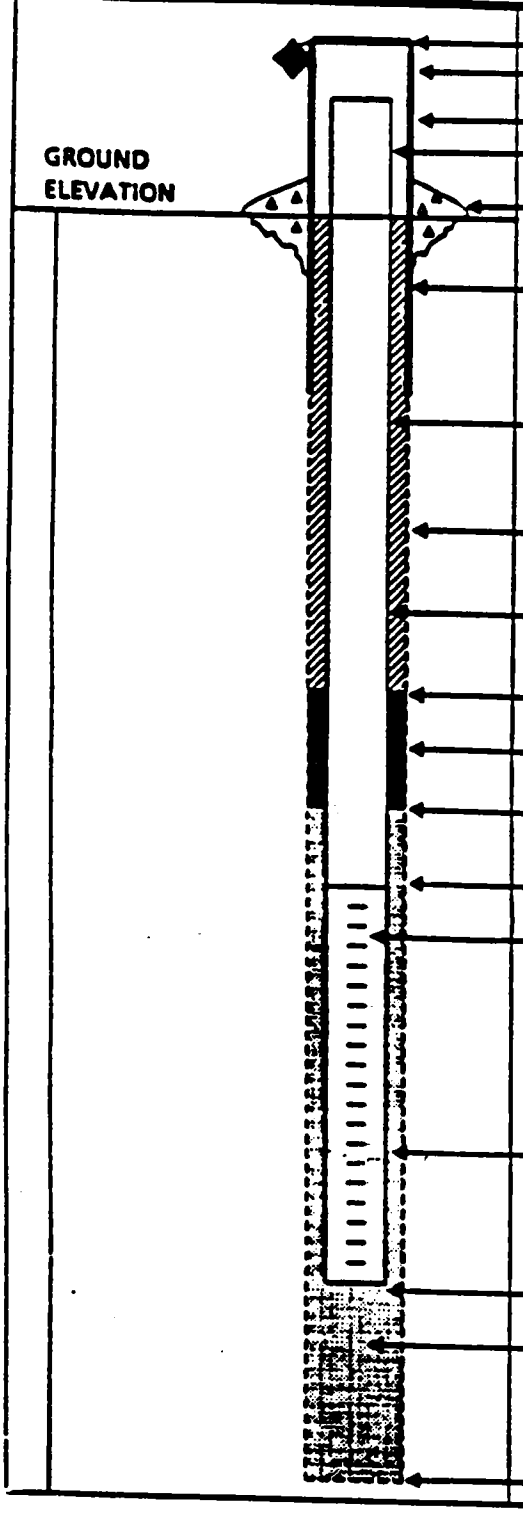
BORING NO.: 01-WP-02
TEMPORARY WELL POINTS

OVERBURDEN MONITORING WELL SHEET

PROJECT
PROJECT NO.
ELEVATION
FIELD GEOLOGIST Gustave Epotte

LOCATION SITE 1
BORING 01-WP-02
DATE 10/28/97

DRILLER AC Schulter
DRILLING METHOD HSA
DEVELOPMENT METHOD



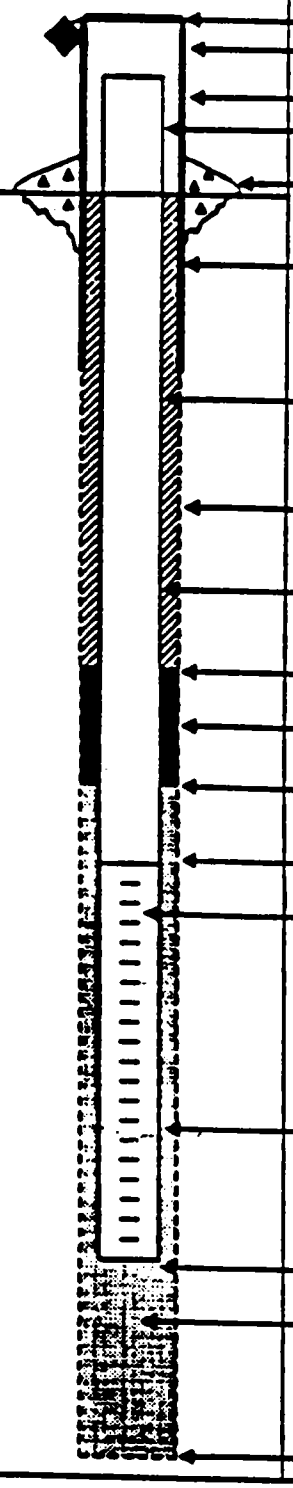
ELEVATION OF TOP OF SURFACE CASING: N/A
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE: 2'
TYPE OF SURFACE SEAL: N/A
I.D. OF SURFACE CASING: N/A
TYPE OF SURFACE CASING:
RISER PIPE I.D. 2 inch
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: Open
ELEVATION / DEPTH TOP OF SEAL: 9'
TYPE OF SEAL: Bentonite Pellets
DEPTH TOP OF SAND PACK: 11'
ELEVATION / DEPTH TOP OF SCREEN: 13'
TYPE OF SCREEN: 10' PVC
SLOT SIZE x LENGTH: 0.010 inch
I.D. OF SCREEN: 2-inch
TYPE OF SAND PACK:
ELEVATION / DEPTH BOTTOM OF SCREEN: 23'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 6"
TYPE OF BACKFILL BELOW OBSERVATION WELL:
ELEVATION / DEPTH OF HOLE: 23.5'

NUS CORPORATION
A Halliburton Company

BORING NO.: 01-WP-03
TEMPORARY WELL POINT

OVERBURDEN MONITORING WELL SHEET

PROJECT	LOCATION SITE 1	DRILLER AC Schumpf
PROJECT NO.	BORING 01-WP-03	DRILLING METHOD HSA
ELEVATION	DATE 10/28/97	DEVELOPMENT METHOD
FIELD GEOLOGIST GUSTAVE EFOTTE		



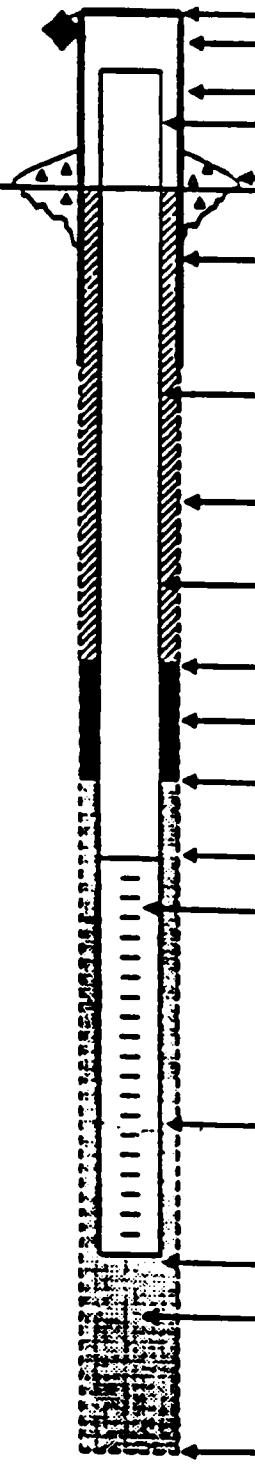
ELEVATION OF TOP OF SURFACE CASING: N/A
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE: 2'
TYPE OF SURFACE SEAL: N/A
I.D. OF SURFACE CASING:
TYPE OF SURFACE CASING:
RISER PIPE I.D. 2 inch
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: N/A
ELEVATION / DEPTH TOP OF SEAL: 8.0'
TYPE OF SEAL: Bentonite Pellets
DEPTH TOP OF SAND PACK: 10.5'
ELEVATION / DEPTH TOP OF SCREEN: 13'
TYPE OF SCREEN: 10' PVC
SLOT SIZE x LENGTH: 0.010 inch
I.D. OF SCREEN: 2 inch
TYPE OF SAND PACK: #2 Morie Sand
ELEVATION / DEPTH BOTTOM OF SCREEN: 23'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 6"
TYPE OF BACKFILL BELOW OBSERVATION WELL:
ELEVATION / DEPTH OF HOLE: 23.5'

NUS CORPORATION
A Halliburton Company

BORING NO.: 01-WP-24

OVERBURDEN MONITORING WELL SHEET

PROJECT	LOCATION SITE 1	DRILLER [illegible]
PROJECT NO.	BORING 01-WP-24	DRILLING METHOD HSA
ELEVATION	DATE 10/29/92	DEVELOPMENT METHOD
FIELD GEOLOGIST [illegible]		



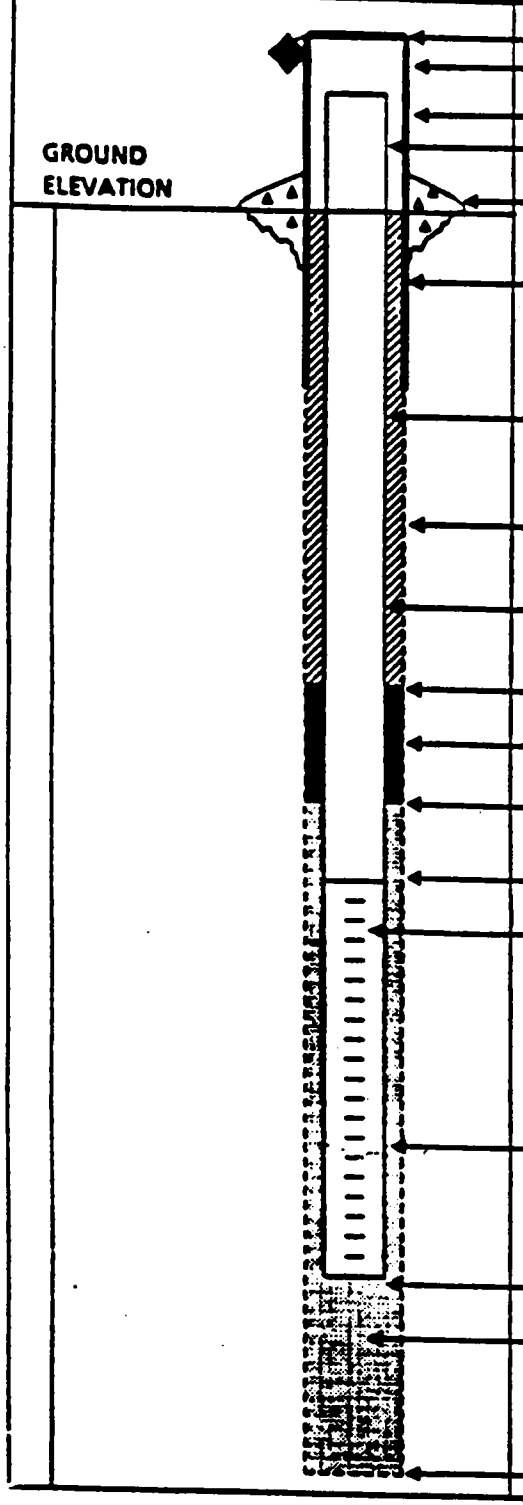
ELEVATION OF TOP OF SURFACE CASING: N/A
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING: 1
STICK - UP RISER PIPE: 2'
TYPE OF SURFACE SEAL: N/A
I.D. OF SURFACE CASING:
TYPE OF SURFACE CASING:
RISER PIPE I.D. 2 inch
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: N/A
ELEVATION / DEPTH TOP OF SEAL: 9
TYPE OF SEAL: Bentonite
DEPTH TOP OF SAND PACK: 11'
ELEVATION / DEPTH TOP OF SCREEN: 13'
TYPE OF SCREEN: 10' PVC
SLOT SIZE x LENGTH: [illegible]
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 Sand
ELEVATION / DEPTH BOTTOM OF SCREEN: 23'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 6"
TYPE OF BACKFILL BELOW OBSERVATION WELL: #1 Sand
ELEVATION / DEPTH OF HOLE: 23.5'

NUS CORPORATION
A Halliburton Company

BORING NO.: 01-WP-05

OVERBURDEN MONITORING WELL SHEET

PROJECT	LOCATION ~~OU~~ SITE 1	DRILLER AC Schulter
PROJECT NO.	BORING 01-WP-05	DRILLING METHOD HSA
ELEVATION	DATE 10/29/97	DEVELOPMENT METHOD
FIELD GEOLOGIST Gustave	E Fothe	



ELEVATION OF TOP OF SURFACE CASING: N/A
ELEVATION OF TOP OF RISER PIPE: /
STICK - UP TOP OF SURFACE CASING: /
STICK - UP RISER PIPE: 2'
TYPE OF SURFACE SEAL: N/A
I.D. OF SURFACE CASING: /
TYPE OF SURFACE CASING: /
RISER PIPE I.D. 2 inch
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: N/A
ELEVATION / DEPTH TOP OF SEAL: 9'
TYPE OF SEAL: 3/8 Hole Plug
DEPTH TOP OF SAND PACK: 11'
ELEVATION / DEPTH TOP OF SCREEN: 13
TYPE OF SCREEN: 10' PVC
SLOT SIZE x LENGTH: 0.010"
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 Sand
ELEVATION / DEPTH BOTTOM OF SCREEN: 23'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 6"
TYPE OF BACKFILL BELOW OBSERVATION WELL:
ELEVATION / DEPTH OF HOLE: 23.5'

NUS CORPORATION
A Halliburton Company

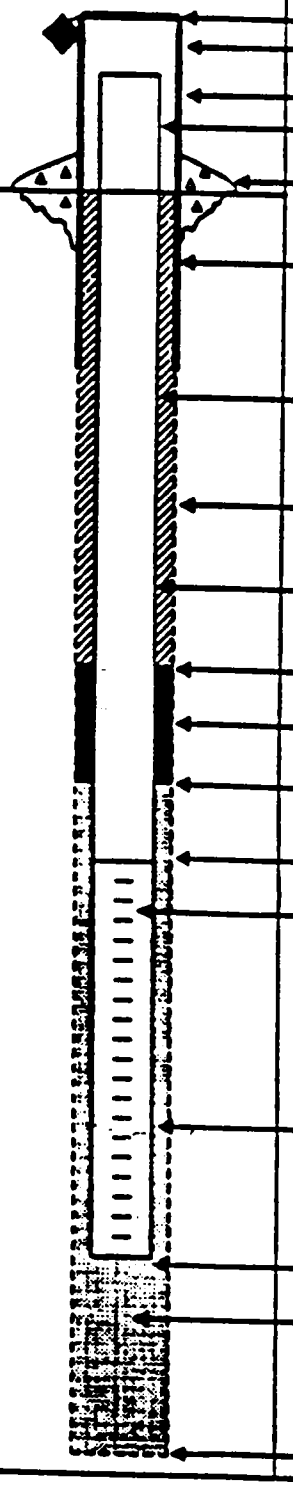
BORING NO.: 05-MW-01

OVERBURDEN MONITORING WELL SHEET

PROJECT
PROJECT NO.
ELEVATION
FIELD GEOLOGIST: GUSTAVE [illegible]

LOCATION: SITE 5
BORING: 05-MW-01
DATE: 10/29-30/97

DRILLER: AC ACHULTES
DRILLING METHOD: HSA
DEVELOPMENT METHOD



ELEVATION OF TOP OF SURFACE CASING:
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE: 2'
TYPE OF SURFACE SEAL: Grout
I.D. OF SURFACE CASING: 6"
TYPE OF SURFACE CASING: Steel
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: Grout
ELEVATION / DEPTH TOP OF SEAL: 10'
TYPE OF SEAL: Bentonite
DEPTH TOP OF SAND PACK: 13'
ELEVATION / DEPTH TOP OF SCREEN: 16'
TYPE OF SCREEN: 10' PVC
SLOT SIZE x LENGTH: 0.010"
I.D. OF SCREEN: 2 inch
TYPE OF SAND PACK: #1 Morie Sand
ELEVATION / DEPTH BOTTOM OF SCREEN: 27'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 3'
TYPE OF BACKFILL BELOW OBSERVATION WELL:
ELEVATION / DEPTH OF HOLE: 29'

NUS CORPORATION
A Halliburton Company

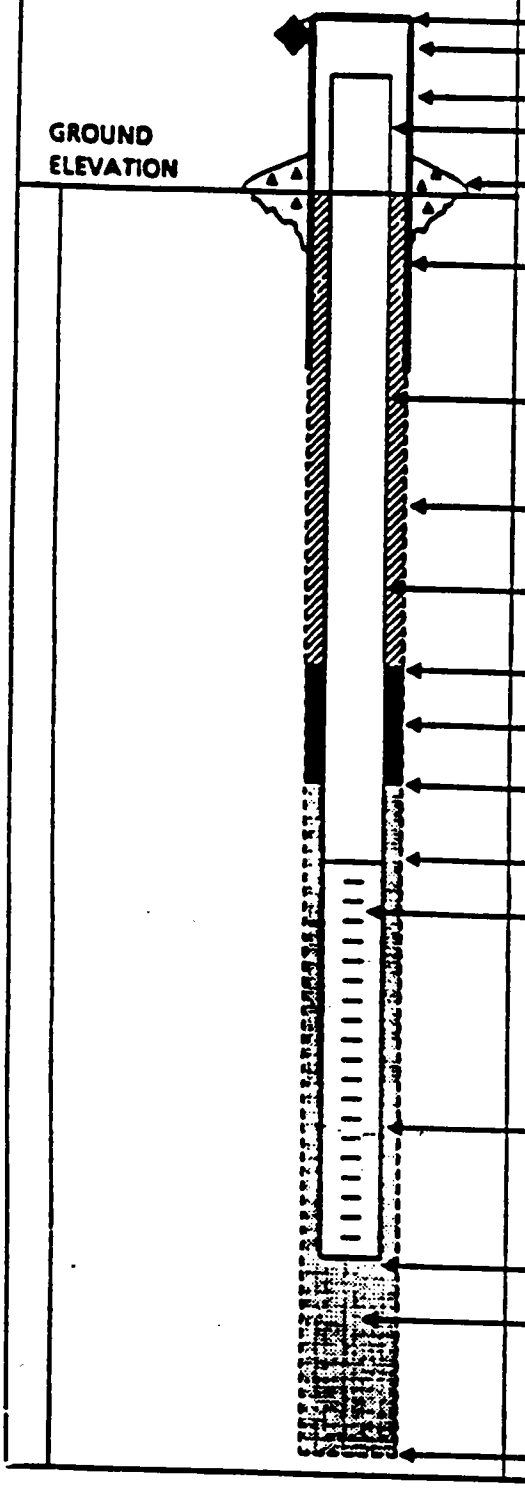
BORING NO.: 05-MW-02

OVERBURDEN MONITORING WELL SHEET

PROJECT
PROJECT NO.
ELEVATION
FIELD GEOLOGIST

LOCATION: SITE 5
BORING: 05-MW-02
DATE: 10/29-30/92

DRILLER: AC SCHMITZER
DRILLING METHOD: HSA
DEVELOPMENT METHOD



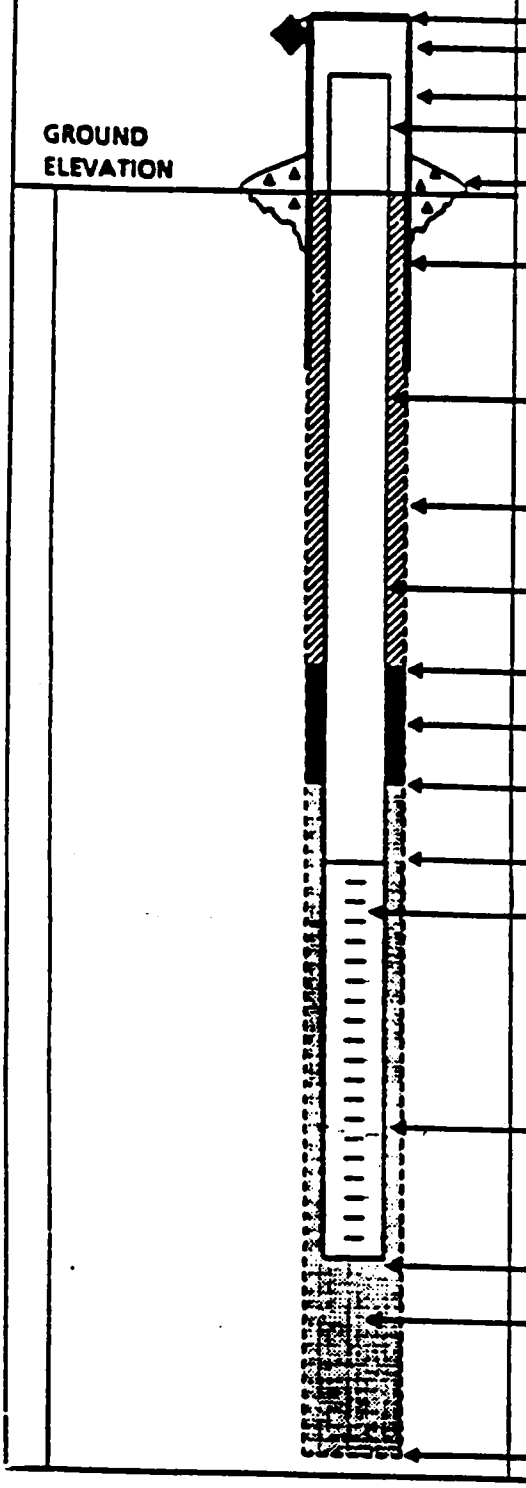
ELEVATION OF TOP OF SURFACE CASING:
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE: 2'
TYPE OF SURFACE SEAL: Grout
I.D. OF SURFACE CASING: 6"
TYPE OF SURFACE CASING: steel
RISER PIPE I.D. ~~PVC~~ 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: Grout
ELEVATION / DEPTH TOP OF SEAL: 10'
TYPE OF SEAL: Bentonite
DEPTH TOP OF SAND PACK: 13'
ELEVATION / DEPTH TOP OF SCREEN: 15'
TYPE OF SCREEN: 10' PVC
SLOT SIZE x LENGTH: 0.010"
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 Morie Sand
ELEVATION / DEPTH BOTTOM OF SCREEN: 25
ELEVATION / DEPTH BOTTOM OF SAND PACK: 3
TYPE OF BACKFILL BELOW OBSERVATION WELL: #1 Morie Sand
ELEVATION / DEPTH OF HOLE: 28

NUS CORPORATION
A Halliburton Company

BORING NO.: 12-WP-01 (Temp well)

OVERBURDEN MONITORING WELL SHEET

PROJECT	LOCATION SITE 12	DRILLER A C SCHULTER
PROJECT NO.	BORING 12-WP-01	DRILLING METHOD HSA
ELEVATION	DATE 10/31/92	DEVELOPMENT METHOD
FIELD GEOLOGIST Gustave Epstein		



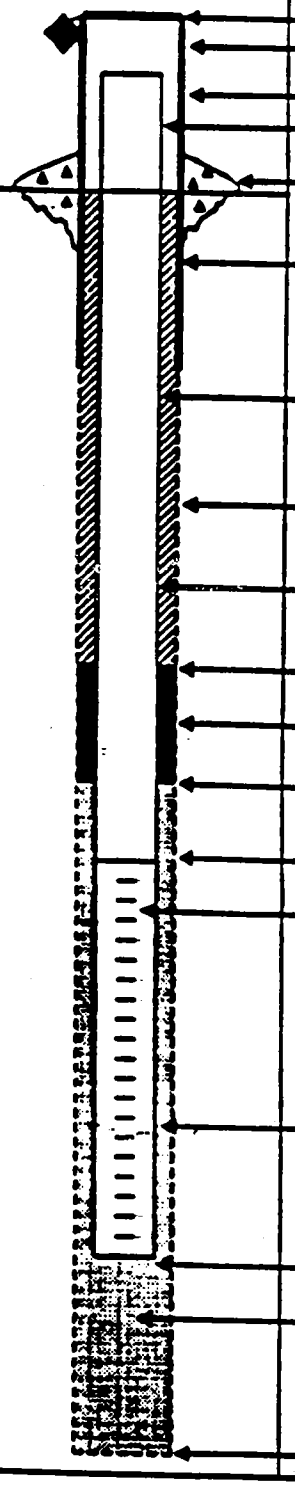
ELEVATION OF TOP OF SURFACE CASING : N/A
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE : 2'
TYPE OF SURFACE SEAL: N/A
I.D. OF SURFACE CASING:
TYPE OF SURFACE CASING:
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: None (Temp well)
ELEVATION / DEPTH TOP OF SEAL: 2
TYPE OF SEAL: Bentonite Pellets
DEPTH TOP OF SAND PACK: 22'
ELEVATION / DEPTH TOP OF SCREEN: 26.5'
TYPE OF SCREEN: 10" PVC
SLOT SIZE x LENGTH: 0.010"
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 Morie Sand
ELEVATION / DEPTH BOTTOM OF SCREEN: -6.5'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 6"
TYPE OF BACKFILL BELOW OBSERVATION WELL:
ELEVATION / DEPTH OF HOLE: 37

NUS CORPORATION
A Halliburton Company

BORING NO.: 12-WP-02 (Temporary well Point)

OVERBURDEN MONITORING WELL SHEET

PROJECT	LOCATION: Site 12	DRILLER: AC Schuller
PROJECT NO.	BORING: 12-WP-02	DRILLING METHOD: HSA
ELEVATION	DATE: 10/7/93	DEVELOPMENT METHOD
FIELD GEOLOGIST: [illegible]		



ELEVATION OF TOP OF SURFACE CASING:
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE:
TYPE OF SURFACE SEAL: N/A
I.D. OF SURFACE CASING:
TYPE OF SURFACE CASING:
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: N/A (Temporary well)
ELEVATION / DEPTH TOP OF SEAL: 25.6'
TYPE OF SEAL: Bentonite
DEPTH TOP OF SAND PACK: 27.5'
ELEVATION / DEPTH TOP OF SCREEN: 30'
TYPE OF SCREEN: 10' PVC
SLOT SIZE x LENGTH: 0.01"
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: #1 Morie Sand
ELEVATION / DEPTH BOTTOM OF SCREEN: 40'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 42.5'
TYPE OF BACKFILL BELOW OBSERVATION WELL: #1 Morie Sand
ELEVATION / DEPTH OF HOLE: 42.5

NUS CORPORATION
A Halliburton Company

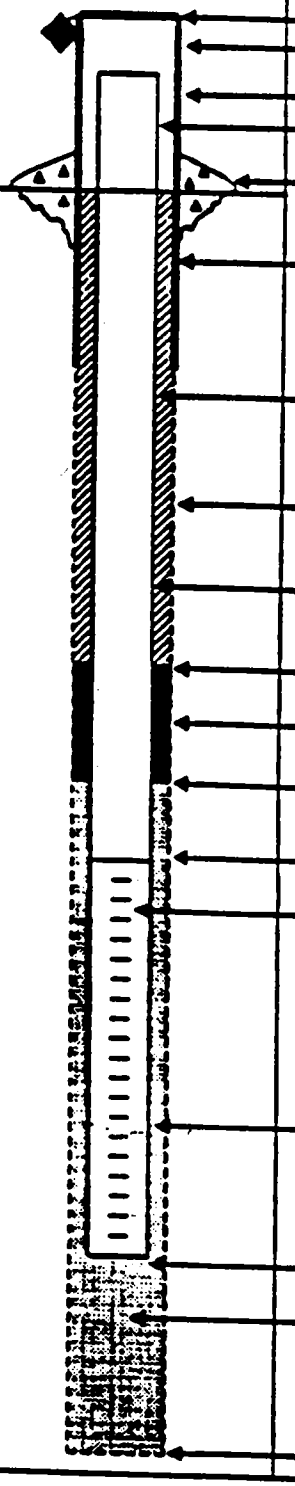
BORING NO.: 12-WP-03

OVERBURDEN MONITORING WELL SHEET

PROJECT
PROJECT NO.
ELEVATION
FIELD GEOLOGIST S. Perez

LOCATION
BORING 12-WP-03
DATE 11/3/97

DRILLER
DRILLING METHOD HSA
DEVELOPMENT METHOD



ELEVATION OF TOP OF SURFACE CASING :
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE :
TYPE OF SURFACE SEAL: ~~concrete~~
I.D. OF SURFACE CASING: ~~8"~~
TYPE OF SURFACE CASING: ~~steel~~
temporary well point
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 12"
TYPE OF BACKFILL: GROUT - Bentonite/cement
ELEVATION / DEPTH TOP OF SEAL: 36'
TYPE OF SEAL: Bentonite
DEPTH TOP OF SAND PACK: 38'
ELEVATION / DEPTH TOP OF SCREEN: 40'
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 0.010" x 10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: poorly graded morie #1 sand
ELEVATION / DEPTH BOTTOM OF SCREEN: 50'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 50'
TYPE OF BACKFILL BELOW OBSERVATION WELL: N/A
ELEVATION / DEPTH OF HOLE: 50

NUS CORPORATION
A Halliburton Company

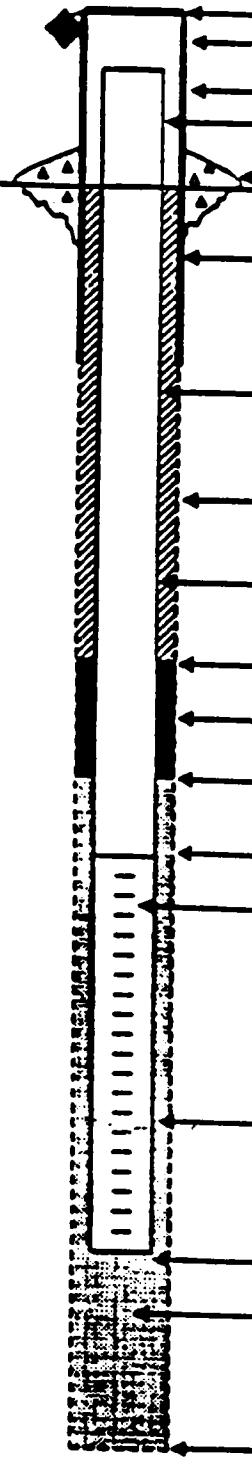
BORING NO.: 13-MW-01
PERMANENT WELL POINT

OVERBURDEN MONITORING WELL SHEET

PROJECT _____
PROJECT NO. _____
ELEVATION _____
FIELD GEOLOGIST Gustavo [illegible]

LOCATION Site 1
BORING 13-MW-01
DATE 10/28/97

DRILLER AC Schultes
DRILLING METHOD HSA
DEVELOPMENT METHOD _____



ELEVATION OF TOP OF SURFACE CASING: _____
ELEVATION OF TOP OF RISER PIPE: _____
STICK - UP TOP OF SURFACE CASING: _____
STICK - UP RISER PIPE: ≈ 16"
TYPE OF SURFACE SEAL: _____
I.D. OF SURFACE CASING: 6"
TYPE OF SURFACE CASING: Steel
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: _____
ELEVATION / DEPTH TOP OF SEAL: 9'
TYPE OF SEAL: Bentonite
DEPTH TOP OF SAND PACK: 12.5'
ELEVATION / DEPTH TOP OF SCREEN: 14'
TYPE OF SCREEN: 10' PVC
SLOT SIZE x LENGTH: 0.010 inch
I.D. OF SCREEN: 2 inch
TYPE OF SAND PACK: #2 Morie SAND
ELEVATION / DEPTH BOTTOM OF SCREEN: 24'
ELEVATION / DEPTH BOTTOM OF SAND PACK: 4'
TYPE OF BACKFILL BELOW OBSERVATION WELL: #2 Morie SAND
ELEVATION / DEPTH OF HOLE: 28'

APPENDIX F

BROWN & ROOT ENVIRONMENTAL ANALYTICAL DATA

APPENDIX F.1

SITE 1 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-100	01-SS-02	01-SS-03	01-SS-04	01-SS-05
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04	01-SS-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		01-SS-01				
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	11 U	11 U	11 U	11 U	11 U
1,1,2,2-TETRACHLOROETHANE	11 UJ	11 UJ	11 U	11 U	11 U	11 U
1,1,2-TRICHLOROETHANE	11 U	11 U	11 U	11 U	11 U	11 U
1,1-DICHLOROETHANE	11 U	11 U	11 U	11 U	11 U	11 U
1,1-DICHLOROETHENE	11 U	11 U	11 U	11 U	11 U	11 U
1,2-DICHLOROETHANE	11 U	11 U	11 U	11 U	11 U	11 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	11 U	11 U	11 U	11 U
1,2-DICHLOROPROPANE	11 U	11 U	11 U	11 U	11 U	11 U
2-BUTANONE	11 U	11 U	11 U	11 U	11 U	11 U
2-HEXANONE	11 UJ	11 UJ	11 U	11 U	11 U	11 U
4-METHYL-2-PENTANONE	11 UJ	11 UJ	11 U	11 U	11 U	11 U
ACETONE	11 U	11 U	11 U	11 U	11 U	11 U
BENZENE	11 U	11 U	11 U	11 U	11 U	11 U
BROMODICHLOROMETHANE	11 U	11 U	11 U	11 U	11 U	11 U
BROMOFORM	11 U	11 U	11 U	11 U	11 U	11 U
BROMOMETHANE	11 U	11 U	11 U	11 U	11 U	11 U
CARBON DISULFIDE	11 U	11 U	11 U	11 U	11 U	11 U
CARBON TETRACHLORIDE	11 U	11 U	11 U	11 U	11 U	11 U
CHLOROBENZENE	11 UJ	11 UJ	11 U	11 U	11 U	11 U
CHLOROETHANE	11 U	11 U	11 U	11 U	11 U	11 U
CHLOROFORM	11 U	11 U	11 U	11 U	11 U	11 U
CHLOROMETHANE	11 U	11 U	11 U	11 U	11 U	11 U
CIS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	11 U	11 U	11 U
DIBROMOCHLOROMETHANE	11 U	11 U	11 U	11 U	11 U	11 U
ETHYLBENZENE	11 UJ	11 UJ	11 U	11 U	11 U	11 U

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-100	01-SS-02	01-SS-03	01-SS-04	01-SS-05
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04	01-SS-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		01-SS-01				
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	2 B	11 U	6 B	2 B	2 B	2 B
STYRENE	11 UJ	11 UJ	11 U	11 U	11 U	11 U
TETRACHLOROETHENE	11 UJ	11 UJ	11 U	11 U	11 U	11 U
TOLUENE	11 UJ	11 UJ	11 U	11 U	11 U	11 U
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	11 U	11 U	11 U
TRICHLOROETHENE	11 U	11 U	11 U	11 U	11 U	11 U
VINYL CHLORIDE	11 U	11 U	11 U	11 U	11 U	11 U
XYLENES, TOTAL	11 UJ	11 UJ	11 U	11 U	11 U	11 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	350 U	360 U	370 U	350 U	7500 U	370 U
1,2-DICHLOROBENZENE	350 U	360 U	370 U	350 U	7500 U	370 U
1,3-DICHLOROBENZENE	350 U	360 U	370 U	350 U	7500 U	370 U
1,4-DICHLOROBENZENE	350 U	360 U	370 U	350 U	7500 U	370 U
2,2'-OXYBIS(1-CHLOROPROPANE)	350 U	360 U	370 U	350 U	7500 U	370 U
2,4,5-TRICHLOROPHENOL	880 U	900 U	930 U	890 U	19000 U	930 U
2,4,6-TRICHLOROPHENOL	350 U	360 U	370 U	350 U	7500 U	370 U
2,4-DICHLOROPHENOL	350 U	360 U	370 U	350 U	7500 U	370 U
2,4-DIMETHYLPHENOL	350 U	360 U	370 U	350 U	7500 U	370 U
2,4-DINITROPHENOL	880 U	900 U	930 U	890 U	19000 U	930 U
2,4-DINITROTOLUENE	350 U	360 U	370 U	350 U	7500 U	370 U
2,6-DINITROTOLUENE	350 U	360 U	370 U	350 U	7500 U	370 U
2-CHLORONAPHTHALENE	350 U	360 U	370 U	350 U	7500 U	370 U
2-CHLOROPHENOL	350 U	360 U	370 U	350 U	7500 U	370 U
2-METHYLNAPHTHALENE	350 U	360 U	370 U	850	8000	370 U
2-METHYLPHENOL	350 U	360 U	370 U	350 U	7500 U	370 U

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-100	01-SS-02	01-SS-03	01-SS-04	01-SS-05
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04	01-SS-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		01-SS-01				
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	880 U	900 U	930 U	890 U	19000 U	930 U
2-NITROPHENOL	350 U	360 U	370 U	350 U	7500 U	370 U
3,3'-DICHLOROBENZIDINE	350 U	360 U	370 U	350 U	7500 U	370 U
3-NITROANILINE	880 U	900 U	930 U	890 U	19000 U	930 U
4,6-DINITRO-2-METHYLPHENOL	880 U	900 U	930 U	890 U	19000 U	930 U
4-BROMOPHENYL PHENYL ETHER	350 U	360 U	370 U	350 U	7500 U	370 U
4-CHLORO-3-METHYLPHENOL	350 U	360 U	370 U	350 U	7500 U	370 U
4-CHLOROANILINE	350 U	360 U	370 U	350 U	7500 U	370 U
4-CHLOROPHENYL PHENYL ETHER	350 U	360 U	370 U	350 U	7500 U	370 U
4-METHYLPHENOL	350 U	360 U	370 U	350 U	7500 U	370 U
4-NITROANILINE	880 U	900 U	930 U	890 U	19000 U	930 U
4-NITROPHENOL	880 U	900 U	930 U	890 U	19000 U	930 U
ACENAPHTHENE	42 J	360 U	150 J	2700	24000	160 J
ACENAPHTHYLENE	350 U	360 U	370 U	350 U	7500 U	370 U
ANTHRACENE	82 J	65 J	270 J	7300	48000	240 J
BENZO(A)ANTHRACENE	340 J	240 J	1200	11000	96000	900
BENZO(A)PYRENE	350 U	360 U	370 U	9700	85000	730
BENZO(B)FLUORANTHENE	710	340 J	370 U	7200	66000	1100
BENZO(G,H,I)PERYLENE	280 J	280 J	1700	5800 J	47000	550
BENZO(K)FLUORANTHENE	350 U	200 J	370 U	9500	47000	550
BIS(2-CHLOROETHOXY)METHANE	350 U	360 U	370 U	350 U	7500 U	370 U
BIS(2-CHLOROETHYL)ETHER	350 U	360 U	370 U	350 U	7500 U	370 U
BIS(2-ETHYLHEXYL)PHTHALATE	85 J	86 J	93 J	340 J	7500 U	93 J
BUTYLBENZYL PHTHALATE	350 U	360 U	370 U	350 U	7500 U	370 U
CARBAZOLE	64 J	45 J	190 J	3600 J	31000	180 J

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-100	01-SS-02	01-SS-03	01-SS-04	01-SS-05
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04	01-SS-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		01-SS-01				
SEMIVOLATILES (µg/kg)						
CHRYSENE	420	300 J	1300	12000	96000	870
DI-N-BUTYL PHTHALATE	350 U	360 U	41 B	68 B	7500 U	370 U
DI-N-OCTYL PHTHALATE	350 U	360 U	370 U	350 U	7500 U	370 U
DIBENZO(A,H)ANTHRACENE	350 U	360 U	370 U	2300	19000	220 J
DIBENZOFURAN	350 U	360 U	50 J	1900	16000	72 J
DIETHYL PHTHALATE	350 U	360 U	370 U	350 U	7500 U	370 U
DIMETHYL PHTHALATE	350 U	360 U	370 U	350 U	7500 U	370 U
FLUORANTHENE	850	590	2500	28000	230000	2200
FLUORENE	41 J	360 U	130 J	3800 J	23000	170 J
HEXACHLOROBENZENE	350 U	360 U	370 U	350 U	7500 U	370 U
HEXACHLOROBUTADIENE	350 U	360 U	370 U	350 U	7500 U	370 U
HEXACHLOROCYCLOPENTADIENE	350 UJ	360 UJ	370 UJ	350 U	7500 UJ	370 UJ
HEXACHLOROETHANE	350 U	360 U	370 U	350 U	7500 U	370 U
INDENO(1,2,3-CD)PYRENE	240 J	190 J	840	5200 J	43000	510
ISOPHORONE	350 U	360 U	370 U	350 U	7500 U	370 U
N-NITROSO-DI-N-PROPYLAMINE	350 U	360 U	370 U	350 U	7500 U	370 U
N-NITROSODIPHENYLAMINE	350 U	360 U	370 U	350 U	7500 U	370 U
NAPHTHALENE	350 U	360 U	370 U	2000	19000	370 U
NITROBENZENE	350 U	360 U	370 U	350 U	7500 U	370 U
PENTACHLOROPHENOL	880 U	900 U	930 U	890 U	19000 U	930 U
PHENANTHRENE	420	250 J	1600	26000	20000	1300
PHENOL	350 U	360 U	370 U	350 U	7500 U	370 U
PYRENE	610	370	2100	20000	180000	1400
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.5 U	3.6 U	3.7 U	3.5 UJ	3.8 UJ	3.7 UJ

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-100	01-SS-02	01-SS-03	01-SS-04	01-SS-05
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04	01-SS-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		01-SS-01				
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	37	27	74	60 J	14 J	3.7 UJ
4,4'-DDT	110 J	76	260	230 J	81 J	35 J
ALDRIN	1.8 U	1.8 U	1.9 U	1.8 UJ	1.9 UJ	1.8 UJ
ALPHA-BHC	1.8 U	1.8 U	1.9 U	1.8 UJ	1.9 UJ	1.8 UJ
ALPHA-CHLORDANE	4.7	4	450	69 J	1.9 UJ	1.8 UJ
AROCLOR-1016	35 U	36 U	37 U	35 UJ	38 UJ	37 UJ
AROCLOR-1221	71 U	71 U	74 U	71 UJ	75 UJ	74 UJ
AROCLOR-1232	35 U	36 U	37 U	35 UJ	38 UJ	37 UJ
AROCLOR-1242	35 U	36 U	37 U	35 UJ	38 UJ	37 UJ
AROCLOR-1248	35 U	36 U	37 U	35 UJ	38 UJ	37 UJ
AROCLOR-1254	35 U	36 U	37 U	35 UJ	38 UJ	37 UJ
AROCLOR-1260	530	410	980	950 J	630 J	1400 J
BETA-BHC	1.8 U	1.8 U	1.9 U	1.8 UJ	1.9 UJ	1.8 UJ
DELTA-BHC	1.8 U	1.8 U	1.9 U	1.8 UJ	1.9 UJ	1.8 UJ
DIELDRIN	6.9 J	14 J	61 J	3.5 UJ	3.8 UJ	99 J
ENDOSULFAN I	1.8 U	1.8 U	1.9 U	1.8 UJ	1.9 UJ	1.8 UJ
ENDOSULFAN II	3.5 U	3.6 U	3.7 U	3.5 UJ	3.8 UJ	3.7 UJ
ENDOSULFAN SULFATE	3.5 U	3.6 U	3.7 U	3.5 UJ	3.8 UJ	3.7 UJ
ENDRIN	3.5 U	3.6 U	3.7 U	3.5 UJ	3.8 UJ	3.7 UJ
ENDRIN ALDEHYDE	3.5 U	3.6 U	3.7 U	3.5 UJ	3.8 UJ	3.7 UJ
ENDRIN KETONE	3.5 U	3.6 U	3.7 U	3.5 UJ	3.8 UJ	3.7 UJ
GAMMA-BHC (LINDANE)	1.8 U	1.8 U	1.9 U	1.8 UJ	1.9 UJ	1.8 UJ
GAMMA-CHLORDANE	2.3	1.5 J	450	42 J	1.9 UJ	1.8 UJ
HEPTACHLOR	1.8 U	1.8 U	1.9 U	1.8 UJ	1.9 UJ	1.8 UJ
HEPTACHLOR EPOXIDE	1.8 U	1.8 U	150	1.8 UJ	1.9 UJ	1.8 UJ

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-100	01-SS-02	01-SS-03	01-SS-04	01-SS-05
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04	01-SS-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		01-SS-01				
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	18 U	18 U	19 U	18 UJ	19 UJ	18 UJ
TOXAPHENE	180 U	180 U	190 U	180 UJ	190 UJ	180 UJ
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 UJ		40.2 UJ	40.2 UJ	40.2 UJ	40.2 UJ
1,3-DINITROBENZENE	37.2 UJ		37.2 UJ	37.2 UJ	37.2 UJ	37.2 UJ
2,4 DINITROTOLUENE	51.6 UJ		51.6 UJ	51.6 UJ	51.6 UJ	51.6 UJ
2,4,6-TRINITROTOLUENE	92 UJ		92 UJ	92 UJ	92 UJ	92 UJ
2,6 DINITROTOLUENE	47.6 UJ		47.6 UJ	47.6 UJ	47.6 UJ	47.6 UJ
2-AMINO-4,6-DINITROTOLUENE	46.7 UJ		46.7 UJ	46.7 UJ	46.7 UJ	46.7 UJ
2-NITROTOLUENE	81.4 UJ		81.4 UJ	81.4 UJ	81.4 UJ	81.4 UJ
3-NITROTOLUENE	81.8 UJ		81.8 UJ	81.8 UJ	81.8 UJ	81.8 UJ
4-AMINO-2,6-DINITROTOLUENE	40.9 UJ		40.9 UJ	40.9 UJ	40.9 UJ	40.9 UJ
4-NITROTOLUENE	87.2 UJ		87.2 UJ	87.2 UJ	87.2 UJ	87.2 UJ
HMX	73 UJ		73 UJ	73 UJ	73 UJ	73 UJ
NITRO-BENZENE	35.2 UJ		35.2 UJ	35.2 UJ	35.2 UJ	35.2 UJ
RDX	50.9 UJ		50.9 UJ	50.9 UJ	50.9 UJ	50.9 UJ
TETRYL	162.7 UJ		163 UJ	163 UJ	163 UJ	163 UJ
METALS (mg/kg)						
ALUMINUM	5330	5230	6180	5600	5310	4470
ANTIMONY	0.55 UL	0.54 UL	1.4 L	0.64 L	0.59 UL	0.56 UL
ARSENIC	2	2.1	4.8	3	2	3.8
BARIUM	29.5	39.6	186	60.5	43.7	54.3
BERYLLIUM	0.02 U	0.02 U	0.02 U	0.08	0.02 U	0.12
CADMIUM	0.74	0.74	5.7	2.3	1.7	2.6
CALCIUM	2470	2320	19000	8070	6910	3210

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-01	01-SS-100	01-SS-02	01-SS-03	01-SS-04	01-SS-05
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97
LOCATION:	01-SS-01	01-SS-01	01-SS-02	01-SS-03	01-SS-04	01-SS-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		01-SS-01				
METALS (mg/kg)						
CHROMIUM	29.3	22.3	46.3	40	26	33.6
COBALT	2.2	2	7.2	7.8	6.2	5.7
COPPER	20.5	24.9	187	40	45.6	159
CYANIDE	0.17 U	0.16 U	0.19 U	0.19 U	0.21 U	0.19 U
IRON	7530	7470	19600	12900	8330	16100
LEAD	830	797	1170	135	196	122
MAGNESIUM	1420	1020	7100	5200	4520	7800
MANGANESE	102	94.1	345	326	206	170
MERCURY	0.08	0.09	0.43	1.7	1.1	0.78
NICKEL	16.7 K	12.7 K	70.6 K	47.8 K	59.7 K	78.2 K
POTASSIUM	323	335	553	560	393	350
SELENIUM	1.9 L	2.5 L	0.62 L	1.2 L	0.63 UR	0.61 UR
SILVER	0.17 U	0.17 U	5	0.35	0.41	0.17 U
SODIUM	42.3 U	49.2	134	90.8	225	43.4 U
THALLIUM	0.61 U	0.6 U	0.63 U	0.6 U	0.65 U	0.63 U
VANADIUM	19.7	19.1	37.5	30.7	39.3	25.4
ZINC	211	230	663	132	139	137
GENERAL CHEMISTRY ()						
PH	7.08	7.05	7.16	7.96	7.52	7.28

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	01-SS-06 0-1' 10/06/97 01-SS-06 GRAB	/ /	/ /	/ /	/ /	/ /
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U					
1,1,2,2-TETRACHLOROETHANE	11 U					
1,1,2-TRICHLOROETHANE	11 U					
1,1-DICHLOROETHANE	11 U					
1,1-DICHLOROETHENE	11 U					
1,2-DICHLOROETHANE	11 U					
1,2-DICHLOROETHENE (TOTAL)	11 U					
1,2-DICHLOROPROPANE	11 U					
2-BUTANONE	11 U					
2-HEXANONE	11 U					
4-METHYL-2-PENTANONE	11 U					
ACETONE	11 U					
BENZENE	11 U					
BROMODICHLOROMETHANE	11 U					
BROMOFORM	11 U					
BROMOMETHANE	11 U					
CARBON DISULFIDE	11 U					
CARBON TETRACHLORIDE	11 U					
CHLOROBENZENE	11 U					
CHLOROETHANE	11 U					
CHLOROFORM	11 U					
CHLOROMETHANE	11 U					
CIS-1,3-DICHLOROPROPENE	11 U					
DIBROMOCHLOROMETHANE	11 U					
ETHYLBENZENE	11 U					

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-06					
DEPTH (feet):	0-1'					
SAMPLE DATE:	10/06/97	/ /	/ /	/ /	/ /	/ /
LOCATION:	01-SS-06					
SAMPLE TYPE:	GRAB					
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	4 B					
STYRENE	11 U					
TETRACHLOROETHENE	11 U					
TOLUENE	11 U					
TRANS-1,3-DICHLOROPROPENE	11 U					
TRICHLOROETHENE	11 U					
VINYL CHLORIDE	11 U					
XYLENES, TOTAL	11 U					
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	3700 U					
1,2-DICHLOROBENZENE	3700 U					
1,3-DICHLOROBENZENE	3700 U					
1,4-DICHLOROBENZENE	3700 U					
2,2'-OXYBIS(1-CHLOROPROPANE)	3700 U					
2,4,5-TRICHLOROPHENOL	9300 U					
2,4,6-TRICHLOROPHENOL	3700 U					
2,4-DICHLOROPHENOL	3700 U					
2,4-DIMETHYLPHENOL	3700 U					
2,4-DINITROPHENOL	9300 U					
2,4-DINITROTOLUENE	3700 U					
2,6-DINITROTOLUENE	3700 U					
2-CHLORONAPHTHALENE	3700 U					
2-CHLOROPHENOL	3700 U					
2-METHYLNAPHTHALENE	400 J					
2-METHYLPHENOL	3700 U					

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-06					
DEPTH (feet):	0-1'					
SAMPLE DATE:	10/06/97	/ /	/ /	/ /	/ /	/ /
LOCATION:	01-SS-06					
SAMPLE TYPE:	GRAB					
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	9300 U					
2-NITROPHENOL	3700 U					
3,3'-DICHLOROBENZIDINE	3700 U					
3-NITROANILINE	9300 U					
4,6-DINITRO-2-METHYLPHENOL	9300 U					
4-BROMOPHENYL PHENYL ETHER	3700 U					
4-CHLORO-3-METHYLPHENOL	3700 U					
4-CHLOROANILINE	3700 U					
4-CHLOROPHENYL PHENYL ETHER	3700 U					
4-METHYLPHENOL	3700 U					
4-NITROANILINE	9300 U					
4-NITROPHENOL	9300 U					
ACENAPHTHENE	3500 J					
ACENAPHTHYLENE	3700 U					
ANTHRACENE	6700					
BENZO(A)ANTHRACENE	15000					
BENZO(A)PYRENE	13000					
BENZO(B)FLUORANTHENE	14000					
BENZO(G,H,I)PERYLENE	6200					
BENZO(K)FLUORANTHENE	11000					
BIS(2-CHLOROETHOXY)METHANE	3700 U					
BIS(2-CHLOROETHYL)ETHER	3700 U					
BIS(2-ETHYLHEXYL)PHTHALATE	940 J					
BUTYLBENZYL PHTHALATE	3700 U					
CARBAZOLE	4100					

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	01-SS-06 0-1' 10/06/97 01-SS-06 GRAB	/ /	/ /	/ /	/ /	/ /
SEMIVOLATILES (µg/kg)						
CHRYSENE	16000					
DI-N-BUTYL PHTHALATE	3700 U					
DI-N-OCTYL PHTHALATE	3700 U					
DIBENZO(A,H)ANTHRACENE	3400 J					
DIBENZOFURAN	2000 J					
DIETHYL PHTHALATE	3700 U					
DIMETHYL PHTHALATE	3700 U					
FLUORANTHENE	37000					
FLUORENE	4600					
HEXACHLOROBENZENE	3700 U					
HEXACHLOROBUTADIENE	3700 U					
HEXACHLOROCYCLOPENTADIENE	3700 UJ					
HEXACHLOROETHANE	3700 U					
INDENO(1,2,3-CD)PYRENE	6500					
ISOPHORONE	3700 U					
N-NITROSO-DI-N-PROPYLAMINE	3700 U					
N-NITROSODIPHENYLAMINE	3700 U					
NAPHTHALENE	3700 U					
NITROBENZENE	3700 U					
PENTACHLOROPHENOL	9300 U					
PHENANTHRENE	28000					
PHENOL	3700 U					
PYRENE	28000					
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.7 UJ					

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	01-SS-06 0-1' 10/06/97 01-SS-06 GRAB	/ /	/ /	/ /	/ /	/ /
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.7 J					
4,4'-DDT	190 J					
ALDRIN	1.9 UJ					
ALPHA-BHC	1.9 UJ					
ALPHA-CHLORDANE	76 J					
AROCLOR-1016	37 UJ					
AROCLOR-1221	74 UJ					
AROCLOR-1232	37 UJ					
AROCLOR-1242	37 UJ					
AROCLOR-1248	37 UJ					
AROCLOR-1254	37 UJ					
AROCLOR-1260	1500 J					
BETA-BHC	1.9 UJ					
DELTA-BHC	1.9 UJ					
DIELDRIN	3.7 UJ					
ENDOSULFAN I	1.9 UJ					
ENDOSULFAN II	3.7 UJ					
ENDOSULFAN SULFATE	3.7 UJ					
ENDRIN	3.7 UJ					
ENDRIN ALDEHYDE	3.7 UJ					
ENDRIN KETONE	3.7 UJ					
GAMMA-BHC (LINDANE)	1.9 UJ					
GAMMA-CHLORDANE	26 J					
HEPTACHLOR	1.9 UJ					
HEPTACHLOR EPOXIDE	1.9 UJ					

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	01-SS-06 0-1' 10/06/97 01-SS-06 GRAB	/ /	/ /	/ /	/ /	/ /
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	19 UJ					
TOXAPHENE	190 UJ					
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 UJ					
1,3-DINITROBENZENE	37.2 UJ					
2,4 DINITROTOLUENE	51.6 UJ					
2,4,6-TRINITROTOLUENE	92 UJ					
2,6 DINITROTOLUENE	47.6 UJ					
2-AMINO-4,6-DINITROTOLUENE	46.7 UJ					
2-NITROTOLUENE	81.4 UJ					
3-NITROTOLUENE	81.8 UJ					
4-AMINO-2,6-DINITROTOLUENE	40.9 UJ					
4-NITROTOLUENE	87.2 UJ					
HMX	73 UJ					
NITRO-BENZENE	35.2 UJ					
RDX	50.9 UJ					
TETRYL	163 UJ					
METALS (mg/kg)						
ALUMINUM	18500					
ANTIMONY	1 J					
ARSENIC	7.2					
BARIUM	68.3					
BERYLLIUM	1.8					
CADMIUM	5.3 K					
CALCIUM	1910					

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-SS-06					
DEPTH (feet):	0-1'					
SAMPLE DATE:	10/06/97	/ /	/ /	/ /	/ /	/ /
LOCATION:	01-SS-06					
SAMPLE TYPE:	GRAB					
FIELD DUPLICATE OF:						
METALS (mg/kg)						
CHROMIUM	56.6 K					
COBALT	16.3					
COPPER	99.1					
CYANIDE	0.23 U					
IRON	87000					
LEAD	301					
MAGNESIUM	3530					
MANGANESE	535					
MERCURY	0.3					
NICKEL	53.1 K					
POTASSIUM	1770					
SELENIUM	1.8 L					
SILVER	1					
SODIUM	129					
THALLIUM	0.65 UL					
VANADIUM	87.2					
ZINC	356					
GENERAL CHEMISTRY ()						
PH	7.01					

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-WP-01	01-WP-02	01-WP-03	01-WP-04	01-WP-05	/ /
SAMPLE DATE:	11/13/97	11/14/97	11/14/97	11/14/97	11/14/97	
LOCATION:	01-WP-01	01-WP-02	01-WP-03	01-WP-04	01-WP-05	
FIELD DUPLICATE OF:						
VOLATILES (µg/L)						
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	
1,1-DICHLOROETHANE	1 U	1 U	1 U	12	1 U	
1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	
1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	
1,2-DICHLOROETHANE	1 U	1 U	1 U	13	1 U	
1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	
2-BUTANONE	5 UR	5 UR	5 UR	5 UR	5 UR	
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	
ACETONE	5 UR	5 UR	5 UR	5 UR	5 UR	
BENZENE	1 U	1 U	1 U	1 U	1 U	
BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	
BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	
BROMOFORM	1 U	1 U	1 U	1 U	1 U	
BROMOMETHANE	1 U	1 U	1 U	1 U	1 U	
CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	
CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	
CHLOROBENZENE	2	4	3	1 U	1 U	
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U	
CHLOROFORM	1 U	1 U	1 U	2	2	
CHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	8	1 U	
CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	
DIBROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	01-WP-01 11/13/97 01-WP-01	01-WP-02 11/14/97 01-WP-02	01-WP-03 11/14/97 01-WP-03	01-WP-04 11/14/97 01-WP-04	01-WP-05 11/14/97 01-WP-05	/ /
VOLATILES (µg/L)						
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	
METHYLENE CHLORIDE	2 UJ	2 UJ	2 UJ	1 B	2 UJ	
STYRENE	1 U	1 U	1 U	1 U	1 U	
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	
TOLUENE	1 U	1 U	1 U	1 U	1 U	
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	
TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	
TRICHLOROETHENE	1 U	1 U	1 U	1	1 U	
VINYL CHLORIDE	1 U	1 U	1 U	1 U	1 U	
XYLENES, TOTAL	1 U	1 U	1 U	1 U	1 U	
SEMIVOLATILES (µg/L)						
1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	
1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	
1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	
1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	
2,2'-OXYBIS(1-CHLOROPROPANE)	5 U	5 U	5 U	5 U	6 U	
2,4,5-TRICHLOROPHENOL	21 U	20 U	22 U	21 U	22 U	
2,4,6-TRICHLOROPHENOL	5 U	5 U	5 U	5 U	6 U	
2,4-DICHLOROPHENOL	5 U	5 U	5 U	5 U	6 U	
2,4-DIMETHYLPHENOL	5 U	5 U	5 U	5 U	6 U	
2,4-DINITROPHENOL	21 U	20 U	22 U	21 U	22 U	
2,4-DINITROTOLUENE	5 U	5 U	5 U	5 U	6 U	
2,6-DINITROTOLUENE	5 U	5 U	5 U	5 U	6 U	
2-CHLORONAPHTHALENE	5 U	5 U	5 U	5 U	6 U	
2-CHLOROPHENOL	5 U	5 U	5 U	5 U	6 U	
2-METHYLNAPHTHALENE	5 U	5 U	5 U	5 U	6 U	
2-METHYLPHENOL	5 U	5 U	5 U	5 U	6 U	

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	01-WP-01 11/13/97 01-WP-01	01-WP-02 11/14/97 01-WP-02	01-WP-03 11/14/97 01-WP-03	01-WP-04 11/14/97 01-WP-04	01-WP-05 11/14/97 01-WP-05	/ /
SEMIVOLATILES (µg/L)						
2-NITROANILINE	21 U	20 U	22 U	21 U	22 U	
2-NITROPHENOL	5 U	5 U	5 U	5 U	6 U	
3,3'-DICHLOROBENZIDINE	5 U	5 U	5 U	5 U	6 U	
3-NITROANILINE	21 U	20 U	22 U	21 U	22 U	
4,6-DINITRO-2-METHYLPHENOL	21 U	20 U	22 U	21 U	22 U	
4-BROMOPHENYL PHENYL ETHER	5 U	5 U	5 U	5 U	6 U	
4-CHLORO-3-METHYLPHENOL	5 U	5 U	5 U	5 U	6 U	
4-CHLOROANILINE	5 U	5 U	5 U	5 U	6 U	
4-CHLOROPHENYL PHENYL ETHER	5 U	5 U	5 U	5 U	6 U	
4-METHYLPHENOL	5 U	5 U	5 U	5 U	6 U	
4-NITROANILINE	21 U	20 U	22 U	21 U	22 U	
4-NITROPHENOL	21 U	20 U	22 U	21 U	22 U	
ACENAPHTHENE	5 U	5 U	5 U	5 U	6 U	
ACENAPHTHYLENE	5 U	5 U	5 U	5 U	6 U	
ANTHRACENE	5 U	5 U	5 U	5 U	6 U	
BENZO(A)ANTHRACENE	5 U	5 U	5 U	5 U	6 U	
BENZO(A)PYRENE	5 U	5 U	5 U	5 U	6 U	
BENZO(B)FLUORANTHENE	5 U	5 U	5 U	5 U	6 U	
BENZO(G,H,I)PERYLENE	5 U	5 U	5 U	5 U	6 U	
BENZO(K)FLUORANTHENE	5 U	5 U	5 U	5 U	6 U	
BIS(2-CHLOROETHOXY)METHANE	5 U	5 U	5 U	5 U	6 U	
BIS(2-CHLOROETHYL)ETHER	5 U	5 U	5 U	5 U	6 U	
BIS(2-ETHYLHEXYL)PHTHALATE	5 U	5 U	5 U	4 J	3 J	
BUTYLBENZYL PHTHALATE	5 U	5 U	5 U	5 U	6 U	
CHRYSENE	5 U	5 U	5 U	5 U	6 U	
DI-N-BUTYL PHTHALATE	3 B	4 B	4 B	5 B	4 B	
DI-N-OCTYL PHTHALATE	5 U	5 U	5 U	5 U	6 U	

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	01-WP-01 11/13/97 01-WP-01	01-WP-02 11/14/97 01-WP-02	01-WP-03 11/14/97 01-WP-03	01-WP-04 11/14/97 01-WP-04	01-WP-05 11/14/97 01-WP-05	/ /
SEMIVOLATILES (µg/L)						
DIBENZO(A,H)ANTHRACENE	5 U	5 U	5 U	5 U	6 U	
DIBENZOFURAN	5 U	5 U	5 U	5 U	6 U	
DIETHYL PHTHALATE	5 U	5 U	5 U	5 U	6 U	
DIMETHYL PHTHALATE	5 U	5 U	5 U	5 U	6 U	
FLUORANTHENE	5 U	5 U	5 U	5 U	6 U	
FLUORENE	5 U	5 U	5 U	5 U	6 U	
HEXACHLOROBENZENE	5 U	5 U	5 U	5 U	6 U	
HEXACHLOROBUTADIENE	5 U	5 U	5 U	5 U	6 U	
HEXACHLOROCYCLOPENTADIENE	5 UJ	5 UJ	5 UJ	5 UJ	6 UJ	
HEXACHLOROETHANE	5 U	5 U	5 U	5 U	6 U	
INDENO(1,2,3-CD)PYRENE	5 U	5 U	5 U	5 U	6 U	
ISOPHORONE	5 U	5 U	5 U	5 U	6 U	
N-NITROSO-DI-N-PROPYLAMINE	5 U	5 U	5 U	5 U	6 U	
N-NITROSODIPHENYLAMINE	5 U	5 U	5 U	5 U	6 U	
NAPHTHALENE	5 U	5 U	5 U	5 U	6 U	
NITROBENZENE	5 U	5 U	5 U	5 U	6 U	
PENTACHLOROPHENOL	21 U	20 U	22 U	21 U	22 U	
PHENANTHRENE	5 U	5 U	5 U	5 U	6 U	
PHENOL	5 U	5 U	5 U	5 U	6 U	
PYRENE	5 U	5 U	5 U	5 U	6 U	
PESTICIDES/PCBs (µg/L)						
4,4'-DDD	0.021 UJ	0.021 U	0.002 J	0.021 U	0.023 UJ	
4,4'-DDE	0.021 UJ	0.021 U	0.023 U	0.021 U	0.023 UJ	
4,4'-DDT	0.021 UJ	0.021 U	0.023 U	0.021 U	0.023 UJ	
ALDRIN	0.011 UJ	0.011 U	0.006 J	0.011 U	0.011 UJ	
ALPHA-BHC	0.011 UJ	0.011 U	0.012 U	0.011 U	0.001 R	
ALPHA-CHLORDANE	0.011 UJ	0.011 U	0.012 U	0.011 U	0.011 UJ	

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	01-WP-01 11/13/97 01-WP-01	01-WP-02 11/14/97 01-WP-02	01-WP-03 11/14/97 01-WP-03	01-WP-04 11/14/97 01-WP-04	01-WP-05 11/14/97 01-WP-05	/ /
PESTICIDES/PCBs (µg/L)						
AROCLOR-1016	0.21 UJ	0.21 U	0.23 U	0.21 U	0.23 UJ	
AROCLOR-1221	0.42 UJ	0.42 U	0.46 U	0.43 U	0.46 UJ	
AROCLOR-1232	0.21 UJ	0.21 U	0.23 U	0.21 U	0.23 UJ	
AROCLOR-1242	0.21 UJ	0.21 U	0.23 U	0.21 U	0.23 UJ	
AROCLOR-1248	0.21 UJ	0.21 U	0.23 U	0.21 U	0.23 UJ	
AROCLOR-1254	0.21 UJ	0.21 U	0.23 U	0.21 U	0.23 UJ	
AROCLOR-1260	0.21 UJ	0.21 U	0.23 U	0.21 U	0.23 UJ	
BETA-BHC	0.011 UJ	0.011 U	0.012 U	0.011 U	0.011 UJ	
DELTA-BHC	0.011 UJ	0.011 U	0.012 U	0.011 U	0.011 UJ	
DIELDRIN	0.021 UJ	0.021 U	0.023 U	0.021 U	0.023 UJ	
ENDOSULFAN I	0.011 UJ	0.011 U	0.012 U	0.011 U	0.011 UJ	
ENDOSULFAN II	0.021 UJ	0.021 U	0.023 U	0.021 U	0.023 UJ	
ENDOSULFAN SULFATE	0.021 UJ	0.021 U	0.023 U	0.021 U	0.023 UJ	
ENDRIN	0.021 UJ	0.021 U	0.023 U	0.021 U	0.023 UJ	
ENDRIN ALDEHYDE	0.021 UJ	0.021 U	0.023 U	0.021 U	0.023 UJ	
ENDRIN KETONE	0.021 UJ	0.021 U	0.023 U	0.021 U	0.023 UJ	
GAMMA-BHC (LINDANE)	0.011 UJ	0.011 U	0.012 U	0.011 U	0.011 UJ	
GAMMA-CHLORDANE	0.011 UJ	0.011 U	0.012 U	0.011 U	0.011 UJ	
HEPTACHLOR	0.011 UJ	0.011 U	0.012 U	0.011 U	0.011 UJ	
HEPTACHLOR EPOXIDE	0.002 R	0.003 J	0.002 R	0.002 R	0.011 UJ	
METHOXYCHLOR	0.11 UJ	0.11 U	0.12 U	0.11 U	0.11 UJ	
TOXAPHENE	1.1 UJ	1.1 U	1.2 U	1.1 U	1.1 UJ	
ENERGETICS (µg/L)						
1,3,5-TRINITROBENZENE	0.6 U	0.6 U	0.6 UJ	0.6 UR	0.6 UR	
1,3-DINITROBENZENE	0.6 U	0.6 U	0.6 UJ	0.6 UR	0.6 UR	
2,4 DINITROTOLUENE	0.6 U	0.6 U	0.6 UJ	0.6 UR	0.6 UR	
2,4,6-TRINITROTOLUENE	0.6 U	0.6 U	0.6 UJ	0.6 UR	0.6 UR	

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	01-WP-01 11/13/97 01-WP-01	01-WP-02 11/14/97 01-WP-02	01-WP-03 11/14/97 01-WP-03	01-WP-04 11/14/97 01-WP-04	01-WP-05 11/14/97 01-WP-05	/ /
ENERGETICS (µg/L)						
2,6 DINITROTOLUENE	0.6 U	0.6 U	0.6 UJ	0.6 UR	0.6 UR	
2-AMINO-4,6-DINITROTOLUENE	0.6 U	0.6 U	0.6 UJ	0.6 UR	0.6 UR	
2-NITROTOLUENE	1.3 U	1.3 U	1.3 UJ	1.3 UR	1.3 UR	
3-NITROTOLUENE	1.3 U	1.3 U	1.3 UJ	1.3 UR	1.3 UR	
4-AMINO-2,6-DINITROTOLUENE	0.6 U	0.6 U	0.6 UJ	0.6 UR	0.6 UR	
4-NITROTOLUENE	1.3 U	1.3 U	1.3 UJ	1 3 UR	1.3 UR	
HMX	1.3 U	1.3 U	1.3 UJ	1.3 UR	1.3 UR	
NITRO-BENZENE	0.6 U	0.6 U	0.6 UJ	0.6 UR	0.6 UR	
RDX	1.3 U	1.3 U	1.3 UJ	1.3 UR	1.3 UR	
TETRYL	1.3 U	1.3 U	1.3 UJ	1.3 UR	1.3 UR	
METALS (µg/L)						
ALUMINUM	24000	6960	117 B	126 B	568	
ANTIMONY	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	
ARSENIC	3 UL	3 UL	3 UL	3 UL	3 UL	
BARIUM	147	207	235	281	259	
BERYLLIUM	2.4 B	0.7 B	0.26 B	0.53 B	0.71 B	
CADMIUM	0.72 B	0.36 B	0.59 B	0.53 B	0.7 B	
CALCIUM	19700	56200	31600	9440 K	14800	
CHROMIUM	73.7	10.4	0.76 B	2.1 B	2.5 B	
COBALT	53.2	20.1	26.3	16.8	3.1 B	
COPPER	66.8	22.7	4.9 B	9.9	3.6 B	
CYANIDE	5 U	5 U	5 U	5 U	5 U	
IRON	37000	12300	3600	162 B	593	
LEAD	19.9 B	12.9 B	6.4 B	3.7 B	1 U	
MAGNESIUM	7950 K	8330 K	8210 K	7310 K	9520 K	
MANGANESE	2400	3210	6300	1170	844	
MERCURY	0.1 UR	0.1 U	0.1 U	0.1 U	0.1 U	

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 01 - PARKING LOT LANDFILL
NSWC WHITE OAK

SAMPLE NUMBER:	01-WP-01	01-WP-02	01-WP-03	01-WP-04	01-WP-05	/ /
SAMPLE DATE:	11/13/97	11/14/97	11/14/97	11/14/97	11/14/97	
LOCATION:	01-WP-01	01-WP-02	01-WP-03	01-WP-04	01-WP-05	
FIELD DUPLICATE OF:						
METALS (µg/L)						
NICKEL	158	15	15.6	15.2	17.2	
POTASSIUM	7460 L	7930 L	5150 L	5850 L	3400 L	
SELENIUM	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	
SILVER	0.9 UL	0.9 UL	0.9 UL	0.9 UL	0.9 UL	
SODIUM	43400	104000	57400	45200	34000	
THALLIUM	4.6 B	3.5 B	3.2 B	2.3 U	2.3 U	
VANADIUM	18.6	8.1 B	1 U	1 U	1 U	
ZINC	94	39.8	18	23.8	31.5	

APPENDIX F.2

SITE 5 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	12 U	11 U	11 U	10 U	10 U	
1,1,2,2-TETRACHLOROETHANE	12 U	11 U	11 U	10 U	10 U	
1,1,2-TRICHLOROETHANE	12 U	11 U	11 U	10 U	10 U	
1,1-DICHLOROETHANE	12 U	11 U	11 U	10 U	10 U	
1,1-DICHLOROETHENE	12 U	11 U	11 U	10 U	10 U	
1,2-DICHLOROETHANE	12 U	11 U	11 U	10 U	10 U	
1,2-DICHLOROETHENE (TOTAL)	12 U	11 U	11 U	10 U	10 U	
1,2-DICHLOROPROPANE	12 U	11 U	11 U	10 U	10 U	
2-BUTANONE	12 U	11 U	11 U	10 U	10 U	
2-HEXANONE	12 U	11 U	11 U	10 U	10 U	
4-METHYL-2-PENTANONE	12 U	11 U	11 U	10 U	10 U	
ACETONE	12 U	11 U	11 U	10 U	10 U	
BENZENE	12 U	11 U	11 U	10 U	10 U	
BROMODICHLOROMETHANE	12 U	11 U	11 U	10 U	10 U	
BROMOFORM	12 U	11 U	11 U	10 U	10 U	
BROMOMETHANE	12 U	11 U	11 U	10 U	10 U	
CARBON DISULFIDE	12 U	11 U	11 U	10 U	10 U	
CARBON TETRACHLORIDE	12 U	11 U	11 U	10 U	10 U	
CHLOROBENZENE	12 U	11 U	11 U	10 U	10 U	
CHLOROETHANE	12 U	11 U	11 U	10 U	10 U	
CHLOROFORM	12 U	11 U	11 U	10 U	10 U	
CHLOROMETHANE	12 U	11 U	11 U	10 U	10 U	
CIS-1,3-DICHLOROPROPENE	12 U	11 U	11 U	10 U	10 U	
DIBROMOCHLOROMETHANE	12 U	11 U	11 U	10 U	10 U	
ETHYLBENZENE	12 U	11 U	11 U	10 U	10 U	

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	2 B	2 B	2 B	1 B	2 B	
STYRENE	12 U	11 U	11 U	10 U	10 U	
TETRACHLOROETHENE	12 U	11 U	11 U	10 U	10 U	
TOLUENE	12 U	11 U	11 U	10 U	10 U	
TRANS-1,3-DICHLOROPROPENE	12 U	11 U	11 U	10 U	10 U	
TRICHLOROETHENE	12 U	11 U	11 U	10 U	10 U	
VINYL CHLORIDE	12 U	11 U	11 U	10 U	10 U	
XYLENES, TOTAL	12 U	11 U	11 U	10 U	10 U	
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	390 U	360 U	370 U	690 U	3500 U	
1,2-DICHLOROBENZENE	390 U	360 U	370 U	690 U	3500 U	
1,3-DICHLOROBENZENE	390 U	360 U	370 U	690 U	3500 U	
1,4-DICHLOROBENZENE	390 U	360 U	370 U	690 U	3500 U	
2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	360 U	370 U	690 U	3500 U	
2,4,5-TRICHLOROPHENOL	980 U	910 U	920 U	1700 U	8700 U	
2,4,6-TRICHLOROPHENOL	390 U	360 U	370 U	690 U	3500 U	
2,4-DICHLOROPHENOL	390 U	360 U	370 U	690 U	3500 U	
2,4-DIMETHYLPHENOL	390 U	360 U	370 U	690 U	3500 U	
2,4-DINITROPHENOL	980 U	910 U	920 U	1700 U	8700 U	
2,4-DINITROTOLUENE	390 U	360 U	370 U	690 U	3500 U	
2,6-DINITROTOLUENE	390 U	360 U	370 U	690 U	3500 U	
2-CHLORONAPHTHALENE	390 U	360 U	370 U	690 U	3500 U	
2-CHLOROPHENOL	390 U	360 U	370 U	690 U	3500 U	
2-METHYLNAPHTHALENE	390 U	360 U	370 U	690 U	3500 U	
2-METHYLPHENOL	390 U	360 U	370 U	690 U	3500 U	

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	980 U	910 U	920 U	1700 U	8700 U	
2-NITROPHENOL	390 U	360 U	370 U	690 U	3500 U	
3,3'-DICHLOROBENZIDINE	390 U	360 U	370 U	690 U	3500 U	
3-NITROANILINE	980 U	910 U	920 U	1700 U	8700 U	
4,6-DINITRO-2-METHYLPHENOL	980 U	910 U	920 U	1700 U	8700 U	
4-BROMOPHENYL PHENYL ETHER	390 U	360 U	370 U	690 U	3500 U	
4-CHLORO-3-METHYLPHENOL	390 U	360 U	370 U	690 U	3500 U	
4-CHLOROANILINE	390 U	360 U	370 U	690 U	3500 U	
4-CHLOROPHENYL PHENYL ETHER	390 U	360 U	370 U	690 U	3500 U	
4-METHYLPHENOL	390 U	360 U	370 U	690 U	3500 U	
4-NITROANILINE	980 U	910 U	920 U	1700 U	8700 U	
4-NITROPHENOL	980 U	910 U	920 U	1700 U	8700 U	
ACENAPHTHENE	44 J	360 U	370 U	83 J	3000 J	
ACENAPHTHYLENE	390 U	360 U	370 U	690 U	3500 U	
ANTHRACENE	98 J	360 U	370 U	400 J	5000	
BENZO(A)ANTHRACENE	390 J	360 U	370 U	2300	13000	
BENZO(A)PYRENE	420	360 U	370 U	2400	11000	
BENZO(B)FLUORANTHENE	350 J	360 U	52 J	2800	13000	
BENZO(G,H,I)PERYLENE	360 J	360 U	370 U	1700	7100	
BENZO(K)FLUORANTHENE	290 J	360 U	370 U	1800	7300	
BIS(2-CHLOROETHOXY)METHANE	390 U	360 U	370 U	690 U	3500 U	
BIS(2-CHLOROETHYL)ETHER	390 U	360 U	370 U	690 U	3500 U	
BIS(2-ETHYLHEXYL)PHTHALATE	390 U	360 U	44 J	690 U	3500 U	
BUTYLBENZYL PHTHALATE	390 U	360 U	370 U	690 U	3500 U	
CARBAZOLE	48 J	360 U	370 U	240 J	3300 J	

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	400	360 U	370 U	2600	14000	
DI-N-BUTYL PHTHALATE	390 U	360 U	370 U	690 U	3500 U	
DI-N-OCTYL PHTHALATE	390 U	360 U	370 U	690 U	3500 U	
DIBENZO(A,H)ANTHRACENE	130 J	360 U	370 U	730	3400 J	
DIBENZOFURAN	390 U	360 U	370 U	690 U	1200 J	
DIETHYL PHTHALATE	390 U	360 U	370 U	690 U	3500 U	
DIMETHYL PHTHALATE	390 U	360 U	370 U	690 U	3500 U	
FLUORANTHENE	860	360 U	67 J	5000	34000	
FLUORENE	44 J	360 U	370 U	110 J	1900 J	
HEXACHLOROBENZENE	390 U	360 U	370 U	690 U	3500 U	
HEXACHLOROBUTADIENE	390 U	360 U	370 U	690 U	3500 U	
HEXACHLOROCYCLOPENTADIENE	390 U	360 UJ	370 UJ	690 UJ	3500 UJ	
HEXACHLOROETHANE	390 U	360 U	370 U	690 U	3500 U	
INDENO(1,2,3-CD)PYRENE	300 J	360 U	370 U	1700	6700	
ISOPHORONE	390 U	360 U	370 U	690 U	3500 U	
N-NITROSO-DI-N-PROPYLAMINE	390 U	360 U	370 U	690 U	3500 U	
N-NITROSODIPHENYLAMINE	390 U	360 U	370 U	690 U	3500 U	
NAPHTHALENE	390 U	360 U	370 U	690 U	430 J	
NITROBENZENE	390 U	360 U	370 U	690 U	3500 U	
PENTACHLOROPHENOL	980 U	910 U	920 U	1700 U	8700 U	
PHENANTHRENE	460	360 U	370 U	2200	20000	
PHENOL	390 U	360 U	370 U	690 U	3500 U	
PYRENE	590	360 U	54 J	3200	19000	
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.9 U	3.6 U	3.7 U	3.4 U	630 J	

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	1.6 J	1.2 J	2.3 J	3.4 U	230 J	
4,4'-DDT	3.9 U	3.6 U	3.7 U	3.4 U	190 J	
ALDRIN	2 U	1.8 U	1.8 U	1.7 U	1.7 UJ	
ALPHA-BHC	2 U	1.8 U	1.8 U	1.7 U	5.1 J	
ALPHA-CHLORDANE	8.9	0.5 J	1.8 U	4.9 J	250 J	
AROCLOR-1016	39 U	36 U	37 U	34 U	35 UJ	
AROCLOR-1221	79 U	73 U	73 U	69 U	70 UJ	
AROCLOR-1232	39 U	36 U	37 U	34 U	35 UJ	
AROCLOR-1242	39 U	36 U	37 U	34 U	35 UJ	
AROCLOR-1248	39 U	36 U	37 U	34 U	35 UJ	
AROCLOR-1254	39 U	36 U	37 U	34 U	35 UJ	
AROCLOR-1260	470	30 J	140	80	1600 J	
BETA-BHC	2 U	1.8 U	1.8 U	1.7 U	1.7 UJ	
DELTA-BHC	2 U	1.8 U	1.8 U	1.7 U	1.7 UJ	
DIELDRIN	3.9 U	1 J	3.7 U	3.4 U	3.5 UJ	
ENDOSULFAN I	2 U	1.8 U	1.8 U	1.7 U	1.7 UJ	
ENDOSULFAN II	3.9 U	3.6 U	3.7 U	3.4 U	3.5 UJ	
ENDOSULFAN SULFATE	3.9 U	3.6 U	3.7 U	3.4 U	3.5 UJ	
ENDRIN	3.9 U	3.6 U	3.7 U	3.4 U	3.5 UJ	
ENDRIN ALDEHYDE	3.9 U	3.6 U	3.7 U	3.4 U	3.5 UJ	
ENDRIN KETONE	3.9 U	3.6 U	3.7 U	3.4 U	3.5 UJ	
GAMMA-BHC (LINDANE)	2 U	1.8 U	1.8 U	1.7 U	1.7 UJ	
GAMMA-CHLORDANE	7.4	0.2 J	1.8 U	4.9 J	280 J	
HEPTACHLOR	2 U	1.8 U	1.8 U	1.7 U	1.7 UJ	
HEPTACHLOR EPOXIDE	2 U	1.8 U	1.8 U	1.7 U	1.7 UJ	

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	20 U	18 U	18 U	17 U	17 UJ	
TOXAPHENE	200 U	180 U	180 U	170 U	170 UJ	
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 U	40.2 U	40.2 U	40.2 U	40.2 U	
1,3-DINITROBENZENE	37.2 U	37.2 U	37.2 U	37.2 U	37.2 U	
2,4 DINITROTOLUENE	51.6 U	51.6 U	51.6 U	51.6 U	51.6 U	
2,4,6-TRINITROTOLUENE	35.6 U	35.6 U	35.6 U	35.6 U	35.6 U	
2,6 DINITROTOLUENE	47.6 U	47.6 U	47.6 U	47.6 U	47.6 U	
2-AMINO-4,6-DINITROTOLUENE	46.7 U	46.7 U	46.7 U	46.7 U	46.7 U	
2-NITROTOLUENE	81.4 U	81.4 U	81.4 U	81.4 U	81.4 U	
3-NITROTOLUENE	81.8 U	81.8 U	81.8 U	81.8 U	81.8 U	
4-AMINO-2,6-DINITROTOLUENE	40.9 U	40.9 U	40.9 U	40.9 U	40.9 U	
4-NITROTOLUENE	87.2 U	87.2 U	87.2 U	87.2 U	87.2 U	
HMX	70.5 U	70.5 U	70.5 U	70.5 U	70.5 U	
NITRO-BENZENE	35.2 U	35.2 U	35.2 U	35.2 U	35.2 U	
RDX	50.9 U	50.9 U	50.9 U	50.9 U	50.9 U	
TETRYL	163 U	163 U	163 U	163 U	163 U	
METALS (mg/kg)						
ALUMINUM	9080	7320	6440	2310	4110	
ANTIMONY	0.61 UL	0.56 UL	0.57 UL	0.53 UL	0.54 UL	
ARSENIC	2.8	2.9	2.6	2.2	1.8	
BARIUM	37.4	26.6	18.4	18.5	37.9	
BERYLLIUM	0.02 U	0.02 U	0.02 U	0.36	0.02 U	
CADMIUM	0.31	0.14	0.13	0.4	2.1	
CALCIUM	3060	182 K	397 K	4520	33900	

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	10/06/97	10/06/97	/ /
LOCATION:	05-SS-01	05-SS-02	05-SS-03	05-SS-04	05-SS-05	
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	
FIELD DUPLICATE OF:						
METALS (mg/kg)						
CHROMIUM	24.7	12.9	12.9	16.1	25.4	
COBALT	4.9	2.4	1.3	2.1	3	
COPPER	30.2	12.1	19.4	55	116	
CYANIDE	0.26 U	0.21 U	0.21 U	0.25 U	0.22 U	
IRON	12900	8720	7720	10000	6710	
LEAD	34.5	11.1	10.5	23.3	155	
MAGNESIUM	3240	580 K	331 K	1130	4140	
MANGANESE	143	55.8	33.9	66.9	143	
MERCURY	0.12	0.04	0.09	0.07	0.04	
NICKEL	35.9 K	23.8 K	43.3 K	16.4 K	26 K	
POTASSIUM	601	300	189	250	238	
SELENIUM	3.8 L	2.6 L	3.5 L	0.57 UR	0.58 UR	
SILVER	0.29	0.17 U	0.18 U	0.16 U	2	
SODIUM	57.5	43 U	44 U	391	225	
THALLIUM	0.68 U	0.62 U	0.64 U	0.59 U	0.6 U	
VANADIUM	27.1	20.1	18.6	9.1	12.6	
ZINC	42	16.3	12.2	79.8	159	
GENERAL CHEMISTRY ()						
PH	6.45	5.19	6.45	8.55	8.33	

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
DEPTH (feet):	24 - 26'	8 - 10'	10 - 12'	22 - 24'	12 - 14'	25 - 27'
SAMPLE DATE:	10/21/97	10/21/97	10/22/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-101			
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	13 U	11 U	11 U	11 U	12 U	11 U
1,1,2,2-TETRACHLOROETHANE	13 U	11 U	11 U	11 U	12 U	11 U
1,1,2-TRICHLOROETHANE	13 U	11 U	11 U	11 U	12 U	11 U
1,1-DICHLOROETHANE	13 U	11 U	11 U	11 U	12 U	11 U
1,1-DICHLOROETHENE	13 U	11 U	11 U	11 U	12 U	11 U
1,2-DICHLOROETHANE	13 U	11 U	11 U	11 U	12 U	11 U
1,2-DICHLOROETHENE (TOTAL)	13 U	11 U	11 U	11 U	12 U	11 U
1,2-DICHLOROPROPANE	13 U	11 U	11 U	11 U	12 U	11 U
2-BUTANONE	13 U	11 U	11 U	11 U	12 U	11 U
2-HEXANONE	13 U	11 U	11 U	11 U	12 U	11 U
4-METHYL-2-PENTANONE	13 U	11 U	11 U	11 U	12 U	11 U
ACETONE	13 U	11 U	11 U	11 U	12 U	11 U
BENZENE	13 U	11 U	11 U	11 U	12 U	11 U
BROMODICHLOROMETHANE	13 U	11 U	11 U	11 U	12 U	11 U
BROMOFORM	13 U	11 U	11 U	11 U	12 U	11 U
BROMOMETHANE	13 U	11 U	11 U	11 U	12 U	11 U
CARBON DISULFIDE	13 U	11 U	11 U	11 U	12 U	11 U
CARBON TETRACHLORIDE	13 U	11 U	11 U	11 U	12 U	11 U
CHLOROBENZENE	13 U	11 U	11 U	11 U	12 U	11 U
CHLOROETHANE	13 U	11 U	11 U	11 U	12 U	11 U
CHLOROFORM	13 U	11 U	11 U	11 U	12 U	11 U
CHLOROMETHANE	13 U	11 U	11 U	11 U	12 U	11 U
CIS-1,3-DICHLOROPROPENE	13 U	11 U	11 U	11 U	12 U	11 U
DIBROMOCHLOROMETHANE	13 U	11 U	11 U	11 U	12 U	11 U
ETHYLBENZENE	13 U	11 U	11 U	11 U	12 U	11 U

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
DEPTH (feet):	24 - 26'	8 - 10'	10 - 12'	22 - 24'	12 - 14'	25 - 27'
SAMPLE DATE:	10/21/97	10/21/97	10/22/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-101			
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	11 B	7 B	11 U	7 B	6 B	6 B
STYRENE	13 U	11 U	11 U	11 U	12 U	11 U
TETRACHLOROETHENE	13 U	11 U	11 U	11 U	12 U	11 U
TOLUENE	13 U	11 U	11 U	11 U	12 U	11 U
TRANS-1,3-DICHLOROPROPENE	13 U	11 U	11 U	11 U	12 U	11 U
TRICHLOROETHENE	13 U	11 U	11 U	11 U	12 U	11 U
VINYL CHLORIDE	13 U	11 U	11 U	11 U	12 U	11 U
XYLENES, TOTAL	13 U	11 U	11 U	11 U	12 U	11 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
1,2-DICHLOROBENZENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
1,3-DICHLOROBENZENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
1,4-DICHLOROBENZENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2,4,5-TRICHLOROPHENOL	950 UJ	930 UJ	930 UJ	950 UJ	970 UJ	920 UJ
2,4,6-TRICHLOROPHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2,4-DICHLOROPHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2,4-DIMETHYLPHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2,4-DINITROPHENOL	950 UJ	930 UJ	930 UJ	950 UJ	970 UJ	920 UJ
2,4-DINITROTOLUENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2,6-DINITROTOLUENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2-CHLORONAPHTHALENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2-CHLOROPHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2-METHYLNAPHTHALENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
2-METHYLPHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
DEPTH (feet):	24 - 26'	8 - 10'	10 - 12'	22 - 24'	12 - 14'	25 - 27'
SAMPLE DATE:	10/21/97	10/21/97	10/22/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-101			
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	950 UJ	930 UJ	930 UJ	950 UJ	970 UJ	920 UJ
2-NITROPHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
3,3'-DICHLOROBENZIDINE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
3-NITROANILINE	950 UJ	930 UJ	930 UJ	950 UJ	970 UJ	920 UJ
4,6-DINITRO-2-METHYLPHENOL	950 UJ	930 UJ	930 UJ	950 UJ	970 UJ	920 UJ
4-BROMOPHENYL PHENYL ETHER	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
4-CHLORO-3-METHYLPHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
4-CHLOROANILINE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
4-CHLOROPHENYL PHENYL ETHER	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
4-METHYLPHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
4-NITROANILINE	950 UJ	930 UJ	930 UJ	950 UJ	970 UJ	920 UJ
4-NITROPHENOL	950 UJ	930 UJ	930 UJ	950 UJ	970 UJ	920 UJ
ACENAPHTHENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
ACENAPHTHYLENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
ANTHRACENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
BENZO(A)ANTHRACENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
BENZO(A)PYRENE	380 UJ	370 UJ	370 UJ	62 J	390 UJ	370 UJ
BENZO(B)FLUORANTHENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
BENZO(G,H,I)PERYLENE	380 UJ	370 UJ	370 UJ	550 J	390 UJ	370 UJ
BENZO(K)FLUORANTHENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
BIS(2-CHLOROETHOXY)METHANE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
BIS(2-CHLOROETHYL)ETHER	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	380 UJ	370 UJ	51 J	380 UJ	58 J	370 UJ
BUTYLBENZYL PHTHALATE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
CARBAZOLE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
DEPTH (feet):	24 - 26'	8 - 10'	10 - 12'	22 - 24'	12 - 14'	25 - 27'
SAMPLE DATE:	10/21/97	10/21/97	10/22/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-101			
SEMIVOLATILES (µg/kg)						
CHRYSENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
DI-N-BUTYL PHTHALATE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
DI-N-OCTYL PHTHALATE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
DIBENZO(A,H)ANTHRACENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
DIBENZOFURAN	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
DIETHYL PHTHALATE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
DIMETHYL PHTHALATE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
FLUORANTHENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
FLUORENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
HEXACHLOROBENZENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
HEXACHLOROBUTADIENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
HEXACHLOROCYCLOPENTADIENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
HEXACHLOROETHANE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
INDENO(1,2,3-CD)PYRENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
ISOPHORONE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
N-NITROSO-DI-N-PROPYLAMINE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
N-NITROSODIPHENYLAMINE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
NAPHTHALENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
NITROBENZENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
PENTACHLOROPHENOL	950 UJ	930 UJ	930 UJ	950 UJ	970 UJ	920 UJ
PHENANTHRENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
PHENOL	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
PYRENE	380 UJ	370 UJ	370 UJ	380 UJ	390 UJ	370 UJ
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
DEPTH (feet):	24 - 26'	8 - 10'	10 - 12'	22 - 24'	12 - 14'	25 - 27'
SAMPLE DATE:	10/21/97	10/21/97	10/22/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-101			
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ
4,4'-DDT	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ
ALDRIN	1.9 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ
ALPHA-BHC	1.9 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ
ALPHA-CHLORDANE	1.9 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ
AROCLOR-1016	38 UJ	37 UJ	37 UJ	38 UJ	39 UJ	37 UJ
AROCLOR-1221	76 UJ	74 UJ	74 UJ	76 UJ	77 UJ	73 UJ
AROCLOR-1232	38 UJ	37 UJ	37 UJ	38 UJ	39 UJ	37 UJ
AROCLOR-1242	38 UJ	37 UJ	37 UJ	38 UJ	39 UJ	37 UJ
AROCLOR-1248	38 UJ	37 UJ	37 UJ	38 UJ	39 UJ	37 UJ
AROCLOR-1254	38 UJ	37 UJ	37 UJ	38 UJ	39 UJ	37 UJ
AROCLOR-1260	38 UJ	37 UJ	37 UJ	38 UJ	39 UJ	37 UJ
BETA-BHC	1.9 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ
DELTA-BHC	1.9 UJ	1.8 UJ	0.3 J	0.22 J	1.9 UJ	1.8 UJ
DIELDRIN	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ
ENDOSULFAN I	1.9 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ
ENDOSULFAN II	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ
ENDOSULFAN SULFATE	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ
ENDRIN	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ
ENDRIN ALDEHYDE	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ
ENDRIN KETONE	3.8 UJ	3.7 UJ	3.7 UJ	3.8 UJ	3.9 UJ	3.7 UJ
GAMMA-BHC (LINDANE)	1.9 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ
GAMMA-CHLORDANE	1.9 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ
HEPTACHLOR	1.9 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.8 UJ
HEPTACHLOR EPOXIDE	1.9 UJ	1.8 UJ	0.27 J	0.25 J	1.9 UJ	0.17 J

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
DEPTH (feet):	24 - 26'	8 - 10'	10 - 12'	22 - 24'	12 - 14'	25 - 27'
SAMPLE DATE:	10/21/97	10/21/97	10/22/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-101			
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	19 UJ	18 UJ	19 UJ	19 UJ	19 UJ	18 UJ
TOXAPHENE	190 UJ	180 UJ	190 UJ	190 UJ	190 UJ	180 UJ
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 U	40.2 U	40.2 U	40.2 U	40.2 U	40.2 U
1,3-DINITROBENZENE	37.2 U	37.2 U	37.2 U	37.2 U	37.2 U	37.2 U
2,4 DINITROTOLUENE	51.6 U	51.6 U	51.6 U	51.6 U	51.6 U	51.6 U
2,4,6-TRINITROTOLUENE	35.6 U	35.6 U	35.6 U	35.6 U	35.6 U	35.6 U
2,6 DINITROTOLUENE	47.6 U	47.6 U	47.6 U	47.6 U	47.6 U	47.6 U
2-AMINO-4,6-DINITROTOLUENE	46.7 U	46.7 U	46.7 U	46.7 U	46.7 U	46.7 U
2-NITROTOLUENE	81.4 U	81.4 U	81.4 U	81.4 U	81.4 U	81.4 U
3-NITROTOLUENE	81.8 U	81.8 U	81.8 U	81.8 U	81.8 U	81.8 U
4-AMINO-2,6-DINITROTOLUENE	40.9 U	40.9 U	40.9 U	40.9 U	40.9 U	40.9 U
4-NITROTOLUENE	87.2 U	87.2 U	87.2 U	87.2 U	87.2 U	87.2 U
HMX	73 U	73 U	70.5 U	70.5 U	70.5 U	70.5 U
NITRO-BENZENE	35.2 U	35.2 U	35.2 U	35.2 U	35.2 U	35.2 U
RDX	50.9 U	50.9 U	50.9 U	50.9 U	50.9 U	50.9 U
TETRYL	163 U	163 U	163 UJ	163 UJ	163 UJ	163 UJ
METALS (mg/kg)						
ALUMINUM	2920	2070	3490 J	2160 J	8410 J	3060 J
ANTIMONY	0.59 UL	0.57 UL	0.62 UL	0.63 UL	0.65 UL	0.6 UL
ARSENIC	3.3 L	2.4 L	1.2 B	2 B	6.6 J	0.81 B
BARIUM	6	5.2	5.4	4.2	57.2	3.2
BERYLLIUM	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
CADMIUM	0.07 U	0.07 U	0.07 U	0.08 B	0.07 U	0.06 U
CALCIUM	48.5 B	40.4 B	51.2 B	63 B	92.4 B	41.2 B

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
DEPTH (feet):	24 - 26'	8 - 10'	10 - 12'	22 - 24'	12 - 14'	25 - 27'
SAMPLE DATE:	10/21/97	10/21/97	10/22/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-01(24)	05-SB-01(8)	05-SB-02(10)	05-SB-02(22)	05-SB-03(12)	05-SB-03(25)
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	05-SB-100		05-SB-101			
METALS (mg/kg)						
CHROMIUM	12.4 J	13.1 J	5.7 J	9.9 J	35 J	4.6 J
COBALT	0.26 B	0.1 B	0.26 B	0.14 UJ	0.59 B	0.13 B
COPPER	20.2	28.5	4.3	31.4	29.9	3.8
CYANIDE	0.24 U	0.19 U	0.22 U	0.28 U	0.21 U	0.22 U
IRON	6980	5580	3450 J	6140 J	16300 J	2610 J
LEAD	3.2 K	3.1 K	1.7 J	2.5 J	5.3 J	1.3 J
MAGNESIUM	93.7 J	58.2 B	101 K	63.8 B	192 K	72.4 K
MANGANESE	6 J	4.3 J	3.7 J	3.6 J	12.6 J	3.7 J
MERCURY	0.1	0.06	0.1	0.07	0.07	0.03
NICKEL	0.87 K	0.42 K	0.87 B	0.28 B	2.1 K	0.4 B
POTASSIUM	166	160	171	138	328	91.7
SELENIUM	15.1 J	18.2 J	1.1 J	25.6 J	17.5 J	1.4 J
SILVER	0.18 U	0.18 U	0.2 U	0.2 U	0.21 U	0.19 U
SODIUM	45.1 UJ	43.9 UJ	44.4 B	48.2 B	61.3 B	27.8 UL
THALLIUM	0.65 U	0.64 U	0.51 U	0.52 U	0.53 U	0.49 U
VANADIUM	37	28.2	9.3	15	44.8	7.4
ZINC	2.3 B	1.8 B	2 J	1.7 J	5.6 J	1.7 J
GENERAL CHEMISTRY ()						
PH	4.73	4.66	5.08	5.49	5.35	4.99

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
DEPTH (feet):	20 - 22'	6 - 8'	2 - 4'	25 - 27'	24 - 26'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/20/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:					05-SB-01(24)	05-SB-02(10)
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	12 U	12 U	74 U	15 U	11 U	11 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 UJ	74 U	15 U	11 U	11 U
1,1,2-TRICHLOROETHANE	12 U	12 U	74 U	15 U	11 U	11 U
1,1-DICHLOROETHANE	12 U	12 U	74 U	15 U	11 U	11 U
1,1-DICHLOROETHENE	12 U	12 U	74 U	15 U	11 U	11 U
1,2-DICHLOROETHANE	12 U	12 U	74 U	15 U	11 U	11 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	74 U	15 U	11 U	11 U
1,2-DICHLOROPROPANE	12 U	12 U	74 U	15 U	11 U	11 U
2-BUTANONE	12 U	12 UJ	74 U	15 U	11 U	11 U
2-HEXANONE	12 U	12 UJ	74 U	15 U	11 U	11 U
4-METHYL-2-PENTANONE	12 U	12 U	74 U	15 U	11 U	11 U
ACETONE	12 U	86	130	15 U	11 U	11 U
BENZENE	12 U	12 U	74 U	15 U	11 U	11 U
BROMODICHLOROMETHANE	12 U	12 U	74 U	15 U	11 U	11 U
BROMOFORM	12 U	12 U	74 U	15 U	11 U	11 U
BROMOMETHANE	12 U	12 U	74 U	15 U	11 U	11 U
CARBON DISULFIDE	12 U	12 U	74 U	15 UJ	11 U	11 U
CARBON TETRACHLORIDE	12 U	12 U	74 U	15 U	11 U	11 U
CHLOROBENZENE	12 U	12 UJ	74 U	15 U	11 U	11 U
CHLOROETHANE	12 U	12 U	74 U	15 U	11 U	11 U
CHLOROFORM	12 U	12 U	74 U	15 U	11 U	11 U
CHLOROMETHANE	12 U	12 U	74 U	15 U	11 U	11 U
CIS-1,3-DICHLOROPROPENE	12 U	12 U	74 U	15 U	11 U	11 U
DIBROMOCHLOROMETHANE	12 U	12 U	74 U	15 U	11 U	11 U
ETHYLBENZENE	12 U	12 UJ	74 U	15 U	11 U	11 U

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
DEPTH (feet):	20 - 22'	6 - 8'	2 - 4'	25 - 27'	24 - 26'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/20/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:					05-SB-01(24)	05-SB-02(10)
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	7 B	12 B	37 B	8 B	8 B	6 B
STYRENE	12 U	12 UJ	74 U	15 U	11 U	11 U
TETRACHLOROETHENE	12 U	12 UJ	74 U	15 U	11 U	11 U
TOLUENE	12 U	12 UJ	92	15 U	11 U	11 U
TRANS-1,3-DICHLOROPROPENE	12 U	12 U	74 U	15 U	11 U	11 U
TRICHLOROETHENE	12 U	12 U	74 U	15 U	11 U	11 U
VINYL CHLORIDE	12 U	12 U	74 U	15 U	11 U	11 U
XYLENES, TOTAL	12 U	12 UJ	74 U	15 U	11 U	11 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
1,2-DICHLOROBENZENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
1,3-DICHLOROBENZENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
1,4-DICHLOROBENZENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2,4,5-TRICHLOROPHENOL	990 UJ	970 UJ	1200 UJ	1300 UJ	910 UJ	940 UJ
2,4,6-TRICHLOROPHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2,4-DICHLOROPHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2,4-DIMETHYLPHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2,4-DINITROPHENOL	990 UJ	970 UJ	1200 UJ	1300 UJ	910 UJ	940 UJ
2,4-DINITROTOLUENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2,6-DINITROTOLUENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2-CHLORONAPHTHALENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2-CHLOROPHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2-METHYLNAPHTHALENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
2-METHYLPHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
DEPTH (feet):	20 - 22'	6 - 8'	2 - 4'	25 - 27'	24 - 26'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/20/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:					05-SB-01(24)	05-SB-02(10)
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	990 UJ	970 UJ	1200 UJ	1300 UJ	910 UJ	940 UJ
2-NITROPHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
3,3'-DICHLOROBENZIDINE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
3-NITROANILINE	990 UJ	970 UJ	1200 UJ	1300 UJ	910 UJ	940 UJ
4,6-DINITRO-2-METHYLPHENOL	990 UJ	970 UJ	1200 UJ	1300 UJ	910 UJ	940 UJ
4-BROMOPHENYL PHENYL ETHER	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
4-CHLORO-3-METHYLPHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
4-CHLOROANILINE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
4-CHLOROPHENYL PHENYL ETHER	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
4-METHYLPHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
4-NITROANILINE	990 UJ	970 UJ	1200 UJ	1300 UJ	910 UJ	940 UJ
4-NITROPHENOL	990 UJ	970 UJ	1200 UJ	1300 UJ	910 UJ	940 UJ
ACENAPHTHENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
ACENAPHTHYLENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
ANTHRACENE	400 UJ	68 J	140 J	56 J	360 UJ	370 UJ
BENZO(A)ANTHRACENE	400 UJ	240 J	550 J	230 J	360 UJ	370 UJ
BENZO(A)PYRENE	400 UJ	220 J	500 J	180 J	360 UJ	250 J
BENZO(B)FLUORANTHENE	400 UJ	290 J	630 J	220 J	360 UJ	370 UJ
BENZO(G,H,I)PERYLENE	400 UJ	140 J	300 J	100 J	360 UJ	510 J
BENZO(K)FLUORANTHENE	400 UJ	120 J	290 J	130 J	360 UJ	370 UJ
BIS(2-CHLOROETHOXY)METHANE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
BIS(2-CHLOROETHYL)ETHER	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	400 UJ	230 J	190 J	210 J	59 J	51 J
BUTYLBENZYL PHTHALATE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
CARBAZOLE	400 UJ	390 UJ	78 J	510 UJ	360 UJ	370 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
DEPTH (feet):	20 - 22'	6 - 8'	2 - 4'	25 - 27'	24 - 26'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/20/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:					05-SB-01(24)	05-SB-02(10)
SEMIVOLATILES (µg/kg)						
CHRYSENE	400 UJ	210 J	490 J	200 J	360 UJ	370 UJ
DI-N-BUTYL PHTHALATE	400 UJ	39 J	490 UJ	510 UJ	360 UJ	370 UJ
DI-N-OCTYL PHTHALATE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
DIBENZO(A,H)ANTHRACENE	400 UJ	43 J	120 J	510 UJ	360 UJ	370 UJ
DIBENZOFURAN	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
DIETHYL PHTHALATE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
DIMETHYL PHTHALATE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
FLUORANTHENE	400 UJ	350 J	960 J	370 J	360 UJ	370 UJ
FLUORENE	400 UJ	390 UJ	66 J	510 UJ	360 UJ	370 UJ
HEXACHLOROBENZENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
HEXACHLOROBUTADIENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
HEXACHLOROCYCLOPENTADIENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
HEXACHLOROETHANE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
INDENO(1,2,3-CD)PYRENE	400 UJ	140 J	330 J	110 J	360 UJ	140 J
ISOPHORONE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
N-NITROSO-DI-N-PROPYLAMINE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
N-NITROSODIPHENYLAMINE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
NAPHTHALENE	400 UJ	55 J	97 J	510 UJ	360 UJ	370 UJ
NITROBENZENE	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
PENTACHLOROPHENOL	990 UJ	970 UJ	1200 UJ	1300 UJ	910 UJ	940 UJ
PHENANTHRENE	400 UJ	280 J	600 J	270 J	360 UJ	370 UJ
PHENOL	400 UJ	390 UJ	490 UJ	510 UJ	360 UJ	370 UJ
PYRENE	400 UJ	350 J	880 J	400 J	360 UJ	160 J
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	4 UJ	3.9 UJ	4.9 UJ	5 UJ	3.6 UJ	3.8 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
DEPTH (feet):	20 - 22'	6 - 8'	2 - 4'	25 - 27'	24 - 26'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/20/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:					05-SB-01(24)	05-SB-02(10)
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	4 UJ	4.2 J	22 J	5 UJ	3.6 UJ	3.8 UJ
4,4'-DDT	4 UJ	3.9 UJ	4.9 U	5 UJ	3.6 UJ	3.8 UJ
ALDRIN	2 UJ	1.9 UJ	2.5 UJ	2.5 UJ	1.8 UJ	1.9 UJ
ALPHA-BHC	2 UJ	1.9 UJ	2.5 UJ	2.5 UJ	1.8 UJ	1.9 UJ
ALPHA-CHLORDANE	2 UJ	94 J	160 J	2.5 UJ	1.8 UJ	1.9 UJ
AROCLOR-1016	40 UJ	39 UJ	49 UJ	50 UJ	36 UJ	38 UJ
AROCLOR-1221	79 UJ	78 UJ	99 UJ	100 UJ	72 UJ	75 UJ
AROCLOR-1232	40 UJ	39 UJ	49 UJ	50 UJ	36 UJ	38 UJ
AROCLOR-1242	40 UJ	39 UJ	49 UJ	50 UJ	36 UJ	38 UJ
AROCLOR-1248	40 UJ	39 UJ	49 UJ	50 UJ	36 UJ	38 UJ
AROCLOR-1254	40 UJ	39 UJ	49 UJ	50 UJ	36 UJ	38 UJ
AROCLOR-1260	40 UJ	460 J	1200 J	50 UJ	36 UJ	38 UJ
BETA-BHC	2 UJ	1.9 UJ	2.5 UJ	2.5 UJ	1.8 UJ	1.9 UJ
DELTA-BHC	2 UJ	1.9 UJ	2.5 UJ	2.5 UJ	1.8 UJ	1.9 UJ
DIELDRIN	4 UJ	6.8 J	53 J	5 UJ	3.6 UJ	3.8 UJ
ENDOSULFAN I	2 UJ	1.9 UJ	2.5 UJ	2.5 UJ	1.8 UJ	1.9 UJ
ENDOSULFAN II	4 UJ	3.9 UJ	4.9 UJ	0.86 J	3.6 UJ	3.8 UJ
ENDOSULFAN SULFATE	4 UJ	3.9 UJ	4.9 UJ	5 UJ	3.6 UJ	3.8 UJ
ENDRIN	4 UJ	3.9 UJ	4.9 UR	5 UR	3.6 UJ	3.8 UJ
ENDRIN ALDEHYDE	4 UJ	3.9 UJ	4.9 UJ	5 UJ	3.6 UJ	3.8 UJ
ENDRIN KETONE	4 UJ	3.9 UJ	11 NJ	2.6 NJ	3.6 UJ	3.8 UJ
GAMMA-BHC (LINDANE)	2 UJ	1.9 UJ	2.5 UJ	2.5 UJ	1.8 UJ	1.9 UJ
GAMMA-CHLORDANE	2 UJ	100 J	140 J	2.5 UJ	1.8 UJ	1.9 UJ
HEPTACHLOR	2 UJ	5.7 J	2.5 UJ	2.5 UJ	1.8 UJ	1.9 UJ
HEPTACHLOR EPOXIDE	2 UJ	1.9 UJ	2.5 UJ	2.5 UJ	1.8 UJ	0.23 J

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
DEPTH (feet):	20 - 22'	6 - 8'	2 - 4'	25 - 27'	24 - 26'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/20/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:					05-SB-01(24)	05-SB-02(10)
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	20 UJ	19 UJ	25 UJ	25 UJ	18 UJ	19 UJ
TOXAPHENE	200 UJ	190 UJ	250 UJ	250 UJ	180 UJ	190 UJ
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 U	40.2 UJ	40.2 UJ	40.2 U	40.2 U	40.2 U
1,3-DINITROBENZENE	37.2 U	37.2 UJ	37.2 UJ	37.2 U	37.2 U	37.2 U
2,4 DINITROTOLUENE	51.6 U	51.6 UJ	51.6 UJ	51.6 U	51.6 U	51.6 U
2,4,6-TRINITROTOLUENE	35.6 U	35.6 UJ	9820 J	92 U	35.6 U	35.6 U
2,6 DINITROTOLUENE	47.6 U	47.6 UJ	47.6 UJ	47.6 U	47.6 U	47.6 U
2-AMINO-4,6-DINITROTOLUENE	46.7 U	46.7 UJ	1070 J	46.7 U	46.7 U	46.7 U
2-NITROTOLUENE	81.4 U	81.4 UJ	81.4 UJ	81.4 U	81.4 U	81.4 U
3-NITROTOLUENE	81.8 U	81.8 UJ	81.8 UJ	81.8 U	81.8 U	81.8 U
4-AMINO-2,6-DINITROTOLUENE	40.9 U	40.9 UJ	40.9 UJ	40.9 U	40.9 U	40.9 U
4-NITROTOLUENE	87.2 U	87.2 UJ	87.2 UJ	87.2 U	87.2 U	87.2 U
HMX	73 U	73 UJ	5480 J	73 U	73 U	70.5 U
NITRO-BENZENE	35.2 U	35.2 UJ	35.2 UJ	35.2 U	35.2 U	35.2 U
RDX	50.9 U	50.9 UJ	30800 J	50.9 U	50.9 U	50.9 U
TETRYL	163 U	163 UJ	163 UJ	163 U	163 U	163 UJ
METALS (mg/kg)						
ALUMINUM	8370	9990	10300	2380	1740	4360 J
ANTIMONY	2.3 L	2.5 L	3.1 L	0.79 UL	0.56 UL	0.63 UL
ARSENIC	3.4 L	5	4 L	1 U	0.71 UL	3 B
BARIUM	253	119	312	30.6	6.1	6.5
BERYLLIUM	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U	0.02 U
CADMIUM	2 K	3.2 K	2.5 K	0.31 B	0.07 B	0.07 U
CALCIUM	34400	12000	42400	1150 K	47.6 B	45 B

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
DEPTH (feet):	20 - 22'	6 - 8'	2 - 4'	25 - 27'	24 - 26'	10 - 12'
SAMPLE DATE:	10/21/97	10/21/97	10/20/97	10/22/97	10/21/97	10/22/97
LOCATION:	05-SB-04(20)	05-SB-04(6)	05-SB-05(2)	05-SB-05(25)	05-SB-100	05-SB-101
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:					05-SB-01(24)	05-SB-02(10)
METALS (mg/kg)						
CHROMIUM	29.1 J	37.3 J	35.7 J	14.3 J	5 J	10.4 J
COBALT	3.4 J	5.5 J	4.3 J	0.12	0.14 B	0.3 B
COPPER	511	313	630	46.7	2.6	51.9
CYANIDE	0.24 U	0.24 U	0.35	0.34	0.23 U	0.24 U
IRON	18000	24900	22200	12400	2130	9550 J
LEAD	147 K	687 K	181 K	16.6 K	1.9 K	2.7 J
MAGNESIUM	2440 J	3190 J	3010 J	250 J	48.9 B	123 K
MANGANESE	186 J	253 J	229 J	32.9 J	4.5 J	5.1 J
MERCURY	0.02	2.3	1.8	0.03	0.02	0.05
NICKEL	24.6	52	30	1.6 K	0.77 K	1.2 B
POTASSIUM	556	599	689	316	135	178
SELENIUM	4.2 J	2.9 J	4.5 J	0.85 UJ	0.6 UJ	49.6 J
SILVER	14.2	7.6	17.8	0.24	0.17 U	0.2 U
SODIUM	666 J	787 J	837 J	159 B	66.1 B	29 UL
THALLIUM	0.68 UL	0.66 UL	0.84 UL	0.88 U	0.62 U	0.51 U
VANADIUM	39.1	17.1	48.5	13.4	6	18
ZINC	519 J	509 J	641 J	11.6 J	2 B	2.9 J
GENERAL CHEMISTRY ()						
PH	7.85	7.87	8.39	8.36	4.98	5.15

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	05-GW-01 11/20/97 05-GW-01	05-GW-02 11/20/97 05-GW-02	/ /	/ /	/ /	/ /
VOLATILES (µg/L)						
1,1,1-TRICHLOROETHANE	1 U	1 U				
1,1,2,2-TETRACHLOROETHANE	1 U	1 U				
1,1,2-TRICHLOROETHANE	1 U	1 U				
1,1-DICHLOROETHANE	1 U	1 U				
1,1-DICHLOROETHENE	1 U	1 U				
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U				
1,2-DIBROMOETHANE	1 U	1 U				
1,2-DICHLOROETHANE	1 U	1 U				
1,2-DICHLOROPROPANE	1 U	1 U				
2-BUTANONE	5 UR	5 UR				
2-HEXANONE	5 U	5 U				
4-METHYL-2-PENTANONE	5 U	5 U				
ACETONE	5 UR	5 UR				
BENZENE	1 U	1 U				
BROMOCHLOROMETHANE	1 U	1 U				
BROMODICHLOROMETHANE	1 U	1 U				
BROMOFORM	1 U	1 U				
BROMOMETHANE	1 U	1 U				
CARBON DISULFIDE	1 U	1 U				
CARBON TETRACHLORIDE	1 U	1 U				
CHLOROBENZENE	1 U	1 U				
CHLOROETHANE	1 U	1 U				
CHLOROFORM	1 U	4				
CHLOROMETHANE	1 U	1 U				
CIS-1,2-DICHLOROETHENE	6	1 U				
CIS-1,3-DICHLOROPROPENE	1 U	1 U				
DIBROMOCHLOROMETHANE	1 U	1 U				

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER:	05-GW-01	05-GW-02	/ /	/ /	/ /	/ /
SAMPLE DATE:	11/20/97	11/20/97				
LOCATION:	05-GW-01	05-GW-02				
FIELD DUPLICATE OF:						
VOLATILES (µg/L)						
ETHYLBENZENE	1 U	1 U				
METHYLENE CHLORIDE	2 U	2 U				
STYRENE	1 U	1 U				
TETRACHLOROETHENE	17	1 U				
TOLUENE	1 U	1 U				
TRANS-1,2-DICHLOROETHENE	1 U	1 U				
TRANS-1,3-DICHLOROPROPENE	1 U	1 U				
TRICHLOROETHENE	12	3				
VINYL CHLORIDE	1	1 U				
XYLENES, TOTAL	1 U	1 U				
SEMIVOLATILES (µg/L)						
1,2,4-TRICHLOROBENZENE	1 U	1 U				
1,2-DICHLOROBENZENE	1 U	1 U				
1,3-DICHLOROBENZENE	1 U	1 U				
1,4-DICHLOROBENZENE	1 U	1 U				
2,2'-OXYBIS(1-CHLOROPROPANE)	6 UJ	6 UJ				
2,4,5-TRICHLOROPHENOL	22 U	24 U				
2,4,6-TRICHLOROPHENOL	6 U	6 U				
2,4-DICHLOROPHENOL	6 U	6 U				
2,4-DIMETHYLPHENOL	6 U	6 U				
2,4-DINITROPHENOL	22 U	24 U				
2,4-DINITROTOLUENE	6 U	6 U				
2,6-DINITROTOLUENE	6 U	6 U				
2-CHLORONAPHTHALENE	6 U	6 U				
2-CHLOROPHENOL	6 U	6 U				
2-METHYLNAPHTHALENE	6 U	6 U				
2-METHYLPHENOL	6 U	6 U				

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	05-GW-01 11/20/97 05-GW-01	05-GW-02 11/20/97 05-GW-02	/ /	/ /	/ /	/ /
SEMIVOLATILES (µg/L)						
2-NITROANILINE	22 U	24 U				
2-NITROPHENOL	6 U	6 U				
3,3'-DICHLOROBENZIDINE	6 U	6 U				
3-NITROANILINE	22 U	24 U				
4,6-DINITRO-2-METHYLPHENOL	22 U	24 U				
4-BROMOPHENYL PHENYL ETHER	6 U	6 U				
4-CHLORO-3-METHYLPHENOL	6 U	6 U				
4-CHLOROANILINE	6 U	6 U				
4-CHLOROPHENYL PHENYL ETHER	6 U	6 U				
4-METHYLPHENOL	6 U	6 U				
4-NITROANILINE	22 U	24 U				
4-NITROPHENOL	22 U	24 U				
ACENAPHTHENE	6 U	6 U				
ACENAPHTHYLENE	6 U	6 U				
ANTHRACENE	6 U	6 U				
BENZO(A)ANTHRACENE	6 U	6 U				
BENZO(A)PYRENE	6 U	6 U				
BENZO(B)FLUORANTHENE	6 U	6 U				
BENZO(G,H,I)PERYLENE	6 U	6 U				
BENZO(K)FLUORANTHENE	6 U	6 U				
BIS(2-CHLOROETHOXY)METHANE	6 U	6 U				
BIS(2-CHLOROETHYL)ETHER	6 U	6 U				
BIS(2-ETHYLHEXYL)PHTHALATE	6 U	2 B				
BUTYLBENZYL PHTHALATE	6 U	6 U				
CHRYSENE	6 U	6 U				
DI-N-BUTYL PHTHALATE	3 B	7 B				
DI-N-OCTYL PHTHALATE	6 U	6 U				

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	05-GW-01 11/20/97 05-GW-01	05-GW-02 11/20/97 05-GW-02	/ /	/ /	/ /	/ /
SEMIVOLATILES (µg/L)						
DIBENZO(A,H)ANTHRACENE	6 U	6 U				
DIBENZOFURAN	6 U	6 U				
DIETHYL PHTHALATE	6 U	6 U				
DIMETHYL PHTHALATE	6 U	6 U				
FLUORANTHENE	6 U	6 U				
FLUORENE	6 U	6 U				
HEXACHLOROBENZENE	6 U	6 U				
HEXACHLOROBUTADIENE	6 U	6 U				
HEXACHLOROCYCLOPENTADIENE	6 U	6 U				
HEXACHLOROETHANE	6 U	6 U				
INDENO(1,2,3-CD)PYRENE	6 U	6 U				
ISOPHORONE	6 U	6 U				
N-NITROSO-DI-N-PROPYLAMINE	6 U	6 U				
N-NITROSODIPHENYLAMINE	6 U	6 U				
NAPHTHALENE	6 U	6 U				
NITROBENZENE	6 U	6 U				
PENTACHLOROPHENOL	22 U	24 U				
PHENANTHRENE	6 U	6 U				
PHENOL	6 U	6 U				
PYRENE	6 U	6 U				
PESTICIDES/PCBs (µg/L)						
4,4'-DDD	0.024 U	0.024 U				
4,4'-DDE	0.024 U	0.024 U				
4,4'-DDT	0.024 U	0.024 U				
ALDRIN	0.012 U	0.012 U				
ALPHA-BHC	0.012 U	0.012 U				
ALPHA-CHLORDANE	0.012 U	0.012 U				

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	05-GW-01 11/20/97 05-GW-01	05-GW-02 11/20/97 05-GW-02	/ /	/ /	/ /	/ /
PESTICIDES/PCBs (µg/L)						
AROCLOR-1016	0.24 U	0.24 U				
AROCLOR-1221	0.47 U	0.47 U				
AROCLOR-1232	0.24 U	0.24 U				
AROCLOR-1242	0.24 U	0.24 U				
AROCLOR-1248	0.24 U	0.24 U				
AROCLOR-1254	0.24 U	0.24 U				
AROCLOR-1260	0.24 U	0.24 U				
BETA-BHC	0.012 U	0.012 U				
DELTA-BHC	0.012 U	0.012 U				
DIELDRIN	0.024 U	0.024 U				
ENDOSULFAN I	0.012 U	0.012 U				
ENDOSULFAN II	0.024 U	0.024 U				
ENDOSULFAN SULFATE	0.024 U	0.024 U				
ENDRIN	0.024 U	0.024 U				
ENDRIN ALDEHYDE	0.024 U	0.024 U				
ENDRIN KETONE	0.024 U	0.024 U				
GAMMA-BHC (LINDANE)	0.012 U	0.012 U				
GAMMA-CHLORDANE	0.012 U	0.012 U				
HEPTACHLOR	0.012 U	0.012 U				
HEPTACHLOR EPOXIDE	0.005 R	0.012 U				
METHOXYCHLOR	0.12 U	0.12 U				
TOXAPHENE	1.2 U	1.2 U				
ENERGETICS (µg/L)						
1,3,5-TRINITROBENZENE	0.6 U	0.6 U				
1,3-DINITROBENZENE	0.6 U	0.6 U				
2,4 DINITROTOLUENE	0.6 U	0.6 U				
2,4,6-TRINITROTOLUENE	0.6 U	0.6 U				

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	05-GW-01 11/20/97 05-GW-01	05-GW-02 11/20/97 05-GW-02	/ /	/ /	/ /	/ /
ENERGETICS (µg/L)						
2,6 DINITROTOLUENE	0.6 U	0.6 U				
2-AMINO-4,6-DINITROTOLUENE	0.6 U	0.6 U				
2-NITROTOLUENE	1.3 U	1.3 U				
3-NITROTOLUENE	1.3 U	1.3 U				
4-AMINO-2,6-DINITROTOLUENE	0.6 U	0.6 U				
4-NITROTOLUENE	1.3 U	1.3 U				
HMX	8.9 J	1.3 U				
NITRO-BENZENE	0.6 U	0.6 U				
RDX	18.8 J	1.3 U				
TETRYL	1.3 U	1.3 U				
METALS (µg/L)						
ALUMINUM	1650 K	97.1 B				
ANTIMONY	2.8 U	2.8 U				
ARSENIC	3 U	3 U				
BARIUM	96.3	140				
BERYLLIUM	1.1	0.18 B				
CADMIUM	2.1 B	0.42 B				
CALCIUM	18600	9290 K				
CHROMIUM	37.3	19.4				
COBALT	77	37.6				
COPPER	15.5	3.2 B				
CYANIDE	5 U	7.3 B				
IRON	5720	6880				
LEAD	7 B	4.8 B				
MAGNESIUM	14500	9710 J				
MANGANESE	2830	1860				
MERCURY	0.1 U	0.1 U				

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 05 - OPEN BURN AREA
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	05-GW-01 11/20/97 05-GW-01	05-GW-02 11/20/97 05-GW-02	/ /	/ /	/ /	/ /
METALS (µg/L)						
NICKEL	124	45.4				
POTASSIUM	12000	4170				
SELENIUM	61.8	2.3 UJ				
SILVER	0.9 U	0.9 U				
SODIUM	256000	38900				
THALLIUM	2.3 U	3.7 B				
VANADIUM	5.9	1 U				
ZINC	472	257				

APPENDIX F.3

SITE 6 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SS-01	06-SS-02	06-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	11/03/97	11/03/97	11/03/97	/ /	/ /	/ /
LOCATION:	06-SS-01	06-SS-02	06-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	13 U	12 U	12 U			
1,1,2,2-TETRACHLOROETHANE	13 U	12 U	12 U			
1,1,2-TRICHLOROETHANE	13 U	12 U	12 U			
1,1-DICHLOROETHANE	13 U	12 U	12 U			
1,1-DICHLOROETHENE	13 U	12 U	12 U			
1,2-DICHLOROETHANE	13 U	12 U	12 U			
1,2-DICHLOROETHENE (TOTAL)	13 U	12 U	12 U			
1,2-DICHLOROPROPANE	13 U	12 U	12 U			
2-BUTANONE	13 U	12 U	12 U			
2-HEXANONE	13 U	12 U	12 U			
4-METHYL-2-PENTANONE	13 U	12 U	12 U			
ACETONE	13 U	12 U	12 U			
BENZENE	13 U	12 U	12 U			
BROMODICHLOROMETHANE	13 U	12 U	12 U			
BROMOFORM	13 U	12 U	12 U			
BROMOMETHANE	13 U	12 U	12 U			
CARBON DISULFIDE	13 U	12 U	12 U			
CARBON TETRACHLORIDE	13 U	12 U	12 U			
CHLOROBENZENE	13 U	12 U	12 U			
CHLOROETHANE	13 U	12 U	12 U			
CHLOROFORM	13 U	12 U	12 U			
CHLOROMETHANE	13 U	12 U	12 U			
CIS-1,3-DICHLOROPROPENE	13 U	12 U	12 U			
DIBROMOCHLOROMETHANE	13 U	12 U	12 U			
ETHYLBENZENE	1 R	12 U	12 U			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SS-01	06-SS-02	06-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	11/03/97	11/03/97	11/03/97	/ /	/ /	/ /
LOCATION:	06-SS-01	06-SS-02	06-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	13 U	8 B	7 B			
STYRENE	13 U	12 U	12 U			
TETRACHLOROETHENE	13 U	12 U	12 U			
TOLUENE	13 U	12 U	12 U			
TRANS-1,3-DICHLOROPROPENE	13 U	12 U	12 U			
TRICHLOROETHENE	13 U	12 U	12 U			
VINYL CHLORIDE	13 U	12 U	12 U			
XYLENES, TOTAL	5 R	12 U	12 U			
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	420 UJ	400 UJ	400 UJ			
1,2-DICHLOROBENZENE	420 UJ	400 UJ	400 UJ			
1,3-DICHLOROBENZENE	420 UJ	400 UJ	400 UJ			
1,4-DICHLOROBENZENE	420 UJ	400 UJ	400 UJ			
2,2'-OXYBIS(1-CHLOROPROPANE)	420 UJ	400 UJ	400 UJ			
2,4,5-TRICHLOROPHENOL	1100 UJ	990 UJ	1000 UJ			
2,4,6-TRICHLOROPHENOL	420 UJ	400 UJ	400 UJ			
2,4-DICHLOROPHENOL	420 UJ	400 UJ	400 UJ			
2,4-DIMETHYLPHENOL	420 UJ	400 UJ	400 UJ			
2,4-DINITROPHENOL	1100 UJ	990 UJ	1000 UJ			
2,4-DINITROTOLUENE	420 UJ	400 UJ	400 UJ			
2,6-DINITROTOLUENE	420 UJ	400 UJ	400 UJ			
2-CHLORONAPHTHALENE	420 UJ	400 UJ	400 UJ			
2-CHLOROPHENOL	420 UJ	400 UJ	400 UJ			
2-METHYLNAPHTHALENE	420 UJ	400 UJ	400 UJ			
2-METHYLPHENOL	420 UJ	400 UJ	400 UJ			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SS-01	06-SS-02	06-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	11/03/97	11/03/97	11/03/97	/ /	/ /	/ /
LOCATION:	06-SS-01	06-SS-02	06-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	1100 UJ	990 UJ	1000 UJ			
2-NITROPHENOL	420 UJ	400 UJ	400 UJ			
3,3'-DICHLOROBENZIDINE	420 UJ	400 UJ	400 UJ			
3-NITROANILINE	1100 UJ	990 UJ	1000 UJ			
4,6-DINITRO-2-METHYLPHENOL	1100 UJ	990 UJ	1000 UJ			
4-BROMOPHENYL PHENYL ETHER	420 UJ	400 UJ	400 UJ			
4-CHLORO-3-METHYLPHENOL	420 UJ	400 UJ	400 UJ			
4-CHLOROANILINE	420 UJ	400 UJ	400 UJ			
4-CHLOROPHENYL PHENYL ETHER	420 UJ	400 UJ	400 UJ			
4-METHYLPHENOL	420 UJ	400 UJ	400 UJ			
4-NITROANILINE	1100 UJ	990 UJ	1000 UJ			
4-NITROPHENOL	1100 UJ	990 UJ	1000 UJ			
ACENAPHTHENE	420 UJ	400 UJ	400 UJ			
ACENAPHTHYLENE	420 UJ	400 UJ	400 UJ			
ANTHRACENE	420 UJ	400 UJ	400 UJ			
BENZO(A)ANTHRACENE	420 UJ	400 UJ	400 UJ			
BENZO(A)PYRENE	420 UJ	400 UJ	400 UJ			
BENZO(B)FLUORANTHENE	420 UJ	400 UJ	400 UJ			
BENZO(G,H,I)PERYLENE	420 UJ	400 UJ	400 UJ			
BENZO(K)FLUORANTHENE	420 UJ	400 UJ	400 UJ			
BIS(2-CHLOROETHOXY)METHANE	420 UJ	400 UJ	400 UJ			
BIS(2-CHLOROETHYL)ETHER	420 UJ	400 UJ	400 UJ			
BIS(2-ETHYLHEXYL)PHTHALATE	85 J	400 UJ	400 UJ			
BUTYLBENZYL PHTHALATE	420 UJ	400 UJ	400 UJ			
CARBAZOLE	420 UJ	400 UJ	400 UJ			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SS-01	06-SS-02	06-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	11/03/97	11/03/97	11/03/97	/ /	/ /	/ /
LOCATION:	06-SS-01	06-SS-02	06-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	420 UJ	400 UJ	400 UJ			
DI-N-BUTYL PHTHALATE	340 J	400 UJ	400 UJ			
DI-N-OCTYL PHTHALATE	420 UJ	400 UJ	400 UJ			
DIBENZO(A,H)ANTHRACENE	420 UJ	400 UJ	400 UJ			
DIBENZOFURAN	420 UJ	400 UJ	400 UJ			
DIETHYL PHTHALATE	63 J	65 J	69 J			
DIMETHYL PHTHALATE	420 UJ	400 UJ	400 UJ			
FLUORANTHENE	46 J	400 UJ	400 UJ			
FLUORENE	420 UJ	400 UJ	400 UJ			
HEXACHLOROBENZENE	420 UJ	400 UJ	400 UJ			
HEXACHLOROBUTADIENE	420 UJ	400 UJ	400 UJ			
HEXACHLOROCYCLOPENTADIENE	420 UJ	400 UJ	400 UJ			
HEXACHLOROETHANE	420 UJ	400 UJ	400 UJ			
INDENO(1,2,3-CD)PYRENE	420 UJ	400 UJ	400 UJ			
ISOPHORONE	420 UJ	400 UJ	400 UJ			
N-NITROSO-DI-N-PROPYLAMINE	420 UJ	400 UJ	400 UJ			
N-NITROSODIPHENYLAMINE	420 UJ	400 UJ	400 UJ			
NAPHTHALENE	420 UJ	400 UJ	400 UJ			
NITROBENZENE	420 UJ	400 UJ	400 UJ			
PENTACHLOROPHENOL	1100 UJ	990 UJ	1000 UJ			
PHENANTHRENE	420 UJ	400 UJ	400 UJ			
PHENOL	420 UJ	400 UJ	400 UJ			
PYRENE	51 J	400 UJ	400 UJ			
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	4.2 UJ	4 UJ	4 UJ			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SS-01	06-SS-02	06-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	11/03/97	11/03/97	11/03/97	/ /	/ /	/ /
LOCATION:	06-SS-01	06-SS-02	06-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	4.2 UJ	0.59 J	0.53 J			
4,4'-DDT	4.2 UJ	4 UJ	4 UJ			
ALDRIN	2.1 UJ	2 UJ	2 UJ			
ALPHA-BHC	2.1 UJ	2 UJ	2 UJ			
ALPHA-CHLORDANE	1.7 J	2 UJ	2 UJ			
AROCLOR-1016	42 UJ	40 UJ	40 UJ			
AROCLOR-1221	84 UJ	79 UJ	79 UJ			
AROCLOR-1232	42 UJ	40 UJ	40 UJ			
AROCLOR-1242	42 UJ	40 UJ	40 UJ			
AROCLOR-1248	42 UJ	40 UJ	40 UJ			
AROCLOR-1254	42 UJ	40 UJ	40 UJ			
AROCLOR-1260	84 J	9.4 J	5.8 J			
BETA-BHC	2.1 UJ	2 UJ	2 UJ			
DELTA-BHC	2.1 UJ	2 UJ	2 UJ			
DIELDRIN	4.2 UJ	4 UJ	0.16 J			
ENDOSULFAN I	2.1 UJ	2 UJ	2 UJ			
ENDOSULFAN II	4.2 UJ	4 UJ	4 UJ			
ENDOSULFAN SULFATE	4.2 UJ	4 UJ	4 UJ			
ENDRIN	4.2 UJ	4 UJ	4 UJ			
ENDRIN ALDEHYDE	4.2 UJ	4 UJ	4 UJ			
ENDRIN KETONE	4.2 UJ	4 UJ	4 UJ			
GAMMA-BHC (LINDANE)	2.1 UJ	2 UJ	2 UJ			
GAMMA-CHLORDANE	1.2 J	2 UJ	2 UJ			
HEPTACHLOR	2.1 UJ	2 UJ	2 UJ			
HEPTACHLOR EPOXIDE	2.1 UJ	2 UJ	2 UJ			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	06-SS-01 0-1' 11/03/97 06-SS-01 GRAB	06-SS-02 0-1' 11/03/97 06-SS-02 GRAB	06-SS-03 0-1' 11/03/97 06-SS-03 GRAB	/ /	/ /	/ /
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	21 UJ	20 UJ	20 UJ			
TOXAPHENE	210 UJ	200 UJ	200 UJ			
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 UJ	40.2 UJ	40.2 UJ			
1,3-DINITROBENZENE	37.2 UJ	37.2 UJ	37.2 UJ			
2,4 DINITROTOLUENE	51.6 UJ	51.6 UJ	51.6 UJ			
2,4,6-TRINITROTOLUENE	92 UJ	92 UJ	92 UJ			
2,6 DINITROTOLUENE	47.6 UJ	47.6 UJ	47.6 UJ			
2-AMINO-4,6-DINITROTOLUENE	46.7 UJ	46.7 UJ	46.7 UJ			
2-NITROTOLUENE	81.4 UJ	81.4 UJ	81.4 UJ			
3-NITROTOLUENE	81.8 UJ	81.8 UJ	81.8 UJ			
4-AMINO-2,6-DINITROTOLUENE	40.9 UJ	40.9 UJ	40.9 UJ			
4-NITROTOLUENE	87.2 UJ	87.2 UJ	87.2 UJ			
HMX	73 UJ	73 UJ	73 UJ			
NITRO-BENZENE	35.2 UJ	35.2 UJ	35.2 UJ			
RDX	50.9 UJ	50.9 UJ	50.9 UJ			
TETRYL	163 UJ	163 UJ	163 UJ			
METALS (mg/kg)						
ALUMINUM	8700	9970	10600			
ANTIMONY	0.71 UL	0.65 UL	0.67 UL			
ARSENIC	2.1 L	4 L	3.1 L			
BARIUM	53.4	30.8	44.3			
BERYLLIUM	0.51	0.02 B	0.02 U			
CADMIUM	0.47	0.29 B	0.3 B			
CALCIUM	903 J	271 J	793 J			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SS-01	06-SS-02	06-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	11/03/97	11/03/97	11/03/97	/ /	/ /	/ /
LOCATION:	06-SS-01	06-SS-02	06-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
METALS (mg/kg)						
CHROMIUM	15.1 K	16.4 K	14.6 K			
COBALT	10.3	2.5	1.2			
COPPER	13.8	9	8.5			
CYANIDE	0.31 U	0.25 U	0.22 U			
IRON	17200	14700	11100			
LEAD	16.5 K	10 K	13.5 K			
MAGNESIUM	166 K	701 K	1030 K			
MANGANESE	563 L	60.7 L	175 L			
MERCURY	0.09	0.04	0.04			
MOLYBDENUM	0.559	0.728	0.464			
NICKEL	20.4	4.9	6.8			
POTASSIUM	1340	435	916			
SELENIUM	1.1 J	0.57 J	0.55 UL			
SILVER	0.23 U	0.21 U	0.21 U			
SODIUM	123 B	103 B	120 B			
THALLIUM	0.58 U	0.54 U	0.55 U			
VANADIUM	21.5	29	25.1			
ZINC	53.8	21.1	28.3			
GENERAL CHEMISTRY ()						
PH	4.92	5.05	5.53			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
1,1,2-TRICHLOROETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
1,1-DICHLOROETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
1,1-DICHLOROETHENE	11 U	11 U	12 U	10 U	12 U	11 UJ
1,2-DICHLOROETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	12 U	10 U	12 U	11 UJ
1,2-DICHLOROPROPANE	11 U	11 U	12 U	10 U	12 U	11 UJ
2-BUTANONE	11 U	11 U	12 U	10 U	12 U	11 UJ
2-HEXANONE	11 U	11 U	12 U	10 U	12 U	11 UJ
4-METHYL-2-PENTANONE	11 U	11 U	12 U	10 U	12 U	11 UJ
ACETONE	11 U	11 U	110 B	10 U	12 U	11 UJ
BENZENE	11 U	11 U	12 U	10 U	12 U	11 UJ
BROMODICHLOROMETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
BROMOFORM	11 U	11 U	12 U	10 U	12 U	11 UJ
BROMOMETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
CARBON DISULFIDE	11 U	11 U	12 U	10 U	12 U	11 UJ
CARBON TETRACHLORIDE	11 U	11 U	12 U	10 U	12 U	11 UJ
CHLOROBENZENE	11 U	11 U	12 U	10 U	12 U	11 UJ
CHLOROETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
CHLOROFORM	11 U	11 U	12 U	10 U	12 U	11 UJ
CHLOROMETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
CIS-1,3-DICHLOROPROPENE	11 U	11 U	12 U	10 U	12 U	11 UJ
DIBROMOCHLOROMETHANE	11 U	11 U	12 U	10 U	12 U	11 UJ
ETHYLBENZENE	11 U	11 U	12 U	10 U	12 U	11 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	9 B	8 B	10 B	7 B	12 B	9 B
STYRENE	11 U	11 U	12 U	10 U	12 U	11 UJ
TETRACHLOROETHENE	11 U	11 U	12 U	10 U	12 U	11 UJ
TOLUENE	11 U	11 U	12 U	10 U	12 U	11 UJ
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	12 U	10 U	12 U	11 UJ
TRICHLOROETHENE	11 U	11 U	12 U	10 U	12 U	11 UJ
VINYL CHLORIDE	11 U	11 U	12 U	10 U	12 U	11 UJ
XYLENES, TOTAL	11 U	11 U	12 U	10 U	12 U	11 UJ
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
1,2-DICHLOROBENZENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
1,3-DICHLOROBENZENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
1,4-DICHLOROBENZENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2,4,5-TRICHLOROPHENOL	920 UJ	960 UJ	1000 UJ	870 UJ	980 UJ	960 UJ
2,4,6-TRICHLOROPHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2,4-DICHLOROPHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2,4-DIMETHYLPHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2,4-DINITROPHENOL	920 UJ	960 UJ	1000 UJ	870 UJ	980 UJ	960 UJ
2,4-DINITROTOLUENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2,6-DINITROTOLUENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2-CHLORONAPHTHALENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2-CHLOROPHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
2-METHYLNAPHTHALENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	140 J
2-METHYLPHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	920 UJ	960 UJ	1000 UJ	870 UJ	980 UJ	960 UJ
2-NITROPHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
3,3'-DICHLOROBENZIDINE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
3-NITROANILINE	920 UJ	960 UJ	1000 UJ	870 UJ	980 UJ	960 UJ
4,6-DINITRO-2-METHYLPHENOL	920 UJ	960 UJ	1000 UJ	870 UJ	980 UJ	960 UJ
4-BROMOPHENYL PHENYL ETHER	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
4-CHLORO-3-METHYLPHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
4-CHLOROANILINE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
4-CHLOROPHENYL PHENYL ETHER	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
4-METHYLPHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	97 B
4-NITROANILINE	920 UJ	960 UJ	1000 UJ	870 UJ	980 UJ	960 UJ
4-NITROPHENOL	920 UJ	960 UJ	1000 UJ	870 UJ	980 UJ	960 UJ
ACENAPHTHENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
ACENAPHTHYLENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
ANTHRACENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
BENZO(A)ANTHRACENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
BENZO(A)PYRENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
BENZO(B)FLUORANTHENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
BENZO(G,H,I)PERYLENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
BENZO(K)FLUORANTHENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
BIS(2-CHLOROETHOXY)METHANE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
BIS(2-CHLOROETHYL)ETHER	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	64 J	79 J	410 UJ	350 UJ	270 J	380 UJ
BUTYLBENZYL PHTHALATE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
CARBAZOLE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
DI-N-BUTYL PHTHALATE	370 UJ	380 UJ	410 UJ	350 UJ	60 B	380 UJ
DI-N-OCTYL PHTHALATE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
DIBENZO(A,H)ANTHRACENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
DIBENZOFURAN	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
DIETHYL PHTHALATE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
DIMETHYL PHTHALATE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
FLUORANTHENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
FLUORENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
HEXACHLOROBENZENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
HEXACHLOROBUTADIENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
HEXACHLOROCYCLOPENTADIENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
HEXACHLOROETHANE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
INDENO(1,2,3-CD)PYRENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
ISOPHORONE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
N-NITROSO-DI-N-PROPYLAMINE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
N-NITROSODIPHENYLAMINE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
NAPHTHALENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
NITROBENZENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
PENTACHLOROPHENOL	920 UJ	960 UJ	1000 UJ	870 UJ	980 UJ	960 UJ
PHENANTHRENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	64 J
PHENOL	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
PYRENE	370 UJ	380 UJ	410 UJ	350 UJ	390 UJ	380 UJ
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ
4,4'-DDT	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ
ALDRIN	1.8 UJ	1.9 UJ	2 UJ	1.7 UJ	2 UJ	1.9 UJ
ALPHA-BHC	1.8 UJ	1.9 UJ	2 UJ	1.7 UJ	2 UJ	1.9 UJ
ALPHA-CHLORDANE	0.1 R	0.18 J	1.8 J	1.7 UJ	2.9 J	60 J
AROCLOR-1016	37 UJ	38 UJ	41 UJ	35 UJ	39 UJ	38 UJ
AROCLOR-1221	73 UJ	76 UJ	81 UJ	69 UJ	78 UJ	77 UJ
AROCLOR-1232	37 UJ	38 UJ	41 UJ	35 UJ	39 UJ	38 UJ
AROCLOR-1242	37 UJ	38 UJ	41 UJ	35 UJ	39 UJ	38 UJ
AROCLOR-1248	37 UJ	38 UJ	41 UJ	35 UJ	39 UJ	38 UJ
AROCLOR-1254	37 UJ	38 UJ	41 UJ	35 UJ	39 UJ	38 UJ
AROCLOR-1260	37 UJ	10 J	14 J	35 UJ	46 J	440 J
BETA-BHC	1.8 UJ	1.9 UJ	2 UJ	1.7 UJ	2 UJ	1.9 UJ
DELTA-BHC	1.8 UJ	1.9 UJ	2 UJ	1.7 UJ	2 UJ	1.9 UJ
DIELDRIN	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ
ENDOSULFAN I	1.8 UJ	1.9 UJ	2 UJ	1.7 UJ	2 UJ	1.9 UJ
ENDOSULFAN II	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ
ENDOSULFAN SULFATE	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ
ENDRIN	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ
ENDRIN ALDEHYDE	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ
ENDRIN KETONE	3.7 UJ	3.8 UJ	4.1 UJ	3.5 UJ	3.9 UJ	3.8 UJ
GAMMA-BHC (LINDANE)	1.8 UJ	1.9 UJ	2 UJ	1.7 UJ	2 UJ	1.9 UJ
GAMMA-CHLORDANE	0.11 J	0.21 J	0.92 J	1.7 UJ	1.9 J	51 J
HEPTACHLOR	1.8 UJ	1.9 UJ	2 UJ	1.7 UJ	2 UJ	1.9 UJ
HEPTACHLOR EPOXIDE	1.8 UJ	1.9 UJ	2 UJ	1.7 UJ	2 UJ	1.9 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	18 UJ	19 UJ	20 UJ	17 UJ	20 UJ	19 UJ
TOXAPHENE	180 UJ	190 UJ	200 UJ	170 UJ	200 UJ	190 UJ
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 U	40.2 U	40.2 U	40.2 U	40.2 U	40.2 U
1,3-DINITROBENZENE	37.2 U	37.2 U	37.2 U	37.2 U	37.2 U	37.2 U
2,4 DINITROTOLUENE	51.6 U	51.6 U	51.6 U	51.6 U	51.6 U	51.6 U
2,4,6-TRINITROTOLUENE	35.6 U	35.6 U	35.6 U	35.6 U	35.6 U	35.6 U
2,6 DINITROTOLUENE	47.6 U	47.6 U	47.6 U	47.6 U	47.6 U	47.6 U
2-AMINO-4,6-DINITROTOLUENE	46.7 U	46.7 U	46.7 U	46.7 U	46.7 U	46.7 U
2-NITROTOLUENE	81.4 U	81.4 U	81.4 U	81.4 U	81.4 U	81.4 U
3-NITROTOLUENE	81.8 U	81.8 U	81.8 U	81.8 U	81.8 U	81.8 U
4-AMINO-2,6-DINITROTOLUENE	40.9 U	40.9 U	40.9 U	40.9 U	40.9 U	40.9 U
4-NITROTOLUENE	87.2 U	87.2 U	87.2 U	87.2 U	87.2 U	87.2 U
HMX	70.5 U	70.5 U	70.5 U	70.5 U	70.5 U	70.5 U
NITRO-BENZENE	35.2 U	35.2 U	35.2 U	35.2 U	35.2 U	35.2 U
RDX	50.9 U	50.9 U	50.9 U	50.9 U	50.9 U	50.9 U
TETRYL	163 UJ	163 UJ	163 UJ	163 UJ	163 UJ	163 UJ
METALS (mg/kg)						
ALUMINUM	15500	21600	15600	2330	9490	12200
ANTIMONY	0.61 UR	0.63 UR	0.68 UR	0.57 UR	0.66 UR	0.65 UR
ARSENIC	4.5	5	4.1	0.61 UL	2.8 L	4 L
BARIUM	67.1	52.4	44.2	5.9	44.5	79.8
BERYLLIUM	0.02 U	0.02 UL	0.02 U	0.02 U	0.02 U	0.02 U
CADMIUM	0.07 U	0.07 U	0.09 B	0.07 B	0.19 B	0.53 B
CALCIUM	585 K	195 K	208 K	51.7 B	347 K	2070

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 06 - SLUDGE COMPOSTING AREA
NSWC WHITE OAK

SAMPLE NUMBER:	06-SB-01(4)	06-SB-01(6)	06-SB-02(5)	06-SB-02(7)	06-SB-03(5)	06-SB-03(7)
DEPTH (feet):	4-6'	6-8'	5-7'	7-9'	5-7'	7-9'
SAMPLE DATE:	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97	11/14/97
LOCATION:	06-S	06-S	06-S	06-S	06-S	06-S
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
METALS (mg/kg)						
CHROMIUM	18.2	25.4	19.5	2.9	12.3	19
COBALT	3.6	5.1	3.3 B	0.38 B	2.4 B	3.6
COPPER	6.3	14.3	11.8	1.4	6	11.5
CYANIDE	0.27 U	0.27 U	0.21 U	0.23 U	0.26 U	0.28 U
IRON	18000	25100	17300	1820	8040	12800
LEAD	7.6 B	10.1 B	12.8 B	1.6 B	11.4 B	15.1 B
MAGNESIUM	1210 K	2280	865 K	130 K	732 K	988 K
MANGANESE	120	147	66.2	10.8	82.6	219
MERCURY	0.03 B	0.26 B	0.04 B	0.01 B	0.05 B	0.05 B
MOLYBDENUM	0.48	0.45	0.48	0.13 U	0.19	0.39
NICKEL	10.3	12.6	6.5	0.92 B	5.7	9
POTASSIUM	756 L	1130 L	781 L	110 L	512 L	1000 L
SELENIUM	1.3	1.3 L	0.92	0.47 U	1.1	1.2
SILVER	0.2 UL	0.2 UL	0.22 UL	0.18 UL	0.21 UL	1.7 B
SODIUM	56.2 B	80.3 B	82.1 B	38.2 B	73.2 B	130 B
THALLIUM	0.5 U	0.52 U	0.56 U	0.47 U	0.54 U	0.53 U
VANADIUM	29.5	38.9	35.8	4.7	18.2	25
ZINC	23.2 J	35.4 J	20.9 J	2.8	17.4	31.3 J
GENERAL CHEMISTRY ()						
PH	6.3	5.18	5.77	5.16	5.64	7.2

APPENDIX F.4

SITE 12 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)	12-SB-03(10)
DEPTH (feet):	10-12'	10-12'	12-14'	10-12'	12-14'	10-12'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97	11/04/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02	12-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100	12-SB-01(10)				
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
1,1,2-TRICHLOROETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
1,1-DICHLOROETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
1,1-DICHLOROETHENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
1,2-DICHLOROETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	11 U	11 UJ	11 UJ	11 U
1,2-DICHLOROPROPANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
2-BUTANONE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
2-HEXANONE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
4-METHYL-2-PENTANONE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
ACETONE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
BENZENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
BROMODICHLOROMETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
BROMOFORM	11 U	11 U	11 U	11 UJ	11 UJ	11 U
BROMOMETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
CARBON DISULFIDE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
CARBON TETRACHLORIDE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
CHLOROBENZENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
CHLOROETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
CHLOROFORM	11 U	11 U	11 U	11 UJ	11 UJ	11 U
CHLOROMETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
CIS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
DIBROMOCHLOROMETHANE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
ETHYLBENZENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)	12-SB-03(10)
DEPTH (feet):	10-12'	10-12'	12-14'	10-12'	12-14'	10-12'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97	11/04/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02	12-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100	12-SB-01(10)				
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	8 B	12 B	10 B	15 B	4 B	5 B
STYRENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
TETRACHLOROETHENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
TOLUENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
TRICHLOROETHENE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
VINYL CHLORIDE	11 U	11 U	11 U	11 UJ	11 UJ	11 U
XYLENES, TOTAL	11 U	11 U	11 U	11 UJ	11 UJ	11 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
1,2-DICHLOROBENZENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
1,3-DICHLOROBENZENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
1,4-DICHLOROBENZENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2,4,5-TRICHLOROPHENOL	890 UJ	890 UJ	950 UJ	930 UJ	890 UJ	930 UJ
2,4,6-TRICHLOROPHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2,4-DICHLOROPHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2,4-DIMETHYLPHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2,4-DINITROPHENOL	890 UJ	890 UJ	950 UJ	930 UJ	890 UJ	930 UJ
2,4-DINITROTOLUENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2,6-DINITROTOLUENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2-CHLORONAPHTHALENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2-CHLOROPHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2-METHYLNAPHTHALENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
2-METHYLPHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)	12-SB-03(10)
DEPTH (feet):	10-12'	10-12'	12-14'	10-12'	12-14'	10-12'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97	11/04/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02	12-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100	12-SB-01(10)				
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	890 UJ	890 UJ	950 UJ	930 UJ	890 UJ	930 UJ
2-NITROPHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
3,3'-DICHLOROBENZIDINE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
3-NITROANILINE	890 UJ	890 UJ	950 UJ	930 UJ	890 UJ	930 UJ
4,6-DINITRO-2-METHYLPHENOL	890 UJ	890 UJ	950 UJ	930 UJ	890 UJ	930 UJ
4-BROMOPHENYL PHENYL ETHER	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
4-CHLORO-3-METHYLPHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
4-CHLOROANILINE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
4-CHLOROPHENYL PHENYL ETHER	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
4-METHYLPHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
4-NITROANILINE	890 UJ	890 UJ	950 UJ	930 UJ	890 UJ	930 UJ
4-NITROPHENOL	890 UJ	890 UJ	950 UJ	930 UJ	890 UJ	930 UJ
ACENAPHTHENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
ACENAPHTHYLENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
ANTHRACENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
BENZO(A)ANTHRACENE	350 UJ	120 J	380 UJ	370 UJ	350 UJ	370 UJ
BENZO(A)PYRENE	350 UJ	77 J	380 UJ	370 UJ	350 UJ	370 UJ
BENZO(B)FLUORANTHENE	350 UJ	100 J	380 UJ	370 UJ	350 UJ	370 UJ
BENZO(G,H,I)PERYLENE	350 UJ	77 J	380 UJ	370 UJ	350 UJ	370 UJ
BENZO(K)FLUORANTHENE	350 UJ	98 J	380 UJ	370 UJ	350 UJ	370 UJ
BIS(2-CHLOROETHOXY)METHANE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
BIS(2-CHLOROETHYL)ETHER	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	350 UJ	40 J	380 UJ	370 UJ	350 UJ	370 UJ
BUTYLBENZYL PHTHALATE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
CARBAZOLE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)	12-SB-03(10)
DEPTH (feet):	10-12'	10-12'	12-14'	10-12'	12-14'	10-12'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97	11/04/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02	12-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100	12-SB-01(10)				
SEMIVOLATILES (µg/kg)						
CHRYSENE	350 UJ	120 J	380 UJ	370 UJ	350 UJ	370 UJ
DI-N-BUTYL PHTHALATE	350 UJ	350 UJ	380 UJ	84 B	350 UJ	370 UJ
DI-N-OCTYL PHTHALATE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
DIBENZO(A,H)ANTHRACENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
DIBENZOFURAN	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
DIETHYL PHTHALATE	54 J	59 J	380 UJ	370 UJ	350 UJ	370 UJ
DIMETHYL PHTHALATE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
FLUORANTHENE	350 UJ	240 J	380 UJ	370 UJ	350 UJ	370 UJ
FLUORENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
HEXACHLOROBENZENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
HEXACHLOROBUTADIENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
HEXACHLOROCYCLOPENTADIENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
HEXACHLOROETHANE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
INDENO(1,2,3-CD)PYRENE	350 UJ	76 J	380 UJ	370 UJ	350 UJ	370 UJ
ISOPHORONE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
N-NITROSO-DI-N-PROPYLAMINE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
N-NITROSODIPHENYLAMINE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
NAPHTHALENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
NITROBENZENE	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
PENTACHLOROPHENOL	890 UJ	890 UJ	950 UJ	930 UJ	890 UJ	930 UJ
PHENANTHRENE	350 UJ	170 J	380 UJ	370 UJ	350 UJ	370 UJ
PHENOL	350 UJ	350 UJ	380 UJ	370 UJ	350 UJ	370 UJ
PYRENE	40 J	220 J	380 UJ	370 UJ	350 UJ	370 UJ
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.6 UJ	3.6 UJ	6.8 J	3.7 UJ	3.5 UJ	3.7 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)	12-SB-03(10)
DEPTH (feet):	10-12'	10-12'	12-14'	10-12'	12-14'	10-12'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97	11/04/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02	12-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100	12-SB-01(10)				
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	2.2 J	1.2 J	49 J	3.7 UJ	3.5 UJ	3.7 UJ
4,4'-DDT	3.6 UJ	3.6 UJ	14 J	3.7 UJ	3.5 UJ	3.7 UJ
ALDRIN	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
ALPHA-BHC	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
ALPHA-CHLORDANE	3.6 J	2.7 J	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
AROCLOR-1016	36 UJ	36 UJ	38 UJ	37 UJ	35 UJ	37 UJ
AROCLOR-1221	71 UJ	71 UJ	76 UJ	74 UJ	71 UJ	74 UJ
AROCLOR-1232	36 UJ	36 UJ	38 UJ	37 UJ	35 UJ	37 UJ
AROCLOR-1242	36 UJ	36 UJ	38 UJ	37 UJ	35 UJ	37 UJ
AROCLOR-1248	36 UJ	36 UJ	38 UJ	37 UJ	35 UJ	37 UJ
AROCLOR-1254	36 UJ	36 UJ	38 UJ	37 UJ	35 UJ	37 UJ
AROCLOR-1260	75 J	95 J	38 UJ	37 UJ	35 UJ	37 UJ
BETA-BHC	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
DELTA-BHC	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
DIELDRIN	3.6 UJ	2.1 J	9.9 J	3.7 UJ	3.5 UJ	3.7 UJ
ENDOSULFAN I	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
ENDOSULFAN II	3.6 UJ	3.6 UJ	3.8 UJ	3.7 UJ	3.5 UJ	3.7 UJ
ENDOSULFAN SULFATE	3.6 UJ	3.6 UJ	3.8 UJ	3.7 UJ	3.5 UJ	3.7 UJ
ENDRIN	3.6 UJ	3.6 UJ	3.8 UJ	3.7 UJ	3.5 UJ	3.7 UJ
ENDRIN ALDEHYDE	3.6 UJ	3.6 UJ	3.8 UJ	3.7 UJ	3.5 UJ	3.7 UJ
ENDRIN KETONE	3.6 UJ	3.6 UJ	3.8 UJ	3.7 UJ	3.5 UJ	3.7 UJ
GAMMA-BHC (LINDANE)	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
GAMMA-CHLORDANE	3.1 J	2.1 J	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
HEPTACHLOR	1.8 UJ	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ
HEPTACHLOR EPOXIDE	0.59 J	1.8 UJ	1.9 UJ	1.9 UJ	1.8 UJ	1.9 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)	12-SB-03(10)
DEPTH (feet):	10-12'	10-12'	12-14'	10-12'	12-14'	10-12'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97	11/04/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02	12-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100	12-SB-01(10)				
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	18 UJ	18 UJ	19 UJ	19 UJ	18 UJ	19 UJ
TOXAPHENE	180 UJ	180 UJ	190 UJ	190 UJ	180 UJ	190 UJ
METALS (mg/kg)						
ALUMINUM	11700	12700	17500	23400	26500	27700
ANTIMONY	0.59 UL	0.59 UL	0.63 UL	1.3 B	0.79 B	0.62 UL
ARSENIC	3.2 L	3.2 L	4.7 L	2 L	1.1 L	1.4 J
BARIUM	29	29.9	57	67.5	55.5	112
BERYLLIUM	0.02 U	0.02 U	0.12 B	0.35 B	0.02 UL	0.12 L
CADMIUM	0.66	1.1	0.47 K	0.07 U	0.06 U	0.39 B
CALCIUM	593 J	681 J	2240 J	48.4 B	46.3 B	74.3 B
CHROMIUM	28.7	26.5	24.1	29.4	22.8	15.5 K
COBALT	3.2	3.5	7	45.8	36.8	26.2
COPPER	18.4	17	27.6	35.9	41	11.2
CYANIDE	0.24 U	0.25 U	0.26 U	0.24 U	0.24 U	0.26 U
IRON	13500	16100	22700	60000	25300	20900
LEAD	10.4 K	10.1 K	32.7 K	13.2 B	8.6 B	40.3 K
MAGNESIUM	913 K	987 K	1550 K	4680	5340	2940 K
MANGANESE	75.7 L	109 L	198 L	1750	920	1090 L
MERCURY	0.05	0.08	0.05	0.02 B	0.02 U	0.03
NICKEL	10.3	8.9	11.1	49.7	36.9	20.1
POTASSIUM	672	695	1170	3810	4280	3110
SELENIUM	4.2 J	3.8 J	0.52 U	1.1 L	0.48 UL	0.51 UL
SILVER	1.3	0.75 B	0.2 U	0.2 UL	0.19 UL	0.2 U
SODIUM	83.8 B	88.2 B	123 B	117 B	91.5 B	113 B
THALLIUM	0.48 U	0.48 U	0.52 U	0.51 U	0.48 U	0.51 UL

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-01(10)	12-SB-100	12-SB-01(12)	12-SB-02(10)	12-SB-02(12)	12-SB-03(10)
DEPTH (feet):	10-12'	10-12'	12-14'	10-12'	12-14'	10-12'
SAMPLE DATE:	11/04/97	11/04/97	11/04/97	11/13/97	11/13/97	11/04/97
LOCATION:	12-SB-01	12-SB-01	12-SB-01	12-SB-02	12-SB-02	12-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:	12-SB-100	12-SB-01(10)				
METALS (mg/kg)						
VANADIUM	26.4	30.2	39.4	37.5	27.3	21.7
ZINC	139	56.4	60.8	126 J	103 J	120
GENERAL CHEMISTRY ()						
PH	6.59	7.14	7.58	5.23	5.4	5.73

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	12-SB-03(12) 12-14' 11/04/97 12-SB-03 GRAB	12-SB-04(10) 10-12' 11/13/97 12-SB-04 GRAB	12-SB-04(12) 12-14' 11/13/97 12-SB-04 GRAB	/ /	/ /	/ /
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	11 UJ	11 UJ			
1,1,2,2-TETRACHLOROETHANE	11 U	11 UJ	11 UJ			
1,1,2-TRICHLOROETHANE	11 U	11 UJ	11 UJ			
1,1-DICHLOROETHANE	11 U	11 UJ	11 UJ			
1,1-DICHLOROETHENE	11 U	11 UJ	11 UJ			
1,2-DICHLOROETHANE	11 U	11 UJ	11 UJ			
1,2-DICHLOROETHENE (TOTAL)	11 U	11 UJ	11 UJ			
1,2-DICHLOROPROPANE	11 U	11 UJ	11 UJ			
2-BUTANONE	11 U	11 UJ	11 UJ			
2-HEXANONE	11 U	11 UJ	11 UJ			
4-METHYL-2-PENTANONE	11 U	11 UJ	11 UJ			
ACETONE	11 U	11 UJ	11 UJ			
BENZENE	11 U	11 UJ	11 UJ			
BROMODICHLOROMETHANE	11 U	11 UJ	11 UJ			
BROMOFORM	11 U	11 UJ	11 UJ			
BROMOMETHANE	11 U	11 UJ	11 UJ			
CARBON DISULFIDE	11 U	11 UJ	11 UJ			
CARBON TETRACHLORIDE	11 U	11 UJ	11 UJ			
CHLOROBENZENE	11 U	11 UJ	11 UJ			
CHLOROETHANE	11 U	11 UJ	11 UJ			
CHLOROFORM	11 U	11 UJ	11 UJ			
CHLOROMETHANE	11 U	11 UJ	11 UJ			
CIS-1,3-DICHLOROPROPENE	11 U	11 UJ	11 UJ			
DIBROMOCHLOROMETHANE	11 U	11 UJ	11 UJ			
ETHYLBENZENE	11 U	11 UJ	11 UJ			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	12-SB-03(12) 12-14' 11/04/97 12-SB-03 GRAB	12-SB-04(10) 10-12' 11/13/97 12-SB-04 GRAB	12-SB-04(12) 12-14' 11/13/97 12-SB-04 GRAB	/ /	/ /	/ /
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	6 B	8 B	7 B			
STYRENE	11 U	11 UJ	11 UJ			
TETRACHLOROETHENE	11 U	11 UJ	11 UJ			
TOLUENE	11 U	11 UJ	11 UJ			
TRANS-1,3-DICHLOROPROPENE	11 U	11 UJ	11 UJ			
TRICHLOROETHENE	11 U	11 UJ	11 UJ			
VINYL CHLORIDE	11 U	11 UJ	11 UJ			
XYLENES, TOTAL	11 U	11 UJ	11 UJ			
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	360 UJ	370 UJ	370 UJ			
1,2-DICHLOROBENZENE	360 UJ	370 UJ	370 UJ			
1,3-DICHLOROBENZENE	360 UJ	370 UJ	370 UJ			
1,4-DICHLOROBENZENE	360 UJ	370 UJ	370 UJ			
2,2'-OXYBIS(1-CHLOROPROPANE)	360 UJ	370 UJ	370 UJ			
2,4,5-TRICHLOROPHENOL	910 UJ	930 UJ	920 UJ			
2,4,6-TRICHLOROPHENOL	360 UJ	370 UJ	370 UJ			
2,4-DICHLOROPHENOL	360 UJ	370 UJ	370 UJ			
2,4-DIMETHYLPHENOL	360 UJ	370 UJ	370 UJ			
2,4-DINITROPHENOL	910 UJ	930 UJ	920 UJ			
2,4-DINITROTOLUENE	360 UJ	370 UJ	370 UJ			
2,6-DINITROTOLUENE	360 UJ	370 UJ	370 UJ			
2-CHLORONAPHTHALENE	360 UJ	370 UJ	370 UJ			
2-CHLOROPHENOL	360 UJ	370 UJ	370 UJ			
2-METHYLNAPHTHALENE	360 UJ	370 UJ	370 UJ			
2-METHYLPHENOL	360 UJ	370 UJ	370 UJ			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-03(12)	12-SB-04(10)	12-SB-04(12)			
DEPTH (feet):	12-14'	10-12'	12-14'			
SAMPLE DATE:	11/04/97	11/13/97	11/13/97	/ /	/ /	/ /
LOCATION:	12-SB-03	12-SB-04	12-SB-04			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	910 UJ	930 UJ	920 UJ			
2-NITROPHENOL	360 UJ	370 UJ	370 UJ			
3,3'-DICHLOROBENZIDINE	360 UJ	370 UJ	370 UJ			
3-NITROANILINE	910 UJ	930 UJ	920 UJ			
4,6-DINITRO-2-METHYLPHENOL	910 UJ	930 UJ	920 UJ			
4-BROMOPHENYL PHENYL ETHER	360 UJ	370 UJ	370 UJ			
4-CHLORO-3-METHYLPHENOL	360 UJ	370 UJ	370 UJ			
4-CHLOROANILINE	360 UJ	370 UJ	370 UJ			
4-CHLOROPHENYL PHENYL ETHER	360 UJ	370 UJ	370 UJ			
4-METHYLPHENOL	360 UJ	370 UJ	370 UJ			
4-NITROANILINE	910 UJ	930 UJ	920 UJ			
4-NITROPHENOL	910 UJ	930 UJ	920 UJ			
ACENAPHTHENE	360 UJ	370 UJ	370 UJ			
ACENAPHTHYLENE	360 UJ	370 UJ	370 UJ			
ANTHRACENE	360 UJ	370 UJ	370 UJ			
BENZO(A)ANTHRACENE	360 UJ	370 UJ	370 UJ			
BENZO(A)PYRENE	360 UJ	370 UJ	370 UJ			
BENZO(B)FLUORANTHENE	360 UJ	370 UJ	370 UJ			
BENZO(G,H,I)PERYLENE	360 UJ	370 UJ	370 UJ			
BENZO(K)FLUORANTHENE	360 UJ	370 UJ	370 UJ			
BIS(2-CHLOROETHOXY)METHANE	360 UJ	370 UJ	370 UJ			
BIS(2-CHLOROETHYL)ETHER	360 UJ	370 UJ	370 UJ			
BIS(2-ETHYLHEXYL)PHTHALATE	360 UJ	370 UJ	370 UJ			
BUTYLBENZYL PHTHALATE	360 UJ	370 UJ	370 UJ			
CARBAZOLE	360 UJ	370 UJ	370 UJ			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	12-SB-03(12) 12-14' 11/04/97 12-SB-03 GRAB	12-SB-04(10) 10-12' 11/13/97 12-SB-04 GRAB	12-SB-04(12) 12-14' 11/13/97 12-SB-04 GRAB	/ /	/ /	/ /
SEMIVOLATILES (µg/kg)						
CHRYSENE	360 UJ	370 UJ	370 UJ			
DI-N-BUTYL PHTHALATE	360 UJ	160 B	370 UJ			
DI-N-OCTYL PHTHALATE	360 UJ	370 UJ	370 UJ			
DIBENZO(A,H)ANTHRACENE	360 UJ	370 UJ	370 UJ			
DIBENZOFURAN	360 UJ	370 UJ	370 UJ			
DIETHYL PHTHALATE	360 UJ	370 UJ	370 UJ			
DIMETHYL PHTHALATE	360 UJ	370 UJ	370 UJ			
FLUORANTHENE	360 UJ	370 UJ	370 UJ			
FLUORENE	360 UJ	370 UJ	370 UJ			
HEXACHLOROBENZENE	360 UJ	370 UJ	370 UJ			
HEXACHLOROBUTADIENE	360 UJ	370 UJ	370 UJ			
HEXACHLOROCYCLOPENTADIENE	360 UJ	370 UJ	370 UJ			
HEXACHLOROETHANE	360 UJ	370 UJ	370 UJ			
INDENO(1,2,3-CD)PYRENE	360 UJ	370 UJ	370 UJ			
ISOPHORONE	360 UJ	370 UJ	370 UJ			
N-NITROSO-DI-N-PROPYLAMINE	360 UJ	370 UJ	370 UJ			
N-NITROSODIPHENYLAMINE	360 UJ	370 UJ	370 UJ			
NAPHTHALENE	360 UJ	370 UJ	370 UJ			
NITROBENZENE	360 UJ	370 UJ	370 UJ			
PENTACHLOROPHENOL	910 UJ	930 UJ	920 UJ			
PHENANTHRENE	360 UJ	370 UJ	370 UJ			
PHENOL	360 UJ	370 UJ	370 UJ			
PYRENE	360 UJ	370 UJ	370 UJ			
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.6 UJ	3.7 UJ	3.7 UJ			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-03(12)	12-SB-04(10)	12-SB-04(12)			
DEPTH (feet):	12-14'	10-12'	12-14'			
SAMPLE DATE:	11/04/97	11/13/97	11/13/97	/ /	/ /	/ /
LOCATION:	12-SB-03	12-SB-04	12-SB-04			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.6 UJ	3.7 UJ	3.7 UJ			
4,4'-DDT	3.6 UJ	3.7 UJ	3.7 UJ			
ALDRIN	1.8 UJ	1.8 UJ	1.8 UJ			
ALPHA-BHC	1.8 UJ	1.8 UJ	1.8 UJ			
ALPHA-CHLORDANE	1.8 UJ	1.8 UJ	1.8 UJ			
AROCLOR-1016	36 UJ	37 UJ	37 UJ			
AROCLOR-1221	73 UJ	74 UJ	73 UJ			
AROCLOR-1232	36 UJ	37 UJ	37 UJ			
AROCLOR-1242	36 UJ	37 UJ	37 UJ			
AROCLOR-1248	36 UJ	37 UJ	37 UJ			
AROCLOR-1254	36 UJ	37 UJ	37 UJ			
AROCLOR-1260	36 UJ	37 UJ	37 UJ			
BETA-BHC	1.8 UJ	1.8 UJ	1.8 UJ			
DELTA-BHC	1.8 UJ	1.8 UJ	1.8 UJ			
DIELDRIN	3.6 UJ	3.7 UJ	3.7 UJ			
ENDOSULFAN I	1.8 UJ	1.8 UJ	1.8 UJ			
ENDOSULFAN II	3.6 UJ	3.7 UJ	3.7 UJ			
ENDOSULFAN SULFATE	3.6 UJ	3.7 UJ	3.7 UJ			
ENDRIN	3.6 UJ	3.7 UJ	3.7 UJ			
ENDRIN ALDEHYDE	3.6 UJ	3.7 UJ	3.7 UJ			
ENDRIN KETONE	3.6 UJ	3.7 UJ	3.7 UJ			
GAMMA-BHC (LINDANE)	1.8 UJ	1.8 UJ	1.8 UJ			
GAMMA-CHLORDANE	1.8 UJ	1.8 UJ	1.8 UJ			
HEPTACHLOR	1.8 UJ	1.8 UJ	1.8 UJ			
HEPTACHLOR EPOXIDE	1.8 UJ	1.8 UJ	1.8 UJ			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-03(12)	12-SB-04(10)	12-SB-04(12)			
DEPTH (feet):	12-14'	10-12'	12-14'			
SAMPLE DATE:	11/04/97	11/13/97	11/13/97	/ /	/ /	/ /
LOCATION:	12-SB-03	12-SB-04	12-SB-04			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	18 UJ	18 UJ	18 UJ			
TOXAPHENE	180 UJ	180 UJ	180 UJ			
METALS (mg/kg)						
ALUMINUM	27000	19600	32300			
ANTIMONY	0.6 UL	0.9 B	0.62 B			
ARSENIC	0.65 UL	1.4 L	1.9 L			
BARIUM	183	152	71.7			
BERYLLIUM	0.02 UL	1.5 B	0.86 B			
CADMIUM	0.48 K	0.07 U	0.06 U			
CALCIUM	91.6 B	50.3 B	70.5 B			
CHROMIUM	25.6	10.7	25.7			
COBALT	10.3	55	26.3			
COPPER	7.3	28.6	29.3			
CYANIDE	0.25 U	0.21 U	0.22 U			
IRON	26700	38900	33900			
LEAD	8.1 K	16.5 B	14.9 B			
MAGNESIUM	6370 K	1640 K	3630			
MANGANESE	312 L	2940	737			
MERCURY	0.02 U	0.02 U	0.02 U			
NICKEL	24.1	28.9	40.1			
POTASSIUM	7880	1320 L	2810			
SELENIUM	0.5 UL	0.5 UL	0.93 L			
SILVER	0.19 U	0.2 UL	0.19 UL			
SODIUM	137 B	84.7 B	107 B			
THALLIUM	0.5 UL	0.5 U	0.49 U			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL AREA, 200 AREA
NSWC WHITE OAK

SAMPLE NUMBER:	12-SB-03(12)	12-SB-04(10)	12-SB-04(12)			
DEPTH (feet):	12-14'	10-12'	12-14'			
SAMPLE DATE:	11/04/97	11/13/97	11/13/97	/ /	/ /	/ /
LOCATION:	12-SB-03	12-SB-04	12-SB-04			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
METALS (mg/kg)						
VANADIUM	37.4	14	27.2			
ZINC	74.4	47.3 J	77.1 J			
GENERAL CHEMISTRY ()						
PH	5.49	5.33	5.25			

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL, AREA 200
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	12-WP-01 11/18/97 12-WP-01	12-WP-02 11/18/97 12-WP-02	12-WP-03 11/18/97 12-WP-03	/ /	/ /	/ /
VOLATILES (µg/L)						
1,1,1-TRICHLOROETHANE	2	2	1 U			
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U			
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U			
1,1-DICHLOROETHANE	1 U	1 U	1 U			
1,1-DICHLOROETHENE	1 U	1 U	1 U			
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U			
1,2-DIBROMOETHANE	1 U	1 U	1 U			
1,2-DICHLOROETHANE	1 U	1 U	1 U			
1,2-DICHLOROPROPANE	1 U	1 U	1 U			
2-BUTANONE	5 UR	5 UR	5 UR			
2-HEXANONE	5 U	5 U	5 U			
4-METHYL-2-PENTANONE	5 U	5 U	5 U			
ACETONE	5 UR	5 UR	5 UR			
BENZENE	1 U	1 U	1 U			
BROMOCHLOROMETHANE	1 U	1 U	1 U			
BROMODICHLOROMETHANE	1 U	1 U	1 U			
BROMOFORM	1 U	1 U	1 U			
BROMOMETHANE	1 U	1 U	1 U			
CARBON DISULFIDE	1 U	1 U	1 U			
CARBON TETRACHLORIDE	1 U	1 U	1 U			
CHLOROBENZENE	1 U	1 U	1 U			
CHLOROETHANE	1 U	1 U	1 U			
CHLOROFORM	2	1 U	1 U			
CHLOROMETHANE	1 U	1 U	1 U			
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U			
CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U			
DIBROMOCHLOROMETHANE	1 U	1 U	1 U			

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL, AREA 200
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	12-WP-01 11/18/97 12-WP-01	12-WP-02 11/18/97 12-WP-02	12-WP-03 11/18/97 12-WP-03	/ /	/ /	/ /
VOLATILES (µg/L)						
ETHYLBENZENE	1 U	1 U	1 U			
METHYLENE CHLORIDE	2 U	2 U	2 U			
STYRENE	1 U	1 U	1 U			
TETRACHLOROETHENE	1 U	1 U	1 U			
TOLUENE	1 U	1 U	1 U			
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U			
TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U			
TRICHLOROETHENE	1 U	1 U	1 U			
VINYL CHLORIDE	1 U	1 U	1 U			
XYLENES, TOTAL	1 U	1 U	1 U			
SEMIVOLATILES (µg/L)						
1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U			
1,2-DICHLOROBENZENE	1 U	1 U	1 U			
1,3-DICHLOROBENZENE	1 U	1 U	1 U			
1,4-DICHLOROBENZENE	1 U	1 U	1 U			
2,2'-OXYBIS(1-CHLOROPROPANE)	5 UJ	6 UJ	5 UJ			
2,4,5-TRICHLOROPHENOL	21 U	22 U	21 U			
2,4,6-TRICHLOROPHENOL	5 U	6 U	5 U			
2,4-DICHLOROPHENOL	5 U	6 U	5 U			
2,4-DIMETHYLPHENOL	5 U	6 U	5 U			
2,4-DINITROPHENOL	21 U	22 U	21 U			
2,4-DINITROTOLUENE	5 U	6 U	5 U			
2,6-DINITROTOLUENE	5 U	6 U	5 U			
2-CHLORONAPHTHALENE	5 U	6 U	5 U			
2-CHLOROPHENOL	5 U	6 U	5 U			
2-METHYLNAPHTHALENE	5 U	6 U	5 U			
2-METHYLPHENOL	5 U	6 U	5 U			

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL, AREA 200
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	12-WP-01 11/18/97 12-WP-01	12-WP-02 11/18/97 12-WP-02	12-WP-03 11/18/97 12-WP-03	/ /	/ /	/ /
SEMIVOLATILES (µg/L)						
2-NITROANILINE	21 U	22 U	21 U			
2-NITROPHENOL	5 U	6 U	5 U			
3,3'-DICHLOROBENZIDINE	5 U	6 U	5 U			
3-NITROANILINE	21 U	22 U	21 U			
4,6-DINITRO-2-METHYLPHENOL	21 U	22 U	21 U			
4-BROMOPHENYL PHENYL ETHER	5 U	6 U	5 U			
4-CHLORO-3-METHYLPHENOL	5 U	6 U	5 U			
4-CHLOROANILINE	5 U	6 U	5 U			
4-CHLOROPHENYL PHENYL ETHER	5 U	6 U	5 U			
4-METHYLPHENOL	5 U	6 U	5 U			
4-NITROANILINE	21 U	22 U	21 U			
4-NITROPHENOL	21 U	22 U	21 U			
ACENAPHTHENE	5 U	6 U	5 U			
ACENAPHTHYLENE	5 U	6 U	5 U			
ANTHRACENE	5 U	6 U	5 U			
BENZO(A)ANTHRACENE	5 U	6 U	5 U			
BENZO(A)PYRENE	5 U	6 U	5 U			
BENZO(B)FLUORANTHENE	5 U	6 U	5 U			
BENZO(G,H,I)PERYLENE	5 U	6 U	5 U			
BENZO(K)FLUORANTHENE	5 U	6 U	5 U			
BIS(2-CHLOROETHOXY)METHANE	5 U	6 U	5 U			
BIS(2-CHLOROETHYL)ETHER	5 U	6 U	5 U			
BIS(2-ETHYLHEXYL)PHTHALATE	5 U	1 B	1 B			
BUTYLBENZYL PHTHALATE	5 U	6 U	5 U			
CHRYSENE	5 U	6 U	5 U			
DI-N-BUTYL PHTHALATE	3 B	6 U	7 B			
DI-N-OCTYL PHTHALATE	5 U	6 U	5 U			

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL, AREA 200
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	12-WP-01 11/18/97 12-WP-01	12-WP-02 11/18/97 12-WP-02	12-WP-03 11/18/97 12-WP-03	/ /	/ /	/ /
SEMIVOLATILES (µg/L)						
DIBENZO(A,H)ANTHRACENE	5 U	6 U	5 U			
DIBENZOFURAN	5 U	6 U	5 U			
DIETHYL PHTHALATE	5 U	6 U	5 U			
DIMETHYL PHTHALATE	5 U	6 U	5 U			
FLUORANTHENE	5 U	6 U	5 U			
FLUORENE	5 U	6 U	5 U			
HEXACHLOROBENZENE	5 U	6 U	5 U			
HEXACHLOROBUTADIENE	5 U	6 U	5 U			
HEXACHLOROCYCLOPENTADIENE	5 U	6 U	5 U			
HEXACHLOROETHANE	5 U	6 U	5 U			
INDENO(1,2,3-CD)PYRENE	5 U	6 U	5 U			
ISOPHORONE	5 U	6 U	5 U			
N-NITROSO-DI-N-PROPYLAMINE	5 U	6 U	5 U			
N-NITROSODIPHENYLAMINE	5 U	6 U	5 U			
NAPHTHALENE	5 U	6 U	5 U			
NITROBENZENE	5 U	6 U	5 U			
PENTACHLOROPHENOL	21 U	22 U	21 U			
PHENANTHRENE	5 U	6 U	5 U			
PHENOL	5 U	6 U	5 U			
PYRENE	5 U	6 U	5 U			
PESTICIDES/PCBs (µg/L)						
4,4'-DDD	0.022 U	0.024 U	0.02 U			
4,4'-DDE	0.022 U	0.024 U	0.02 U			
4,4'-DDT	0.022 U	0.024 U	0.02 U			
ALDRIN	0.006 J	0.012 U	0.01 U			
ALPHA-BHC	0.011 U	0.012 U	0.01 U			
ALPHA-CHLORDANE	0.011 U	0.012 U	0.01 U			

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL, AREA 200
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	12-WP-01 11/18/97 12-WP-01	12-WP-02 11/18/97 12-WP-02	12-WP-03 11/18/97 12-WP-03	/ /	/ /	/ /
PESTICIDES/PCBs (µg/L)						
AROCLOR-1016	0.22 U	0.24 U	0.2 U			
AROCLOR-1221	0.44 U	0.47 U	0.4 U			
AROCLOR-1232	0.22 U	0.24 U	0.2 U			
AROCLOR-1242	0.22 U	0.24 U	0.2 U			
AROCLOR-1248	0.22 U	0.24 U	0.2 U			
AROCLOR-1254	0.22 U	0.24 U	0.2 U			
AROCLOR-1260	0.22 U	0.24 U	0.2 U			
BETA-BHC	0.011 U	0.012 U	0.01 U			
DELTA-BHC	0.011 U	0.012 U	0.01 U			
DIELDRIN	0.025	0.004 J	0.02 U			
ENDOSULFAN I	0.011 U	0.012 U	0.01 U			
ENDOSULFAN II	0.022 U	0.024 U	0.02 U			
ENDOSULFAN SULFATE	0.022 U	0.024 U	0.02 U			
ENDRIN	0.022 U	0.024 U	0.02 U			
ENDRIN ALDEHYDE	0.022 U	0.024 U	0.02 U			
ENDRIN KETONE	0.022 U	0.024 U	0.02 U			
GAMMA-BHC (LINDANE)	0.011 U	0.012 U	0.01 U			
GAMMA-CHLORDANE	0.011 U	0.012 U	0.01 U			
HEPTACHLOR	0.011 U	0.012 U	0.01 U			
HEPTACHLOR EPOXIDE	0.006 R	0.006 R	0.021 J			
METHOXYCHLOR	0.11 U	0.12 U	0.1 U			
TOXAPHENE	1.1 U	1.2 U	1 U			
METALS (µg/L)						
ALUMINUM	5790 K	1990 K	2870 K			
ANTIMONY	2.8 U	3	2.8 U			
ARSENIC	3 U	3 U	3 U			
BARIUM	49.5	59.3	141			

SUMMARY OF ANALYTICAL RESULTS - UNFILTERED GROUNDWATER
SITE 12 - INDUSTRIAL WASTEWATER DISPOSAL, AREA 200
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	12-WP-01 11/18/97 12-WP-01	12-WP-02 11/18/97 12-WP-02	12-WP-03 11/18/97 12-WP-03	/ /	/ /	/ /
METALS (µg/L)						
BERYLLIUM	0.1 U	0.1 U	0.1 U			
CADMIUM	0.3 U	0.3 U	0.3 U			
CALCIUM	2700 K	7330 K	7970 K			
CHROMIUM	192	10	6.2			
COBALT	10.3	17	27.2			
COPPER	19.5	4.9 B	16.8			
IRON	8610	3660	6390			
LEAD	2.4 B	1.4 B	4.5 B			
MAGNESIUM	3060 J	4000 J	4840 J			
MANGANESE	468	818	548			
MERCURY	0.1 U	0.1 U	0.1 U			
NICKEL	143	13	37.2			
POTASSIUM	3610	7710	12400			
SELENIUM	2.3 UJ	2.3 UJ	2.3 UJ			
SILVER	0.9 U	0.9 U	0.9 U			
SODIUM	6780 K	7000 K	8490 K			
THALLIUM	2.3 U	2.3 U	2.3 U			
VANADIUM	7.2	4.4	4.8			
ZINC	10.2 B	86.4	75.2			

APPENDIX F.5

SITE 13 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SS-01	13-SS-02	13-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	/ /	/ /	/ /
LOCATION:	13-SS-01	13-SS-02	13-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	12 UJ	10 U	11 U			
1,1,2,2-TETRACHLOROETHANE	12 UJ	10 U	11 U			
1,1,2-TRICHLOROETHANE	12 UJ	10 U	11 U			
1,1-DICHLOROETHANE	12 UJ	10 U	11 U			
1,1-DICHLOROETHENE	12 UJ	10 U	11 U			
1,2-DICHLOROETHANE	12 UJ	10 U	11 U			
1,2-DICHLOROETHENE (TOTAL)	12 UJ	10 U	11 U			
1,2-DICHLOROPROPANE	12 UJ	10 U	11 U			
2-BUTANONE	12 UJ	10 U	11 U			
2-HEXANONE	12 UJ	10 U	11 U			
4-METHYL-2-PENTANONE	12 UJ	10 U	11 U			
ACETONE	12 UJ	10 U	11 U			
BENZENE	12 UJ	10 U	11 U			
BROMODICHLOROMETHANE	12 UJ	10 U	11 U			
BROMOFORM	12 UJ	10 U	11 U			
BROMOMETHANE	12 UJ	10 U	11 U			
CARBON DISULFIDE	12 UJ	10 U	11 U			
CARBON TETRACHLORIDE	12 UJ	10 U	11 U			
CHLOROBENZENE	12 UJ	10 U	11 U			
CHLOROETHANE	12 UJ	10 U	11 U			
CHLOROFORM	12 UJ	10 U	11 U			
CHLOROMETHANE	12 UJ	10 U	11 U			
CIS-1,3-DICHLOROPROPENE	12 UJ	10 U	11 U			
DIBROMOCHLOROMETHANE	12 UJ	10 U	11 U			
ETHYLBENZENE	12 UJ	10 U	11 U			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SS-01	13-SS-02	13-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	/ /	/ /	/ /
LOCATION:	13-SS-01	13-SS-02	13-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	6 B	2 B	2 B			
STYRENE	12 UJ	10 U	11 U			
TETRACHLOROETHENE	12 UJ	10 U	11 U			
TOLUENE	12 UJ	10 U	11 U			
TRANS-1,3-DICHLOROPROPENE	12 UJ	10 U	11 U			
TRICHLOROETHENE	12 UJ	10 U	11 U			
VINYL CHLORIDE	12 UJ	10 U	11 U			
XYLENES, TOTAL	12 UJ	10 U	11 U			
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	400 U	350 U	360 U			
1,2-DICHLOROBENZENE	400 U	350 U	360 U			
1,3-DICHLOROBENZENE	400 U	350 U	360 U			
1,4-DICHLOROBENZENE	400 U	350 U	360 U			
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U	350 U	360 U			
2,4,5-TRICHLOROPHENOL	1000 U	870 U	910 U			
2,4,6-TRICHLOROPHENOL	400 U	350 U	360 U			
2,4-DICHLOROPHENOL	400 U	350 U	360 U			
2,4-DIMETHYLPHENOL	400 U	350 U	360 U			
2,4-DINITROPHENOL	1000 U	870 U	910 U			
2,4-DINITROTOLUENE	400 U	350 U	360 U			
2,6-DINITROTOLUENE	400 U	350 U	360 U			
2-CHLORONAPHTHALENE	400 U	350 U	360 U			
2-CHLOROPHENOL	400 U	350 U	360 U			
2-METHYLNAPHTHALENE	400 U	350 U	360 U			
2-METHYLPHENOL	400 U	350 U	360 U			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	13-SS-01 0-1' 10/06/97 13-SS-01 GRAB	13-SS-02 0-1' 10/06/97 13-SS-02 GRAB	13-SS-03 0-1' 10/06/97 13-SS-03 GRAB	/ /	/ /	/ /
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	1000 U	870 U	910 U			
2-NITROPHENOL	400 U	350 U	360 U			
3,3'-DICHLOROBENZIDINE	400 U	350 U	360 U			
3-NITROANILINE	1000 U	870 U	910 U			
4,6-DINITRO-2-METHYLPHENOL	1000 U	870 U	910 U			
4-BROMOPHENYL PHENYL ETHER	400 U	350 U	360 U			
4-CHLORO-3-METHYLPHENOL	400 U	350 U	360 U			
4-CHLOROANILINE	400 U	350 U	360 U			
4-CHLOROPHENYL PHENYL ETHER	400 U	350 U	360 U			
4-METHYLPHENOL	400 U	350 U	360 U			
4-NITROANILINE	1000 U	870 U	910 U			
4-NITROPHENOL	1000 U	870 U	910 U			
ACENAPHTHENE	62 J	350 U	360 U			
ACENAPHTHYLENE	400 U	350 U	360 U			
ANTHRACENE	140 J	42 J	360 U			
BENZO(A)ANTHRACENE	430	310 J	360 U			
BENZO(A)PYRENE	390 J	240 J	360 U			
BENZO(B)FLUORANTHENE	380 J	780	360 U			
BENZO(G,H,I)PERYLENE	290 J	210 J	360 U			
BENZO(K)FLUORANTHENE	250 J	350 U	360 U			
BIS(2-CHLOROETHOXY)METHANE	400 U	350 U	360 U			
BIS(2-CHLOROETHYL)ETHER	400 U	350 U	360 U			
BIS(2-ETHYLHEXYL)PHTHALATE	400 U	350 U	360 U			
BUTYLBENZYL PHTHALATE	400 U	350 U	360 U			
CARBAZOLE	96 J	350 U	360 U			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SS-01	13-SS-02	13-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	/ /	/ /	/ /
LOCATION:	13-SS-01	13-SS-02	13-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	430	350	360 U			
DI-N-BUTYL PHTHALATE	400 U	350 U	360 U			
DI-N-OCTYL PHTHALATE	400 U	350 U	360 U			
DIBENZO(A,H)ANTHRACENE	140 J	88 J	360 U			
DIBENZOFURAN	400 U	350 U	360 U			
DIETHYL PHTHALATE	400 U	350 U	360 U			
DIMETHYL PHTHALATE	400 U	350 U	360 U			
FLUORANTHENE	1100	640	360 U			
FLUORENE	58 J	350 U	360 U			
HEXACHLOROBENZENE	400 U	350 U	360 U			
HEXACHLOROBUTADIENE	400 U	350 U	360 U			
HEXACHLOROCYCLOPENTADIENE	400 U	350 UJ	360 U			
HEXACHLOROETHANE	400 U	350 U	360 U			
INDENO(1,2,3-CD)PYRENE	250 J	200 J	360 U			
ISOPHORONE	400 U	350 U	360 U			
N-NITROSO-DI-N-PROPYLAMINE	400 U	350 U	360 U			
N-NITROSODIPHENYLAMINE	400 U	350 U	360 U			
NAPHTHALENE	400 U	350 U	360 U			
NITROBENZENE	400 U	350 U	360 U			
PENTACHLOROPHENOL	1000 U	870 U	910 U			
PHENANTHRENE	590	190 J	360 U			
PHENOL	400 U	350 U	360 U			
PYRENE	570	570	360 U			
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	17 J	3.5 U	3.6 U			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER: DEPTH (feet): SAMPLE DATE: LOCATION: SAMPLE TYPE: FIELD DUPLICATE OF:	13-SS-01 0-1' 10/06/97 13-SS-01 GRAB	13-SS-02 0-1' 10/06/97 13-SS-02 GRAB	13-SS-03 0-1' 10/06/97 13-SS-03 GRAB	/ /	/ /	/ /
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	71 K	3.5 U	3.6 U			
4,4'-DDT	39 K	3.5 U	3.6 U			
ALDRIN	2 U	1.7 U	1.8 U			
ALPHA-BHC	2 U	1.7 U	1.8 U			
ALPHA-CHLORDANE	7.8 K	1.7 U	1.8 U			
AROCLOR-1016	40 U	35 U	36 U			
AROCLOR-1221	81 U	69 U	73 U			
AROCLOR-1232	40 U	35 U	36 U			
AROCLOR-1242	40 U	35 U	36 U			
AROCLOR-1248	40 U	35 U	36 U			
AROCLOR-1254	40 U	35 U	36 U			
AROCLOR-1260	170 J	59 J	36 U			
BETA-BHC	2 U	1.7 U	1.8 U			
DELTA-BHC	2 U	1.7 U	1.8 U			
DIELDRIN	15 J	3.5 U	3.6 U			
ENDOSULFAN I	2 U	1.7 U	1.8 U			
ENDOSULFAN II	4 U	3.5 U	3.6 U			
ENDOSULFAN SULFATE	4 U	3.5 U	3.6 U			
ENDRIN	4 U	3.5 U	3.6 U			
ENDRIN ALDEHYDE	4 U	3.5 U	3.6 U			
ENDRIN KETONE	4 U	3.5 U	3.6 U			
GAMMA-BHC (LINDANE)	2 U	1.7 U	1.8 U			
GAMMA-CHLORDANE	3.7 K	1.7 U	1.8 U			
HEPTACHLOR	2 U	1.7 U	1.8 U			
HEPTACHLOR EPOXIDE	2 U	1.7 U	1.8 U			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SS-01	13-SS-02	13-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	/ /	/ /	/ /
LOCATION:	13-SS-01	13-SS-02	13-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	20 U	17 U	18 U			
TOXAPHENE	200 U	170 U	180 U			
METALS (mg/kg)						
ALUMINUM	11100	4280	20000			
ANTIMONY	0.62 UL	0.53 UL	0.56 UL			
ARSENIC	2.2	1.2	2.3			
BARIUM	53	17.3	71.1			
BERYLLIUM	0.02 U	0.02 U	0.08			
CADMIUM	0.4	0.21	0.3 K			
CALCIUM	4970	20700	254			
CHROMIUM	17.8	10.8	19.9 K			
COBALT	6.8	2.4	21.5			
COPPER	68.4	9	40.9			
CYANIDE	0.26 U	0.18 U	0.23 U			
IRON	15100	6080	30100			
LEAD	40.6	14.8	10.3			
MAGNESIUM	1850	3620	4060			
MANGANESE	292	82.1	699			
MERCURY	0.16	0.05	0.02 U			
NICKEL	19.8 K	17.2 K	24.5 K			
POTASSIUM	995	696	3400			
SELENIUM	0.76 L	1.4 L	0.6 UR			
SILVER	0.19 U	0.16 U	0.17 U			
SODIUM	47.9 U	40.7 U	106			
THALLIUM	0.7 U	0.59 U	0.62 UL			

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SS-01	13-SS-02	13-SS-03			
DEPTH (feet):	0-1'	0-1'	0-1'			
SAMPLE DATE:	10/06/97	10/06/97	10/06/97	/ /	/ /	/ /
LOCATION:	13-SS-01	13-SS-02	13-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
METALS (mg/kg)						
VANADIUM	21.7	11.5	25.4			
ZINC	70	18.8	54.3			
GENERAL CHEMISTRY ()						
PH	6.33	7.89	5.74			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-100		
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	/ /	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:			13-SB-100	13-SB-03		
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	13 U	13 U	13 U	14 U		
1,1,2,2-TETRACHLOROETHANE	13 U	13 U	13 U	14 U		
1,1,2-TRICHLOROETHANE	13 U	13 U	13 U	14 U		
1,1-DICHLOROETHANE	13 U	13 U	13 U	14 U		
1,1-DICHLOROETHENE	13 U	13 U	13 U	14 U		
1,2-DICHLOROETHANE	13 U	13 U	13 U	14 U		
1,2-DICHLOROETHENE (TOTAL)	13 U	13 U	13 U	14 U		
1,2-DICHLOROPROPANE	13 U	13 U	13 U	14 U		
2-BUTANONE	13 U	13 U	13 U	14 U		
2-HEXANONE	13 U	13 U	13 U	14 U		
4-METHYL-2-PENTANONE	13 U	13 U	13 U	14 U		
ACETONE	13 U	13 U	13 U	14 U		
BENZENE	13 U	13 U	13 U	14 U		
BROMODICHLOROMETHANE	13 U	13 U	13 U	14 U		
BROMOFORM	13 U	13 U	13 U	14 U		
BROMOMETHANE	13 U	13 U	13 U	14 U		
CARBON DISULFIDE	13 UJ	13 UJ	13 UJ	14 UJ		
CARBON TETRACHLORIDE	13 U	13 U	13 U	14 U		
CHLOROBENZENE	13 U	13 U	13 U	14 U		
CHLOROETHANE	13 U	13 U	13 U	14 U		
CHLOROFORM	13 U	13 U	13 U	14 U		
CHLOROMETHANE	13 U	13 U	13 U	14 U		
CIS-1,3-DICHLOROPROPENE	13 U	13 U	13 U	14 U		
DIBROMOCHLOROMETHANE	13 U	13 U	13 U	14 U		
ETHYLBENZENE	13 U	13 U	13 U	14 U		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-100		
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	/ /	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:			13-SB-100	13-SB-03		
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	9 B	7 B	13 B	11 B		
STYRENE	13 U	13 U	13 U	14 U		
TETRACHLOROETHENE	13 U	13 U	1 J	14 U		
TOLUENE	13 U	13 U	13 U	14 U		
TRANS-1,3-DICHLOROPROPENE	13 U	13 U	13 U	14 U		
TRICHLOROETHENE	13 U	13 U	13 U	14 U		
VINYL CHLORIDE	13 U	13 U	13 U	14 U		
XYLENES, TOTAL	13 U	13 U	13 U	14 U		
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	440 UJ	420 UJ	420 UJ	470 UJ		
1,2-DICHLOROBENZENE	440 UJ	420 UJ	420 UJ	470 UJ		
1,3-DICHLOROBENZENE	440 UJ	420 UJ	420 UJ	470 UJ		
1,4-DICHLOROBENZENE	440 UJ	420 UJ	420 UJ	470 UJ		
2,2'-OXYBIS(1-CHLOROPROPANE)	440 UJ	420 UJ	420 UJ	470 UJ		
2,4,5-TRICHLOROPHENOL	1100 UJ	1100 UJ	1100 UJ	1200 UJ		
2,4,6-TRICHLOROPHENOL	440 UJ	420 UJ	420 UJ	470 UJ		
2,4-DICHLOROPHENOL	440 UJ	420 UJ	420 UJ	470 UJ		
2,4-DIMETHYLPHENOL	440 UJ	420 UJ	420 UJ	470 UJ		
2,4-DINITROPHENOL	1100 UJ	1100 UJ	1100 UJ	1200 UJ		
2,4-DINITROTOLUENE	440 UJ	420 UJ	420 UJ	470 UJ		
2,6-DINITROTOLUENE	440 UJ	420 UJ	420 UJ	470 UJ		
2-CHLORONAPHTHALENE	440 UJ	420 UJ	420 UJ	470 UJ		
2-CHLOROPHENOL	440 UJ	420 UJ	420 UJ	470 UJ		
2-METHYLNAPHTHALENE	440 UJ	420 UJ	420 UJ	470 UJ		
2-METHYLPHENOL	440 UJ	420 UJ	420 UJ	470 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-100		
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	/ /	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:			13-SB-100	13-SB-03		
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	1100 UJ	1100 UJ	1100 UJ	1200 UJ		
2-NITROPHENOL	440 UJ	420 UJ	420 UJ	470 UJ		
3,3'-DICHLOROBENZIDINE	440 UJ	420 UJ	420 UJ	470 UJ		
3-NITROANILINE	1100 UJ	1100 UJ	1100 UJ	1200 UJ		
4,6-DINITRO-2-METHYLPHENOL	1100 UJ	1100 UJ	1100 UJ	1200 UJ		
4-BROMOPHENYL PHENYL ETHER	440 UJ	420 UJ	420 UJ	470 UJ		
4-CHLORO-3-METHYLPHENOL	440 UJ	420 UJ	420 UJ	470 UJ		
4-CHLOROANILINE	440 UJ	420 UJ	420 UJ	470 UJ		
4-CHLOROPHENYL PHENYL ETHER	440 UJ	420 UJ	420 UJ	470 UJ		
4-METHYLPHENOL	440 UJ	420 UJ	420 UJ	470 UJ		
4-NITROANILINE	1100 UJ	1100 UJ	1100 UJ	1200 UJ		
4-NITROPHENOL	1100 UJ	1100 UJ	1100 UJ	1200 UJ		
ACENAPHTHENE	440 UJ	420 UJ	420 UJ	470 UJ		
ACENAPHTHYLENE	440 UJ	420 UJ	420 UJ	470 UJ		
ANTHRACENE	440 UJ	82 J	420 UJ	470 UJ		
BENZO(A)ANTHRACENE	67 J	480 J	420 UJ	470 UJ		
BENZO(A)PYRENE	65 J	350 J	420 UJ	470 UJ		
BENZO(B)FLUORANTHENE	95 J	560 J	420 UJ	470 UJ		
BENZO(G,H,I)PERYLENE	440 UJ	200 J	420 UJ	470 UJ		
BENZO(K)FLUORANTHENE	440 UJ	190 J	420 UJ	470 UJ		
BIS(2-CHLOROETHOXY)METHANE	440 UJ	420 UJ	420 UJ	470 UJ		
BIS(2-CHLOROETHYL)ETHER	440 UJ	420 UJ	420 UJ	470 UJ		
BIS(2-ETHYLHEXYL)PHTHALATE	56 J	260 J	130 J	77 J		
BUTYLBENZYL PHTHALATE	440 UJ	420 UJ	420 UJ	470 UJ		
CARBAZOLE	440 UJ	420 UJ	420 UJ	470 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-100		
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	/ /	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:			13-SB-100	13-SB-03		
SEMIVOLATILES (µg/kg)						
CHRYSENE	47 J	500 J	420 UJ	470 UJ		
DI-N-BUTYL PHTHALATE	440 UJ	420 UJ	420 UJ	470 UJ		
DI-N-OCTYL PHTHALATE	440 UJ	420 UJ	420 UJ	470 UJ		
DIBENZO(A,H)ANTHRACENE	440 UJ	130 J	420 UJ	470 UJ		
DIBENZOFURAN	440 UJ	420 UJ	420 UJ	470 UJ		
DIETHYL PHTHALATE	440 UJ	420 UJ	420 UJ	470 UJ		
DIMETHYL PHTHALATE	440 UJ	420 UJ	420 UJ	470 UJ		
FLUORANTHENE	110 J	1000 J	420 UJ	470 UJ		
FLUORENE	440 UJ	420 UJ	420 UJ	470 UJ		
HEXACHLOROBENZENE	440 UJ	420 UJ	420 UJ	470 UJ		
HEXACHLOROBUTADIENE	440 UJ	420 UJ	420 UJ	470 UJ		
HEXACHLOROCYCLOPENTADIENE	440 UJ	420 UJ	420 UJ	470 UJ		
HEXACHLOROETHANE	440 UJ	420 UJ	420 UJ	470 UJ		
INDENO(1,2,3-CD)PYRENE	440 UJ	200 J	420 UJ	470 UJ		
ISOPHORONE	440 UJ	420 UJ	420 UJ	470 UJ		
N-NITROSO-DI-N-PROPYLAMINE	440 UJ	420 UJ	420 UJ	470 UJ		
N-NITROSODIPHENYLAMINE	440 UJ	420 UJ	420 UJ	470 UJ		
NAPHTHALENE	440 UJ	420 UJ	420 UJ	470 UJ		
NITROBENZENE	440 UJ	420 UJ	420 UJ	470 UJ		
PENTACHLOROPHENOL	1100 UJ	1100 UJ	1100 UJ	1200 UJ		
PHENANTHRENE	73 J	410 J	420 UJ	470 UJ		
PHENOL	440 UJ	420 UJ	420 UJ	470 UJ		
PYRENE	110 J	890 J	420 UJ	470 UJ		
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	0.65 R	2 J	4.2 UJ	4.7 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-100		
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	/ /	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:			13-SB-100	13-SB-03		
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	0.91 J	0.65 J	4.2 UJ	4.7 UJ		
4,4'-DDT	0.71 J	4.2 U	4.2 UJ	4.7 UJ		
ALDRIN	2.2 UJ	2.1 UJ	2.1 UJ	2.4 UJ		
ALPHA-BHC	2.2 UJ	2.1 UJ	2.1 UJ	2.4 UJ		
ALPHA-CHLORDANE	2.2 UJ	1.7 J	2.1 UJ	2.4 UJ		
AROCLOR-1016	44 UJ	42 UJ	42 UJ	47 UJ		
AROCLOR-1221	89 UJ	85 UJ	84 UJ	94 UJ		
AROCLOR-1232	44 UJ	42 UJ	42 UJ	47 UJ		
AROCLOR-1242	44 UJ	42 UJ	42 UJ	47 UJ		
AROCLOR-1248	44 UJ	42 UJ	42 UJ	47 UJ		
AROCLOR-1254	44 UJ	42 UJ	42 UJ	47 UJ		
AROCLOR-1260	44 UJ	42 UJ	42 UJ	47 UJ		
BETA-BHC	2.2 UJ	2.1 UJ	2.1 UJ	2.4 UJ		
DELTA-BHC	2.2 UJ	2.1 UJ	2.1 UJ	2.4 UJ		
DIELDRIN	4.4 UJ	4.2 UJ	4.2 UJ	4.7 UJ		
ENDOSULFAN I	2.2 UJ	2.1 UJ	2.1 UJ	2.4 UJ		
ENDOSULFAN II	4.4 UJ	4.2 UJ	4.2 UJ	4.7 UJ		
ENDOSULFAN SULFATE	4.4 UJ	4.2 UJ	4.2 UJ	4.7 UJ		
ENDRIN	4.4 UJ	4.2 UJ	4.2 UJ	4.7 UJ		
ENDRIN ALDEHYDE	4.4 UJ	4.2 UJ	4.2 UJ	4.7 UJ		
ENDRIN KETONE	4.4 UJ	4.2 UJ	4.2 UJ	4.7 UJ		
GAMMA-BHC (LINDANE)	2.2 UJ	2.1 UJ	2.1 UJ	2.4 UJ		
GAMMA-CHLORDANE	2.2 UJ	1.6 J	2.1 UJ	2.4 UJ		
HEPTACHLOR	2.2 UJ	2.1 UJ	2.1 UJ	2.4 UJ		
HEPTACHLOR EPOXIDE	2.2 UJ	2.1 UJ	2.1 UJ	2.4 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-100		
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	/ /	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:			13-SB-100	13-SB-03		
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	22 UJ	21 UJ	21 UJ	24 UJ		
TOXAPHENE	220 UJ	210 UJ	210 UJ	240 UJ		
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 U	40.2 U	40.2 U	40.2 U		
1,3-DINITROBENZENE	37.2 U	37.2 U	37.2 U	37.2 U		
2,4 DINITROTOLUENE	51.6 U	51.6 U	51.6 U	51.6 U		
2,4,6-TRINITROTOLUENE	92 U	92 U	92 U	92 U		
2,6 DINITROTOLUENE	47.6 U	47.6 U	47.6 U	47.6 U		
2-AMINO-4,6-DINITROTOLUENE	46.7 U	46.7 U	46.7 U	46.7 U		
2-NITROTOLUENE	81.4 U	81.4 U	81.4 U	81.4 U		
3-NITROTOLUENE	81.8 U	81.8 U	81.8 U	81.8 U		
4-AMINO-2,6-DINITROTOLUENE	40.9 U	40.9 U	40.9 U	40.9 U		
4-NITROTOLUENE	87.2 U	87.2 U	87.2 U	87.2 U		
HMX	73 U	73 U	73 U	73 U		
NITRO-BENZENE	35.2 U	35.2 U	35.2 U	35.2 U		
RDX	50.9 U	50.9 U	50.9 U	50.9 U		
TETRYL	163 U	163 U	163 U	163 U		
METALS (mg/kg)						
ALUMINUM	10800	3380	21600	16200		
ANTIMONY	0.68 UL	0.66 UL	0.65 UL	0.72 UL		
ARSENIC	3.5 L	0.87 L	3.9 L	1.7 L		
BARIUM	41.9	8.8	59.1	48.3		
BERYLLIUM	0.03 U	0.03 U	0.14 K	0.03 U		
CADMIUM	0.08 U	0.08 U	0.08 U	0.08 U		
CALCIUM	1990 K	1640 K	208 B	190 B		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 13 - OIL SLUDGE DISPOSAL AREA
NSWC WHITE OAK

SAMPLE NUMBER:	13-SB-01	13-SB-02	13-SB-03	13-SB-100		
DEPTH (feet):						
SAMPLE DATE:	10/20/97	10/20/97	10/20/97	10/20/97	/ /	/ /
LOCATION:	13-SB-01	13-SB-02	13-SB-03	13-SB-03		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:			13-SB-100	13-SB-03		
METALS (mg/kg)						
CHROMIUM	19.1 J	8.6 J	28.1 J	17.4 J		
COBALT	3.7 J	0.63 B	11 J	11.9 J		
COPPER	16.1	6.3	29.8	27.1		
CYANIDE	0.28 U	0.26 U	0.24	0.32 U		
IRON	14000	4260	26300	23000		
LEAD	9.6 K	5.3 K	9.9 K	7.8 K		
MAGNESIUM	1280 J	596 J	2550 J	2750 J		
MANGANESE	124 J	17.9 J	375 J	388 J		
MERCURY	0.05	0.03	0.05	0.04		
NICKEL	7 K	4 K	15.1 K	15 K		
POTASSIUM	724	252	2180	2380		
SELENIUM	3.2 J	2 J	3.8 J	1.8 J		
SILVER	0.21 U	0.2 U	0.2 U	0.22 U		
SODIUM	66.6 B	50.8 B	95.9 B	72 B		
THALLIUM	0.76 U	0.74 U	0.73 UL	0.8		
VANADIUM	28	11.1	39.4	23.2		
ZINC	20.1 J	6.3 J	32.2 J	34.2 J		
GENERAL CHEMISTRY ()						
PH	7.22	7.98	5.72	5.65		

APPENDIX F.6

SITE 28/SWMU 88 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	12 U	12 U	11 U	11 U	12 U
1,1,2,2-TETRACHLOROETHANE	11 U	12 U	12 U	11 U	11 U	12 U
1,1,2-TRICHLOROETHANE	11 U	12 U	12 U	11 U	11 U	12 U
1,1-DICHLOROETHANE	11 U	12 U	12 U	11 U	11 U	12 U
1,1-DICHLOROETHENE	11 U	12 U	12 U	11 U	11 U	12 U
1,2-DICHLOROETHANE	11 U	12 U	12 U	11 U	11 U	12 U
1,2-DICHLOROETHENE (TOTAL)	11 U	12 U	12 U	11 U	11 U	12 U
1,2-DICHLOROPROPANE	11 U	12 U	12 U	11 U	11 U	12 U
2-BUTANONE	11 UJ	12 UJ	12 UJ	11 UJ	11 U	12 U
2-HEXANONE	11 U	12 U	12 U	11 U	11 U	12 U
4-METHYL-2-PENTANONE	11 U	12 U	12 U	11 U	11 U	12 U
ACETONE	11 U	12 U	12 U	11 U	11 U	12 U
BENZENE	11 U	12 U	12 U	11 U	11 U	12 U
BROMODICHLOROMETHANE	11 U	12 U	12 U	11 U	11 U	12 U
BROMOFORM	11 U	12 U	12 U	11 U	11 U	12 U
BROMOMETHANE	11 U	12 U	12 U	11 U	11 U	12 U
CARBON DISULFIDE	11 U	12 U	12 U	11 U	11 U	12 U
CARBON TETRACHLORIDE	11 U	12 U	12 U	11 U	11 U	12 U
CHLOROBENZENE	11 U	12 U	12 U	11 U	11 U	12 U
CHLOROETHANE	11 U	12 U	12 U	11 U	11 U	12 U
CHLOROFORM	11 U	12 U	12 U	11 U	11 U	12 U
CHLOROMETHANE	11 U	12 U	12 U	11 U	11 U	12 U
CIS-1,3-DICHLOROPROPENE	11 U	12 U	12 U	11 U	11 U	12 U
DIBROMOCHLOROMETHANE	11 U	12 U	12 U	11 U	11 U	12 U
ETHYLBENZENE	11 U	12 U	12 U	11 U	11 U	12 U

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	3 B	3 B	2 B	5 B	11 B	9 B
STYRENE	11 U	12 U	12 U	11 U	11 U	12 U
TETRACHLOROETHENE	11 U	12 U	12 U	11 U	11 U	12 U
TOLUENE	11 U	12 U	12 U	11 U	11 U	12 U
TRANS-1,3-DICHLOROPROPENE	11 U	12 U	12 U	11 U	11 U	12 U
TRICHLOROETHENE	11 U	12 U	12 U	11 U	11 U	12 U
VINYL CHLORIDE	11 U	12 U	12 U	11 U	11 U	12 U
XYLENES, TOTAL	11 U	12 U	12 U	11 U	11 U	12 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	370 U	400 U	410 U	390 U	360 U	410 U
1,2-DICHLOROBENZENE	370 U	400 U	410 U	390 U	360 U	410 U
1,3-DICHLOROBENZENE	370 U	400 U	410 U	390 U	360 U	410 U
1,4-DICHLOROBENZENE	370 U	400 U	410 U	390 U	360 U	410 U
2,2'-OXYBIS(1-CHLOROPROPANE)	370 U	400 U	410 U	390 U	360 U	410 U
2,4,5-TRICHLOROPHENOL	940 U	990 U	1000 U	980 U	900 U	1000 U
2,4,6-TRICHLOROPHENOL	370 U	400 U	410 U	390 U	360 U	410 U
2,4-DICHLOROPHENOL	370 U	400 U	410 U	390 U	360 U	410 U
2,4-DIMETHYLPHENOL	370 U	400 U	410 U	390 U	360 U	410 U
2,4-DINITROPHENOL	940 U	990 U	1000 U	980 U	900 U	1000 U
2,4-DINITROTOLUENE	370 U	400 U	410 U	390 U	360 U	410 U
2,6-DINITROTOLUENE	370 U	400 U	410 U	390 U	360 U	410 U
2-CHLORONAPHTHALENE	370 U	400 U	410 U	390 U	360 U	410 U
2-CHLOROPHENOL	370 U	400 U	410 U	390 U	360 U	410 U
2-METHYLNAPHTHALENE	370 U	400 U	410 U	390 U	360 U	410 U
2-METHYLPHENOL	370 U	400 U	410 U	390 U	360 U	410 U

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	940 U	990 U	1000 U	980 U	900 U	1000 U
2-NITROPHENOL	370 U	400 U	410 U	390 U	360 U	410 U
3,3'-DICHLOROBENZIDINE	370 U	400 U	410 U	390 U	360 U	410 U
3-NITROANILINE	940 U	990 U	1000 U	980 U	900 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	940 U	990 UJ	1000 U	980 UJ	900 UJ	1000 UJ
4-BROMOPHENYL PHENYL ETHER	370 U	400 U	410 U	390 U	360 U	410 U
4-CHLORO-3-METHYLPHENOL	370 U	400 U	410 U	390 U	360 U	410 U
4-CHLOROANILINE	370 U	400 U	410 U	390 U	360 U	410 U
4-CHLOROPHENYL PHENYL ETHER	370 U	400 U	410 U	390 U	360 U	410 U
4-METHYLPHENOL	370 U	400 U	410 U	390 U	46 J	410 U
4-NITROANILINE	940 U	990 U	1000 U	980 U	900 U	1000 U
4-NITROPHENOL	940 U	990 U	1000 U	980 U	900 U	1000 U
ACENAPHTHENE	370 U	400 U	410 U	280 J	360 U	410 U
ACENAPHTHYLENE	370 U	400 U	410 U	390 U	360 U	410 U
ANTHRACENE	370 U	400 U	410 U	350 J	360 U	410 U
BENZO(A)ANTHRACENE	370 U	400 U	410 U	2000	77 J	57 J
BENZO(A)PYRENE	370 U	400 U	410 U	2500	78 J	59 J
BENZO(B)FLUORANTHENE	370 U	400 U	410 U	2400	80 J	79 J
BENZO(G,H,I)PERYLENE	370 U	400 U	410 U	1900	360 U	410 U
BENZO(K)FLUORANTHENE	370 U	400 U	410 U	2500	86 J	51 J
BIS(2-CHLOROETHOXY)METHANE	370 U	400 U	410 U	390 U	360 U	410 U
BIS(2-CHLOROETHYL)ETHER	370 U	400 U	410 U	390 U	360 U	410 U
BIS(2-ETHYLHEXYL)PHTHALATE	370 U	400 U	410 U	130 B	360 U	52 B
BUTYLBENZYL PHTHALATE	370 U	400 U	410 U	390 U	360 U	410 U
CARBAZOLE	370 U	400 U	410 U	190 J	360 U	410 U

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	370 U	400 U	410 U	2300	92 J	74 J
DI-N-BUTYL PHTHALATE	370 U	45 J	410 U	390 U	47 J	99 J
DI-N-OCTYL PHTHALATE	370 U	400 U	410 U	390 U	360 U	410 U
DIBENZO(A,H)ANTHRACENE	370 U	400 U	410 U	390 U	360 U	410 U
DIBENZOFURAN	370 U	400 U	410 U	71 J	360 U	410 U
DIETHYL PHTHALATE	370 U	400 U	410 U	390 U	360 U	410 U
DIMETHYL PHTHALATE	370 U	400 U	410 U	390 U	360 U	410 U
FLUORANTHENE	370 U	400 U	410 U	4000	200 J	120 J
FLUORENE	370 U	400 U	410 U	170 J	360 U	410 U
HEXACHLOROBENZENE	370 U	400 U	410 U	390 U	360 U	410 U
HEXACHLOROBUTADIENE	370 U	400 U	410 U	390 U	360 U	410 U
HEXACHLOROCYCLOPENTADIENE	370 U	400 U	410 U	390 U	360 U	410 U
HEXACHLOROETHANE	370 U	400 U	410 U	390 U	360 U	410 U
INDENO(1,2,3-CD)PYRENE	370 U	400 U	410 U	1600	360 U	410 U
ISOPHORONE	370 U	400 U	410 U	390 U	360 U	410 U
N-NITROSO-DI-N-PROPYLAMINE	370 U	400 U	410 U	390 U	360 U	410 U
N-NITROSODIPHENYLAMINE	370 U	400 U	410 U	390 U	360 U	410 U
NAPHTHALENE	370 U	400 U	410 U	390 U	360 U	410 U
NITROBENZENE	370 U	400 U	410 U	390 U	360 U	410 U
PENTACHLOROPHENOL	940 U	990 U	1000 U	980 U	900 U	1000 U
PHENANTHRENE	370 U	400 U	410 U	2600	140 J	82 J
PHENOL	370 U	400 U	410 U	390 U	360 U	410 U
PYRENE	370 U	400 U	410 U	5100	210 J	130 J
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.7 U	4 UL	4 U	3.7 U	3.6 U	4 U

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.7 U	4 UL	4 U	3.7 U	0.58 J	4 U
4,4'-DDT	3.7 U	4 UL	4 U	3.7 U	3.6 U	4 U
ALDRIN	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U
ALPHA-BHC	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U
ALPHA-CHLORDANE	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U
AROCLOR-1016	37 U	40 UL	40 U	37 U	36 U	40 U
AROCLOR-1221	75 U	79 UL	81 U	73 U	72 U	81 U
AROCLOR-1232	37 U	40 UL	40 U	37 U	36 U	40 U
AROCLOR-1242	37 U	40 UL	40 U	37 U	36 U	40 U
AROCLOR-1248	37 U	40 UL	40 U	37 U	36 U	40 U
AROCLOR-1254	37 U	40 UL	40 U	37 U	36 U	40 U
AROCLOR-1260	71	12 J	19 J	210	42 J	4700
BETA-BHC	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U
DELTA-BHC	1.9 U	2 UL	2 U	0.8 J	1.8 U	2 U
DIELDRIN	3.7 U	0.34 J	4 U	3.7 U	3.6 U	4 U
ENDOSULFAN I	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U
ENDOSULFAN II	3.7 U	4 UL	4 U	3.7 U	3.6 U	4 U
ENDOSULFAN SULFATE	3.7 U	4 UL	4 U	3.7 U	3.6 U	4 U
ENDRIN	3.7 U	4 UL	4 U	3.7 U	3.6 U	4 U
ENDRIN ALDEHYDE	3.7 U	4 UL	4 U	3.7 U	3.6 U	4 U
ENDRIN KETONE	3.7 U	4 UL	4 U	3.7 U	3.6 U	4 U
GAMMA-BHC (LINDANE)	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U
GAMMA-CHLORDANE	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U
HEPTACHLOR	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U
HEPTACHLOR EPOXIDE	1.9 U	2 UL	2 U	1.8 U	1.8 U	2 U

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	19 U	20 UL	20 U	18 U	18 U	20 U
TOXAPHENE	190 U	200 UL	200 U	180 U	180 U	200 U
METALS (mg/kg)						
ALUMINUM	32200	24700	24800	3670	9180	16700
ANTIMONY	0.62 UL	0.64 UL	0.67 UL	0.92 B	0.78 B	0.67 B
ARSENIC	8.6 K	6.6 K	5.6 K	1.9 B	4.8 K	4.7 K
BARIUM	33.2	63.5	66.5	17.9	32.2	56.7
BERYLLIUM	0.02 UL	0.02 UL	0.02 UL	0.02 U	0.02 U	0.02 B
CADMIUM	0.28 B	0.27 B	0.3 B	0.38 B	0.25 B	0.36 B
CALCIUM	82.5 B	1180 J	624 J	734 J	2390 J	1530 J
CHROMIUM	42.4 K	32.1 K	28.5 K	9.1 K	19.7 K	20.7 K
COBALT	3 K	6.3	6.2	1.6 B	4.7	5.1
COPPER	15.5 J	15 J	12.5 J	12.2 J	12 J	13 J
CYANIDE	0.21 U	0.28 U	0.25 U	0.25 U	0.19	0.23 U
IRON	30300	32900	29200	7200	19600	18500
LEAD	8.5 K	15.5 K	11.8 K	40.1 K	13.5 K	19.5 K
MAGNESIUM	650 K	2400	2180	399 K	699 K	1450 K
MANGANESE	24.3	121	132	71.8	115	66.5
MERCURY	0.05	0.06	0.05	0.05	0.04	0.12
NICKEL	8.2 J	13.5 J	12.9 J	3.2 J	5.5 J	9.4 J
POTASSIUM	549 K	1190 K	1050 K	183 K	405 K	759 K
SELENIUM	0.72 J	0.53 UJ	0.55 UJ	0.5 UJ	0.58 J	0.55 J
SILVER	0.2 U	0.21 U	0.22 U	0.2 U	0.19 U	0.21 U
SODIUM	120 B	116 B	112 B	52.4 B	89.2 B	130 B
THALLIUM	0.51 UJ	0.53 UJ	0.55 UJ	0.5 UJ	0.49 UJ	0.55 B

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
DEPTH (feet):	0-1'	0-1'	0-1'	0-1'	0-1'	0-1'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SS-01	28-SS-02	28-SS-03	28-SS-07	28-SS-08	28-SS-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
METALS (mg/kg)						
VANADIUM	56.9 K	48.5 K	43.6 K	12.8 K	32.8 K	32.2 K
ZINC	16.5 J	40.4 J	38.1 J	33.9 J	26.3 J	47.8 J
GENERAL CHEMISTRY ()						
PH	4.67	4.93	5.05	7.51	7.95	7.81

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	11 U	12 U	12 U	12 U	11 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	12 U	12 U	12 U	11 U
1,1,2-TRICHLOROETHANE	11 U	11 U	12 U	12 U	12 U	11 U
1,1-DICHLOROETHANE	11 U	11 U	12 U	12 U	12 U	11 U
1,1-DICHLOROETHENE	11 U	11 U	12 U	12 U	12 U	11 U
1,2-DICHLOROETHANE	11 U	11 U	12 U	12 U	12 U	11 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	12 U	12 U	12 U	11 U
1,2-DICHLOROPROPANE	11 U	11 U	12 U	12 U	12 U	11 U
2-BUTANONE	11 UJ	11 UJ	12 U	10 J	12 U	11 U
2-HEXANONE	11 U	11 U	12 U	12 U	12 U	11 U
4-METHYL-2-PENTANONE	11 U	11 U	12 U	12 U	12 U	11 U
ACETONE	11 U	11 U	12 U	79 J	12 U	32 J
BENZENE	11 U	11 U	12 U	12 U	12 U	11 U
BROMODICHLOROMETHANE	11 U	11 U	12 U	12 U	12 U	11 U
BROMOFORM	11 U	11 U	12 U	12 U	12 U	11 U
BROMOMETHANE	11 U	11 U	12 U	12 U	12 U	11 U
CARBON DISULFIDE	11 U	11 U	12 U	12 U	12 U	11 U
CARBON TETRACHLORIDE	11 U	11 U	12 U	12 U	12 U	11 U
CHLOROBENZENE	11 U	11 U	12 U	77	15	11 U
CHLOROETHANE	11 U	11 U	12 U	12 U	12 U	11 U
CHLOROFORM	11 U	11 U	12 U	12 U	12 U	11 U
CHLOROMETHANE	11 U	11 U	12 U	12 U	12 U	11 U
CIS-1,3-DICHLOROPROPENE	11 U	11 U	12 U	12 U	12 U	11 U
DIBROMOCHLOROMETHANE	11 U	11 U	12 U	12 U	12 U	11 U
ETHYLBENZENE	11 U	11 U	12 U	12 U	12 U	11 U

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	3 B	2 B	11 B	23 B	10 B	7 B
STYRENE	11 U	11 U	12 U	12 U	12 U	11 U
TETRACHLOROETHENE	11 U	11 U	12 U	12 U	12 U	11 U
TOLUENE	11 U	11 U	12 U	12 U	12 U	11 U
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	12 U	12 U	12 U	11 U
TRICHLOROETHENE	11 U	11 U	12 U	12 U	12 U	11 U
VINYL CHLORIDE	11 U	11 U	12 U	12 U	12 U	11 U
XYLENES, TOTAL	11 U	11 U	12 U	12 U	12 U	11 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	370 U	370 U	390 U	390 UJ	52 J	370 UJ
1,2-DICHLOROBENZENE	370 U	370 U	390 U	86 J	400 UJ	370 UJ
1,3-DICHLOROBENZENE	370 U	370 U	390 U	520 J	400 UJ	370 UJ
1,4-DICHLOROBENZENE	370 U	370 U	390 U	1000 J	49 J	370 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2,4,5-TRICHLOROPHENOL	930 U	930 U	970 U	970 UJ	990 UJ	940 UJ
2,4,6-TRICHLOROPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2,4-DICHLOROPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2,4-DIMETHYLPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2,4-DINITROPHENOL	930 U	930 U	970 U	970 UJ	990 UJ	940 UJ
2,4-DINITROTOLUENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2,6-DINITROTOLUENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2-CHLORONAPHTHALENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2-CHLOROPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
2-METHYLNAPHTHALENE	370 U	370 U	390 U	80 J	400 UJ	370 UJ
2-METHYLPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	930 U	930 U	970 U	970 UJ	990 UJ	940 UJ
2-NITROPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
3,3'-DICHLOROBENZIDINE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
3-NITROANILINE	930 U	930 U	970 U	970 UJ	990 UJ	940 UJ
4,6-DINITRO-2-METHYLPHENOL	930 UJ	930 UJ	970 UJ	970 UJ	990 UJ	940 UJ
4-BROMOPHENYL PHENYL ETHER	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
4-CHLORO-3-METHYLPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
4-CHLOROANILINE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
4-CHLOROPHENYL PHENYL ETHER	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
4-METHYLPHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
4-NITROANILINE	930 U	930 U	970 U	970 UJ	990 UJ	940 UJ
4-NITROPHENOL	930 U	930 U	970 U	970 UJ	990 UJ	940 UJ
ACENAPHTHENE	370 U	370 U	390 U	120 J	400 UJ	370 UJ
ACENAPHTHYLENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
ANTHRACENE	370 U	370 U	390 U	140 J	400 UJ	370 UJ
BENZO(A)ANTHRACENE	370 U	370 U	390 U	350 J	400 UJ	370 UJ
BENZO(A)PYRENE	370 U	370 U	390 U	250 J	400 UJ	370 UJ
BENZO(B)FLUORANTHENE	370 U	370 U	390 U	230 J	400 UJ	370 UJ
BENZO(G,H,I)PERYLENE	370 U	370 U	390 U	190 J	400 UJ	370 UJ
BENZO(K)FLUORANTHENE	370 U	370 U	390 U	210 J	400 UJ	370 UJ
BIS(2-CHLOROETHOXY)METHANE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
BIS(2-CHLOROETHYL)ETHER	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	86 B	370 U	40 B	390 UJ	400 UJ	370 UJ
BUTYLBENZYL PHTHALATE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
CARBAZOLE	370 U	370 U	390 U	69 J	400 UJ	370 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	370 U	370 U	390 U	340 J	400 UJ	370 UJ
DI-N-BUTYL PHTHALATE	250 J	38 J	57 J	390 UJ	400 UJ	370 UJ
DI-N-OCTYL PHTHALATE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
DIBENZO(A,H)ANTHRACENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
DIBENZOFURAN	370 U	370 U	390 U	39 J	400 UJ	370 UJ
DIETHYL PHTHALATE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
DIMETHYL PHTHALATE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
FLUORANTHENE	370 U	370 U	390 U	730 J	400 UJ	370 UJ
FLUORENE	370 U	370 U	390 U	98 J	400 UJ	370 UJ
HEXACHLOROBENZENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
HEXACHLOROBUTADIENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
HEXACHLOROCYCLOPENTADIENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
HEXACHLOROETHANE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
INDENO(1,2,3-CD)PYRENE	370 U	370 U	390 U	180 J	400 UJ	370 UJ
ISOPHORONE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
N-NITROSO-DI-N-PROPYLAMINE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
N-NITROSODIPHENYLAMINE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
NAPHTHALENE	370 U	370 U	390 U	84 J	400 UJ	370 UJ
NITROBENZENE	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
PENTACHLOROPHENOL	930 U	930 U	970 U	970 UJ	990 UJ	940 UJ
PHENANTHRENE	370 U	370 U	390 U	610 J	400 UJ	370 UJ
PHENOL	370 U	370 U	390 U	390 UJ	400 UJ	370 UJ
PYRENE	370 U	370 U	49 J	660 J	400 UJ	370 UJ
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
4,4'-DDT	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
ALDRIN	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
ALPHA-BHC	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
ALPHA-CHLORDANE	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
AROCLOR-1016	37 U	37 U	39 U	39 UJ	39 UJ	37 UJ
AROCLOR-1221	74 U	74 U	77 U	78 UJ	79 UJ	75 UJ
AROCLOR-1232	37 U	37 U	39 U	39 UJ	39 UJ	37 UJ
AROCLOR-1242	37 U	37 U	39 U	39 UJ	39 UJ	37 UJ
AROCLOR-1248	37 U	37 U	1400 J	39 UJ	39 UJ	37 UJ
AROCLOR-1254	37 U	37 U	39 U	39 UJ	39 UJ	37 UJ
AROCLOR-1260	13 J	6.4 J	560 J	760 J	210 J	46 J
BETA-BHC	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
DELTA-BHC	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
DIELDRIN	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
ENDOSULFAN I	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
ENDOSULFAN II	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
ENDOSULFAN SULFATE	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
ENDRIN	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
ENDRIN ALDEHYDE	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
ENDRIN KETONE	3.7 U	3.7 U	3.9 U	3.9 UJ	3.9 UJ	3.7 UJ
GAMMA-BHC (LINDANE)	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
GAMMA-CHLORDANE	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
HEPTACHLOR	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ
HEPTACHLOR EPOXIDE	1.8 U	1.8 U	1.9 U	1.9 UJ	2 UJ	1.9 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	18 U	18 U	19 U	19 UJ	20 UJ	19 UJ
TOXAPHENE	180 U	180 U	190 U	190 UJ	200 UJ	190 UJ
METALS (mg/kg)						
ALUMINUM	17900	10900	16200	17100	16600	20900
ANTIMONY	0.61 UL	0.74 B	0.64 UL	0.65 UL	0.64 UL	0.63 UL
ARSENIC	6.9 K	2.1 B	3.4 B	3.8	2.8	5.1
BARIUM	19.2	31.1	62.9	74.1	64.7	64.4
BERYLLIUM	0.02 UL	0.02 U	0.07 B	0.02 U	0.04 B	0.02 U
CADMIUM	0.22 B	0.23 B	0.6 B	0.47 B	0.52 B	0.5 B
CALCIUM	74 B	2610 J	3030 J	1200 J	819 J	927 J
CHROMIUM	41 K	14.8 K	21.6 K	18.7 J	16.8 J	23.3 J
COBALT	1.7 B	2.4 B	4.6	5.6	7	5.6
COPPER	15 J	9.8 J	14.7 J	9.4 J	12.6 J	9.1 J
CYANIDE	0.19 U	0.26 U	0.24 U			
IRON	25500	13300	18000	16000	18400	21100
LEAD	5.8 K	10.3 K	40.7 K	17.4 J	15.1 J	10.1 J
MAGNESIUM	374 K	1110 K	1530 K	1450 J	1210 J	1670 J
MANGANESE	89.1	65.2	106	148 J	508 J	91.3 J
MERCURY	0.03	0.06	0.12	0.05	0.03	0.06
NICKEL	6.5 J	5.8 J	8.9 J	10	9.8	11.2
POTASSIUM	314 K	513 K	701 K	794 J	802 J	1170 J
SELENIUM	0.5 UJ	0.53 J	0.52 UJ	1 K	0.7 K	0.52 U
SILVER	0.2 U	0.19 U	0.2 U	0.21 U	0.21 U	0.2 U
SODIUM	82.7 B	73.5 B	89.9 B	201 B	188 B	172 B
THALLIUM	0.5 UJ	0.5 UJ	0.52 UJ	0.54 U	0.52 U	0.52 U

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-01	28-SB-02	28-SB-03	28-SB-04(2)	28-SB-04(4)	28-SB-05(2)
DEPTH (feet):				2-4'	4-6'	2-4'
SAMPLE DATE:	10/23/97	10/23/97	10/23/97	10/24/97	10/24/97	10/24/97
LOCATION:	28-SB-01	28-SB-02	28-SB-03	28-SB-04	28-SB-04	28-SB-05
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
METALS (mg/kg)						
VANADIUM	36.4 K	21.8 K	30.7 K	28.8	25.3	37.3
ZINC	10.6 J	18.6 J	58.4 J	45.8 J	33.2 J	34 J
GENERAL CHEMISTRY ()						
PH	4.83	5.21	7.49			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	11 U	11 U	11 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	11 U	11 U	12 U	12 U
1,1,2-TRICHLOROETHANE	11 U	11 U	11 U	11 U	12 U	12 U
1,1-DICHLOROETHANE	11 U	11 U	11 U	11 U	12 U	12 U
1,1-DICHLOROETHENE	11 U	11 U	11 U	11 U	12 U	12 U
1,2-DICHLOROETHANE	11 U	11 U	11 U	11 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	11 U	11 U	12 U	12 U
1,2-DICHLOROPROPANE	11 U	11 U	11 U	11 U	12 U	12 U
2-BUTANONE	11 U	11 U	11 U	11 U	18 J	7 J
2-HEXANONE	11 U	11 U	11 U	11 U	12 U	12 U
4-METHYL-2-PENTANONE	11 U	11 U	11 U	11 U	12 U	12 U
ACETONE	11 U	11 U	11 U	11 U	120 J	69 J
BENZENE	11 U	11 U	11 U	11 U	12 U	12 U
BROMODICHLOROMETHANE	11 U	11 U	11 U	11 U	12 U	12 U
BROMOFORM	11 U	11 U	11 U	11 U	12 U	12 U
BROMOMETHANE	11 U	11 U	11 U	11 U	12 U	12 U
CARBON DISULFIDE	11 U	11 U	11 U	11 U	12 U	12 U
CARBON TETRACHLORIDE	11 U	11 U	11 U	11 U	12 U	12 U
CHLOROBENZENE	11 U	11 U	11 U	11 U	12 U	12 U
CHLOROETHANE	11 U	11 U	11 U	11 U	12 U	12 U
CHLOROFORM	11 U	11 U	11 U	11 U	12 U	12 U
CHLOROMETHANE	11 U	11 U	11 U	11 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	11 U	12 U	12 U
DIBROMOCHLOROMETHANE	11 U	11 U	11 U	11 U	12 U	12 U
ETHYLBENZENE	11 U	11 U	11 U	11 U	12 U	12 U

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	8 B	20 B	9 B	11 B	13 B	12 B
STYRENE	11 U	11 U	11 U	11 U	12 U	12 U
TETRACHLOROETHENE	11 U	11 U	11 U	11 U	12 U	12 U
TOLUENE	11 U	11 U	11 U	11 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	11 U	12 U	12 U
TRICHLOROETHENE	11 U	11 U	11 U	11 U	12 U	12 U
VINYL CHLORIDE	11 U	11 U	11 U	11 U	12 U	12 U
XYLENES, TOTAL	11 U	11 U	11 U	11 U	12 U	12 U
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
1,2-DICHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
1,3-DICHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
1,4-DICHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2,2'-OXYBIS(1-CHLOROPROPANE)	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2,4,5-TRICHLOROPHENOL	910 UJ	910 UJ	900 UJ	960 U	980 U	1000 U
2,4,6-TRICHLOROPHENOL	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2,4-DICHLOROPHENOL	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2,4-DIMETHYLPHENOL	360 UJ	360 UJ	360 UJ	380 U	190 J	400 U
2,4-DINITROPHENOL	910 UJ	910 UJ	900 UJ	960 U	980 U	1000 U
2,4-DINITROTOLUENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2,6-DINITROTOLUENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2-CHLORONAPHTHALENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2-CHLOROPHENOL	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2-METHYLNAPHTHALENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
2-METHYLPHENOL	360 UJ	360 UJ	360 UJ	380 U	170 J	400 U

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	910 UJ	910 UJ	900 UJ	960 U	980 U	1000 U
2-NITROPHENOL	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
3,3'-DICHLOROBENZIDINE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
3-NITROANILINE	910 UJ	910 UJ	900 UJ	960 U	980 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	910 UJ	910 UJ	900 UJ	960 UJ	980 UJ	1000 UJ
4-BROMOPHENYL PHENYL ETHER	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
4-CHLORO-3-METHYLPHENOL	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
4-CHLOROANILINE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
4-CHLOROPHENYL PHENYL ETHER	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
4-METHYLPHENOL	360 UJ	360 UJ	360 UJ	380 U	1600	400 U
4-NITROANILINE	910 UJ	910 UJ	900 UJ	960 U	980 U	1000 U
4-NITROPHENOL	910 UJ	910 UJ	900 UJ	960 U	980 U	1000 U
ACENAPHTHENE	360 UJ	360 UJ	360 UJ	380 U	48 J	400 U
ACENAPHTHYLENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
ANTHRACENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
BENZO(A)ANTHRACENE	360 UJ	360 UJ	360 UJ	380 U	66 J	400 U
BENZO(A)PYRENE	360 UJ	360 UJ	360 UJ	380 U	68 J	400 U
BENZO(B)FLUORANTHENE	360 UJ	360 UJ	360 UJ	380 U	64 J	400 U
BENZO(G,H,I)PERYLENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
BENZO(K)FLUORANTHENE	360 UJ	360 UJ	360 UJ	380 U	66 J	400 U
BIS(2-CHLOROETHOXY)METHANE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
BIS(2-CHLOROETHYL)ETHER	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
BIS(2-ETHYLHEXYL)PHTHALATE	360 UJ	360 UJ	72 B	380 U	46 B	400 U
BUTYLBENZYL PHTHALATE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
CARBAZOLE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	360 UJ	360 UJ	360 UJ	380 U	77 J	400 U
DI-N-BUTYL PHTHALATE	360 UJ	360 UJ	360 UJ	46 J	42 J	100 J
DI-N-OCTYL PHTHALATE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
DIBENZO(A,H)ANTHRACENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
DIBENZOFURAN	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
DIETHYL PHTHALATE	360 UJ	360 UJ	360 UJ	380 U	390 U	42 J
DIMETHYL PHTHALATE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
FLUORANTHENE	360 UJ	360 UJ	360 UJ	66 J	170 J	400 U
FLUORENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
HEXACHLOROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
HEXACHLOROBUTADIENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
HEXACHLOROCYCLOPENTADIENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
HEXACHLOROETHANE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
INDENO(1,2,3-CD)PYRENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
ISOPHORONE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
N-NITROSO-DI-N-PROPYLAMINE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
N-NITROSODIPHENYLAMINE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
NAPHTHALENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
NITROBENZENE	360 UJ	360 UJ	360 UJ	380 U	390 U	400 U
PENTACHLOROPHENOL	910 UJ	910 UJ	900 UJ	960 U	980 U	1000 U
PHENANTHRENE	360 UJ	360 UJ	360 UJ	55 J	160 J	400 U
PHENOL	360 UJ	360 UJ	360 UJ	380 U	330 J	400 U
PYRENE	360 UJ	360 UJ	360 UJ	62 J	180 J	41 J
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	3.9 U	4 UL

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	0.71 J	4 UL
4,4'-DDT	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	3.9 U	4 UL
ALDRIN	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
ALPHA-BHC	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
ALPHA-CHLORDANE	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
AROCLOR-1016	36 UJ	36 UJ	36 UJ	38 U	39 U	40 UL
AROCLOR-1221	72 UJ	73 UJ	72 UJ	76 U	79 U	80 UL
AROCLOR-1232	36 UJ	36 UJ	36 UJ	38 U	39 U	40 UL
AROCLOR-1242	36 UJ	36 UJ	36 UJ	38 U	39 U	40 UL
AROCLOR-1248	36 UJ	36 UJ	36 UJ	38 U	39 U	40 UL
AROCLOR-1254	36 UJ	36 UJ	36 UJ	38 U	39 U	40 UL
AROCLOR-1260	5.9 J	11 J	3.6 J	46	58	49 L
BETA-BHC	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
DELTA-BHC	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
DIELDRIN	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	3.9 U	4 UL
ENDOSULFAN I	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
ENDOSULFAN II	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	3.9 U	4 UL
ENDOSULFAN SULFATE	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	3.9 U	4 UL
ENDRIN	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	3.9 U	4 UL
ENDRIN ALDEHYDE	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	3.9 U	4 UL
ENDRIN KETONE	3.6 UJ	3.6 UJ	3.6 UJ	3.8 U	3.9 U	4 UL
GAMMA-BHC (LINDANE)	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
GAMMA-CHLORDANE	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
HEPTACHLOR	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL
HEPTACHLOR EPOXIDE	1.8 UJ	1.8 UJ	1.8 UJ	1.9 U	2 U	2 UL

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	18 UJ	18 UJ	18 UJ	19 U	20 U	20 UL
TOXAPHENE	180 UJ	180 UJ	180 UJ	190 U	200 U	200 UL
METALS (mg/kg)						
ALUMINUM	12100	26200	15200	19300	16600	19900
ANTIMONY	0.61 UL	0.61 UL	0.6 UL	0.62 UL	1.4 B	0.65 UL
ARSENIC	3.6	12	6.9	4.1 K	3.9 B	5.2 K
BARIUM	24.8	26	20.8	27.6	58.2	65.8
BERYLLIUM	0.02 U	0.02 UL	0.02 U	0.02 U	0.02 U	0.02 U
CADMIUM	0.49 B	0.71 B	0.43 B	0.18 B	0.3 B	0.3 B
CALCIUM	1890 J	95.5 B	162 B	326 J	1190 J	1180 J
CHROMIUM	20.2 J	73.6 J	36.6 J	27.2 K	20.5 K	23.5 K
COBALT	1.8 B	2.4 B	1.4 B	1.9 B	5.7	5.6
COPPER	11.6 J	19.5 J	11 J	10.9 J	11 J	11.7 J
CYANIDE				0.25 U	0.23	0.28 U
IRON	14200	36400	19000	21000	21700	21400
LEAD	7.3 J	8.3 J	7 J	7.3 K	24.7 K	24.3 K
MAGNESIUM	709 J	541 J	374 J	603 K	1340 K	1610 K
MANGANESE	41.3 J	18.3 J	12.8 J	27.2	150	63.7
MERCURY	0.05	0.03	0.02 U	0.03	0.06	0.07
NICKEL	4.6	6.6	3.6 B	5.1 J	8.8 J	9.8 J
POTASSIUM	501 J	503 J	411 J	478 K	754 K	880 K
SELENIUM	0.5 U	2.6 L	0.91 K	1 J	0.74 J	0.73 J
SILVER	0.19 U	0.28 B	0.19 U	0.2 U	0.21 U	0.21 U
SODIUM	168 B	111 B	100 B	56.7 B	91.3 B	118 B
THALLIUM	0.5 U	1.4 B	0.49 U	0.51 UJ	0.53 UJ	0.53 UJ

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 28 - BUILDING T-14 SCRAP YARD
NSWC WHITE OAK

SAMPLE NUMBER:	28-SB-05(4)	28-SB-06(2)	28-SB-06(4)	28-SB-07	28-SB-08	28-SB-09
DEPTH (feet):	4-6'	2-4'	4-6'			
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/23/97	10/23/97	10/23/97
LOCATION:	28-SB-05	28-SB-06	28-SB-06	28-SB-07	28-SB-08	28-SB-09
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:						
METALS (mg/kg)						
VANADIUM	25.8	61.2	39.8	38.1 K	31.8 K	37.5 K
ZINC	14.8 J	13.3 J	9.2 J	11.7 J	55.5 J	52 J
GENERAL CHEMISTRY ()						
PH				5.09	6.8	6.98

APPENDIX F.7

SITE 29/SWMU 74 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SS-01	29-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	29-SS-01	29-SS-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	11 U				
1,1,2,2-TETRACHLOROETHANE	11 U	11 U				
1,1,2-TRICHLOROETHANE	11 U	11 U				
1,1-DICHLOROETHANE	11 U	11 U				
1,1-DICHLOROETHENE	11 U	11 U				
1,2-DICHLOROETHANE	11 U	11 U				
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U				
1,2-DICHLOROPROPANE	11 U	11 U				
2-BUTANONE	11 U	11 U				
2-HEXANONE	11 U	11 U				
4-METHYL-2-PENTANONE	11 U	11 U				
ACETONE	11 U	11 U				
BENZENE	11 U	11 U				
BROMODICHLOROMETHANE	11 U	11 U				
BROMOFORM	11 U	11 U				
BROMOMETHANE	11 U	11 U				
CARBON DISULFIDE	11 U	11 U				
CARBON TETRACHLORIDE	11 U	11 U				
CHLOROBENZENE	11 U	11 U				
CHLOROETHANE	11 U	11 U				
CHLOROFORM	11 U	11 U				
CHLOROMETHANE	11 U	11 U				
CIS-1,3-DICHLOROPROPENE	11 U	11 U				
DIBROMOCHLOROMETHANE	11 U	11 U				
ETHYLBENZENE	11 U	11 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SS-01	29-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	29-SS-01	29-SS-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	6 B	4 B				
STYRENE	11 U	11 U				
TETRACHLOROETHENE	11 U	11 U				
TOLUENE	11 U	11 U				
TRANS-1,3-DICHLOROPROPENE	11 U	11 U				
TRICHLOROETHENE	11 U	11 U				
VINYL CHLORIDE	11 U	11 U				
XYLENES, TOTAL	11 U	11 U				
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	380 U	360 U				
1,2-DICHLOROBENZENE	380 U	360 U				
1,3-DICHLOROBENZENE	380 U	360 U				
1,4-DICHLOROBENZENE	380 U	360 U				
2,2'-OXYBIS(1-CHLOROPROPANE)	380 U	360 U				
2,4,5-TRICHLOROPHENOL	960 U	900 U				
2,4,6-TRICHLOROPHENOL	380 U	360 U				
2,4-DICHLOROPHENOL	380 U	360 U				
2,4-DIMETHYLPHENOL	380 U	360 U				
2,4-DINITROPHENOL	960 U	900 U				
2,4-DINITROTOLUENE	380 U	360 U				
2,6-DINITROTOLUENE	380 U	360 U				
2-CHLORONAPHTHALENE	380 U	360 U				
2-CHLOROPHENOL	380 U	360 U				
2-METHYLNAPHTHALENE	380 U	360 U				
2-METHYLPHENOL	380 U	360 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SS-01	29-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	29-SS-01	29-SS-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	960 U	900 U				
2-NITROPHENOL	380 U	360 U				
3,3'-DICHLOROBENZIDINE	380 U	360 U				
3-NITROANILINE	860 U	900 U				
4,6-DINITRO-2-METHYLPHENOL	960 U	900 U				
4-BROMOPHENYL PHENYL ETHER	380 U	360 U				
4-CHLORO-3-METHYLPHENOL	380 U	360 U				
4-CHLOROANILINE	380 U	360 U				
4-CHLOROPHENYL PHENYL ETHER	380 U	360 U				
4-METHYLPHENOL	380 U	360 U				
4-NITROANILINE	960 U	900 U				
4-NITROPHENOL	960 U	900 U				
ACENAPHTHENE	69 J	360 U				
ACENAPHTHYLENE	380 U	360 U				
ANTHRACENE	100 J	360 U				
BENZO(A)ANTHRACENE	260 J	98 J				
BENZO(A)PYRENE	210 J	93 J				
BENZO(B)FLUORANTHENE	270 J	130 J				
BENZO(G,H,I)PERYLENE	130 J	85 J				
BENZO(K)FLUORANTHENE	170 J	110 J				
BIS(2-CHLOROETHOXY)METHANE	380 U	360 U				
BIS(2-CHLOROETHYL)ETHER	380 U	360 U				
BIS(2-ETHYLHEXYL)PHTHALATE	100 J	260 J				
BUTYLBENZYL PHTHALATE	380 U	360 U				
CARBAZOLE	53 J	360 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SS-01	29-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	29-SS-01	29-SS-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	280 J	140 J				
DI-N-BUTYL PHTHALATE	92 J	88 J				
DI-N-OCTYL PHTHALATE	380 U	360 U				
DIBENZO(A,H)ANTHRACENE	64 J	360 U				
DIBENZOFURAN	380 U	360 U				
DIETHYL PHTHALATE	380 U	360 U				
DIMETHYL PHTHALATE	380 U	360 U				
FLUORANTHENE	580	240 J				
FLUORENE	60 J	360 U				
HEXACHLOROBENZENE	380 U	360 U				
HEXACHLOROBUTADIENE	380 U	360 U				
HEXACHLOROCYCLOPENTADIENE	380 UJ	360 UJ				
HEXACHLOROETHANE	380 U	360 U				
INDENO(1,2,3-CD)PYRENE	130 J	78 J				
ISOPHORONE	380 U	360 U				
N-NITROSO-DI-N-PROPYLAMINE	380 U	360 U				
N-NITROSODIPHENYLAMINE	380 U	360 U				
NAPHTHALENE	380 U	360 U				
NITROBENZENE	380 U	360 U				
PENTACHLOROPHENOL	960 U	900 U				
PHENANTHRENE	480	110 J				
PHENOL	380 U	360 U				
PYRENE	500	210 J				
GENERAL CHEMISTRY ()						
PH	5.46	5.95				

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SB-01(17)	29-SB-01(6)	29-SB-02(16)	29-SB-02(6)		
DEPTH (feet):	17-19'	6-8'	16-18'	6-8'		
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/24/97	/ /	/ /
LOCATION:	29-SB-01	29-SB-01	29-SB-02	29-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	14 U	12 U	13 U	12 U		
1,1,2,2-TETRACHLOROETHANE	14 U	12 U	13 U	12 U		
1,1,2-TRICHLOROETHANE	14 U	12 U	13 U	12 U		
1,1-DICHLOROETHANE	14 U	12 U	13 U	12 U		
1,1-DICHLOROETHENE	14 U	12 U	13 U	12 U		
1,2-DICHLOROETHANE	14 U	12 U	13 U	12 U		
1,2-DICHLOROETHENE (TOTAL)	14 U	12 U	13 U	12 U		
1,2-DICHLOROPROPANE	14 U	12 U	13 U	12 U		
2-BUTANONE	14 U	12 U	13 U	12 U		
2-HEXANONE	14 U	12 U	13 U	12 U		
4-METHYL-2-PENTANONE	14 U	12 U	13 U	12 U		
ACETONE	14 U	12 U	13 U	12 U		
BENZENE	14 U	12 U	13 U	12 U		
BROMODICHLOROMETHANE	14 U	12 U	13 U	12 U		
BROMOFORM	14 U	12 U	13 U	12 U		
BROMOMETHANE	14 U	12 U	13 U	12 U		
CARBON DISULFIDE	14 U	12 U	13 U	12 U		
CARBON TETRACHLORIDE	14 U	12 U	13 U	12 U		
CHLOROBENZENE	14 U	12 U	13 U	12 U		
CHLOROETHANE	14 U	12 U	13 U	12 U		
CHLOROFORM	14 U	12 U	13 U	12 U		
CHLOROMETHANE	14 U	12 U	13 U	12 U		
CIS-1,3-DICHLOROPROPENE	14 U	12 U	13 U	12 U		
DIBROMOCHLOROMETHANE	14 U	12 U	13 U	12 U		
ETHYLBENZENE	14 U	12 U	13 U	12 U		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SB-01(17)	29-SB-01(6)	29-SB-02(16)	29-SB-02(6)		
DEPTH (feet):	17-19'	6-8'	16-18'	6-8'		
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/24/97	/ /	/ /
LOCATION:	29-SB-01	29-SB-01	29-SB-02	29-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	40	28	27	14 B		
STYRENE	14 U	12 U	13 U	12 U		
TETRACHLOROETHENE	14 U	12 U	13 U	12 U		
TOLUENE	14 U	12 U	13 U	12 U		
TRANS-1,3-DICHLOROPROPENE	14 U	12 U	13 U	12 U		
TRICHLOROETHENE	14 U	12 U	13 U	12 U		
VINYL CHLORIDE	14 U	12 U	13 U	12 U		
XYLENES, TOTAL	14 U	12 U	13 U	12 U		
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	460 UJ	400 UJ	440 UJ	400 UJ		
1,2-DICHLOROBENZENE	460 UJ	400 UJ	440 UJ	400 UJ		
1,3-DICHLOROBENZENE	460 UJ	400 UJ	440 UJ	400 UJ		
1,4-DICHLOROBENZENE	460 UJ	400 UJ	440 UJ	400 UJ		
2,2'-OXYBIS(1-CHLOROPROPANE)	460 UJ	400 UJ	440 UJ	400 UJ		
2,4,5-TRICHLOROPHENOL	1200 UJ	1000 UJ	1100 UJ	990 UJ		
2,4,6-TRICHLOROPHENOL	460 UJ	400 UJ	440 UJ	400 UJ		
2,4-DICHLOROPHENOL	460 UJ	400 UJ	440 UJ	400 UJ		
2,4-DIMETHYLPHENOL	460 UJ	400 UJ	440 UJ	400 UJ		
2,4-DINITROPHENOL	1200 UJ	1000 UJ	1100 UJ	990 UJ		
2,4-DINITROTOLUENE	460 UJ	400 UJ	440 UJ	400 UJ		
2,6-DINITROTOLUENE	460 UJ	400 UJ	440 UJ	400 UJ		
2-CHLORONAPHTHALENE	460 UJ	400 UJ	440 UJ	400 UJ		
2-CHLOROPHENOL	460 UJ	400 UJ	440 UJ	400 UJ		
2-METHYLNAPHTHALENE	460 UJ	400 UJ	440 UJ	400 UJ		
2-METHYLPHENOL	460 UJ	400 UJ	440 UJ	400 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SB-01(17)	29-SB-01(6)	29-SB-02(16)	29-SB-02(6)		
DEPTH (feet):	17-19'	6-8'	16-18'	6-8'		
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/24/97	/ /	/ /
LOCATION:	29-SB-01	29-SB-01	29-SB-02	29-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE	1200 UJ	1000 UJ	1100 UJ	990 UJ		
2-NITROPHENOL	460 UJ	400 UJ	440 UJ	400 UJ		
3,3'-DICHLOROBENZIDINE	460 UJ	400 UJ	440 UJ	400 UJ		
3-NITROANILINE	1200 UJ	1000 UJ	1100 UJ	990 UJ		
4,6-DINITRO-2-METHYLPHENOL	1200 UJ	1000 UJ	1100 UJ	990 UJ		
4-BROMOPHENYL PHENYL ETHER	460 UJ	400 UJ	440 UJ	400 UJ		
4-CHLORO-3-METHYLPHENOL	460 UJ	400 UJ	440 UJ	400 UJ		
4-CHLOROANILINE	460 UJ	400 UJ	440 UJ	400 UJ		
4-CHLOROPHENYL PHENYL ETHER	460 UJ	400 UJ	440 UJ	400 UJ		
4-METHYLPHENOL	460 UJ	400 UJ	440 UJ	400 UJ		
4-NITROANILINE	1200 UJ	1000 UJ	1100 UJ	990 UJ		
4-NITROPHENOL	1200 UJ	1000 UJ	1100 UJ	990 UJ		
ACENAPHTHENE	460 UJ	400 UJ	440 UJ	400 UJ		
ACENAPHTHYLENE	460 UJ	400 UJ	440 UJ	400 UJ		
ANTHRACENE	460 UJ	400 UJ	440 UJ	400 UJ		
BENZO(A)ANTHRACENE	460 UJ	400 UJ	440 UJ	400 UJ		
BENZO(A)PYRENE	460 UJ	400 UJ	440 UJ	400 UJ		
BENZO(B)FLUORANTHENE	460 UJ	400 UJ	440 UJ	400 UJ		
BENZO(G,H,I)PERYLENE	460 UJ	400 UJ	440 UJ	400 UJ		
BENZO(K)FLUORANTHENE	460 UJ	400 UJ	440 UJ	400 UJ		
BIS(2-CHLOROETHOXY)METHANE	460 UJ	400 UJ	440 UJ	400 UJ		
BIS(2-CHLOROETHYL)ETHER	460 UJ	400 UJ	440 UJ	400 UJ		
BIS(2-ETHYLHEXYL)PHTHALATE	100 B	47 B	440 UJ	400 UJ		
BUTYLBENZYL PHTHALATE	460 UJ	400 UJ	440 UJ	400 UJ		
CARBAZOLE	460 UJ	400 UJ	440 UJ	400 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 29 - BUILDING 76, PLASTICS LABORATORY WASTE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	29-SB-01(17)	29-SB-01(6)	29-SB-02(16)	29-SB-02(6)		
DEPTH (feet):	17-19'	6-8'	16-18'	6-8'		
SAMPLE DATE:	10/24/97	10/24/97	10/24/97	10/24/97	/ /	/ /
LOCATION:	29-SB-01	29-SB-01	29-SB-02	29-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE	460 UJ	400 UJ	440 UJ	400 UJ		
DI-N-BUTYL PHTHALATE	460 UJ	400 UJ	440 UJ	400 UJ		
DI-N-OCTYL PHTHALATE	460 UJ	400 UJ	440 UJ	400 UJ		
DIBENZO(A,H)ANTHRACENE	460 UJ	400 UJ	440 UJ	400 UJ		
DIBENZOFURAN	460 UJ	400 UJ	440 UJ	400 UJ		
DIETHYL PHTHALATE	460 UJ	400 UJ	440 UJ	400 UJ		
DIMETHYL PHTHALATE	460 UJ	400 UJ	440 UJ	400 UJ		
FLUORANTHENE	460 UJ	400 UJ	440 UJ	400 UJ		
FLUORENE	460 UJ	400 UJ	440 UJ	400 UJ		
HEXACHLOROBENZENE	460 UJ	400 UJ	440 UJ	400 UJ		
HEXACHLOROBUTADIENE	460 UJ	400 UJ	440 UJ	400 UJ		
HEXACHLOROCYCLOPENTADIENE	460 UJ	400 UJ	440 UJ	400 UJ		
HEXACHLOROETHANE	460 UJ	400 UJ	440 UJ	400 UJ		
INDENO(1,2,3-CD)PYRENE	460 UJ	400 UJ	440 UJ	400 UJ		
ISOPHORONE	460 UJ	400 UJ	440 UJ	400 UJ		
N-NITROSO-DI-N-PROPYLAMINE	460 UJ	400 UJ	440 UJ	400 UJ		
N-NITROSODIPHENYLAMINE	460 UJ	400 UJ	440 UJ	400 UJ		
NAPHTHALENE	460 UJ	400 UJ	440 UJ	400 UJ		
NITROBENZENE	460 UJ	400 UJ	440 UJ	400 UJ		
PENTACHLOROPHENOL	1200 UJ	1000 UJ	1100 UJ	990 UJ		
PHENANTHRENE	460 UJ	400 UJ	440 UJ	400 UJ		
PHENOL	460 UJ	400 UJ	440 UJ	400 UJ		
PYRENE	460 UJ	400 UJ	440 UJ	400 UJ		

APPENDIX F.8

SITE 31/SWMU 72 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SS-01	31-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:						
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
()						
PH (unitless)	5.76	4.79				
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	11 U	11 U				
1,1,2,2-TETRACHLOROETHANE	11 U	11 U				
1,1,2-TRICHLOROETHANE	11 U	11 U				
1,1-DICHLOROETHANE	11 U	11 U				
1,1-DICHLOROETHENE	11 U	11 U				
1,2-DICHLOROETHANE	11 U	11 U				
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U				
1,2-DICHLOROPROPANE	11 U	11 U				
2-BUTANONE	11 U	11 U				
2-HEXANONE	11 U	11 U				
4-METHYL-2-PENTANONE	11 U	11 U				
ACETONE	11 U	11 U				
BENZENE	11 U	11 U				
BROMODICHLOROMETHANE	11 U	11 U				
BROMOFORM	11 U	11 U				
BROMOMETHANE	11 U	11 U				
CARBON DISULFIDE	11 U	11 U				
CARBON TETRACHLORIDE	11 U	11 U				
CHLOROBENZENE	11 U	11 U				
CHLOROETHANE	11 U	11 U				
CHLOROFORM	11 U	11 U				
CHLOROMETHANE	11 U	11 U				
CIS-1,3-DICHLOROPROPENE	11 U	11 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SS-01	31-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:						
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
DIBROMOCHLOROMETHANE	11 U	11 U				
ETHYLBENZENE	11 U	11 U				
METHYLENE CHLORIDE	7 B	6 B				
STYRENE	11 U	11 U				
TETRACHLOROETHENE	11 U	11 U				
TOLUENE	11 U	11 U				
TRANS-1,3-DICHLOROPROPENE	11 U	11 U				
TRICHLOROETHENE	11 U	11 U				
VINYL CHLORIDE	11 U	11 U				
XYLENES, TOTAL	11 U	11 U				
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	370 UJ	360 U				
1,2-DICHLOROBENZENE	370 UJ	360 U				
1,3-DICHLOROBENZENE	370 UJ	360 U				
1,4-DICHLOROBENZENE	370 UJ	360 U				
2,2'-OXYBIS(1-CHLOROPROPANE)	370 UJ	360 U				
2,4,5-TRICHLOROPHENOL	930 UJ	900 U				
2,4,6-TRICHLOROPHENOL	370 UJ	360 U				
2,4-DICHLOROPHENOL	370 UJ	360 U				
2,4-DIMETHYLPHENOL	370 UJ	360 U				
2,4-DINITROPHENOL	930 UJ	900 U				
2,4-DINITROTOLUENE	370 UJ	360 U				
2,6-DINITROTOLUENE	370 UJ	360 U				
2-CHLORONAPHTHALENE	370 UJ	360 U				
2-CHLOROPHENOL	370 UJ	360 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SS-01	31-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:						
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-METHYLNAPHTHALENE	370 UJ	360 U				
2-METHYLPHENOL	370 UJ	360 U				
2-NITROANILINE	930 UJ	900 U				
2-NITROPHENOL	370 UJ	360 U				
3,3'-DICHLOROBENZIDINE	370 UJ	360 U				
3-NITROANILINE	930 UJ	900 U				
4,6-DINITRO-2-METHYLPHENOL	930 UJ	900 U				
4-BROMOPHENYL PHENYL ETHER	370 UJ	360 U				
4-CHLORO-3-METHYLPHENOL	370 UJ	360 U				
4-CHLOROANILINE	370 UJ	360 U				
4-CHLOROPHENYL PHENYL ETHER	370 UJ	360 U				
4-METHYLPHENOL	370 UJ	360 U				
4-NITROANILINE	930 UJ	900 U				
4-NITROPHENOL	930 UJ	900 U				
ACENAPHTHENE	370 UJ	360 U				
ACENAPHTHYLENE	370 UJ	360 U				
ANTHRACENE	370 UJ	360 U				
BENZO(A)ANTHRACENE	370 UJ	42 J				
BENZO(A)PYRENE	370 UJ	38 J				
BENZO(B)FLUORANTHENE	370 UJ	48 J				
BENZO(G,H,I)PERYLENE	370 UJ	360 U				
BENZO(K)FLUORANTHENE	370 UJ	360 U				
BIS(2-CHLOROETHOXY)METHANE	370 UJ	360 U				
BIS(2-CHLOROETHYL)ETHER	370 UJ	360 U				
BIS(2-ETHYLHEXYL)PHTHALATE	370 UJ	61 J				

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SS-01	31-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:						
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
BUTYLBENZYL PHTHALATE	370 UJ	360 U				
CARBAZOLE	370 UJ	360 U				
CHRYSENE	370 UJ	53 J				
DI-N-BUTYL PHTHALATE	370 UJ	360 U				
DI-N-OCTYL PHTHALATE	370 UJ	360 U				
DIBENZO(A,H)ANTHRACENE	370 UJ	360 U				
DIBENZOFURAN	370 UJ	360 U				
DIETHYL PHTHALATE	370 UJ	360 U				
DIMETHYL PHTHALATE	370 UJ	360 U				
FLUORANTHENE	40 J	87 J				
FLUORENE	370 UJ	360 U				
HEXACHLOROBENZENE	370 UJ	360 U				
HEXACHLOROBUTADIENE	370 UJ	360 U				
HEXACHLOROCYCLOPENTADIENE	370 UJ	360 UJ				
HEXACHLOROETHANE	370 UJ	360 U				
INDENO(1,2,3-CD)PYRENE	370 UJ	360 U				
ISOPHORONE	370 UJ	360 U				
N-NITROSO-DI-N-PROPYLAMINE	370 UJ	360 U				
N-NITROSODIPHENYLAMINE	370 UJ	360 U				
NAPHTHALENE	370 UJ	360 U				
NITROBENZENE	370 UJ	360 U				
PENTACHLOROPHENOL	930 UJ	900 U				
PHENANTHRENE	370 UJ	50 J				
PHENOL	370 UJ	360 U				
PYRENE	41 J	110 J				

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SS-01	31-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:						
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
METALS (mg/kg)						
ALUMINUM	14800	19300				
ANTIMONY	1 J	0.82 UJ				
ARSENIC	2.1 B	3.9 J				
BARIUM	1630 J	97.2 J				
BERYLLIUM	1.5	0.57				
CADMIUM	65.6 J	0.43 J				
CALCIUM	1480 K	894 K				
CHROMIUM	144	41.2				
COBALT	63.6	19.2				
COPPER	120	285				
IRON	40900	34900				
LEAD	255 L	77.9 L				
MAGNESIUM	3990 J	2610 J				
MANGANESE	7530 J	877 J				
MERCURY	0.18	0.06				
NICKEL	60.1	26.1				
POTASSIUM	3860	2160				
SELENIUM	0.62 UJ	0.89 UJ				
SILVER	0.18 UL	0.25 UL				
SODIUM	138 B	93.1 B				
THALLIUM	4.9 L	0.92 UL				
VANADIUM	33.1	42.8				
ZINC	223	327				

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SS-01	31-SS-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/13/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:						
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
PETROLEUM HYDROCARBONS (mg/kg)						
DIESEL RANGE ORGANICS	22.2 U	2.1 U				
GASOLINE RANGE ORGANICS	0.06 U	0.05 U				
JET FUEL	22.2 U	2.1 U				
TPH-DIESEL-KEROSENE	22.2 U	2.1 U				
TPH-DIESEL-MINERAL SPIRITS	22.2 U	2.1 U				
TPH-HEAVY OIL	409	8.6 U				
TPH-NAPHTHA	22.2 U	2.1 U				
MISCELLANEOUS PARAMETERS (mg/kg)						
PAINT THINNER	22.2 U	2.1 U				
STODDARD SOLVENT	22.2 U	2.1 U				

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SB-01(27)	31-SB-01(4)	31-SB-02(28)	31-SB-02(4)		
DEPTH (feet):	27-29'	4-6'	28-30'	4-6'		
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	/ /	/ /
LOCATION:	31-SB-01	31-SB-01	31-SB-02	31-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
()						
PH (unitless)	5.35	4.99	4.91	5.2		
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	12 U	11 U	11 U	12 U		
1,1,2,2-TETRACHLOROETHANE	12 U	11 U	11 U	12 U		
1,1,2-TRICHLOROETHANE	12 U	11 U	11 U	12 U		
1,1-DICHLOROETHANE	12 U	11 U	11 U	12 U		
1,1-DICHLOROETHENE	12 U	11 U	11 U	12 U		
1,2-DICHLOROETHANE	12 U	11 U	11 U	12 U		
1,2-DICHLOROETHENE (TOTAL)	12 U	11 U	11 U	12 U		
1,2-DICHLOROPROPANE	12 U	11 U	11 U	12 U		
2-BUTANONE	12 U	11 U	11 U	12 U		
2-HEXANONE	12 U	11 U	11 U	12 U		
4-METHYL-2-PENTANONE	12 U	11 U	11 U	12 U		
ACETONE	12 U	11 U	11 U	12 U		
BENZENE	12 U	11 U	11 U	12 U		
BROMODICHLOROMETHANE	12 U	11 U	11 U	12 U		
BROMOFORM	12 U	11 U	11 U	12 U		
BROMOMETHANE	12 U	11 U	11 U	12 U		
CARBON DISULFIDE	12 U	11 U	11 U	12 U		
CARBON TETRACHLORIDE	12 U	11 U	11 U	12 U		
CHLOROBENZENE	12 U	11 U	11 U	12 U		
CHLOROETHANE	12 U	11 U	11 U	12 U		
CHLOROFORM	12 U	11 U	11 U	12 U		
CHLOROMETHANE	12 U	11 U	11 U	12 U		
CIS-1,3-DICHLOROPROPENE	12 U	11 U	11 U	12 U		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SB-01(27)	31-SB-01(4)	31-SB-02(28)	31-SB-02(4)		
DEPTH (feet):	27-29'	4-6'	28-30'	4-6'		
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	/ /	/ /
LOCATION:	31-SB-01	31-SB-01	31-SB-02	31-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
DIBROMOCHLOROMETHANE	12 U	11 U	11 U	12 U		
ETHYLBENZENE	12 U	11 U	11 U	12 U		
METHYLENE CHLORIDE	9 B	15 B	17 B	16 B		
STYRENE	12 U	11 U	11 U	12 U		
TETRACHLOROETHENE	12 U	11 U	11 U	12 U		
TOLUENE	12 U	11 U	11 U	12 U		
TRANS-1,3-DICHLOROPROPENE	12 U	11 U	11 U	12 U		
TRICHLOROETHENE	12 U	11 U	11 U	12 U		
VINYL CHLORIDE	12 U	11 U	11 U	12 U		
XYLENES, TOTAL	12 U	11 U	11 U	12 U		
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE	410 UJ	380 UJ	370 UJ	400 UJ		
1,2-DICHLOROBENZENE	410 UJ	380 UJ	370 UJ	400 UJ		
1,3-DICHLOROBENZENE	410 UJ	380 UJ	370 UJ	400 UJ		
1,4-DICHLOROBENZENE	410 UJ	380 UJ	370 UJ	400 UJ		
2,2'-OXYBIS(1-CHLOROPROPANE)	410 UJ	380 UJ	370 UJ	400 UJ		
2,4,5-TRICHLOROPHENOL	1000 UJ	960 UJ	920 UJ	1000 UJ		
2,4,6-TRICHLOROPHENOL	410 UJ	380 UJ	370 UJ	400 UJ		
2,4-DICHLOROPHENOL	410 UJ	380 UJ	370 UJ	400 UJ		
2,4-DIMETHYLPHENOL	410 UJ	380 UJ	370 UJ	400 UJ		
2,4-DINITROPHENOL	1000 UJ	960 UJ	920 UJ	1000 UJ		
2,4-DINITROTOLUENE	410 UJ	380 UJ	370 UJ	400 UJ		
2,6-DINITROTOLUENE	410 UJ	380 UJ	370 UJ	400 UJ		
2-CHLORONAPHTHALENE	410 UJ	380 UJ	370 UJ	400 UJ		
2-CHLOROPHENOL	410 UJ	380 UJ	370 UJ	400 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SB-01(27)	31-SB-01(4)	31-SB-02(28)	31-SB-02(4)		
DEPTH (feet):	27-29'	4-6'	28-30'	4-6'		
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	/ /	/ /
LOCATION:	31-SB-01	31-SB-01	31-SB-02	31-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-METHYLNAPHTHALENE	410 UJ	380 UJ	370 UJ	400 UJ		
2-METHYLPHENOL	410 UJ	380 UJ	370 UJ	400 UJ		
2-NITROANILINE	1000 UJ	960 UJ	920 UJ	1000 UJ		
2-NITROPHENOL	410 UJ	380 UJ	370 UJ	400 UJ		
3,3'-DICHLOROBENZIDINE	410 UJ	380 UJ	370 UJ	400 UJ		
3-NITROANILINE	1000 UJ	960 UJ	920 UJ	1000 UJ		
4,6-DINITRO-2-METHYLPHENOL	1000 UJ	960 UJ	920 UJ	1000 UJ		
4-BROMOPHENYL PHENYL ETHER	410 UJ	380 UJ	370 UJ	400 UJ		
4-CHLORO-3-METHYLPHENOL	410 UJ	380 UJ	370 UJ	400 UJ		
4-CHLOROANILINE	410 UJ	380 UJ	370 UJ	400 UJ		
4-CHLOROPHENYL PHENYL ETHER	410 UJ	380 UJ	370 UJ	400 UJ		
4-METHYLPHENOL	410 UJ	380 UJ	370 UJ	400 UJ		
4-NITROANILINE	1000 UJ	960 UJ	920 UJ	1000 UJ		
4-NITROPHENOL	1000 UJ	960 UJ	920 UJ	1000 UJ		
ACENAPHTHENE	410 UJ	380 UJ	370 UJ	400 UJ		
ACENAPHTHYLENE	410 UJ	380 UJ	370 UJ	400 UJ		
ANTHRACENE	410 UJ	380 UJ	370 UJ	400 UJ		
BENZO(A)ANTHRACENE	410 UJ	380 UJ	370 UJ	400 UJ		
BENZO(A)PYRENE	410 UJ	380 UJ	370 UJ	400 UJ		
BENZO(B)FLUORANTHENE	410 UJ	380 UJ	370 UJ	400 UJ		
BENZO(G,H,I)PERYLENE	410 UJ	380 UJ	370 UJ	400 UJ		
BENZO(K)FLUORANTHENE	410 UJ	380 UJ	370 UJ	400 UJ		
BIS(2-CHLOROETHOXY)METHANE	410 UJ	380 UJ	370 UJ	400 UJ		
BIS(2-CHLOROETHYL)ETHER	410 UJ	380 UJ	370 UJ	400 UJ		
BIS(2-ETHYLHEXYL)PHTHALATE	410 UJ	380 UJ	370 UJ	400 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SB-01(27)	31-SB-01(4)	31-SB-02(28)	31-SB-02(4)		
DEPTH (feet):	27-29'	4-6'	28-30'	4-6'		
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	/ /	/ /
LOCATION:	31-SB-01	31-SB-01	31-SB-02	31-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
BUTYLBENZYL PHTHALATE	410 UJ	380 UJ	370 UJ	400 UJ		
CARBAZOLE	410 UJ	380 UJ	370 UJ	400 UJ		
CHRYSENE	410 UJ	380 UJ	370 UJ	400 UJ		
DI-N-BUTYL PHTHALATE	410 UJ	380 UJ	370 UJ	400 UJ		
DI-N-OCTYL PHTHALATE	410 UJ	380 UJ	370 UJ	400 UJ		
DIBENZO(A,H)ANTHRACENE	410 UJ	380 UJ	370 UJ	400 UJ		
DIBENZOFURAN	410 UJ	380 UJ	370 UJ	400 UJ		
DIETHYL PHTHALATE	410 UJ	380 UJ	370 UJ	400 UJ		
DIMETHYL PHTHALATE	410 UJ	380 UJ	370 UJ	400 UJ		
FLUORANTHENE	410 UJ	380 UJ	370 UJ	400 UJ		
FLUORENE	410 UJ	380 UJ	370 UJ	400 UJ		
HEXACHLOROBENZENE	410 UJ	380 UJ	370 UJ	400 UJ		
HEXACHLOROBUTADIENE	410 UJ	380 UJ	370 UJ	400 UJ		
HEXACHLOROCYCLOPENTADIENE	410 UJ	380 UJ	370 UJ	400 UJ		
HEXACHLOROETHANE	410 UJ	380 UJ	370 UJ	400 UJ		
INDENO(1,2,3-CD)PYRENE	410 UJ	380 UJ	370 UJ	400 UJ		
ISOPHORONE	410 UJ	380 UJ	370 UJ	400 UJ		
N-NITROSO-DI-N-PROPYLAMINE	410 UJ	380 UJ	370 UJ	400 UJ		
N-NITROSODIPHENYLAMINE	410 UJ	380 UJ	370 UJ	400 UJ		
NAPHTHALENE	410 UJ	380 UJ	370 UJ	400 UJ		
NITROBENZENE	410 UJ	380 UJ	370 UJ	400 UJ		
PENTACHLOROPHENOL	1000 UJ	960 UJ	920 UJ	1000 UJ		
PHENANTHRENE	410 UJ	380 UJ	370 UJ	400 UJ		
PHENOL	410 UJ	380 UJ	370 UJ	400 UJ		
PYRENE	410 UJ	380 UJ	370 UJ	400 UJ		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SB-01(27)	31-SB-01(4)	31-SB-02(28)	31-SB-02(4)		
DEPTH (feet):	27-29'	4-6'	28-30'	4-6'		
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	/ /	/ /
LOCATION:	31-SB-01	31-SB-01	31-SB-02	31-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
METALS (mg/kg)						
ALUMINUM	19700	13600	9650	5680		
ANTIMONY	1.4 UJ	2 J	1.2 UJ	1.3 UJ		
ARSENIC	1.5 UJ	1.8 J	2.4 J	3.4 J		
BARIUM	16.7	47.9	39.2	21.6		
BERYLLIUM	1.9	0.18 B	0.04 U	0.05 U		
CADMIUM	0.28 B	0.14 U	0.13 U	0.14 U		
CALCIUM	193 K	348 K	271 K	205 K		
CHROMIUM	6.2	31.4	14.6	35		
COBALT	64.4	15.9	5	0.86 B		
COPPER	17.1	80.5	62.5	150		
CYANIDE	0.26 U	0.28 U	0.24 U	0.26 U		
IRON	6650	34000	27500	27400		
LEAD	54.4	68.3	14.8	27		
MAGNESIUM	366 J	2150 J	3270 J	267 J		
MANGANESE	2980	613	132	71.6		
MERCURY	0.02 K	0.03 K	0.02 U	0.02 U		
NICKEL	14.5	29.1	19	2.7		
POTASSIUM	238	1890	3560	327		
SELENIUM	1.1 UJ	1.5 B	1.3 B	2.3 B		
SILVER	0.44 U	0.42 U	0.39 U	0.43 U		
SODIUM	158 B	121 B	191 B	121 B		
THALLIUM	1.1 U	1.1 UL	1 UL	1.1 UL		
VANADIUM	4.2	26	15.9	21.7		
ZINC	36.8	126	96.6	56.8		

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 31 - OUTSIDE DRUM STORAGE AREA
NSWC WHITE OAK

SAMPLE NUMBER:	31-SB-01(27)	31-SB-01(4)	31-SB-02(28)	31-SB-02(4)		
DEPTH (feet):	27-29'	4-6'	28-30'	4-6'		
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	/ /	/ /
LOCATION:	31-SB-01	31-SB-01	31-SB-02	31-SB-02		
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB		
FIELD DUPLICATE OF:						
PETROLEUM HYDROCARBONS (mg/kg)						
GASOLINE RANGE ORGANICS	2.4 U	2.3 U	2.2 U	2.4 U		
JET FUEL	2.4 U	2.3 U	2.2 U	2.4 U		
TPH-DIESEL	2.4 U	2.3 U	2.2 U	2.4 U		
TPH-DIESEL-KEROSENE	2.4 U	2.3 U	2.2 U	2.4 U		
TPH-DIESEL-MINERAL SPIRITS	2.4 U	2.3 U	2.2 U	2.4 U		
TPH-HEAVY OIL	9.7 U	9.2 U	8.8 U	9.6 U		
TPH-NAPHTHA	2.4 U	2.3 U	2.2 U	2.4 U		
MISCELLANEOUS PARAMETERS (mg/kg)						
PAINT THINNER	2.4 U	2.3 U	2.2 U	2.4 U		
STODDARD SOLVENT	2.4 U	2.3 U	2.2 U	2.4 U		

APPENDIX F.9

SITE 32/AOC O ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
1,1,1-TRICHLOROETHANE	14 U	14 U				
1,1,2,2-TETRACHLOROETHANE	14 U	14 U				
1,1,2-TRICHLOROETHANE	14 U	14 U				
1,1-DICHLOROETHANE	14 U	14 U				
1,1-DICHLOROETHENE	14 U	14 U				
1,2-DICHLOROETHANE	14 U	14 U				
1,2-DICHLOROETHENE (TOTAL)	14 U	14 U				
1,2-DICHLOROPROPANE	14 U	14 U				
2-BUTANONE	14 UJ	14 U				
2-HEXANONE	14 U	14 U				
4-METHYL-2-PENTANONE	14 U	14 U				
ACETONE	14 U	14 U				
BENZENE	14 U	14 U				
BROMODICHLOROMETHANE	14 U	14 U				
BROMOFORM	14 U	14 U				
BROMOMETHANE	14 U	14 U				
CARBON DISULFIDE	14 U	14 U				
CARBON TETRACHLORIDE	14 U	14 U				
CHLOROBENZENE	14 U	14 U				
CHLOROETHANE	14 U	14 U				
CHLOROFORM	14 U	14 U				
CHLOROMETHANE	14 U	14 U				
CIS-1,3-DICHLOROPROPENE	14 U	14 U				
DIBROMOCHLOROMETHANE	14 U	14 U				
ETHYLBENZENE	14 U	14 U				

SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
VOLATILES (µg/kg)						
METHYLENE CHLORIDE	4 B	7 B				
STYRENE	14 U	14 U				
TETRACHLOROETHENE	14 U	14 U				
TOLUENE	14 U	14 U				
TRANS-1,3-DICHLOROPROPENE	14 U	14 U				
TRICHLOROETHENE	14 U	14 U				
VINYL CHLORIDE	14 U	14 U				
XYLENES, TOTAL	14 U	14 U				
SEMIVOLATILES (µg/kg)						
1,2,4-TRICHLOROBENZENE		480 U				
1,2-DICHLOROBENZENE		480 U				
1,3-DICHLOROBENZENE		480 U				
1,4-DICHLOROBENZENE		480 U				
2,2'-OXYBIS(1-CHLOROPROPANE)		480 U				
2,4,5-TRICHLOROPHENOL		1200 U				
2,4,6-TRICHLOROPHENOL		480 U				
2,4-DICHLOROPHENOL		480 U				
2,4-DIMETHYLPHENOL		480 U				
2,4-DINITROPHENOL		1200 U				
2,4-DINITROTOLUENE		480 U				
2,6-DINITROTOLUENE		480 U				
2-CHLORONAPHTHALENE		480 U				
2-CHLOROPHENOL		480 U				
2-METHYLNAPHTHALENE		120 J				
2-METHYLPHENOL		480 U				

SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
2-NITROANILINE		1200 U				
2-NITROPHENOL		480 U				
3,3'-DICHLOROBENZIDINE		480 U				
3-NITROANILINE		1200 U				
4,6-DINITRO-2-METHYLPHENOL		1200 U				
4-BROMOPHENYL PHENYL ETHER		480 U				
4-CHLORO-3-METHYLPHENOL		480 U				
4-CHLOROANILINE		480 U				
4-CHLOROPHENYL PHENYL ETHER		480 U				
4-METHYLPHENOL		480 U				
4-NITROANILINE		1200 U				
4-NITROPHENOL		1200 U				
ACENAPHTHENE		450 J				
ACENAPHTHYLENE		480 U				
ANTHRACENE		490				
BENZO(A)ANTHRACENE		1300				
BENZO(A)PYRENE		970				
BENZO(B)FLUORANTHENE		1900				
BENZO(G,H,I)PERYLENE		900				
BENZO(K)FLUORANTHENE		800				
BIS(2-CHLOROETHOXY)METHANE		480 U				
BIS(2-CHLOROETHYL)ETHER		480 U				
BIS(2-ETHYLHEXYL)PHTHALATE		200 J				
BUTYLBENZYL PHTHALATE		480 U				
CARBAZOLE		340 J				

SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
SEMIVOLATILES (µg/kg)						
CHRYSENE		1200				
DI-N-BUTYL PHTHALATE		480 U				
DI-N-OCTYL PHTHALATE		480 U				
DIBENZO(A,H)ANTHRACENE		330 J				
DIBENZOFURAN		400 J				
DIETHYL PHTHALATE		480 U				
DIMETHYL PHTHALATE		480 U				
FLUORANTHENE		3000				
FLUORENE		600				
HEXACHLOROBENZENE		480 U				
HEXACHLOROBUTADIENE		480 U				
HEXACHLOROCYCLOPENTADIENE		480 U				
HEXACHLOROETHANE		480 U				
INDENO(1,2,3-CD)PYRENE		840				
ISOPHORONE		480 U				
N-NITROSO-DI-N-PROPYLAMINE		480 U				
N-NITROSODIPHENYLAMINE		480 U				
NAPHTHALENE		170 J				
NITROBENZENE		480 U				
PENTACHLOROPHENOL		1210 U				
PHENANTHRENE		2600				
PHENOL		480 U				
PYRENE		2100				
PESTICIDES/PCBs (µg/kg)						
4,4'-DDD	4.7 UJ	4.8 U				

SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
4,4'-DDE	4.7 UJ	7.5 R				
4,4'-DDT	4.7 UJ	4.8 U				
ALDRIN	2.4 UJ	2.4 U				
ALPHA-BHC	2.4 UJ	2.4 U				
ALPHA-CHLORDANE	2.4 UJ	34				
AROCLOR-1016	47 UJ	48 U				
AROCLOR-1221	95 UJ	96 U				
AROCLOR-1232	47 UJ	48 U				
AROCLOR-1242	47 UJ	48 U				
AROCLOR-1248	47 UJ	48 U				
AROCLOR-1254	47 UJ	48 U				
AROCLOR-1260	620 J	3000				
BETA-BHC	2.4 UJ	2.4 U				
DELTA-BHC	2.4 UJ	2.4 U				
DIELDRIN	4.7 UJ	19 J				
ENDOSULFAN I	2.4 UJ	2.4 U				
ENDOSULFAN II	4.7 UJ	4.8 U				
ENDOSULFAN SULFATE	4.7 UJ	4.8 U				
ENDRIN	4.7 UJ	4.8 U				
ENDRIN ALDEHYDE	4.7 UJ	4.8 U				
ENDRIN KETONE	4.7 UJ	4.8 U				
GAMMA-BHC (LINDANE)	2.4 UJ	2.4 U				
GAMMA-CHLORDANE	2.4 UJ	32				
HEPTACHLOR	2.4 UJ	7.5				
HEPTACHLOR EPOXIDE	2.4 UJ	2.4 U				

SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
PESTICIDES/PCBs (µg/kg)						
METHOXYCHLOR	24 UJ	24 U				
TOXAPHENE	240 UJ	240 U				
ENERGETICS (µg/kg)						
1,3,5-TRINITROBENZENE	40.2 U	40.2 U				
1,3-DINITROBENZENE	37.2 U	37.2 U				
2,4 DINITROTOLUENE	51.6 U	51.6 U				
2,4,6-TRINITROTOLUENE	35.6 U	35.6 U				
2,6 DINITROTOLUENE	47.6 U	47.6 U				
2-AMINO-4,6-DINITROTOLUENE	46.7 U	46.7 U				
2-NITROTOLUENE	81.4 U	81.4 U				
3-NITROTOLUENE	81.8 U	81.8 U				
4-AMINO-2,6-DINITROTOLUENE	40.9 U	40.9 U				
4-NITROTOLUENE	87.2 U	87.2 U				
HMX	70.5 U	70.5 U				
NITRO-BENZENE	35.2 U	35.2 U				
RDX	50.9 U	50.9 U				
TETRYL	163 U	163 U				
METALS (mg/kg)						
ALUMINUM	9790	3480				
ANTIMONY	0.79 UL	0.75 UJ				
ARSENIC	1.7	1.3 B				
BARIUM	73.3	28.1 J				
BERYLLIUM	0.03 U	0.11				
CADMIUM	1.3	0.55 J				
CALCIUM	2470 J	5240				

SUMMARY OF ANALYTICAL RESULTS - SEDIMENT
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER:	32-SD-01	32-SD-02				
DEPTH (feet):	0-1'	0-1'				
SAMPLE DATE:	10/28/97	10/13/97	/ /	/ /	/ /	/ /
LOCATION:	32-SD-01	32-SD-02				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
METALS (mg/kg)						
CHROMIUM	20.8 J	30.8				
COBALT	12.3	7.2				
COPPER	53.1 J	47.6				
CYANIDE		0.26 U				
IRON	23400	16800				
LEAD	37.6 J	27 L				
MAGNESIUM	3680 J	9670 J				
MANGANESE	782 J	247 J				
MERCURY	0.1	118				
NICKEL	30.5	80.7				
POTASSIUM	1900 J	548				
SELENIUM	1.5 K	0.81 UJ				
SILVER	0.5 B	0.51 L				
SODIUM	180 B	100 B				
THALLIUM	0.65 U	0.84 UL				
VANADIUM	24.5	17				
ZINC	134 J	59.4				
MISCELLANEOUS PARAMETERS (mg/kg)						
TOTAL ORGANIC CARBON (mg/Kg)	6750	16300				
GENERAL CHEMISTRY ()						
PH		6.92				

SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	32-SW-01 10/28/97 32-SW-01	32-SW-02 10/13/97 32-SW-02	/ /	/ /	/ /	/ /
VOLATILES (µg/L)						
1,1,1-TRICHLOROETHANE	1 U	10 U				
1,1,2,2-TETRACHLOROETHANE	1 U	10 U				
1,1,2-TRICHLOROETHANE	1 U	10 U				
1,1-DICHLOROETHANE	1 U	10 U				
1,1-DICHLOROETHENE	1 U	10 U				
1,2-DIBROMO-3-CHLOROPROPANE	1 U					
1,2-DIBROMOETHANE	1 U					
1,2-DICHLOROETHANE	1 U	10 U				
1,2-DICHLOROETHENE (TOTAL)		10 U				
1,2-DICHLOROPROPANE	1 U	10 U				
2-BUTANONE	5 UR	10 U				
2-HEXANONE	5 U	10 U				
4-METHYL-2-PENTANONE	5 U	10 U				
ACETONE	5 UR	10 U				
BENZENE	1 U	10 U				
BROMOCHLOROMETHANE	1 U					
BROMODICHLOROMETHANE	1 U	10 U				
BROMOFORM	1 U	10 U				
BROMOMETHANE	1 U	10 U				
CARBON DISULFIDE	1 U	10 U				
CARBON TETRACHLORIDE	1 U	10 U				
CHLOROBENZENE	1 U	10 U				
CHLOROETHANE	1 U	10 U				
CHLOROFORM	1 U	10 U				
CHLOROMETHANE	1 U	10 U				
CIS-1,2-DICHLOROETHENE	1 U					
CIS-1,3-DICHLOROPROPENE	1 U	10 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	32-SW-01 10/28/97 32-SW-01	32-SW-02 10/13/97 32-SW-02	/ /	/ /	/ /	/ /
VOLATILES (µg/L)						
DIBROMOCHLOROMETHANE	1 U	10 U				
ETHYLBENZENE	1 U	10 U				
METHYLENE CHLORIDE	2 U	2 B				
STYRENE	1 U	10 U				
TETRACHLOROETHENE	1 U	10 U				
TOLUENE	1 U	10 U				
TRANS-1,2-DICHLOROETHENE	1 U					
TRANS-1,3-DICHLOROPROPENE	1 U	10 U				
TRICHLOROETHENE	1 U	10 U				
VINYL CHLORIDE	1 U	10 U				
XYLENES, TOTAL	1 U	10 U				
SEMIVOLATILES (µg/L)						
1,2,4-TRICHLOROBENZENE	1 U	11 U				
1,2-DICHLOROBENZENE	1 U	11 U				
1,3-DICHLOROBENZENE	1 U	11 U				
1,4-DICHLOROBENZENE	1 U	11 U				
2,2'-OXYBIS(1-CHLOROPROPANE)	5 U	11 U				
2,4,5-TRICHLOROPHENOL	21 U	27 U				
2,4,6-TRICHLOROPHENOL	5 U	11 U				
2,4-DICHLOROPHENOL	5 U	11 U				
2,4-DIMETHYLPHENOL	5 U	11 U				
2,4-DINITROPHENOL	21 U	27 U				
2,4-DINITROTOLUENE	5 U	11 U				
2,6-DINITROTOLUENE	5 U	11 U				
2-CHLORONAPHTHALENE	5 U	11 U				
2-CHLOROPHENOL	5 U	11 U				
2-METHYLNAPHTHALENE	5 U	11 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	32-SW-01 10/28/97 32-SW-01	32-SW-02 10/13/97 32-SW-02	/ /	/ /	/ /	/ /
SEMIVOLATILES (µg/L)						
2-METHYLPHENOL	5 U	11 U				
2-NITROANILINE	21 U	27 U				
2-NITROPHENOL	5 U	11 U				
3,3'-DICHLOROBENZIDINE	5 UJ	11 U				
3-NITROANILINE	21 U	27 U				
4,6-DINITRO-2-METHYLPHENOL	21 U	27 U				
4-BROMOPHENYL PHENYL ETHER	5 U	11 U				
4-CHLORO-3-METHYLPHENOL	5 U	11 U				
4-CHLOROANILINE	5 U	11 U				
4-CHLOROPHENYL PHENYL ETHER	5 U	11 U				
4-METHYLPHENOL	5 U	11 U				
4-NITROANILINE	21 U	27 U				
4-NITROPHENOL	21 U	27 U				
ACENAPHTHENE	5 U	11 U				
ACENAPHTHYLENE	5 U	11 U				
ANTHRACENE	5 U	11 U				
BENZO(A)ANTHRACENE	5 U	11 U				
BENZO(A)PYRENE	5 U	11 U				
BENZO(B)FLUORANTHENE	5 U	11 U				
BENZO(G,H,I)PERYLENE	5 U	11 U				
BENZO(K)FLUORANTHENE	5 U	11 U				
BIS(2-CHLOROETHOXY)METHANE	5 U	11 U				
BIS(2-CHLOROETHYL)ETHER	5 U	11 U				
BIS(2-ETHYLHEXYL)PHTHALATE	5 U	11 U				
BUTYLBENZYL PHTHALATE	5 U	11 U				
CARBAZOLE	5 U	11 U				
CHRYSENE	5 U	11 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	32-SW-01 10/28/97 32-SW-01	32-SW-02 10/13/97 32-SW-02	/ /	/ /	/ /	/ /
SEMIVOLATILES (µg/L)						
DI-N-BUTYL PHTHALATE	5 U	11 U				
DI-N-OCTYL PHTHALATE	5 U	11 U				
DIBENZO(A,H)ANTHRACENE	5 U	11 U				
DIBENZOFURAN	5 U	11 U				
DIETHYL PHTHALATE	5 U	11 U				
DIMETHYL PHTHALATE	5 U	11 U				
FLUORANTHENE	5 U	11 U				
FLUORENE	5 U	11 U				
HEXACHLOROBENZENE	5 U	11 U				
HEXACHLOROBUTADIENE	5 U	11 U				
HEXACHLOROCYCLOPENTADIENE	5 U	11 U				
HEXACHLOROETHANE	5 U	11 U				
INDENO(1,2,3-CD)PYRENE	5 U	11 U				
ISOPHORONE	5 U	11 U				
N-NITROSO-DI-N-PROPYLAMINE	5 U	11 U				
N-NITROSODIPHENYLAMINE	5 U	11 U				
NAPHTHALENE	5 U	11 U				
NITROBENZENE	5 U	11 U				
PENTACHLOROPHENOL	21 U	27 U				
PHENANTHRENE	5 U	11 U				
PHENOL	5 U	11 U				
PYRENE	5 U	11 U				
PESTICIDES/PCBs (µg/L)						
4,4'-DDD	0.1 U	0.1 U				
4,4'-DDE	0.1 U	0.1 U				
4,4'-DDT	0.1 U	0.1 U				
ALDRIN	0.051 U	0.051 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	32-SW-01 10/28/97 32-SW-01	32-SW-02 10/13/97 32-SW-02	/ /	/ /	/ /	/ /
PESTICIDES/PCBs (µg/L)						
ALPHA-BHC	0.051 U	0.051 U				
ALPHA-CHLORDANE	0.051 U	0.051 U				
AROCLOR-1016	1 U	1 U				
AROCLOR-1221	2 U	2 U				
AROCLOR-1232	1 U	1 U				
AROCLOR-1242	1 U	1 U				
AROCLOR-1248	1 U	1 U				
AROCLOR-1254	1 U	1 U				
AROCLOR-1260	1 U	1 U				
BETA-BHC	0.051 U	0.051 U				
DELTA-BHC	0.051 U	0.051 U				
DIELDRIN	0.1 U	0.1 U				
ENDOSULFAN I	0.051 U	0.051 U				
ENDOSULFAN II	0.1 U	0.1 U				
ENDOSULFAN SULFATE	0.1 U	0.1 U				
ENDRIN	0.1 U	0.1 U				
ENDRIN ALDEHYDE	0.1 U	0.1 U				
ENDRIN KETONE	0.1 U	0.1 U				
GAMMA-BHC (LINDANE)	0.051 U	0.051 U				
GAMMA-CHLORDANE	0.051 U	0.051 U				
HEPTACHLOR	0.051 U	0.051 U				
HEPTACHLOR EPOXIDE	0.051 U	0.051 U				
METHOXYCHLOR	0.51 U	0.51 U				
TOXAPHENE	5.1 U	5.1 U				
ENERGETICS (µg/L)						
1,3,5-TRINITROBENZENE	0.6 U	0.6 U				
1,3-DINITROBENZENE	0.6 U	0.6 U				

SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	32-SW-01 10/28/97 32-SW-01	32-SW-02 10/13/97 32-SW-02	/ /	/ /	/ /	/ /
ENERGETICS (µg/L)						
2,4 DINITROTOLUENE	0.6 U	0.6 U				
2,4,6-TRINITROTOLUENE	0.6 U	0.6 U				
2,6 DINITROTOLUENE	0.6 U	0.6 U				
2-AMINO-4,6-DINITROTOLUENE	0.6 U	0.6 U				
2-NITROTOLUENE	1.3 U	1.3 U				
3-NITROTOLUENE	1.3 U	1.3 U				
4-AMINO-2,6-DINITROTOLUENE	0.6 U	0.6 U				
4-NITROTOLUENE	1.3 U	1.3 U				
HMX	1.3 U	1.3 U				
NITRO-BENZENE	0.6 U	0.6 U				
RDX	1.3 U	1.3 U				
TETRYL	1.3 U	1.3 U				
METALS (µg/L)						
ALUMINUM	40.4 B	20 U				
ANTIMONY	2.8 U	2.6 U				
ARSENIC	3 U	3.3 U				
BARIUM	66.7	51				
BERYLLIUM	0.1 U	0.1 U				
CADMIUM	0.44 B	0.3 U				
CALCIUM	15600	11300				
CHROMIUM	0.77 B	0.5 U				
COBALT	0.6 U	1.2 B				
COPPER	7.7 B	8.3 B				
CYANIDE		5 U				
IRON	128 B	410				
LEAD	1.1 B	1 U				
MAGNESIUM	7030 K	4340 J				

SUMMARY OF ANALYTICAL RESULTS - SURFACE WATER
SITE 32 - NPDES OUTFALL #0009
NSWC WHITE OAK

SAMPLE NUMBER: SAMPLE DATE: LOCATION: FIELD DUPLICATE OF:	32-SW-01 10/28/97 32-SW-01	32-SW-02 10/13/97 32-SW-02	/ /	/ /	/ /	/ /
METALS (µg/L)						
MANGANESE	123	320				
MERCURY	0.1 U	0.1 U				
NICKEL	8.4 B	4.8 K				
POTASSIUM	3060	2390				
SELENIUM	2.3 U	2.8 U				
SILVER	0.9 U	0.8 U				
SODIUM	22100	13200				
THALLIUM	2.5 B	2.9 UL				
VANADIUM	1 U	1.1 U				
ZINC	36.1 K	19.3				

APPENDIX F.10

SITE 33/SWMU 39 ANALYTICAL DATA

SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
NSWC WHITE OAK

SAMPLE NUMBER:	33-SS-01	33-SS-02	33-SS-03			
DEPTH (feet):						
SAMPLE DATE:	10/13/97	10/13/97	10/13/97	/ /	/ /	/ /
LOCATION:	33-SS-01	33-SS-02	33-SS-03			
SAMPLE TYPE:	GRAB	GRAB	GRAB			
FIELD DUPLICATE OF:						
METALS (mg/kg)						
ALUMINUM	9900	5320	8710			
ANTIMONY	0.55 UJ	0.54 UJ	0.54 UJ			
ARSENIC	4.5 J	1.7 B	3.6 J			
BARIUM	49.8 J	16.3 J	32.1 J			
BERYLLIUM	0.17	0.02	0.02			
CADMIUM	0.31 B	0.13 B	0.37 B			
CALCIUM	829 K	246 K	576 K			
CHROMIUM	33.9	10.6	18.5			
COBALT	3.4	1.5	2.4			
COPPER	31.9	9.2	11.9			
CYANIDE	0.27 U	0.23 U	0.23 U			
IRON	18900	9420	11600			
LEAD	26.3 L	4 L	15 L			
MAGNESIUM	1090 J	365 J	855 J			
MANGANESE	118 J	50.4 J	81.8 J			
MERCURY	0.07	0.02	0.04			
NICKEL	9.1 K	3.7 K	6.5 K			
POTASSIUM	564	426	631			
SELENIUM	11.5 J	3 J	2.7			
SILVER	0.4 L	0.17 UL	0.17 UL			
SODIUM	42.6 UJ	41.3 UJ	41.3 UJ			
THALLIUM	0.62 UL	0.6 UL	0.6 UL			
VANADIUM	30	15.9	21.4			
ZINC	35	12.1	56.2			

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
NSWC WHITE OAK

SAMPLE NUMBER:	33-SB-01(27)	33-SB-01(8)	33-SB-02(27)	33-SB-02(8)	33-SB-03(26)	33-SB-03(6)
DEPTH (feet):						
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	11/14/97	11/14/97
LOCATION:	33-SB-01	33-SB-01	33-SB-02	33-SB-02	33-SB-03	33-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		33-SB-101				33-SB-100
METALS (mg/kg)						
ALUMINUM	15800	8770	7250	9610	11100	7200
ANTIMONY	1.4 UJ	1.3 UJ	1.2 UJ	1.3 UJ	0.62 UR	0.62 UR
ARSENIC	1.5 UJ	7.9 J	1.2 UJ	5.7 J	1.5 L	2.5 L
BARIUM	9.1	32.6	3.5	34.7	6.1	63.6
BERYLLIUM	2.6	0.05 U	0.84	0.05 U	2 B	0.62 B
CADMIUM	0.33 B	0.14 U	0.57 B	0.14 B	0.13 B	0.18 B
CALCIUM	230 K	139 B	180 K	229 K	443 K	5070
CHROMIUM	0.3	39	0.41	28.2	0.65 B	16.2
COBALT	28.7	0.35 B	0.89 B	0.68 B	0.68 B	4.4
COPPER	26.4	14	2.1	7.6	4.7	16.4
CYANIDE	0.26	0.49	0.26	1.1	0.21 U	0.18 U
IRON	20000	12800	861	14900	2920	15300
LEAD	9.2	7	1.2 B	7.8	4.4 B	13.9 B
MAGNESIUM	322 J	410 J	254 J	463 J	517 K	650 K
MANGANESE	2050	13.6	15.9	24.2	16.9	289
MERCURY	0.02 U	0.04 K	0.02 K	0.02 U	0.02 U	0.02 B
NICKEL	6.6	1.1	3.1	1.8	5.1	7.2
POTASSIUM	136	701	133	567	209 L	501 L
SELENIUM	1.1 UJ	1.4 B	0.95 UJ	1.2 B	0.51 U	0.82
SILVER	0.44 U	0.42 U	0.37 U	0.41 U	0.2 UL	0.2 UL
SODIUM	83.9 B	159 B	84.9 B	152 B	97.7 B	86 B
THALLIUM	1.1 U	1.1 U	0.95 U	1 U	0.51 U	0.51 U
VANADIUM	0.49 U	42.6	0.41 U	43.2	0.22 U	17
ZINC	35.3	6	15.1	7.7	22 J	18.3 J

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
NSWC WHITE OAK

SAMPLE NUMBER:	33-SB-01(27)	33-SB-01(8)	33-SB-02(27)	33-SB-02(8)	33-SB-03(26)	33-SB-03(6)
DEPTH (feet):						
SAMPLE DATE:	11/17/97	11/17/97	11/17/97	11/17/97	11/14/97	11/14/97
LOCATION:	33-SB-01	33-SB-01	33-SB-02	33-SB-02	33-SB-03	33-SB-03
SAMPLE TYPE:	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FIELD DUPLICATE OF:		33-SB-101				33-SB-100
GENERAL CHEMISTRY ()						
PH					5.21	8.01

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
NSWC WHITE OAK

SAMPLE NUMBER:	33-SB-100	33-SB-101				
DEPTH (feet):						
SAMPLE DATE:	11/14/97	11/17/97	/ /	/ /	/ /	/ /
LOCATION:	33-SB-100	33-SB-101				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
METALS (mg/kg)						
ALUMINUM	6270	8590				
ANTIMONY	0.61 UR	1.3 UJ				
ARSENIC	2.8 L	2.7 J				
BARIUM	108	42.7				
BERYLLIUM	0.14 B	0.05 U				
CADMIUM	0.85 B	0.14 U				
CALCIUM	1020 K	219 K				
CHROMIUM	20.5	26.7				
COBALT	1.1 B	0.28 U				
COPPER	39.8	3.4				
CYANIDE	0.19 U	0.26 U				
IRON	19800	6760				
LEAD	14.7 B	8				
MAGNESIUM	407 K	446 J				
MANGANESE	55.2	17.3				
MERCURY	0.02 B	0.02 K				
NICKEL	2.5 B	0.69				
POTASSIUM	480 L	848				
SELENIUM	1.2	1.4 B				
SILVER	0.2 UL	0.43 U				
SODIUM	82.6 B	187 B				
THALLIUM	0.5 U	1.1 U				
VANADIUM	22.9	44.9				
ZINC	16.4 J	5.3				

SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
SITE 33 - BUILDING 25 PLATING SHOP SUMP
NSWC WHITE OAK

SAMPLE NUMBER:	33-SB-100	33-SB-101				
DEPTH (feet):						
SAMPLE DATE:	11/14/97	11/17/97	/ /	/ /	/ /	/ /
LOCATION:	33-SB-100	33-SB-101				
SAMPLE TYPE:	GRAB	GRAB				
FIELD DUPLICATE OF:						
GENERAL CHEMISTRY ()						
PH	7.61					

APPENDIX F.11

EBS AOC 100 ANALYTICAL DATA

CTO 273 - WHITE OAK

EBS AOC 100 - INDOOR UNDERGROUND PISTOL RANGE

WIPE SAMPLE DATA

Sample Number:	100-FLE-C	100-FLE-F	100-FLE-WL	100-FLE-WR	100-TE-C	100-TE-F	100-TE-WB	100-TE-WL	100-TE-WR
Location:	FL Ceiling	FL Floor	FL Wall Left	FL Wall Right	TE Ceiling	TE Floor	TE Back Wall	TE Wall Left	TE Wall Right
Inorganics (ug/wi)									
Lead	46.9	3,690	521	414	1,680	21,100	3.41	565	2,090

Notes:

FL - Firing Line

TE - Target End